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Resource Conservation and Recovery Act (RCRA) Facility Investigation
for
Area of Concern C

Naval Station Mayport
Mayport, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62472-90-D-0888
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RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY INVESTIGATION FOR AREA OF CONCERN C

NAVAL STATION MAYPORT MAYPORT, FLORIDA

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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Naval Facilities Engineering Command
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ACRONYMS

ABB-ES	ABB Environmental Services, Inc.
AOC	Area of Concern
AST	Aboveground Storage Tank
BERA	Baseline ERA
bls	Below Land Surface
BVSs	Background Screening Values
CAMP	Corrective Action Management Plan
CAR	Contamination Assessment Report
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-term Environmental Action Navy
CMS	Corrective Measures Study
COPCs	Chemicals of Potential Concern
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbons
CSFs	Cancer Slope Factors
CTO	Contract Task Order
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DPT	Direct Push Technology
DQOs	Data Quality Objectives
EF	Exposure Frequency
EPCs	Exposure Point Concentrations
ERA	Ecological Risk Assessment
ESE	Environmental Science and Engineering, Inc.
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FOD	Frequency of Detection
ft	Feet or Foot
ft/day	Feet per Day
ft/yr	Feet per Year
GCTLs	Groundwater Cleanup Target Levels
GIR	General Information Report
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HIs	Hazard Indexes
HLA	Harding Lawson Associates

ACRONYMS (Continued)

HQ	Hazard Quotient
HSWA	Hazardous and Solid Waste Amendment
ICON	ICON Environmental Services, Inc.
ID	Inner Diameter
IDW	Investigation Derived Waste
ILCR	Incremental Lifetime Cancer Risk
IRIS	Integrated Risk Information System
kg	Kilogram
LOAEL	Lowest-Observed-Adverse-Effect Level
µg/day	Micrograms per Day
µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
$\mu g/m^3$	Micrograms per Cubed Meter
m^3	Cubed Meter
MCLs	Maximum Contaminant Levels
mg/day	Milligrams per Day
mg/kg	Milligrams per Kilogram
mg/kg-day	Milligrams per Kilogram per Day
mg/m^3	Milligrams per Cubed Meter
msl	Mean Sea Level
NADEP	Naval Aviation Depot
NAVSTA	Naval Station
Navy	United States Navy
NELP	Navy Environmental Leadership Program
NFA	No Further Action
NOAEL	No-Observed-Adverse-Effect Level
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PRG	Preliminary Remediation Goal
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RfCs	Reference Concentrations
RfDs	Reference Doses

ACRONYMS (Continued)

RFI	RCRA Facility Investigation
RME	Reasonable Maximum Exposure
SCTLs	Soil Cleanup Target Levels
SIMA	Shore Intermediate Maintenance Activity
SMDP	Scientific/Management Decision Points
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SUPSHIP	Supervisor of Shipbuilding
SVOCs	Semivolatile Organic Compounds
SWCTL	Surface Water Cleanup Target Level
SWMU	Solid Waste Management Unit
TAL	Target Analyte List
TCL	Target Compound List
TEF	Toxicity Equivalency Factor
TtNUS	Tetra Tech NUS, Inc.
UCL-L	Log-Normal Upper Confidence Level
UCL-N	Normal Upper Confidence Level
USACE	United States Army Corp of Engineers
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
VSI	Visual Site Inspection

EXECUTIVE SUMMARY

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report for Area of Concern (AOC) C, Naval Station (NAVSTA) Mayport has been prepared by Tetra Tech NUS, Inc. (TtNUS) for the United States Navy (Navy) Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under the Comprehensive Long-term Environmental Action Navy (CLEAN) III Contract Number N62467-94-D-0888 Contract Task Order (CTO) 0094.

AOC C is located near the southeast portion of the Mayport Turning Basin and includes Building 191, the Shore Intermediate Maintenance Activity (SIMA), and the southern portion of Echo Pier. This report describes the field investigation and findings of the RFI at AOC C and the risk analyses and findings from the human health risk assessment (HHRA) and ecological risk assessment (ERA).

Lithologic sampling and borehole geophysical surveys performed at the site during a Navy Environmental Leadership Program (NELP) technology demonstration by ICON Environmental Services, Inc. (ICON) identified that the Surficial aquifer beneath Building 191 has three aquifer zones. The shallow or water table zone (Zone A) consists of the interval from the water table, which is approximately 3 feet (ft) below land surface (bls) to 33 ft bls; the intermediate zone (Zone B) occurs from approximately 36 to 39 ft bls; and the deep zone (Zone C) occurs from approximately 43 to 47 ft bls. The groundwater flow direction in each zone of the Surficial aquifer is generally northwest toward the Mayport Turning Basin. Some localized variations are present across AOC C.

The RFI identified the following items for AOC C:

- Two semivolatile organic compounds (SVOCs) [benzo(a)pyrene and dibenz(a,h)anthracene] were detected in a surface soil sample collected near Building 191 at concentrations that exceed their respective Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Levels (SCTLs) for residential and industrial exposure scenarios. Both constituents were detected in sample MPT-55-SS06-01.

- One inorganic (total cyanide) was detected in the surface water sample collected near Building 191 at a concentration that exceeds the FDEP Surface Water Cleanup Target Level (SWCTL) as provided in Chapter 62-302, Florida Administrative Code (FAC). However, the FDEP SWCTL is based on free cyanide, which is bioavailable. It is unknown if free cyanide is present at levels above regulatory criteria. Cyanide contamination has not previously been associated with any multimedia samples collected at Building 191.

- Five volatile organic compound (VOCs) (1,1-dichloroethene; 1,2-dichloroethene; tetrachloroethene; trichloroethene; and vinyl chloride) collected at Building 191, five SVOCs (2-methylnaphthalene, acenaphthene, carbazole, dibenz(a,h)anthracene, and naphthalene) collected at Echo Pier, and five inorganics (aluminum, iron, manganese, sodium, and thallium) collected at Building 191, SIMA, and Echo Pier were detected in the groundwater samples at concentrations that exceed FDEP Groundwater Cleanup Target Levels (GCTLs).

The HHRA identified the following items for AOC C:

- Non-cancer risk estimates [Hazard Indexs (HIs)] developed for the base worker, the construction worker, the adult trespasser, and the adolescent trespasser are equal to or less than 1.0, indicating that adverse noncarcinogenic effects are not anticipated under the conditions considered in the risk assessment. The HIs developed for the hypothetical future resident adult and child exceed 1.0. HIs developed for individual Chemicals of Potential Concern (COPCs) and target organs do not exceed 1.0.

- The Incremental Lifetime Cancer Risk (ILCR) estimate for the construction worker (2.5E-07) does not exceed the United States Environmental Protection Agency (USEPA) target risk range (1E-04 to 1E-06) or the State of Florida cancer risk benchmark (1E-06).

- The ILCR estimates for the base worker (8.6E-06) and trespasser (7.1E-06) exceed the conservative end of the USEPA target risk range (1E-06). Risk from exposure to benzo(a)pyrene (equivalent) in surface soil exceeds 1E-06 for both receptors.

- The ILCR estimate for the hypothetical future resident (1.4E-04) exceeds the USEPA target risk range (1E-04 to 1E-06). Risk from exposure to benzo(a)pyrene (equivalent), Aroclor-1260, and arsenic in surface soil, and 1,1-dichloroethene; tetrachloroethene; vinyl chloride; carbazole; and aldrin in groundwater exceeds 1E-06. The Exposure Point Concentration (EPCs) for both tetrachloroethene and vinyl chloride are below their respective Maximum Contaminant Level (MCLs).

The ERA identified the following items for AOC C:

- The screening-level ERA concluded that no detected chemical had a Hazard Quotient (HQ) greater than 1.0 in surface water or sediment, which was the only media determined to be a potential risk to ecological receptors at AOC C.

- Some inorganics and VOCs were selected as COPCs because no Region IV screening levels were available. However, a Step 3A analysis suggested that these chemicals were not present in quantities that could result in unacceptable risks.

- The industrialized nature of AOC C does not facilitate widespread ecological habitation. No further ecological risk assessment or ecological risk management appears to be warranted for AOC C.

Based on the sampling results, a gap currently exists in the surface soil sampling data at AOC C. Benzo(a)pyrene and dibenz(a,h)anthracene were detected above regulatory benchmarks and benzo(a)pyrene was identified in the HHRA with the ILCR above USEPA target levels in some scenarios. Therefore, it is recommended that additional delineation be performed to identify the extent of contamination present in the surface soil surrounding MPT-55-SS06-01. Once completed, a letter report will be issued presenting the results and recommendations and will be incorporated into the RFI report as an appendix.

Furthermore, TtNUS recommends a Corrective Measures Study (CMS) to evaluate and recommend a remedial action to mitigate groundwater contamination at AOC C. At a minimum, the CMS should evaluate the implementation of natural attenuation of COPCs in groundwater and land use controls.

1.0 INTRODUCTION

This RFI Report documents the activities, findings, conclusions, and recommendations of the RFI conducted at AOC C at NAVSTA Mayport. NAVSTA Mayport is located in northeastern Duval County, Florida, at the confluence of the St. Johns River and the Atlantic Ocean, as shown on Figure 1-1.

1.1 FACILITY DESCRIPTION AND BACKGROUND

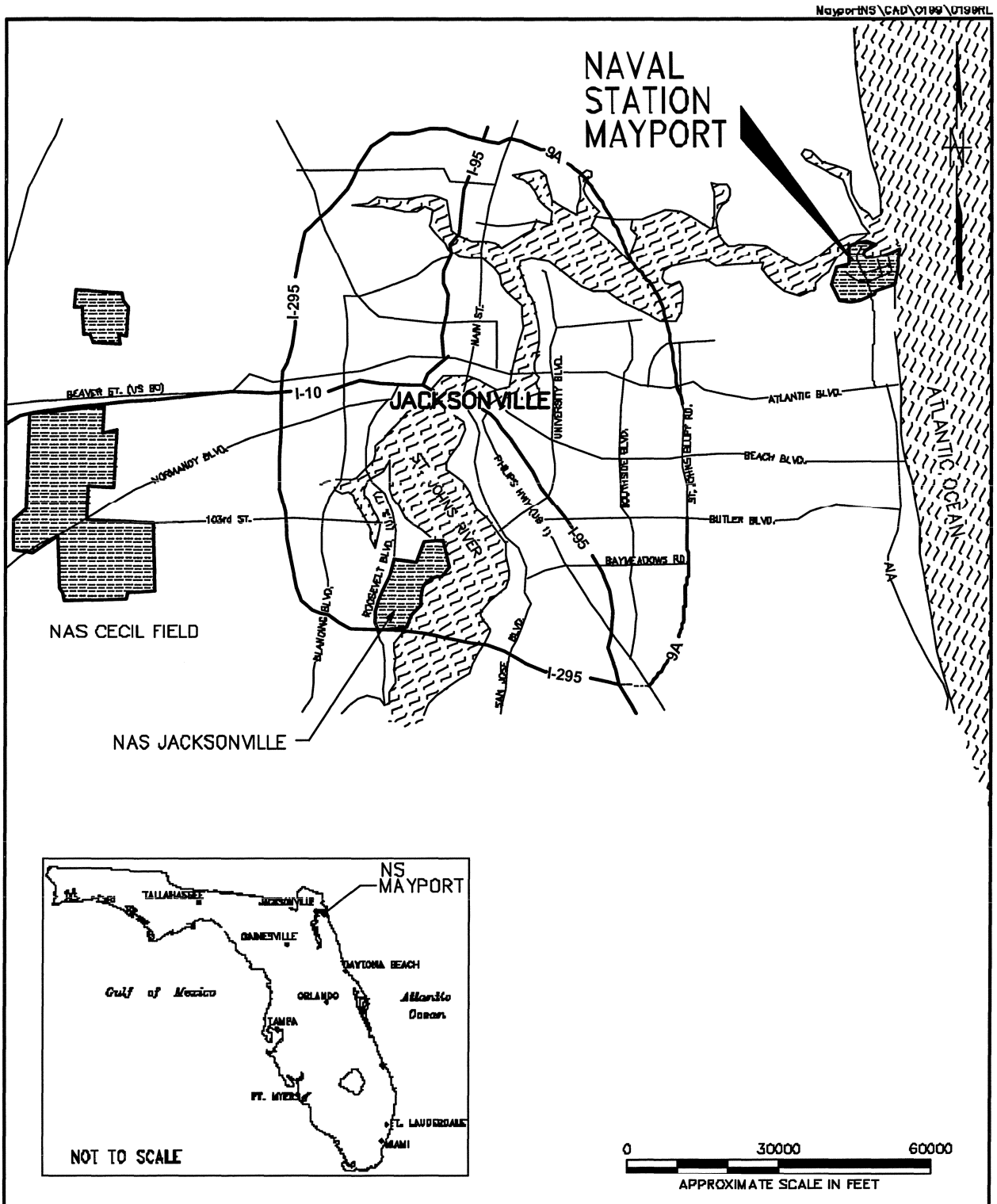
NAVSTA Mayport is located within the corporate limits of the city of Jacksonville, Duval County, Florida, approximately 12 miles to the northeast of downtown Jacksonville, and adjacent to the town of Mayport (Figure 1-1). The station complex is located on the northern end of a peninsula bound by the Atlantic Ocean to the east and the St. Johns River to the north and west. NAVSTA Mayport occupies the entire northern part of the peninsula except for the town of Mayport, located to the west between the station and the St. Johns River.

NAVSTA Mayport was commissioned in 1942 on approximately 700 acres of land. The station initially consisted of a harbor and an airfield located near the mouth of the St. Johns River. The harbor and airfield were constructed from the dredging and filling of Ribault Bay. The harbor was initially dredged to a depth of 29 ft below mean sea level (msl) and is referred to as the Mayport Turning Basin. The Mayport Turning Basin is surrounded on three sides by ship piers.

The original mission of the station included use by patrol craft, target boats, and rescue boats. The station was placed in caretaker status from 1946 to 1948. In 1948, the station was reopened, and in 1952, an aircraft carrier was assigned to the station. The turning basin was dredged to a depth of 40 ft to allow aircraft carriers and other large ships to berth at NAVSTA Mayport. Using dredge material to fill areas south of the turning basin increased the amount of uplands at NAVSTA Mayport.

NAVSTA Mayport provides all necessary support services for the surface fleet and aircraft stationed at or visiting Mayport. This support includes a division of the Public Works Center, which is headquartered at Naval Air Station Jacksonville, and provides infrastructure support. Other services include personnel support, facilities support, and ship and aircraft repair and maintenance.

Industrial operations conducted at NAVSTA Mayport involve intermediate level maintenance for both ships and aircraft and vehicle maintenance and repair. Any maintenance activities that can be conducted without putting a ship into dry-dock are considered intermediate. Squadron personnel perform aircraft maintenance in the hangar buildings.



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COST/SCHED–AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1–1 / REV. 0

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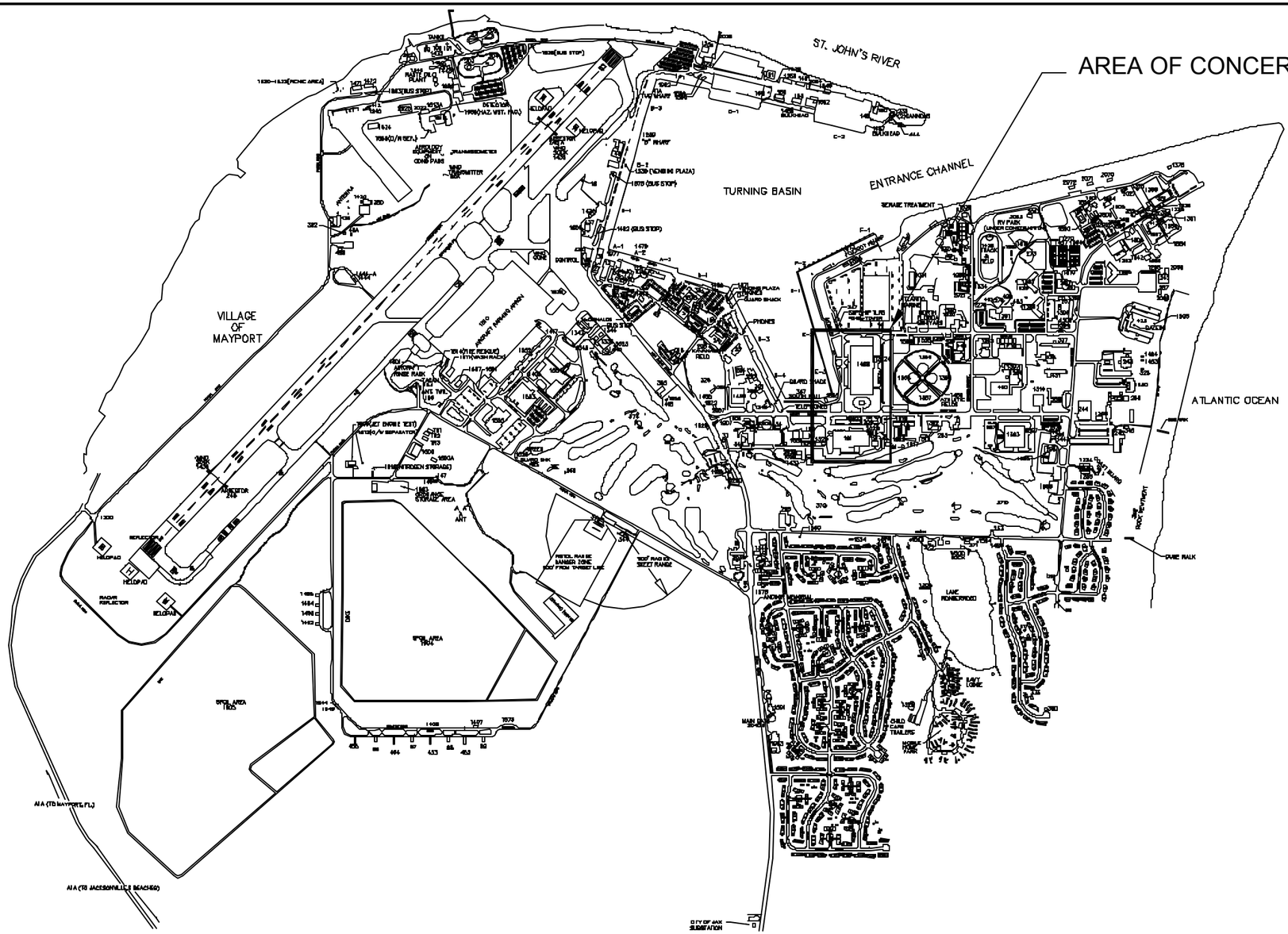
Maintenance and repair operations for ships are carried out by three organizations at NAVSTA Mayport: SIMA, Supervisor of Shipbuilding (SUPSHIP), and Naval Aviation Depot (NADEP). SIMA conducts repair and maintenance operations onboard ships at the piers and in the SIMA operations building. SUPSHIP is a contracting organization that contracts out maintenance and repair work. NADEP conducts maintenance operations on aircraft launching and arresting systems in its own building on the station.

1.2 AOC C DESCRIPTION AND BACKGROUND

AOC C is located in the southeastern portion of the NAVSTA Mayport Turning Basin and includes Building 191, the SIMA Building (Building 1488), and buildings and facilities around the southern portion of Echo Pier.

Storage areas at Building 191 are used to support ship and shore services at NAVSTA Mayport by providing areas to receive, temporarily store, and distribute supplies. The outlying buildings are used to store warehouse hazardous materials such as solvents and compressed gasses. These buildings or structures include one Quonset building (Building 2023), an open-sided covered structure with concrete floor (Building 191-A), and an aluminum-constructed structure (Building 191-C). Quonset Building 264 was previously located on-site and has now been demolished. A site location map is provided in Figure 1-2 and a site plan is provided in Figure 1-3.

An accident report dated May 4, 1993, documented that approximately 25 to 30 gallons of tetrachloroethene (a solvent used for dry cleaning) were released from a punctured 55-gallon drum onto asphalt pavement. The release was located north of Building 191 between Buildings 281 and 191-A and was reported to have been contained before it could enter a nearby storm water inlet located approximately 130 ft from the release. ABB Environmental Services, Inc. (ABB-ES) was contracted in 1997 to conduct a groundwater investigation at Building 191 in response to the tetrachloroethene spill. ICON also participated in this investigation under NELP. The results of this investigation were presented in the *Technical Memorandum, Groundwater Assessment of Tetrachloroethene Release near Building 191* [Harding Lawson Associates (HLA), 1999]. The results of this investigation along with the presence of vinyl chloride in the groundwater at Echo Pier led to the formation of AOC C as an investigation unit. The latest Corrective Action Management Plan (CAMP) including AOC C was released in August 1999.



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SCALE: AS NOTED

SITE LOCATION
AREA OF CONCERN "C"
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

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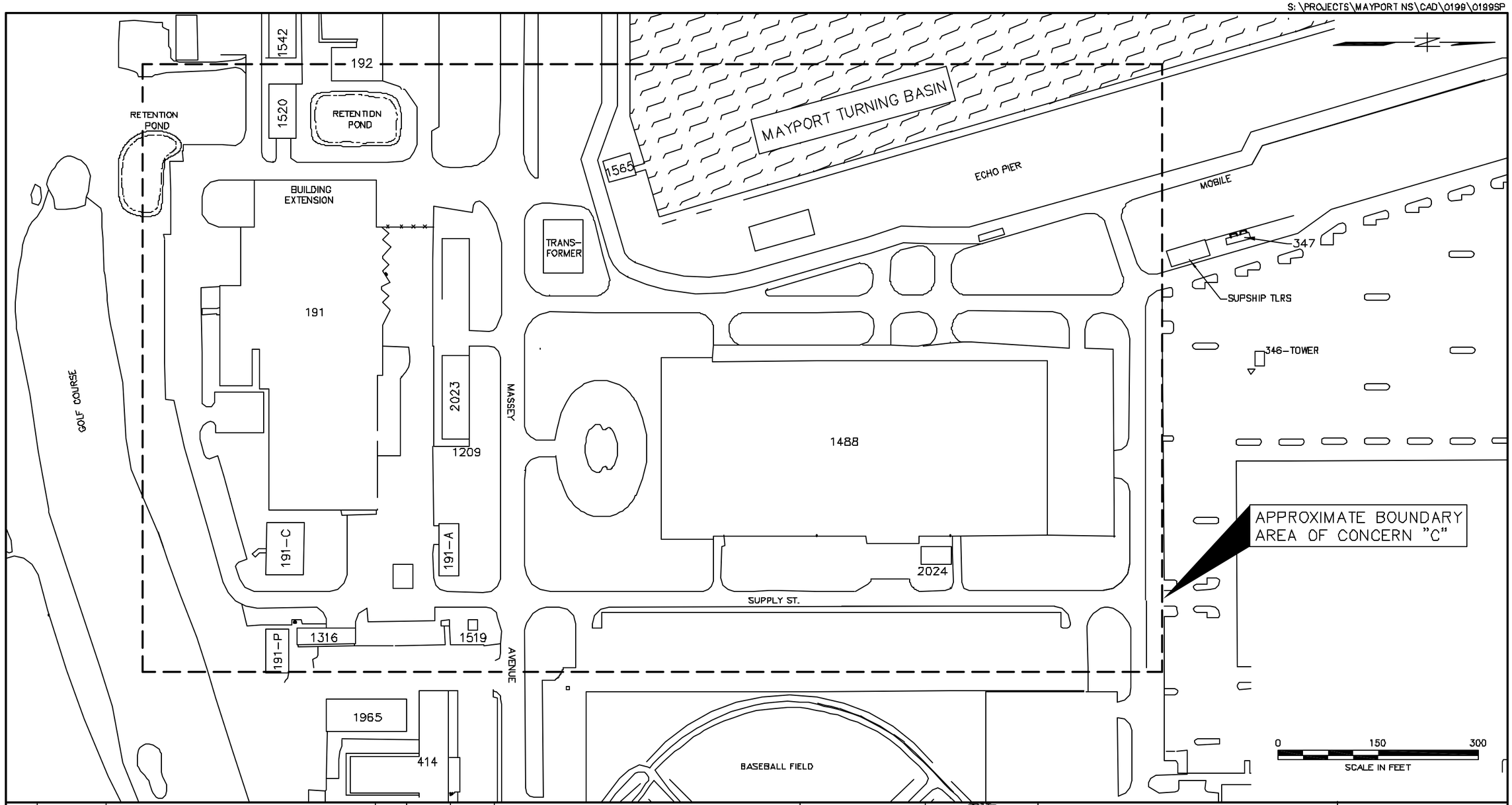

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

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CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

SITE PLAN
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

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1.3 REGULATORY SETTING AND BACKGROUND

The USEPA issued RCRA Permit Number H016-118598 and Hazardous and Solid Waste Amendment (HSWA) Permit Number FL9 170 024 260 to NAVSTA Mayport on March 25, 1988. The permit was revised and renewed on June 15, 1993 (USEPA, 1993).

A. T. Kearney, Inc. conducted a RCRA facility assessment (RFA) visual site inspection (VSI) for NAVSTA Mayport on behalf of the USEPA Region IV (A.T. Kearney, 1989). The RFA identified 56 solid waste management units (SWMUs) and two AOCs at NAVSTA Mayport. Fifteen SWMUs were determined not to require further action because no release of hazardous substances to the environment had occurred. Twenty-three SWMUs were determined to require further investigation because hazardous substance releases to the environment were suspected, but not confirmed. The remaining 18 SWMUs were determined to require an RFI because hazardous substance releases to the environment were confirmed and required further characterization to determine the nature and extent of contamination.

Of these 18 SWMUs, 17 were identified in the HSWA permit. The additional SWMU, Building 1600 Blasting Area, was identified during the RFA/VSI and determined to require an RFI. The Navy prepared a final draft RFI Workplan (C. E. Environmental, 1989) in response to the HSWA permit requirement addressing the 17 permitted SWMUs. The final draft RFI Workplan was reviewed by applicable regulatory agencies, and their comments were reviewed by the Navy on May 6, 1991 (USEPA, 1991). The USEPA reported in their comments on the final RFI Workplan that they would address the remaining 39 SWMUs identified during the RFA/VSI under revised permit conditions at a later date. The final draft RFI Workplan was revised, the Building 1600 Blasting Area was added to the RFI, and a CAMP was added.

The CAMP contained in the final RFI Workplan grouped the 56 SWMUs into four groups. Three of these groups were defined geographically by their proximity to one another and to site features such as wetlands, rivers, and land use patterns. The fourth group contains SWMUs and AOCs associated with utility networks and appurtenances that span multi-geographic regions at NAVSTA Mayport.

The CAMP also prioritized the SWMUs according to the perceived relative risks posed by the SWMUs based on the existing knowledge of the sites and past releases. Group I was the highest priority group of SWMUs. The Groups II, III, and IV were assigned sequentially lower priorities. A revised CAMP was issued in March 1995 in response to the HSWA permit renewal (ABB-ES, 1995a). The CAMP is revisited every year to incorporate the latest descriptions of the phased approach, proposed schedule, and strategy to implement the RCRA Corrective Action Program at NAVSTA Mayport.

RFI and RFA/Sampling Visit field activities occurred at the Group I SWMUs from January 1992 through April 1992, at the Group II SWMUs from December 1992 through February 1993, and at the Group III SWMUs from March 1995 through October 1995. Additional investigation activities were performed at the Group I and II SWMUs from March 1994 through December 1994. Group IV investigation activities commenced in July 2000 and are currently ongoing.

The RFI General Information Report (GIR) for NAVSTA Mayport (ABB-ES, 1995b) provides information relevant to AOC C, including background sampling information and analytical methodology, risk assessment approach, and the ecological characterization of NAVSTA Mayport. The following is included in the NAVSTA Mayport GIR:

- Geography, physiography, demographics, climate, regional geology, and hydrogeology.
- Methods and procedures used to conduct the field activities.
- Methodology used to validate analytical data and conduct risk assessments.
- Characterization of station-wide background conditions to include surface soil, subsurface soil, surface water, sediment, and groundwater.

The information contained in the GIR (ABB-ES, 1995b) is common to all of the NAVSTA Mayport SWMUs and AOCs, and it will not be repeated in this report.

1.4 PURPOSE

The purpose of the RFI activities at NAVSTA Mayport AOC C is to provide data that will be used to determine the nature and extent of contamination, potential pathways and receptors of contaminant migration in groundwater, potential risks to human health and the environment, and to evaluate the need for corrective action.

1.5 SCOPE

RFI field activities at AOC C took place in a series of field events from September 1999 through January 2001. Field activities included collecting surface and subsurface soil samples, collecting surface water and sediment samples, installing groundwater monitoring wells, collecting groundwater samples from new and existing monitoring wells, and surveying the newly installed monitoring wells.

1.6 RFI REPORT LAYOUT

This RFI Report is divided into eight chapters. Chapter 1.0 introduces the investigation with basic background information about NAVSTA Mayport and the RFI process. Chapter 2.0 includes the discussion of physical characteristics of AOC C, including site geology and hydrogeology. Chapter 3.0 presents a background and a summary of previous investigations. Chapter 4.0 presents a summary of the RFI investigation and process methodologies. Chapter 5.0 presents the analytical results of environmental samples collected during the RFI. Chapters 6.0 and 7.0 provide human health and ecological risk assessments respectively. Chapter 8.0 presents conclusions and recommendations based on the data interpretation and human health and ecological risk assessments. The need for a CMS is determined based on these conclusions.

Except as noted in this report, field activities were conducted in accordance with the approved RFI Work Plan (TtNUS, 1999a) and the TtNUS Comprehensive Quality Assurance Plan Number 980038 (TtNUS, 1999b).

2.0 PHYSICAL CHARACTERISTICS

A detailed description of the physical characteristics of NAVSTA Mayport is provided in the NAVSTA Mayport GIR (ABB-ES, 1995b). Information including topography, demography, climate, soil types, and regional geology and hydrogeology has been presented and will not be repeated in this report. The following discussion is a summary of geologic and hydrologic data collected at AOC C from current and past investigations dating from 1993 through 2000.

2.1 REGIONAL GEOLOGY

Northeast Florida is underlain by two main aquifer systems: the Surficial aquifer system and the Floridan aquifer system. The Southeastern Coastal Plain aquifer system underlies the Floridan aquifer system in portions of northeast Florida. The Surficial aquifer system near NAVSTA Mayport includes sediments of Holocene to Miocene age. These undifferentiated Surficial deposits extend from land surface to the top of the Hawthorn Group about 50 ft bls.

The Surficial aquifer system consists of fine-grained sands near the surface interspersed with thin (less than 1 ft) clay lenses and generally grades to a mixture of sand and coarse shell fragments from 30 to 50 ft bls. The base of the Surficial aquifer system is the intermediate confining unit, which is a sequence of marine clays and discontinuous limestone stringers.

The Floridan aquifer system is the principal source of groundwater for public drinking water in most of northern peninsular Florida. In the area of investigation, the system is comprised of (from oldest to youngest) the Oldsmar Formation, the Avon Park Formation, and the Ocala Limestone. The Hawthorn Group, which forms the confining zone, unconformably overlies the Floridan aquifer system. At NAVSTA Mayport, three potable water supply wells are currently producing water from this aquifer system. A fourth well is inactive. The wells produce water from the Floridan system and are installed to a depth of approximately 1,000 ft bls in depth. Although two of the wells are located within 1,000 ft of AOC C, it is not anticipated that impacted groundwater at AOC C could affect these wells or the Floridan aquifer system.

2.2 SITE GEOLOGY

Geology data at AOC C was not obtained during this field investigation; therefore, data discussed in this section relies on information collected during previous field investigations at AOC C and is primarily limited to the Building 191 area. Site-specific geological information is only available for the upper 50 ft, which comprises the Surficial aquifer. AOC C geological features below the Surficial aquifer are likely

similar to regional geological features summarized in Section 2.1 and discussed thoroughly in Section 1.4.5 of the Mayport GIR (ABB-ES, 1995b).

Lithologic sampling and borehole geophysical surveys were conducted at Building 191 by ICON during an investigation performed under the Navy Environmental Leadership Program. The results of the investigation are presented in the Final Contamination Assessment Report, Additional Sampling Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area (Icon, 1998). HLA also summarized the results and interpretations of the ICON study in the report *Technical Memorandum, Groundwater Assessment of Tetrachloroethene Release Near Building 191, Naval Station Mayport* (HLA, 1999). ICON identified three aquifer zones in the Surficial aquifer unit beneath Building 191. The three zones are summarized as follows:

- The shallow or water table zone of the Surficial aquifer (Zone A) consists of the interval from the water table, which occurred from approximately 3 to 5 ft bls to a depth of approximately 33 ft bls, where a 3-ft thick gray silty clay layer was usually encountered. This clay layer was not apparent in the northern part of the site near Massey Avenue. The shallow aquifer consists of well-graded (poorly sorted) quartz sand with some shell fragments. At a depth of approximately 24 ft bls, a 3-inch thick limestone seam was sporadically encountered.

- The intermediate zone of the Surficial aquifer (Zone B) consists of a permeable zone of gray silty sand between 36 to 39 ft bls. A greenish-gray sandy clay layer approximately 4-ft thick is encountered at approximately 39 ft bls forming the lower boundary of Zone B. This aquitard was discontinuous or missing in the southern portion of Building 191.

- The deep zone of the Surficial aquifer (Zone C) consists of a permeable dark gray silty sand with some shell fragments from approximately 43 to 47 ft bls. At 47 ft bls, a 2-ft thick dark-gray silty clay was encountered as the lower boundary of Zone C. This aquitard appears to be continuous across the Building 191 area and likely represents the top of the Hawthorn Formation.

The ICON and HLA reports provide more extensive geologic data at AOC C and are located in the Appendix A and B, respectively.

2.3 SITE HYDROGEOLOGY

The objective of the hydrologic investigations conducted at NAVSTA Mayport was to characterize variables that influence contaminant fate and transport. Hydrogeologic characterization activities included the following:

- Developing potentiometric surface maps of the AOC C area.
- Estimation of groundwater flow direction.
- Estimation of hydraulic conductivity and linear flow velocity.

2.3.1 Tidal Influence

A tidal influence survey was not completed for the AOC C RFI. Tidal influence surveys have been performed for the Groups I, II, and III RFIs. Although the surveys provide insight into tidal influence at NAVSTA Mayport along the St. Johns River, the extent of influence may be different in areas surrounding the Mayport Turning Basin due to construction materials (i.e., sheet piling, concrete, etc.) to depths exceeding 40 ft bls. A smaller scale tidal influence survey was completed for a contamination assessment performed at SIMA [U.S. Army Corps of Engineers (USACE), 1992]. Two wells, MAY-1490-1 (11 ft bls) and MAY-1490-5 (22.96 ft bls), were monitored at 15-minute intervals over a 24-hour period. Results of the survey indicated a maximum fluctuation of 0.23 ft. The report concluded that the minor fluctuations did not appear to significantly affect groundwater flow direction.

2.3.2 Hydrogeology

Hydrologic information was obtained in part from the following sources, which are provided as appendices:

- *Final Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA Mayport* (ICON, 1998).

- *Technical Memorandum, Groundwater Assessment of Tetrachloroethene Release near Building 191, Naval Station Mayport* (HLA, 1999).

- The *Solid Waste Management Unit Assessment Report for Tetrachloroethene Release near Building 191, Naval Station Mayport* (ABB-ES, 1996a).

- The *Contamination Assessment Report for Naval Station Mayport Building 191* [Environmental Science and Engineering, Inc. (ESE), 1994].

- The *Confirmation Assessment Letter Report for AOC C, Naval Station Mayport* (TtNUS, 1999c).

Water levels collected during the confirmation assessment phase of the field investigation indicated that groundwater flow in the shallow zone varies from the groundwater flow in intermediate and deep zones of

the Surficial aquifer. Groundwater flow in the shallow zone of the Surficial aquifer is toward the southwest at Building 191 and west toward the Mayport Turning Basin at SIMA and Echo Pier. Groundwater flow in the intermediate and deep zones of the Surficial aquifer is generally northwest toward the Mayport Turning Basin with some localized variation.

Review of groundwater elevations in the nested well set suggests there is limited communication between the shallow zone and the intermediate and deep zones of the Surficial aquifer. This finding is consistent with the variations in groundwater flow shown on the shallow, intermediate, and deep potentiometric surface maps (Figures 2-1, 2-2, and 2-3, respectively). The intermediate and deep zones have greater hydrogeologic communication.

An average horizontal hydraulic gradient of 0.033, 0.071, and 0.061 foot per foot was calculated for the shallow, intermediate, and deep zones of the Surficial aquifer, respectively. The average was calculated using synoptic water level data obtained during a February 2001 water level data collection event. ICON determined vertical hydraulic gradients during the 1997 field effort. An upward vertical gradient existing in the northeast portion of the Building 191 area flattens and is negligible at the northwest corner of the site. A downward vertical hydraulic gradient of 0.032 was observed to the west and south of Building 191.

Aquifer testing was performed by ABB-ES during the 1995 groundwater assessment at Building 191 and by HLA and ICON during the 1997 expanded groundwater assessment at Building 191. Hydraulic conductivity values ranging from approximately 1.4 ft per day (ft/day) (MPT-TC-MW06S) to 20.5 ft/day (MPT-TC-MW03S), with an average hydraulic conductivity value of 11.3 ft/day, were obtained during the 1995 field event (ABB-ES, 1996b). Hydraulic conductivity values ranging from approximately 1.43 ft/day (MPT-TC-DPW09I) to 106.7 ft/day (MPT-TC-MW08S), with an average hydraulic conductivity value of approximately 38 ft/day, were obtained during the 1997 field event (HLA, 1999). There have not been any *in-situ* hydraulic conductivity measurements performed near Echo Pier or SIMA.

An approximation of horizontal flow velocity of groundwater in the water table zone of the Surficial aquifer at AOC C is based on the potentiometric surface (hydraulic gradient) of the water table, estimate of hydraulic conductivities at monitoring well locations, and an estimate of porosity of the saturated subsurface soil. The horizontal linear velocities were calculated from a modified form of Darcy's equation and represent the ratio of linear travel distance to travel time between two points (Freeze and Cherry, 1979). The horizontal linear velocity is expressed as V_D/N_e where V_D is the Darcy velocity ($V_D = KI$, K = radial hydraulic conductivity, and I = hydraulic gradient) and N_e is the effective porosity of the saturated geologic stratum. An effective porosity of 0.35 was used in the calculations [see Subsection 3.2.3, Physical Characteristics of Soil, in the NAVSTA Mayport GIR (ABB-ES, 1995b)].

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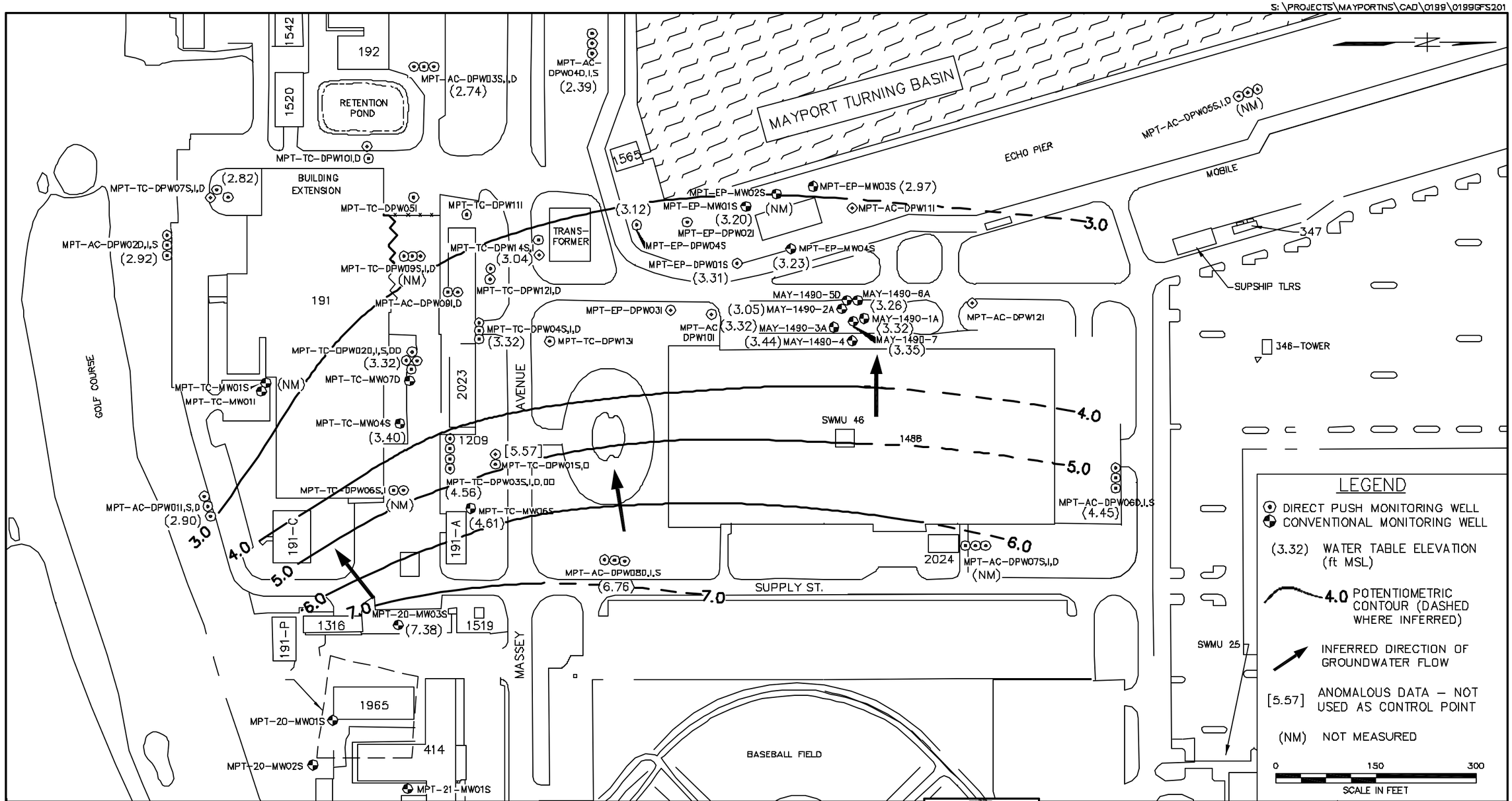

NO.	DATE	REVISIONS	BY	CHKD	APPD

REFERENCES: National Geodetic Vertical Datum

DRAWN BY LLK DATE 10/19/99
CHECKED BY DATE
COST/SCHED–AREA
SCALE AS NOTED

POTENTIOMETRIC SURFACE MAP
SHALLOW AQUIFER ZONE (0–20 ft bls)
FEBRUARY 26, 2001
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 2–1
REV. 0

FORM CADD NO. SOIV_BH.DWG – REV D – 1/20/98

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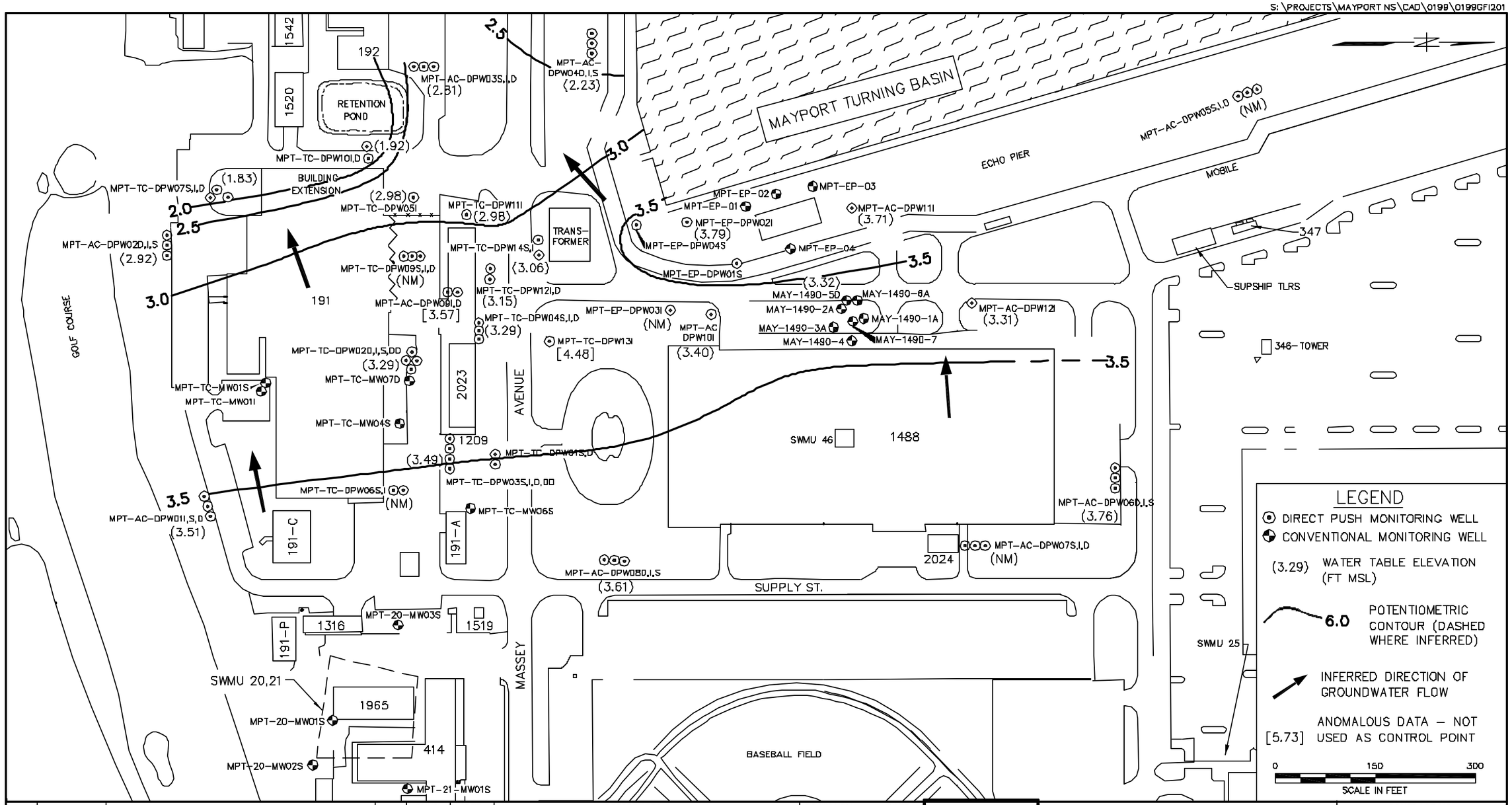

NO.	DATE	REVISIONS	BY	CHKD	APPD

REFERENCES: National Geodetic Vertical Datum

DRAWN BY LLK DATE 10/21/01
CHECKED BY DATE
COST/SCHED–AREA
SCALE AS NOTED

POTENTIOMETRIC SURFACE MAP
INTERMEDIATE AQUIFER ZONE (20–35 ft bls)
FEBRUARY 26, 2001
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 2–2
REV. 0

FORM CADD NO. SOIV_BH.DWG – REV D – 1/20/98

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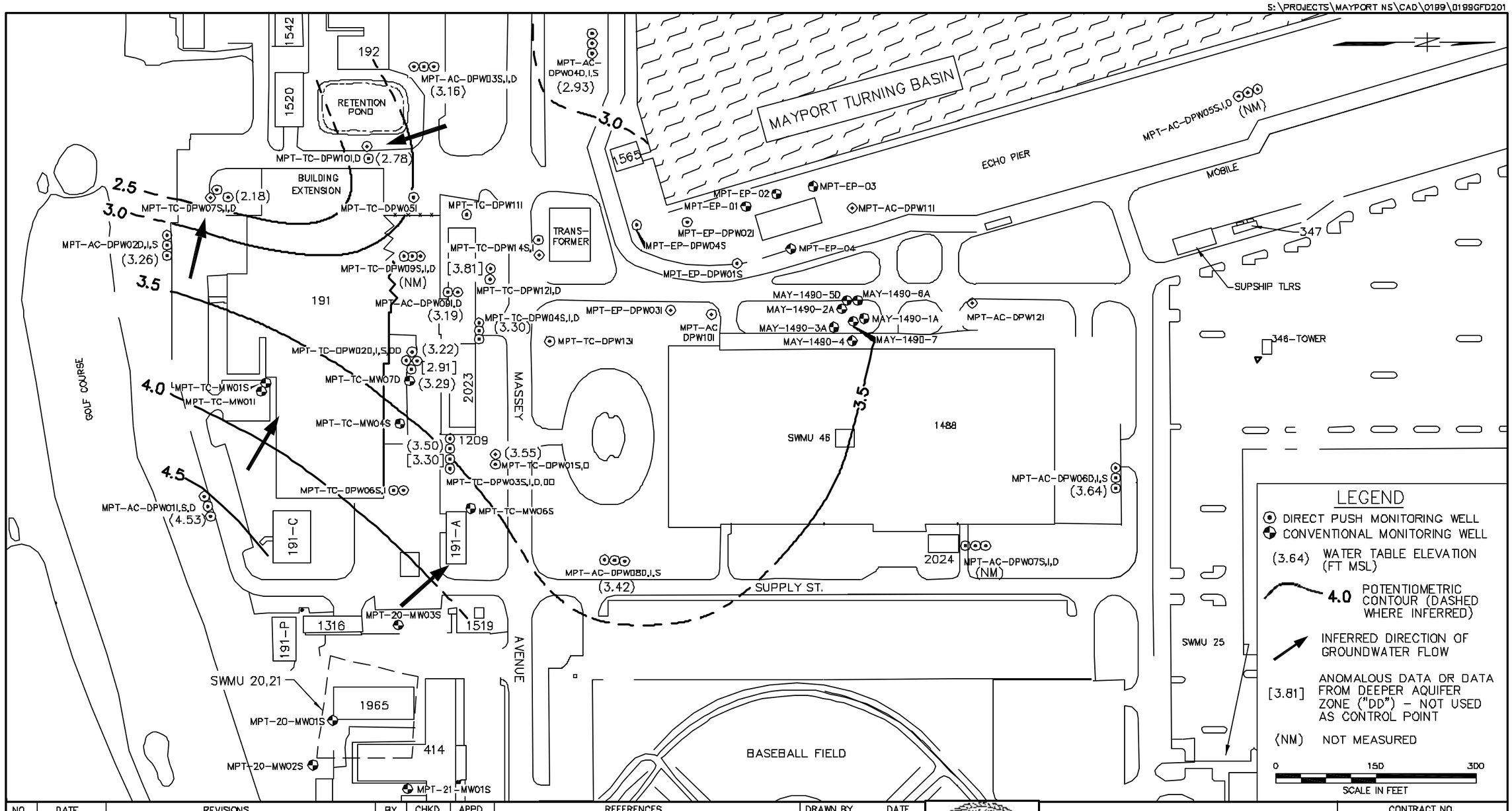

LEGEND

- DIRECT PUSH MONITORING WELL
- CONVENTIONAL MONITORING WELL
- (3.64) WATER TABLE ELEVATION (FT MSL)
- 4.0 POTENTIOMETRIC CONTOUR (DASHED WHERE INFERRED)
- INFERRED DIRECTION OF GROUNDWATER FLOW
- [3.81] ANOMALOUS DATA OR DATA FROM DEEPER AQUIFER ZONE ("DD") – NOT USED AS CONTROL POINT
- (NM) NOT MEASURED

0 150 300
SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD

REFERENCES
National Geodetic Vertical Datum (NGVD)

DRAWN BY LLK DATE 3/21/01
CHECKED BY DATE
COST/SCHED–AREA
SCALE AS NOTED

POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER ZONE (35–50 ft bls)
FEBRUARY 26, 2001
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 2–3
REV. 0

FORM CADD NO. SOIV_BH.DWG – REV D – 1/20/98

Based on the values for horizontal linear velocity and assuming no dilution, dispersion, or retardation, a contaminant in the water table zone of the Surficial aquifer may travel at rates of 16 to 235 ft per year (ft/yr) and average approximately 130 ft/yr near Building 191 (ABB-ES, 1996b). These rates may be different for areas near SIMA and Echo Pier.

2.3.3 AOC C Groundwater Model

A groundwater model for the AOC C area is currently under development and will provided as an addendum to the report upon completion.

3.0 SITE SPECIFIC INVESTIGATIONS

3.1 SUMMARY OF PREVIOUS INVESTIGATIONS

This chapter summarizes previous investigations applicable to AOC C at NAVSTA Mayport. Previous investigations included a RCRA groundwater assessment at Building 191 and along the southern portion of Echo Pier and various petroleum program investigations south of Building 191, west of SIMA, and along Echo Pier.

3.1.1 RCRA Investigation (Multimedia)

ABB-ES conducted a multimedia assessment of AOC C at NAVSTA Mayport after trichloroethene and tetrachloroethene were discovered in the groundwater during a petroleum program investigation at Building 191. Results of this assessment are available in the *Solid Waste Management Unit Assessment Report for Tetrachloroethene Release near Building 191* (ABB-ES, 1996a) and are summarized below.

Four surface soil and four subsurface soil samples were collected from depths of 0 to1 ft bls and 2 to 3 ft bls, respectively. The samples were collected in grassy areas north of Building 191. Arsenic and benzo(a)pyrene were the only constituents detected in the surface soil above Florida residential soil cleanup goals. However, neither was above the Florida industrial soil cleanup goals. There were no constituents detected in the subsurface soil samples above Florida SCTLs.

Eight groundwater samples were collected using Terraprobe™ direct push technology (DPT) and analyzed using an on-site mobile laboratory. Tetrachloroethene was detected in three locations and trichloroethene was detected in two locations above Florida GCTLs.

Two conventional groundwater-monitoring wells were installed using hollow-stem auger technology. The monitoring wells were installed in the shallow zone of the Surficial aquifer.

Six groundwater samples, four samples from previously installed wells and two samples from newly installed wells, were collected from the monitoring wells located at Building 191 and analyzed by a fixed-base laboratory. Constituents detected in the groundwater with concentrations above Florida GCTLs include arsenic, bromodichloromethane, chloroform, dibromochloromethane, manganese, tetrachloroethene, and trichloroethene.

A preliminary risk evaluation concluded that hypothetical residential exposure to benzo(a)pyrene, aroclor-1260, and arsenic was likely to be within the USEPA acceptable risk management range of $1x10^{-4}$ to $1x10^{-6}$. The hypothetical residential exposure is greater than FDEP risk management goal of $1x10^{-6}$. However, the industrial exposure is at the risk management goal. The hypothetical exposure to groundwater used as drinking water is likely to be above both USEPA's risk range and FDEP's target risk goal. The estimated HI of nine also suggested a potential non-cancer risk.

Based on the presence of tetrachloroethene and/or trichloroethene, ABB-ES recommended designating the area as an AOC, performing an assessment to determine the nature and extent of tetrachloroethene in the groundwater, and performing a human health risk assessment. A copy of the report is provided as Appendix C.

3.1.2 RCRA Investigation (Groundwater)

HLA subsequently conducted a groundwater assessment of AOC C at NAVSTA Mayport in 1997 and 1998. The purpose of the investigation was to delineate the horizontal and vertical extent of VOCs detected in the groundwater samples during the ABB-ES investigation.

The investigation was performed as a technology demonstration by ICON under NELP with HLA providing oversight. The services provided by ICON for the technology demonstration were conventional and direct-push monitoring well installation, borehole advancement and downhole geophysical surveying, characterization of aquifer hydraulic properties, and groundwater sampling. ICON documented the results of the demonstration in the *Final Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area* (ICON, 1998). The analytical results are documented by HLA in the *Technical Memorandum, Groundwater Assessment of Tetrachloroethene Release near Building 191, Naval Station Mayport* (HLA, 1999). The reports are provided as Appendices A and B in the order they are mentioned above.

Lithologic sampling and borehole geophysical surveys performed at the site identified that the Surficial aquifer beneath Building 191 has three aquifer zones. An in-depth discussion is provided in Chapter 2.0.

Eleven volatile organic target analytes (1,1-dichloroethane; 1,1-dichloroethene; 1,2-dichloroethene; cis-1,2-dichloroethene; bromodichloromethane; dibromochloromethane, chloroform; methylene chloride; tetrachloroethene; trichloroethene; and vinyl chloride) were detected in the groundwater samples collected in 1995, 1997, and 1998 near Building 191 and Echo Pier.

Groundwater samples collected from the shallow water table zone contained concentrations of chloroform, dibromochloromethane, tetrachloroethene, trichloroethene, vinyl chloride, arsenic, iron and manganese that exceed Florida GCTLs.

Groundwater samples collected from the intermediate zone contained methylene chloride; 1,1-dichloroethane; cis-1,2-dichloroethene; trichloroethene; and vinyl chloride at concentrations that are at or slightly below Florida GCTLs.

Groundwater samples collected from the deep zone contained methylene chloride, tetrachloroethene, and trichloroethene at concentrations exceeding Florida GCTLs.

Recommendations in the Technical Memorandum (HLA, 1999) included additional groundwater sampling from monitoring wells MPT-TC-MW04S and MPT-TC-MW05S, a comprehensive survey of the locations and elevations of the existing monitoring wells, and a groundwater elevation survey for all previously investigated zones of the aquifer. The Technical Memorandum concluded the source of the vinyl chloride detected in groundwater samples along Echo Pier had not been determined. The Technical Memorandum also proposed that the present well locations and well screen placements be evaluated to determine if the location and extent of the halogenated VOC plume was fully delineated. A copy of the report is provided as Appendix B.

3.1.3 Petroleum Investigations

Three petroleum investigations have been performed within AOC C. These investigations were performed in accordance with either the former Florida Department of Environmental Regulation (now FDEP) Chapter 17-770, FAC or current FDEP Chapter 62-770, FAC. The investigations are summarized below.

3.1.3.1 Building 191

A Contamination Assessment Report (CAR) was prepared by ESE (ESE, 1994) to evaluate the potential release(s) of diesel fuel from underground fuel lines extending from a 300-gallon aboveground storage tank (AST) located on the south side of Building 191. The multimedia assessment consisted of surface and subsurface soil sampling, installing three piezometers and four monitoring wells, collecting water levels to determine groundwater flow direction, and collecting groundwater samples for chemical analysis. Contaminated soil was removed from the site and the groundwater analytical results indicated that the release of petroleum product did not result in groundwater contamination. Although contamination related to the release of petroleum product was not evident, tetrachloroethene was detected in a groundwater sample collected from the background monitoring well MPT-TC-MW04S, located on the northern side of

Building 191. The presence of tetrachloroethene prompted a RCRA investigation at Building 191. A copy of the CAR is provided in Appendix D.

3.1.3.2 SIMA

An underground storage tank investigation was conducted west of the SIMA Building and documented in the *Contamination Assessment Report, Mayport Naval Station, Building 1490, SIMA Shops,* (USACE, 1992) and updated in numerous addendums. Free product was identified in two compliance wells (MPT-1490-1 and MPT-1490-2). Five monitoring wells (MAY-1490-1 through MAY-1490-5) were installed based on findings from soil and groundwater screening. Groundwater samples collected at the site were analyzed for total recoverable petroleum hydrocarbons using the Florida Petroleum Range Organics method, VOCs using USEPA Method SW846-8260 plus methyl tert-butyl ether, and RCRA metals using USEPA Method SW846-6010B. No detections of FDEP MCLs were reported. A removal and closure action was performed in June 1997. A No Further Action (NFA) proposal was submitted in *Addendum 5 to the Contamination Assessment Report, Mayport Naval Station, Building 1490-SIMA Shops* (USACE, 1999a). The NFA proposal was approved by the FDEP and documented in the NFA Approval Letter dated January 10, 2000. The original CAR along with the addendums and approval letter is provided as Appendix E.

3.1.3.3 Echo Pier

The *Monitoring Only Plan Report, Mayport Naval Station, Echo Pier* (USACE, 1999b) summarizes the previous investigations and latest results of the free product monitoring at Echo Pier. A contamination assessment was conducted in this area after a fuel pipeline leak was discovered in July 1996. Four monitoring wells (MPT-EP-MW01S through MPT-EP-MW04S) were installed in the area and free product was detected. A Monitoring Only Plan was implemented and is currently ongoing. The monitoring reports are provided in Appendix F.

4.0 RFI INVESTIGATION

The RFI investigation was conducted in two phases: the confirmation assessment phase and the RFI field investigation phase. The following sections describe the technical approach applied to each task during both phases.

4.1 CONFIRMATION ASSESSMENT

The following tasks were performed during the confirmation assessment at AOC C:

- Identify existing groundwater data gaps.
- Identify potential additional source areas.
- Measure the locations and elevations of existing monitoring wells.
- Determine the direction of groundwater flow.

The results of the confirmation assessment, presented in the *Confirmation Assessment Letter Report, AOC C, Naval Station Mayport*, (TtNUS, 1999c), are summarized below and are provided as Appendix G.

Forty-five monitoring wells in the AOC C area were surveyed for depth to water, total depth, and top-of-casing elevation on September 22, 1999. Water level measurements were recorded at each well with an electronic water level measurement probe. The depth to water ranged from 2.34 to 4.75 ft bls. The top-of-casing elevations were then surveyed relative to the known elevation of monitoring well MPT-20-MW03S (ABB-ES, 1996a). These survey results were used to calculate groundwater elevations above msl. Figures 2-1, 2-2, and 2-3 depict the potentiometric surface for the shallow (0 to 20 ft bls), intermediate (20 to 35 ft bls), and deep (35 to 50 ft bls) monitoring wells, respectively. According to the report, groundwater generally flows in a northwesterly direction toward the Mayport Turning Basin in all three aquifer zones.

Based on these groundwater flow measurements and previous analytical results (HLA, 1999), the Confirmation Assessment Letter Report (TtNUS, 1999c) recommended installing 29 additional monitoring wells at AOC C. Twenty-four monitoring well installed as eight three-well nested clusters located along the boundaries of AOC C and the remaining five monitoring wells installed in locations to determine vertical or horizontal migration of the existing contaminant plume. Groundwater elevations and monitoring well construction details for the newly installed wells at AOC C are provided on Table 4-1. The table provides information on well installation dates, total depths, top of casing elevations, screened intervals, well diameters, slot size of the screen, and casing materials.

Table 4-1
New Monitoring Well Construction Summary

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Well Identification Number	Installation Date	Well Depth (ft bls)	Top of Casing Elevation (msl)	Screened Internval Depth (ft, bls)	Well Diameter (Inches)	Screen Slot (Inches)	Casing Material
MPT-AC-DPW01S	12/14/1999	12	8.92	2-12	0.75	0.010	Sch 40 PVC
MPT-AC-DPW01I	12/15/1999	30	9.09	25-30	0.75	0.010	Sch 40 PVC
MPT-AC-DPW01D	12/20/1999	53	8.84	48-53	0.75	0.010	Sch 40 PVC
MPT-AC-DPW02S	12/17/1999	12	7.82	2-12	0.75	0.010	Sch 40 PVC
MPT-AC-DPW02I	12/20/1999	35	7.83	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW02D	12/20/1999	50	8.31	45-50	0.75	0.010	Sch 40 PVC
MPT-AC-DPW03S	12/22/1999	13	8.16	3-13	0.75	0.010	Sch 40 PVC
MPT-AC-DPW03I	12/22/1999	35	8.20	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW03D	12/22/1999	47	8.10	42-47	0.75	0.010	Sch 40 PVC
MPT-AC-DPW04S	12/22/1999	13	7.19	3-13	0.75	0.010	Sch 40 PVC
MPT-AC-DPW04I	12/22/1999	35	7.21	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW04D	12/22/1999	50	7.10	45-50	0.75	0.010	Sch 40 PVC
MPT-AC-DPW05S	12/20/1999	13	9.03	3-13	0.75	0.010	Sch 40 PVC
MPT-AC-DPW05I	12/20/1999	35	8.96	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW05D	12/21/1999	49.5	8.92	44.5-49.5	0.75	0.010	Sch 40 PVC
MPT-AC-DPW06S	12/20/1999	11.5	8.82	1.5-11.5	0.75	0.010	Sch 40 PVC
MPT-AC-DPW06I	12/21/1999	35	8.82	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW06D	12/21/1999	50	8.95	45-50	0.75	0.010	Sch 40 PVC
MPT-AC-DPW07S	12/16/1999	13	8.74	3-13	0.75	0.010	Sch 40 PVC
MPT-AC-DPW07I	12/16/1999	35	8.70	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW07D	12/17/1999	50	8.90	45-50	0.75	0.010	Sch 40 PVC
MPT-AC-DPW08S	12/17/1999	12	10.23	2-12	0.75	0.010	Sch 40 PVC
MPT-AC-DPW08I	12/17/1999	35	10.39	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW08D	12/20/1999	43	10.32	38-43	0.75	0.010	Sch 40 PVC
MPT-AC-DPW09I	12/22/1999	35	8.76	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW09D	12/22/1999	53	8.69	48-53	0.75	0.010	Sch 40 PVC
MPT-AC-DPW10I	12/21/1999	35	7.91	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DPW11I	12/21/1999	35	9.01	30-35	0.75	0.010	Sch 40 PVC
MPT-AC-DWP12I	12/21/1999	35	7.44	30-35	0.75	0.010	Sch 40 PVC

Notes:
Sch = schedule
PVC - polyvinyl chloride

The Confirmation Assessment Letter Report (TtNUS, 1999c) also recommended sampling a pre-selected set of existing monitoring wells to confirm the presence of contamination prior to monitoring well installation. The monitoring well selection criteria were based on historical concentrations and their proximity to a potential source area.

4.2 RFI FIELD ACTIVITIES

4.2.1 Surface and Subsurface Soil Sampling

Two surface soil samples (MPT-AC-SS03-01 and MPT-AC-SS04-01) and four subsurface soil samples (MPT-AC-SU01-05, MPT-AC-SU02-05, MPT-AC-SU03-05, and MPT-AC-SU04-05), shown in Figure 4-1, were collected in support of the AOC C RFI. Due to the lack of exposed unpaved surface area, and no other recorded evidence of a surface spill, only two surface soil samples were collected. The investigation was designed to be a groundwater investigation; therefore, the soil samples were collected in areas of elevated groundwater contamination to confirm any soil contamination. Previous data concerning the AOC C site is located in the RFI GIR for NAVSTA Mayport (ABB-ES, 1995b). The rationale was to identify soil contamination and the potential for contaminant migration into the groundwater. An additional surface soil sample (MPT-55-SS06-01), originally collected in support of the Group IV RFI, was included in the AOC C data set. The rationale for including the sample in the AOC C data was based on the sample being located within the boundaries of AOC C and, therefore, relevant to the AOC C RFI. Additional surface and subsurface soil sample information from the SWMU Assessment Report for Building 191 are provided along with the Contamination Assessment Report for Building 191 in Appendix D. The results of the SWMU Assessment Report for Building 191 indicate one VOC (methylene chloride), 11 SVOCs [dimethylphthalate; phenanthrene; fluoranthene; pyrene; benzo(a)anthracene; chrysene; benzo(b)fluoranthene; benzo(k)fluoranthene; benzo(a)pyrene; indeno(1,2,3-cd)pyrene; and benzo(g,h,i)perylene], one polychlorinated biphenyl (PCB) (aroclor-1260), and fifteen inorganic target analytes (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, tin, vanadium, zinc, and cyanide) were detected in samples collected from the Building 191 area.

In the SWMU Assessment Report, Building 191, no VOCs or pesticides were detected in the surface soil samples at concentrations that exceed the benchmark values. One SVOC [benzo(a)pyrene], one PCB (aroclor-1260), and one inorganic (arsenic) were detected in surface soil samples at concentrations that exceeded the residential benchmark values, which are based on values for a lifetime excess cancer risk of $1x10^{-6}$.

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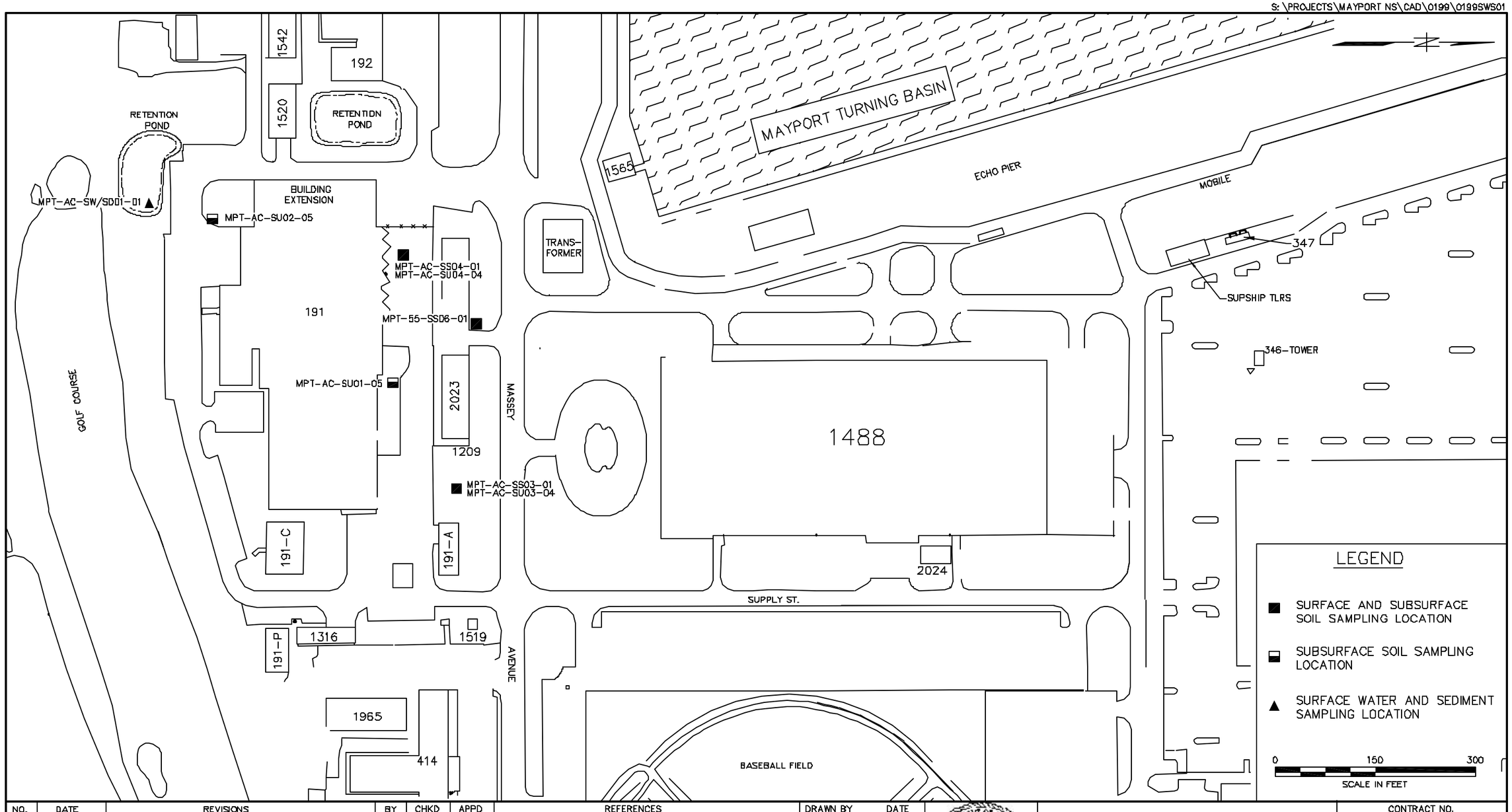

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 5/17/01
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COST/SCHED-AREA
SCALE AS NOTED

SURFACE WATER, SEDIMENT, SURFACE SOIL AND SUBSURFACE SOIL SAMPLING LOCATIONS
AREA OF CONCERN "C"
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 4-1
REV. 0

FORM CADD NO. SOIV_BH.DWG - REV 0 - 1/20/98

The samples were analyzed for target analytes using the following parameters: Appendix IX VOCs using USEPA Method SW846-8260B, Appendix IX SVOCs using USEPA Method SW846-8270, Appendix IX organochlorine pesticides using USEPA Method SW846-8141, Appendix IX organochlorine herbicides using USEPA Method SW846-8151, Appendix IX PCBs using USEPA Method SW846-8082, target analyte list (TAL) metals using USEPA Method SW846-6010B, and cyanide using USEPA Method SW846-9010B. The target analytes were selected from the Groundwater Monitoring List contained in 40 Code of Federal Regulations (CFR) 264, Appendix IX, and the USEPA's Target Compound List (TCL) and TAL.

4.2.2 Surface Water and Sediment Sampling

One surface water and one sediment sample (MPT-AC-SW01-01 and MPT-AC-SD01-01, respectively), shown in Figure 4-1, were collected from AOC C. The surface water and sediment samples were collected at the recommendation of TtNUS personnel during the ERA site inspection.

The samples were analyzed for target analytes using the following parameters: Appendix IX VOCs using USEPA Method SW846-8260B, Appendix IX SVOCs using USEPA Method SW846-8270, Appendix IX organochlorine pesticides using USEPA Method SW846-8141, Appendix IX organochlorine herbicides using USEPA Method SW846-8151, Appendix IX PCBs using USEPA Method SW846-8082, TAL metals using USEPA Method SW846-6010B, and cyanide using USEPA Method SW846-9010B. The target analytes were selected from the Groundwater Monitoring List contained in 40 CFR 264, Appendix IX, and the USEPA's TCL and TAL.

4.2.3 Phase I Groundwater Sampling

The first phase of groundwater sampling took place between November 30 and December 7, 1999. Seventeen existing monitoring wells were sampled to confirm the presence of contaminants in pre-selected existing monitoring wells as recommended in the Confirmation Assessment Letter Report (TtNUS, 1999c). The report is provided as Appendix G.

The samples were analyzed for the following parameters: Appendix IX VOCs (USEPA Method SW846-8260B), Appendix IX SVOCs (USEPA Method SW846-8270), Appendix IX organochlorine pesticides (USEPA Method SW846-8141), Appendix IX organochlorine herbicides (USEPA Method SW846-8151), Appendix IX PCBs (USEPA Method SW846-8082), TAL metals (USEPA Method SW846-6010B), and cyanide (USEPA Method SW846-9010B). The target analytes were selected from the Groundwater Monitoring List contained in 40 CFR 264, Appendix IX and the USEPA's TCL and TAL.

4.2.4 Monitoring Well Installation

Twenty-nine new monitoring wells, designated with the "AC" identifier and shown in Figure 4-2, were installed at AOC C from December 12 through December 20, 1999. Twenty-four of these monitoring wells consist of eight sets of 3-well nested clusters including one shallow well (0 to 15 ft bls), one intermediate well (30 to 35 ft bls), and one deep well (45 to 50 ft bls) each. Two clusters were installed along AOC C's southern boundary with the Golf Course. One cluster was installed to the west of Building 191, on the western side of the newly installed retention pond. Two clusters were installed to the east of SIMA, and one cluster was installed to the north of SIMA. One cluster was installed along the portion of the pier that borders Massey Avenue, and one cluster was installed along the northern portion of Echo Pier.

The remaining five monitoring wells were installed to determine and/or confirm the vertical or horizontal migration of the existing contaminant plume. Two monitoring wells, one intermediate and one deep, were installed to the northwest of existing wells MPT-TC-DPW02D and DD. The remaining three wells were intermediate wells installed in the Echo Pier area to determine if vertical migration of vinyl chloride had occurred. Figure 4-3 presents typical shallow DPT monitoring well construction, and Figure 4-4 presents typical intermediate and deep monitoring well construction.

Lithologic data (soil boring logs and monitoring well logs) collected during the initial groundwater assessment (HLA, 1999) were evaluated for pertinent geologic information before monitoring well installation. The monitoring wells were installed using DPT methods. The shallow wells were completed to depths of up to 15 ft bls as determined from the water and lithologic data gathered during the confirmation assessment and previous investigations. The shallow monitoring wells were installed where the screens bracketed the water table. The shallow wells were constructed using 0.75-inch inner diameter (ID), Schedule 40 PVC, flush-threaded casing with 10 ft of 0.01-inch, factory-slotted, pre-packed, PVC screen. Once the well was in place, the annulus of the boring was back filled with clean, 20/30, silica sand from the bottom of the borehole to 2 ft above the top of the screen. A 2-ft seal of fine sand (30/65) was then installed on top of the filter pack. The remainder of the annulus was back filled with cement/bentonite grout.

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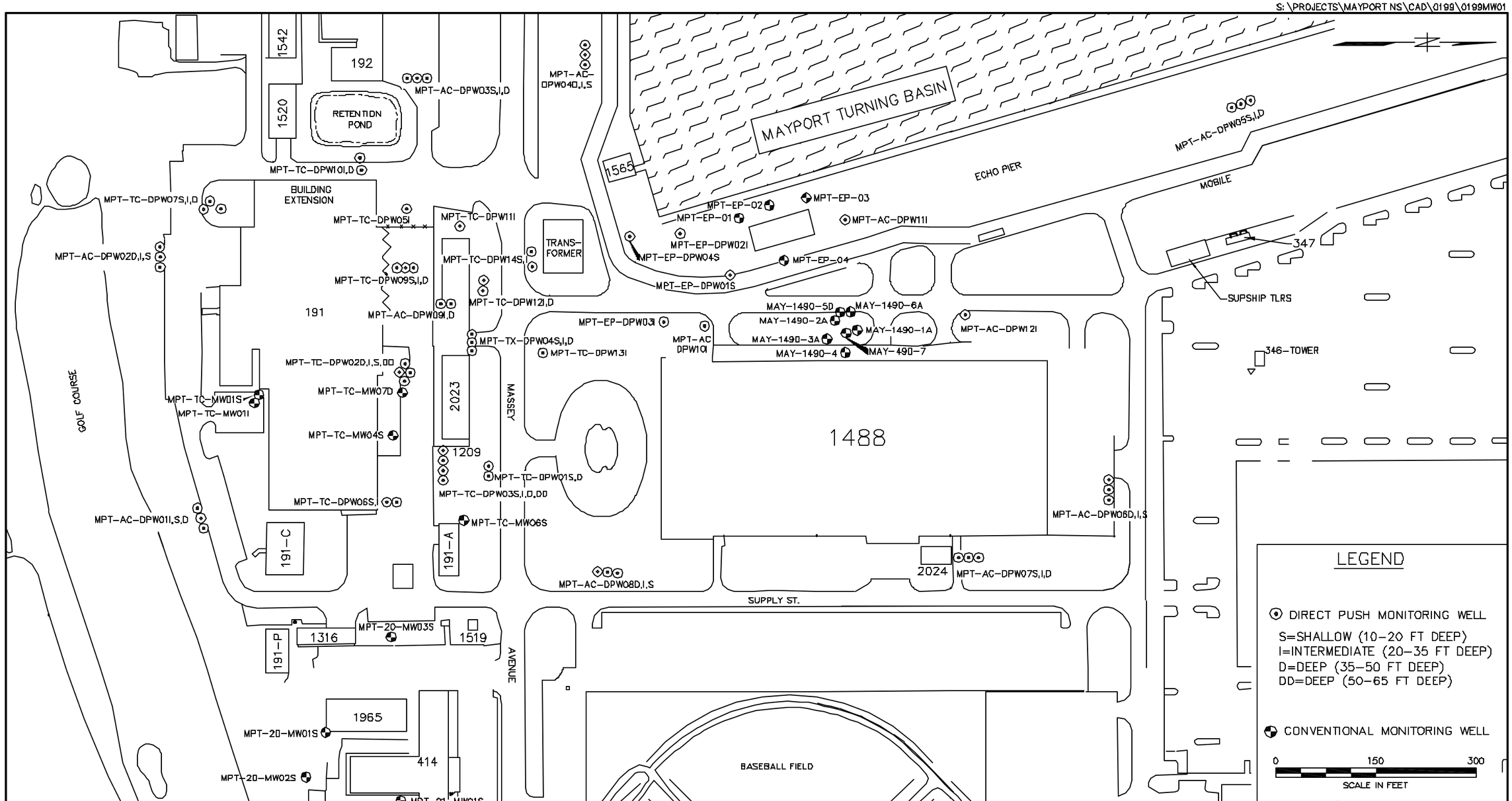

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DRAWN BY CW DATE 10/2/00
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COST/SCHED-AREA
SCALE AS NOTED

MONITORING WELL LOCATIONS
AREA OF CONCERN "C"
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
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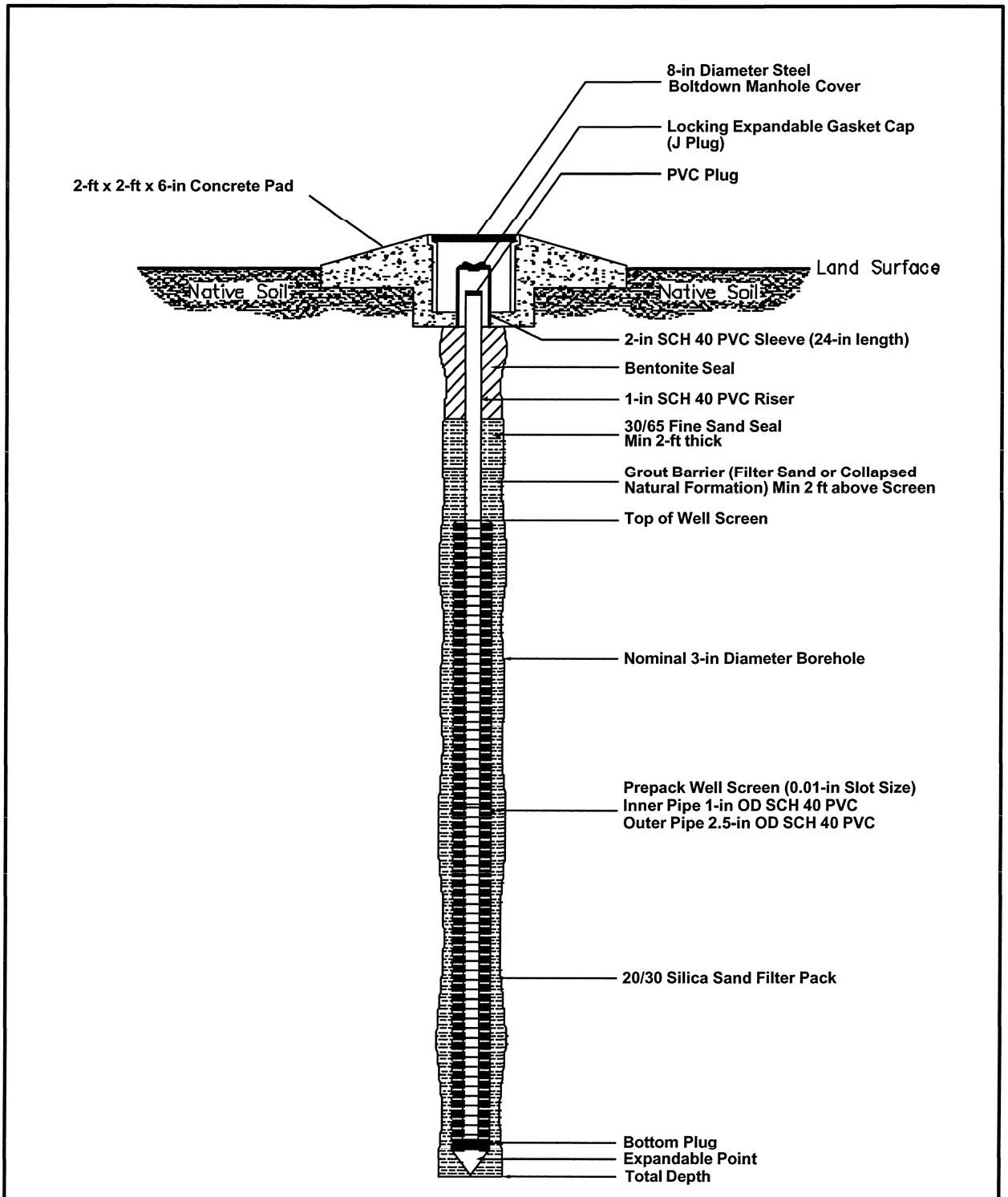

DRAWN BY LLK DATE 5/01/01		TYPICAL SHALLOW MICROWELL CONSTRUCTION DETAIL NAVAL STATION MAYPORT MAYPORT, FLORIDA	CONTRACT NO. 0199
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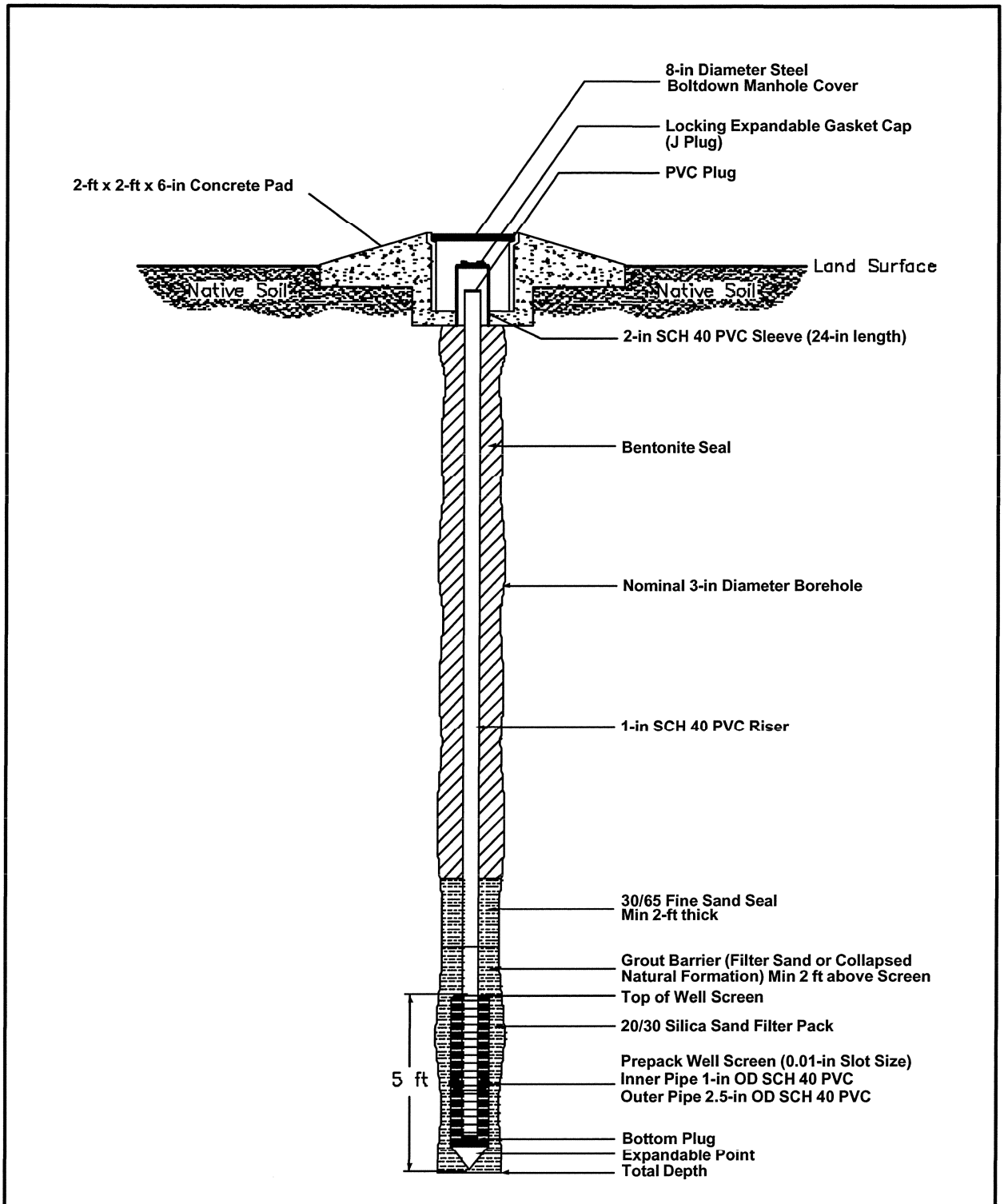

DRAWN BY LLK DATE 5/01/01		TYPICAL INTERMEDIATE AND DEEP MICROWELL CONSTRUCTION DETAIL NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NO. 0199
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED–AREA			APPROVED BY DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 4–4 REV. 0

The intermediate wells were installed to approximately 35 ft bls and the deep wells were installed to approximately 50 ft bls. The intermediate and deep wells were constructed using 2-inch ID, Schedule 40 PVC, flush-threaded casing with 5 ft of 0.01-inch, factory-slotted, pre-packed PVC screen. Once the screen and riser pipe were in place, the annulus of the boring was back filled with clean, 20/30, silica sand from the bottom of the borehole to 2 ft above the top of the screen. A 2-ft seal of fine sand (30/65) was then installed on top of the filter pack. The remainder of the annulus was back filled with cement/bentonite grout.

Each monitoring well surface completion was flush mount. The riser pipe was cut to approximately 3 inches bls using an inside pipe cutter, and a v-notch was cut into the north edge of the top-of-casing for surveying purposes. A 4-inch ID PVC casing 2-4 ft in length was installed around each riser to incorporate a water tight expansion cap. An 8-inch diameter protective steel casing with sealing gasket was then flush-mount installed around each monitoring well. The flush mounted casings were completed 1-inch above existing grade and the apron tapered to be flush with existing grade at the edges such that water would run off the apron. A 2-ft by 2-ft (saw-cut, saw-scored and jack hammered hole) by 6-inch thick concrete apron was constructed around each flush-mount monitoring well.

4.2.5 Monitoring Well Development

Monitoring wells were developed using peristaltic pumps no sooner than 24 hours after installation until the following criteria were achieved:

- Stabilization of temperature, pH, and electrical conductivity had occurred.
- Turbidity remained within a five Nephelometric Turbidity Unit range for two consecutive readings.
- A minimum of three well volumes was removed from the monitoring well.
- Accumulated sediment was removed from the well.

4.2.6 Phase II Groundwater Sampling

The second phase of groundwater sampling was conducted from January 6 through January 14, 2000. Groundwater samples were collected using low-flow purge techniques from all newly installed monitoring wells and analyzed for the following parameters: Appendix IX VOCs using USEPA Method SW846-8260B, Appendix IX SVOCs using USEPA Method SW846-8270, Appendix IX organochlorine pesticides using USEPA Method SW846-8141, Appendix IX organochlorine herbicides using USEPA Method SW846-8151, Appendix IX PCBs using USEPA Method SW846-8082, TAL metals using USEPA Method SW846-6010B, and cyanide using USEPA Method SW846-9010B.

Twenty-four of the 29 groundwater samples were also analyzed in the field for the following natural attenuation parameters: dissolved oxygen (CHEMetrics), alkalinity (HACH® digital titrator), carbon dioxide (HACH digital titrator), sulfide (DR-850), nitrite (DR-850), nitrate (DR-850), manganese (DR-850), ferrous iron (DR-850), and hydrogen sulfide (HS-C). Groundwater samples were sent to a fixed-base laboratory for analysis of the following natural attenuation parameters: methane (USEPA Method 3810) and sulfate/nitrate/nitrite (USEPA Method 9056). These data were collected in order to obtain baseline natural attenuation data for AOC C.

4.2.7 Quality Assurance /Quality Control (QA/QC) Samples

All environmental sampling was performed in accordance with procedures outlined in the TtNUS work plan. QA/QC samples including equipment blanks, trip blanks, and field duplicates were collected.

4.2.8 Investigation Derived Waste (IDW) Management

IDW generated during the confirmation assessment and RFI field activities was managed in accordance with the practices and procedures previously taken by the CLEAN I contractor as described in the *Draft RFI Work Plan, Addendum 1, Investigation-Derived Waste Management Plan* (ABB-ES, 1992). All IDW generated during RFI field activities was stored on site until analysis of the media had been reviewed. The NAVSTA Mayport environmental coordinator then made an appropriate decision for disposal.

4.2.9 National Geodetic Vertical Datum Survey Locations

A certified land surveyor measured the locations of all newly installed monitoring wells and select pre-existing monitoring wells. The elevations of all monitoring wells were surveyed at the water level measuring reference point on the top of the well casing and on the undisturbed ground surface adjacent to the well pad. Elevations and horizontal locations were recorded to the nearest hundredth of a foot. Each point was measured from a reference location tied to the Florida State Plane Coordinate System. An X–Y coordinate system was used to identify locations, with the X coordinate as the east–west axis and the Y coordinate as the north–south axis. Existing installation benchmarks and two newly installed control points served as the horizontal and vertical datum for the survey.

5.0 NATURE AND EXTENT

This section summarizes and evaluates the nature and extent of contamination and the impact to surface and subsurface soil, groundwater, surface water, and sediment at AOC C.

The quality of the chemical analytical data collected during the AOC C investigation has been documented. The analytical data validation process was completed for all laboratory data packages in accordance with the USEPA Functional Guidelines for Organic Data Validation (USEPA, 1994a), and the USEPA Functional Guidelines for Inorganic Data Validation (USEPA, 1994b). The data set compiled using these guidelines, is considered acceptable for use in this RFI and to support a CMS. The validated laboratory data packages are presented in Appendix H.

Sources of contamination are discussed in Section 5.1. Section 5.2 presents a summary of the background screening program for NAVSTA Mayport (ABB-ES, 1995b). In Section 5.3, the nature and distribution of contamination throughout AOC C are presented and evaluated against background screening values (BSVs) and appropriate regulatory benchmark values. Within the media discussion, analytical fractions are discussed in the following order: VOCs, SVOCs, inorganics, PCBs, pesticides, and herbicides. Following the evaluation of each analytical fraction for a particular medium, a summary of relevant results and findings is presented.

5.1 SOURCES OF CONTAMINATION

5.1.1 Building 191

Building 191 is located on the southwest corner of Massey Avenue and Supply Street approximately 300 ft south of Echo Pier. The building is used to centralize, warehouse, and ship various supplies. Outlying buildings located within the fenced perimeter of Building 190 include Buildings 190-A, 190-C, 2023, and 2028. The outlying buildings are used to store hazardous materials such as solvents and compressed gasses.

Potential sources of contamination include petroleum product line failures and historical releases of chemicals (i.e., solvents, etc.) stored on-site and migration of contaminants from a landfill located beneath the western half of Building 191.

A diesel fuel spill from a product line failure was discovered in February 1994. The underground product line was an appurtenance of a 300-gallon diesel fuel AST located on the south side of Building 191. Approximately 170 gallons of diesel fuel were estimated to have been released to the surrounding area.

An assessment documented in the CAR, dated August 1994, was completed by ESE. Two areas of soil contamination were excavated and four monitoring wells (two source, one downgradient, and one upgradient) were installed. Groundwater impact attributable to the line failure was not evident; however, tetrachloroethene was detected in the upgradient (background) well which prompted the current RCRA investigation at AOC C. A copy of the CAR is provided in Appendix D.

A documented tetrachloroethene release occurred at Building 191 on May 3, 1993. An ensuing assessment of the spill area did not indicate that impact to the surrounding area had occurred as a result of the spill. The spill occurred on asphalt and was immediately contained and remediated. Subsequent samples of asphalt, limerock, and soil samples were collected in the spill area with the analytical results indicating no adverse environmental impact. Therefore, due to absence of an obvious source area(s), TtNUS identified the landfill as a suspected source of tetrachloroethene in the groundwater at Building 191. A copy of the release report is provided in Appendix I.

5.1.2 Shore Intermediate Maintenance Activity

SIMA is located on the northwest corner of Massey Avenue and Supply Street east and adjacent to Echo Pier. SIMA operations include maintenance and repair support for ships berthed at NAVSTA Mayport.

A petroleum investigation described in Section 3.0 of this report was performed at SIMA beginning in 1992. NFA status was given in 1997. The original CAR and addendums with the NFA approval letter is provided in Appendix E.

5.1.3 Echo Pier

Echo Pier is located in the southeastern section of the Mayport Turning Basin adjacent and west of SIMA and north of Building 191. Ships berthed at Echo Pier undergo mechanical, electrical, and minor structural maintenance and repair.

Potential sources of contamination at Echo Pier include petroleum product line failures. Other potential sources include line failures from the oily waste collection system (SWMU 47) and the sanitary sewer system (SWMU 53).

A petroleum investigation, described in Section 3.0 of this report, is currently ongoing at Echo Pier.

5.2 BACKGROUND SCREENING CONCENTRATIONS

Constituents detected during the RFI investigation were compared to BSVs obtained during previous background and site investigations. The background characterization consisted of surface and subsurface soil, surface water, sediment, and groundwater sampling from areas outside of SWMUs and industrialized areas within the NAVSTA Mayport boundary. The background data is presented in Section 2.0 of the NAVSTA Mayport GIR (ABB-ES, 1995b). The BSVs were revisited based on USEPA Region IV guidelines and republished in a technical memorandum (Appendix J). The final approved Background Screening Letter Report will be incorporated into the Mayport GIR.

5.3 CONTAMINATION ASSESSMENT

To further define the horizontal and vertical extent of any groundwater contamination, TtNUS installed 29 additional monitoring wells across AOC C as described previously. Environmental samples collected at AOC C included two surface and four subsurface soil samples, one surface water, one sediment, and 46 groundwater samples. Figure 4-2 presents the monitoring well and sampling locations at AOC C.

For the purposes of the following discussion, AOC C has been divided into three logical units: Building 191, Echo Pier, and SIMA. The results for each unit are discussed below.

5.3.1 Building 191

Eleven monitoring wells were installed near Building 191. Three monitoring wells were screened at or above 15 ft bls, four were screened at approximately 30 to 35 ft bls, and four were screened at approximately 45 to 50 ft bls. Groundwater samples from these monitoring wells and an additional 14 monitoring wells were collected in support of the RFI. Other environmental samples collected at Building 191 include two surface and four subsurface soil samples, one surface water sample, and one sediment sample. A surface soil sample was also collected near Building 191 in support of the concurrent Group IV RFI and is discussed below. The surface and subsurface soil, surface water, and sediment sampling locations at Building 191 are presented in Figure 4-1. The groundwater sample locations at Building 191 are presented in Figure 4-2.

5.3.1.1 Surface Soil Assessment

Three surface soil samples (MPT-AC-SS03-01, MPT-AC-SS04-01, and MPT-55-SS06-01), shown in Figure 4-1, were collected from Building 191. Target analytes detected in the surface soil at Building 191

consisted of SVOCs, PCBs, pesticides, and inorganics. There were no VOCs or herbicides detected in the surface soil samples collected at Building 191.

5.3.1.1.1 Semivolatiles in the Surface Soil at Building 191

There were 13 SVOCs detected in the surface soil samples collected at Building 191. Five SVOCs were detected above FDEP SCTL residential criteria and two were detected above FDEP SCTL industrial criteria. None of the results exceeded the FDEP SCTL leaching values. All results exceeding regulatory criteria were detected in surface soil sample MPT-55-SS06-01.

Benzo(a)anthracene [2.6 milligrams per kilogram (mg/kg)]; benzo(a)pyrene (3.5 mg/kg); benzo(b)fluoranthene (5.7 mg/kg); dibenzo(a,h)anthracene (0.73 mg/kg); and indeno(1,2,3-cd)pyrene (2.6 mg/kg) were detected at concentrations exceeding FDEP SCTL residential criteria, USEPA Region IX Preliminary Remediation Goal (PRG) residential criteria, and USEPA Region IX PRG industrial criteria. Benzo(a)pyrene and dibenzo(a,h)anthracene were the only two analytes that exceeded their respective FDEP SCTL industrial criteria. Table 5-1 presents a summary of SVOC results in surface soil and provides comparisons to benchmark values.

5.3.1.1.2 Inorganics in the Surface Soil at Building 191

Twelve inorganics were detected in the surface soil samples collected at Building 191. Three inorganics (barium, chromium, and zinc) were detected at concentrations that exceed background-screening values.

Ten target analytes (aluminum, antimony, calcium, cobalt, iron, magnesium, manganese, mercury, potassium, and sodium) detected in the samples collected at Building 191 were not detected in the background surface soil samples (ABB-ES, 1995b). There were no inorganic analytes detected in the surface soil at concentrations exceeding regulatory benchmark values. Table 5-1 presents the inorganic analytical results for surface soil at Building 191.

5.3.1.1.3 PCBs in the Surface Soil at Building 191

Arochlor-1260, detected in sample MPT-55-SU06-01 at 0.8 mg/kg, was the only PCB detected in the surface soil samples collected at Building 191. The FDEP SCTL was developed for total PCBs and not for individual PCBs. The result for sample MPT-55-SU06-01 exceeds the FDEP SCTL residential criterion (0.5 mg/kg), but is below the FDEP SCTL industrial criterion (2.1 mg/kg). The result is also below the FDEP SCTL leaching criterion of 17 mg/kg. The result for sample MPT-55-SU06-01 exceeds the USEPA Region IX PRG residential criterion (0.22 mg/kg), but is below the USEPA Region IX PRG industrial criterion (1.0 mg/kg).

Table 5-1
Summary of Analytes Detected in Surface Soil, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP SCTL Res[1]	FDEP SCTL Ind[1]	FDEP SCTL Leaching[1]	USEPA Region IX PRG	USEPA Region IX PRG	MPT-AC-SS03-01	MPT-AC-SS04-01	MPT-55-SS06-01
						Aug-00	Aug-00	Aug-00
Semivolatiles (mg/kg) (USEPA Method SW-846 8270C)								
Anthracene	18,000	260,000	2,500	3,700	38,000	< 0.36	< 0.35	0.16J
Benzo(a)anthracene	1.4	5	3.2	0.62	2.9	< 0.36	< 0.35	**2.6**
Benzo(a)pyrene	0.1	0.5	8	0.62	0.29	< 0.36	< 0.35	**3.5**
Benzo(b)fluoranthene	1.4	4.8	10	0.62	2.9	< 0.36	< 0.35	**5.7**
Benzo(g,h,i)perylene	2,300	41,000	32,000	--	--	< 0.36	< 0.35	2.7
Benzo(k)flouranthene	15	52	25	6.2	29	< 0.36	< 0.35	2.2
Carbazole	53	190	0.6	--	--	< 0.36	< 0.35	0.29J
Chrysene	140	450	77	62	290	< 0.36	< 0.35	3.9
Dibenzo(a,h)anthracene	0.1	0.5	30	0.062	0.29	< 0.36	< 0.35	0.73
Fluoranthene	2,900	48,000	1,200	2,900	30,000	< 0.36	< 0.35	5.6
Indeno(1,2,3-cd)pyrene	1.5	5	28	0.62	2.9	< 0.36	< 0.35	**2.6**
Phenanthrene	2,000	30,000	250	--	--	< 0.36	< 0.35	1.4
Pyrene	2,200	3,700	880	2,300	54,000	< 0.36	< 0.35	4.0

See notes at end of table.

Table 5-1 (continued)
Summary of Analytes Detected in Surface Soil, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[3]	FDEP SCTL Res[1]	FDEP SCTL Ind[2]	FDEP SCTL Leaching	USEPA Region IX PRG	USEPA Region IX PRG	MPT-AC-SS03-01	MPT-AC-SS04-01	MPT-55-SS06-01
							Aug-00	Aug-00	Aug-00
Inorganics (mg/kg) (USEPA Method SW-846 6010B)									
Aluminum	--	72,000	--	--	76,000	100,000	436J	698J	978J
Antimony	--	26	245	5	31	820	< 0.34	< 0.33	2.7
Arsenic	0.9	0.8	3.7	29	0.39	2.7	0.49	0.56	**1.1**
Barium	7.2	110	87,000	1,600	5,400	100,000	4.7	6.5	10.1
Cadmium	2	75	1,300	8	37	810	< 0.05	< 0.07	0.58
Calcium	--	--	--	--	--	--	57,300	12,900	25,300
Chromium	3.4	210	420	38	30	64	2.2J	2.7	5.3
Cobalt	--	4,700	110,000	--	4,700	100,000	< 0.23	< 0.22	0.54
Copper	2.2	110	76,000	--	2,900	760,000	< 0.38		30.3J
Iron	--	23,000	480,000	--	23,000	100,000	668	1,020	4,510
Lead	2.8	400	920	--	0.0061	0.088	0.62J	1.3	89.6
Magnesium	--	--	--	--	--	--	408	146	485
Manganese	--	1,600	22,000	--	18,000	32,000	18.2	8.5	25.7
Mercury	--	3.4	26	2.1	23	610	< 0.02	< 0.02	0.05
Potassium	--	--	--	--	--	--	< 67.7	< 55.5	36.3
Sodium	--	--	--	--	--	--	506	< 26.2	< 78.9
Vanadium	3.2	15	7,400	980	550	14,000	1.9J	1.5	9.6
Zinc	4.8	23,000	560,000	6,000	23,000	100,000	3.2J	4.9	139J

Notes:
[1]FDEP SCTLs, Chapter 62-777, FAC
[2]USEPA Region IX PRGs
[1]Recalculation of Background Screening Values (SBVs), NAVSTA Mayport, Florida, TtNUS, 2001 Res - Residential Ind - Industrial
Bold results exceed FDEP SCTL for a residential scenario; **bold and underlined** exceed the FDEP SCTL for an industrial scenario.
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit .
Res = Residential
Ind = Industrial

5.3.1.1.4 Pesticides in the Surface Soil at Building 191

4,4-Dichlorodiphenyldichloroethylene (DDE), detected in sample MPT-SS-SU06-01 at 0.014 mg/kg, was the only pesticide detected in the surface soil samples collected from Building 191. 4,4-DDE was not detected above benchmark values.

5.3.1.1.5 Interpretation of Surface Soil Data for Building 191

Five SVOCs [benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene] and one PCB (Arochlor-1260) were detected in the surface soil samples at concentrations that exceed FDEP SCTLs. All of the constituents detected above FDEP SCTLs originated from surface soil sample MPT-55-SS06-01, which was collected in a storm sewer drainage ditch originating from Building 191.

Semivolatiles

Benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene were detected at concentrations exceeding FDEP SCTL residential values. Of these constituents, benzo(a)pyrene and dibenzo(a,h)anthracene were the only two analytes that exceeded their respective FDEP SCTL industrial criteria. These constituents are a result of discharge or runoff from the paved areas at Building 191.

PCBs

Arochlor-1260 was detected in the surface soil samples collected from Building 191. Arochlor-1260 exceeded the residential FDEP SCTL; however, did not exceed the industrial FDEP SCTL for PCBs. PCBs have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. Products containing PCBs include old fluorescent lighting fixtures, electrical appliances containing PCB capacitors, old microscope oil, and hydraulic fluids. There is no record of PCB containing materials being stored at Building 191.

5.3.1.2 Subsurface Soil Assessment

Four subsurface soil samples (MPT-AC-SU01-05, MPT-AC-SU02-05, MPT-AC-SU03-05, and MPT-AC-SU04-05) shown in Figure 4-1, were collected at Building 191. Target analytes detected in the subsurface soil samples at Building 191 included inorganics and pesticides. There were no VOCs, SVOCs, PCBs, or herbicides detected in the subsurface soil samples collected at Building 191.

5.3.1.2.1 Inorganics in the Subsurface Soil at Building 191

Sixteen inorganics were detected in the four subsurface soil samples collected at Building 191. Only zinc was detected in the subsurface soil samples at concentrations that exceed BSVs. Eight target analytes detected in the samples collected at Building 191 were not detected in the background surface soil samples (ABB-ES, 1995b). No inorganic analytes were detected in the subsurface soil samples at concentrations that exceed regulatory benchmark values. Table 5-2 presents the inorganic analytical results for subsurface soil at Building 191.

5.3.1.2.2 Pesticides in the Subsurface Soil at Building 191

Two pesticides [4,4-DDE and 4,4-dichlorodiphenyltrichloroethane (DDT)] were detected in the subsurface soil samples collected at Building 191. No pesticides were detected in the subsurface soil samples at concentrations that exceed regulatory benchmark values. Table 5-2 presents the pesticide analytical results for subsurface soil at Building 191.

5.3.1.2.3 Interpretation of the Subsurface Soil Data for Building 191

There were no target analytes detected in the subsurface soil samples collected at Building 191 in concentrations that exceed FDEP SCTLs.

5.3.1.3 Sediment Assessment

One sediment sample (MPT-AC-SD01-01), shown in Figure 4-1, was collected from Building 191. Target analytes detected in the sediment samples at Building 191 include VOCs and inorganics. SVOCs, PCBs, pesticides, and herbicides were not detected in the sediment samples collected at Building 191. There were no analytes detected above benchmark comparison values in the sediment sample collected at Building 191. Table 5-3 presents the analytical results for sediment at Building 191.

5.3.1.3.1 Interpretation of Sediment Data for Building 191

There were no sediment results above benchmark comparison values. However, there were no established benchmark comparison values for any of the detected VOCs or half of the detected inorganics. The sediment sample was collected in a retention basin south of Building 191 along the northern boundary of the golf course. The retention basin collects surface water runoff from the Building 191 area and is not used for recreational purposes.

Table 5-2
Summary of Analytes Detected in Subsurface Soil, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP SCTL Res[2]	FDEP SCTL Ind[2]	FDEP SCTL Leaching	USEPA Region IX PRG	USEPA Region IX PRG	MPT-AC-SU01-05	MPT-AC-SU02-05	MPT-AC-SU03-04	MPT-AC-SU04-04
							Aug-00	Aug-00	Nov-00	Nov-00
Organochlorine Pesticides (µg/kg) (USEPA Method SW-846 8181A)										
4,4-DDE	NA	3,300	13,000	18,000	1,700	12,000	1.1 J	2.9	<1.9	<2.2
4,4-DDT	NA	3,300	13,000	11,000	1,700	12,000	<2.1	3.2	<1.9	<2.2
Inorganics (mg/kg) (USEPA Method SW-846 6010B)										
Aluminum	--	72,000	--	--	76,000	100,000	434J	167J	402J	424J
Arsenic	0.9	0.8	3.7	29	0.39	2.7	0.75	<0.47	<0.36	<0.41
Barium	7.2	110	87,000	1,600	5,400	100,000	6.1	3.7	5.3	3.8
Cadmium	--	75	1,300	8	37	810	0.051	0.053	<0.04	<0.03
Calcium	--	--	--	--	--	--	4,590J	995J	91,700	3,480
Chromium	3.4	210	420	38	30	64	<2.8	<1.3	1.6J	1.6
Iron	--	23,000	480,000	--	23,000	100,000	648	183	552	404
Lead	2.8	400	920	--	0.0061	0.088	1.5	2.2	0.3J	0.5
Magnesium	--	--	--	--	--	--	115	38.5	297	78.4
Manganese	--	1,600	22,000	--	18,000	32,000	6.8	4.5	12.8J	3.5
Potassium	--	--	--	--	--	--	34.5	21.8	<70.1	<57.7
Selenium	--	390	10,000	5	390	10,000	<0.52	<0.57	0.56	<0.52
Sodium	--	--	--	--	--	--	69.3	<57.8	982	<31.4
Tin	5.4	44,000	660,000	--	47,000	100,000	2.1	2.2	<1.6	<1.4
Vanadium	3.2	15	7,400	980	550	14000	1.3	0.97	1.2J	<0.78
Zinc	4.8	23,000	560,000	6,000	23,000	100,000	3.7J	38.2J	3.3J	4.8

Notes:
[1]Recalculation of BSVs, NAVSTA Mayport, Florida, TtNUS, 2001
[2]FDEP SCTLs, Chapter 62-777, FAC
[3]USEPA Region IX PRGs
µg/kg = micrograms per kilogram
< indicates that the value is less than the detection limit.

Table 5-3
Summary and Comparison of Volatiles Detected in Sediment, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSVs[1]	USEPA Region IV Sediment Screening	MPT-AC-SD01-01 12/15/2000
Volatiles (mg/kg) (USEPA Method SW-846 8260B)			
1,1-Dichloroethene	NA	--	1.2J
Carbon disulfide	NA	--	3.1J
Tetrachloroethene	NA	--	1.5J
Inorganics (mg/kg) (USEPA Method SW-846 6010B)			
Aluminum	--	--	317J
Arsenic	2.5	7.24	0.98
Barium	14.3	--	2.4J
Calcium	--	--	565
Cobalt	2	--	0.84
Iron	--	--	493J
Lead	6.8	30.2	0.32
Magnesium	--	--	35.6
Manganese	--	--	1.9
Nickel	6.2	15.9	1.3

Notes:
[1] Recalculation of Media BSVs, NAVSTA Mayport, Florida (TtNUS, 2000)
[2]USEPA Region IV Sediment Screening Values, August 11, 1999

5.3.1.4 Surface Water Assessment

One surface water sample (MPT-AC-SW01-01), shown in Figure 4-1, was collected at Building 191. Target analytes detected in the surface water sample included VOCs and inorganics. No SVOCs, PCBs, pesticides, or herbicides were detected in the surface water sample collected at Building 191. Table 5-4 presents the analytical results for surface water at Building 191.

5.3.1.4.1 Volatiles in the Surface Water at Building 191

Three VOCs (bromodichloromethane, chloroform, and dibromochloromethane) were detected in the surface water sample collected at Building 191. Bromodichloromethane and dibromochloromethane were detected in the surface water sample at concentrations that exceeded one or more surface water regulatory benchmark values.

Bromodichloromethane was detected in the surface water sample at 1.9 micrograms per liter (µg/L), which exceeds the FDEP SWCTL (0.6 µg/L). There is not an USEPA MCL for bromodichloromethane.

Dibromochloromethane was detected in the surface water sample at 0.98 µg/L, which exceeded the FDEP SWCTL (0.4 µg/L). There is not an USEPA MCL for bromodichloromethane.

5.3.1.4.2 Inorganics in the Surface Water at Building 191

Six inorganics were detected in the surface water sample collected at Building 191. No inorganic analytes were detected in the surface water sample in concentrations that exceed BSVs. Two target analytes (cyanide and potassium) detected in the samples collected at Building 191 were not detected in the background surface water samples (ABB-ES, 1995b). Only cyanide was detected in the surface water sample in concentrations that exceed a regulatory benchmark value.

Total cyanide was detected at 19.1 µg/L in the surface water sample MPT-AC-SW01-01, exceeding the FDEP SWCTL (5.0 µg/L) per FDEP Chapter 62-302, FAC. The Class V criterion for navigation, utility, and industrial use was used. The concentration of cyanide also exceeded the USEPA Region IX PRG (6.3 µg/L), but did not exceed the USEPA MCL (200 µg/L).

Table 5-4
Summary of Detections in Surface Water, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP SWCTLs[2]	USEPA MCL[3]	MPT-AC-SW01-01
				12/15/2000
Volatiles (µg/L) (USEPA Method SW-846 8260B)				
Bromodichloromethane	--	0.6	--	**1.9**
Chloroform	--	5.7	--	3.9
Dibromochloromethane	--	0.4	--	**0.98J**
Inorganics (µg/L) (USEPA Method SW-846 6010B)				
Barium	22.9	*	2,000	21.6
Calcium	282,175	--	--	36,400
Cyanide	3	5	200	**19.1**
Magnesium	671,150	--	--	10,800
Potassium	--	--	--	8,950
Sodium	191,542	**	--	2,100

Notes:
[1] Recalculation of Media BSVs, NAVSTA Mayport, Florida (TtNUS, 2000)
[2]FDEP SWCTLs, Chapter 62-777, FAC
* Not greater than 10% above background.

** Shall not increase by more than 50% above background or to 1275, whichever is greater (per Chapter 62-302, FAC).

-- = there is not a regulatory value for this analyte.
A **bold** value indicates a result exceeding an FDEP benchmark value.

5.3.1.4.3 Interpretation of Surface Water Data for Building 191

Organics

Bromodichloromethane and dibromochloromethane were detected at concentrations that exceed FDEP SWCTLs. Bromodichloromethane and dibromochloromethane are trihalomethanes commonly formed after chlorination of water. The surface water sample was collected from a retention pond located south of Building 191 along the northern edge of the golf course. The retention pond collects surface water runoff from Building 191 and is not used recreationally.

Inorganics

Total cyanide was the only inorganic target analyte detected in the surface water sample collected from Building 191 at a concentration that exceeded the FDEP SWCTL. However, the FDEP SWCTL is based on free cyanide, which is bioavailable. Total cyanide includes free, fixed, and complexed cyanide. It is unknown if free cyanide is present at levels above regulatory critieria. Cyanide contamination has not previously been associated with any multimedia samples collected at Building 191.

5.3.1.5 Groundwater Assessment at Building 191

Twenty-five groundwater samples, shown in Figure 4-2, were collected at Building 191. Target analytes detected in groundwater samples collected at Building 191 include VOCs, SVOCs, inorganics, and pesticides. There were no PCBs or herbicides detected in the groundwater samples collected at Building 191.

5.3.1.5.1 VOCs in the Groundwater at Building 191

Fourteen VOCs were detected in the groundwater samples collected at Building 191. Seven VOCs were detected in the groundwater samples at concentrations that exceed a regulatory benchmark value. Figure 5-1 presents the analytical results for VOCs exceeding FDEP GCTLs. Table 5-5 presents the VOC analytical results for groundwater at Building 191.

1,1-Dichloroethene, detected in monitoring well MPT-TC-DPW07D at 7.8 µg/L, exceeded the FDEP GCTL of 7 µg/L, the USEPA Region IX PRG of 0.046 µg/L, and the USEPA MCL of 7 µg/L. Duplicate sample MPT-AC-GW-DU02 confirmed the presence of 1,1-dichloroethene at 5.6 µg/L in monitoring well MPT-TC-DPW07D, which exceeded only the USEPA Region IX PRG.

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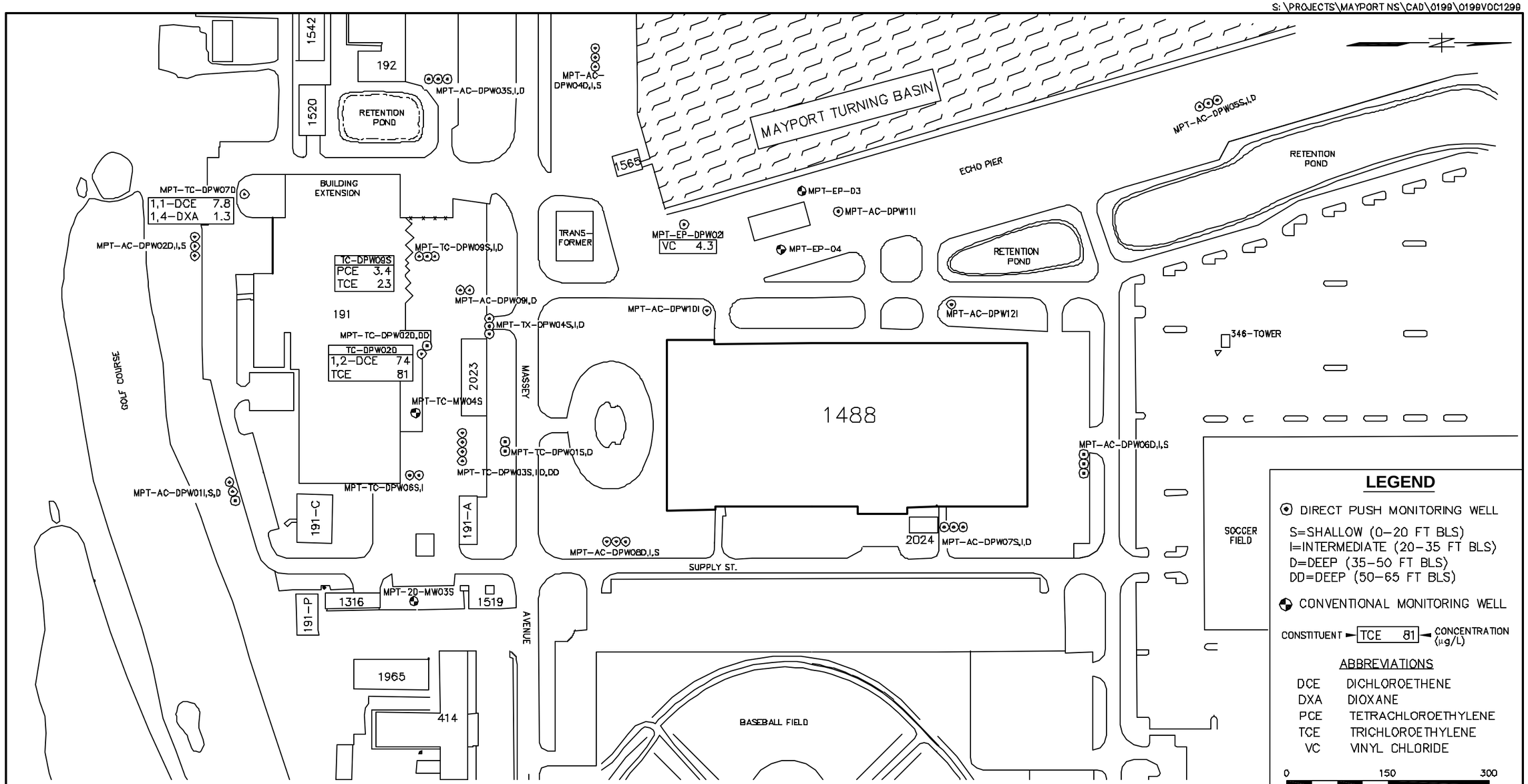

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 5/03/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

VOC CONCENTRATIONS EXCEEDING
CURRENT FDEP CRITERIA
AREA OF CONCERN "C"
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 5-1
REV. 0

FORM CADD NO. SOIV_BH.DWG - REV 0 - 1/20/98

Table 5-5
Summary of Volatiles Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-TC-GW-DPW						
				01S-01	01D-01	02D-01	02DD-01	03S-01	03I-01	03D-01
				Nov-99	Nov-99	Dec-99	Dec-99	Dec-99	Dec-99	Dec-99
VOCs (USEPA Method SW-846 8020B) (µg/L)										
1,1-Dichloroethane	70	810	--	<1.0	<1.0	2.8J	3.1	<5.0J	<1.0	0.26J
1,1-Dichloroethene	7	0.046	7	<1.0	<1.0	0.85J	0.84J	<5.0J	<1.0	<1.0
1,2-Dichloroethane	3	0.12	5	<1.0	<1.0	<5.0	<1.0	<5.0J	<1.0	<1.0
1,2-Dichloroethene (total)	63	--	--	<1.0	<1.0	**74**	0.24J	1.6J	1.1	3.0
1,2-Dichloroethene, cis-	70	61	70	< 0.5	<0.5	57	0.24J	1.6J	1.1	2.9
1,2-Dichloroethene, trans-	100	120	100	< 0.5	<1.0	17	<0.5	<2.5J	0.07J	0.12J
Bromodichloromethane	0.6	0.18	--	<1.0	<1.0	<5.0	<1.0	<5.0J	<0.5	<1.0
Carbon disulfide	700	1,000	--	<1.0	<1.0	<5.0	<1.0	4.5J	<1.0	<1.0
Chlorobenzene	100	110	100	<1.0	<1.0	<5.0	<1.0	<5.0J	<1.0	<1.0
Chloroform	5.7	0.16	--	<1.0	<1.0	<5.0	<1.0	<5.0J	<1.0	<1.0
Dibromochloromethane	0.4	0.13	--	<1.0	<1.0	<5.0	<1.0	<5.0J	<1.0	<1.0
Tetrachloroethene	3	1.1	5	<1.0	<1.0	<5.0	<1.0	<5.0J	<1.0	<1.0
Trichloroethene	3	1.6	5	<1.0	<1.0	**81**	0.27J	0.15J	0.3J	<1.0
Vinyl chloride	1	0.02	2	<1.0	<1.0	<5.0	<1.0	<5.0J	<1.0	<1.0

See notes at end of table.

Table 5-5 (Continued)
Summary of Volatiles Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-TC-GW-DPW						
				03DD-01	DU01	06S-01	06I-01	07D-01	DU02	09I-01
				Dec-99	Dec-99	Dec-99	Dec-99	Dec-99	Dec-99	Dec-99
VOCs (USEPA Method SW-846 8020B) (µg/L)										
1,1-Dichloroethane	70	810	--	0.35J	0.20J	<1.7	0.21J	18	14	0.45J
1,1-Dichloroethene	7	0.046	7	<1.0	<1.0	<1.7	<1.0	**7.8J**	5.6J	0.48J
1,2-Dichloroethane	3	0.12	5	<1.0	<1.0	<1.7	<1.0	0.27J	0.17J	<1.0
1,2-Dichloroethene (total)	63	--	--	3.2J	2.0J	<1.7	<1.0	0.34J	0.30J	34
1,2-Dichloroethene, cis-	70	61	70	3.1J	1.9J	<0.83	<0.5	0.34J	0.3J	33
1,2-Dichloroethene, trans-	100	120	100	0.11J	0.079J	<0.83	<0.5	<0.5	<0.5	1.2
Bromodichloromethane	0.6	0.18	--	<1.0	<1.0	<1.7	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	700	1,000	--	<1.0	<1.0	<1.7	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	100	110	100	<1.0	0.086J	<1.7	<1.0	<1.0	<1.0	<1.0
Chloroform	5.7	0.16	--	<1.0	<1.0	<1.7	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	0.4	0.13	--	<1.0	<1.0	<1.7	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	3	1.1	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.4**
Trichloroethene	3	1.6	5	0.10J	0.065J	0.12J	<1.0	0.12J	0.099J	**23**
Vinyl chloride	1	0.02	2	0.13J	<1.0	0.47J	<1.0	0.47J	0.34J	0.27J

See notes at end of table.

Table 5-5 (Continued)
Summary of Volatiles Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-TC-GW-		MPT-AC-GW-DPW				
				DPW09D-01	MW04S-01	01S-01	01I-01	01D-01	02S-01	02I-01
				Dec-99	Dec-99	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
VOCs (USEPA Method SW-846 8020B) (µg/L)										
1,1-Dichloroethane	70	810	--	23	<1.0	<1.0	<1.0	0.37J	<1.0	0.93J
1,1-Dichloroethene	7	0.046	7	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	0.36J
1,2-Dichloroethane	3	0.12	5	0.081J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	63	--	--	3.1	0.14J	<1.0	<1.0	<1.0	<1.0	0.11J
1,2-Dichloroethene, cis-	70	61	70	2.9	0.14J	<0.5	<0.5	<0.5	<0.5	0.11J
1,2-Dichloroethene, trans-	100	120	100	0.11J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.6	0.18	--	<1.0	<1.0	<1.0	<1.0	0.33J	<1.0	<1.0
Carbon disulfide	700	1,000	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	100	110	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	5.7	0.16	--	<1.0	<1.0	<1.0	<1.0	0.67J	<1.0	<1.0
Dibromochloromethane	0.4	0.13	--	<1.0	<1.0	<1.0	<1.0	0.2J	<1.0	<1.0
Tetrachloroethene	3	1.1	5	<1.0	0.83J	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	3	1.6	5	1.2	0.62J	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	1	0.02	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

See notes at end of table.

Table 5-5 (Continued)
Summary of Volatiles Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-AC-GW-DPW						
				02D-01	03S-01	DU03	03I-01	03D-01	09I-01	09D-01
				Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
VOCss (USEPA Method SW-846 8020B) (µg/L)										
1,1-Dichloroethane	70	810	--	42	<1.0	0.82J	0.22J	1.3	0.33J	<1.0
1,1-Dichloroethene	7	0.046	7	4.6	<1.0	0.35J	<1.0	<1.0	0.18J	<1.0
1,2-Dichloroethane	3	0.12	5	<1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethene (total)	63	--	--	<1.7	<1.0	<1.0	<1.0	<1.0	13	<1.0
1,2-Dichloroethene, cis-	70	61	70	0.18J	<0.5	<0.5	<0.5	<0.5	12	<0.5
1,2-Dichloroethene, trans-	100	120	100	<0.83	<0.5	<0.5	<0.5	<0.5	0.83	<0.5
Bromodichloromethane	0.6	0.18	--	<1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon disulfide	700	1,000	--	<1.7	<1.0	<1.0	<1.0	<1.0	0.2J	0.13J
Chlorobenzene	100	110	100	<1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	5.7	0.16	--	<1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	0.4	0.13	--	<1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	3	1.1	5	<1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	3	1.6	5	<1.7	<1.0	<1.0	0.095J	<1.0	0.99J	<1.0
Vinyl chloride	1	0.02	2	0.3J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
[1]FDEP GCTLs, Chapter 62-777, FAC
[2]USEPA Region IX PRGs
[3]USEPA MCLs
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

Total 1,2-dichloroethene, consisting of cis-1,2-dichloroethene and trans-1,2-dichloroethene, was detected in monitoring well MPT-TC-DPW02D at 74 µg/L, which exceeds the FDEP GCTL of 63 µg/L. There is not an USEPA Region IX PRG or USEPA MCL for 1,2-dichloroethene (total).

Tetrachloroethene was detected in monitoring well MPT-TC-DPW09I at 3.4 µg/L, exceeding the FDEP GCTL of 3 µg/L and the USEPA Region IX PRG of 1.1 µg/L. Tetrachloroethene did not exceed the USEPA MCL of 5 µg/L.

Trichloroethene detected in monitoring wells MPT-TC-DPW02D at 81 µg/L and MPT-TC-DPW09I at 23 µg/L exceeded the FDEP GCTL of 3 µg/L, the USEPA Region IX PRG of 1.6 µg/L, and the USEPA MCL of 5 µg/L.

Three VOCs (bromodichloromethane, chloroform, and dibromochloromethane) were detected in the groundwater sample collected from monitoring well MPT-AC-DPW01D at concentrations that exceed only the USEPA Region IX PRGs. None were detected at concentrations that exceed FDEP GCTLs or USEPA MCLs.

5.3.1.5.2 Semivolatile Organic Compounds in the Groundwater at Building 191

One SVOC (1,4-dioxane) was detected in the groundwater sample collected at Building 191. Figure 5-2 presents the analytical results for SVOCs exceeding FDEP GCTLs.

1,4-Dioxane detected in the groundwater sample collected from monitoring well MPT-TC-DPW07D (13 µg/L) exceeded the FDEP GCTL of 5 µg/L. 1,4-Dioxane was also detected at 16 µg/L in the duplicate sample (MPT-TC-GW-DU02) collected from monitoring well MPT-TC-DPW07D.

5.3.1.5.3 Inorganics in the Groundwater at Building 191

Seventeen inorganics were detected in the groundwater samples collected at Building 191. Seven inorganic target analytes (arsenic, barium, iron, magnesium, manganese, sodium, and zinc) were detected in the groundwater samples collected at Building 191 in concentrations that exceeded background-screening values. Eight inorganic target analytes (aluminum, antimony, cadmium, chromium, cobalt, nickel, potassium, and thallium) detected in the groundwater samples collected at Building 191 during this RFI were not detected during the background screening sample data collection (ABB-ES, 1995b). Six of these inorganics (aluminum, arsenic, iron, manganese, sodium, and thallium) were detected at concentrations that exceed a regulatory benchmark value and are described below. Table 5-6 presents the inorganic analytical results for groundwater at Building 191. Figure 5-3 presents the analytical results for inorganics exceeding FDEP GCTLs.

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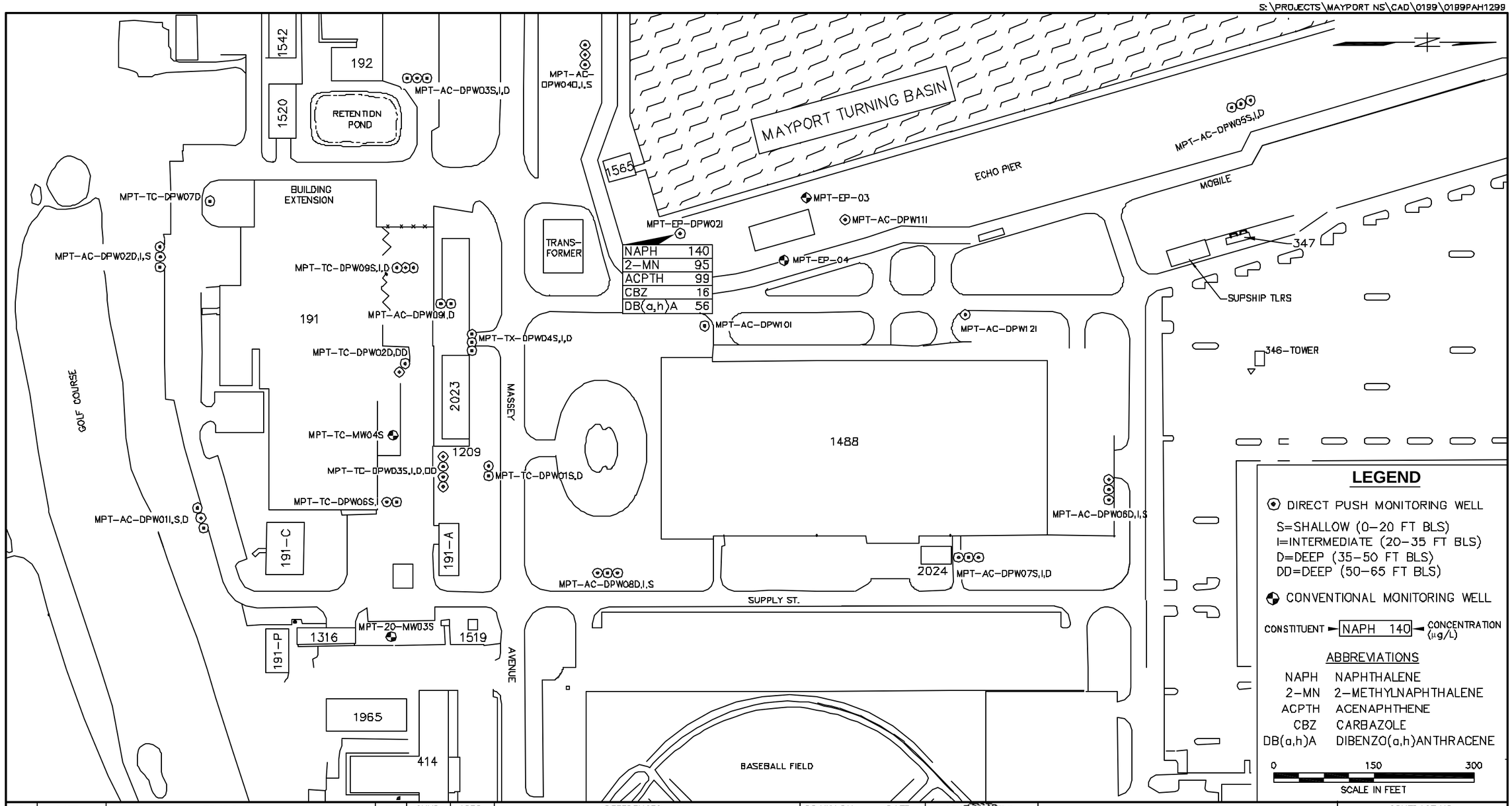

LEGEND

- DIRECT PUSH MONITORING WELL
  - S=SHALLOW (0–20 FT BLS)
  - I=INTERMEDIATE (20–35 FT BLS)
  - D=DEEP (35–50 FT BLS)
  - DD=DEEP (50–65 FT BLS)
- CONVENTIONAL MONITORING WELL

CONSTITUENT ► NAPH 140 ◄ CONCENTRATION (µg/L)

ABBREVIATIONS

NAPH	NAPHTHALENE
2-MN	2-METHYLNAPHTHALENE
ACPTH	ACENAPHTHENE
CBZ	CARBAZOLE
DB(a,h)A	DIBENZO(a,h)ANTHRACENE

0 150 300
SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 5/03/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

PAH CONCENTRATIONS EXCEEDING
CURRENT FDEP CRITERIA
AREA OF CONCERN "C"
NAVAL STATION MAYPORT
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 5-2
REV. 0

FORM CADD NO. SDIV_BH.DWG – REV D – 1/20/98

Table 5-6
Summary of Inorganics Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX PRG[3]	USEPA MCL[4]	MPT-TC-GW-DPW						
					01S-01	01D-01	02D-01*	02DD-01	03S-01*	03I-01*	03D-01*
					Nov-99	Nov-99	Dec-99	Dec-99	Dec-99	Dec-99	Dec-99
Inorganics (µg/L) (USEPA Method SW-846 6010B)											
Aluminum	--	200	37,000	--	<73.6	<73.6	<73.6	<73.6	<73.6	<73.6	187
Antimony	--	6	15	6	3.2	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
Arsenic	5.3	50	0.45[ab]	10	<2.7	<2.7	<2.7	9.2J	<2.7	<2.7	<2.7
Barium	37.8	2,000	2,600	2,000	30.9J	<2.2	2.6J	52.7J	5.8J	4.6J	48.5J
Cadmium	--	5	18	5	0.22	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	226,125	--	--	--	157,000	71,600	92,100	199,000	128,000	75,900	42,900
Chromium	--	100	110	100	4.0	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Cobalt	--	420	2,200	--	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Iron	494	300	11,000	--	**1,710**	<30.2	<23.1	**3,540**	**346**	<57.1	**973**
Lead	2	15	--	15	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Magnesium	184,393	--	--	--	23,100	46,800	24,400	376,000	21,600	26,700	74,100
Manganese	141	50	880	--	**134**	**91**	27.5	**191**	**121**	**103**	27
Nickel	--	100	730	--	2.9	1.5	1.4	<1.3	<1.3	<1.3	13.5
Potassium	--	--	--	--	3,890	23,600	4,330	198,000	4,170	6,420	80,800
Sodium	1,524,588	160,000	--	--	11,400	**188,000**	18,500	**3,490,000**	15,300	18,500	**1,050,000**
Thallium	--	2	--	2	**7.3**	**7.5**	<0.10	**10.7**	<0.30	<0.63	<0.43
Vanadium	6	49	260	--	<0.5	0.75	<0.5	<0.5	<0.5	0.59	<0.5
Zinc	5.8	5,000	11,000	--	<6.5	<4.4	<11.5	<9.2	<4	<12	<17.6

See notes at end of table.

Table 5-6 (Continued)
Summary of Inorganics Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX PRG[3]	USEPA MCL[4]	MPT-TC-GW-DPW						
					03DD-01*	DU01	06S-01*	06I-01*	07D-01	DU02	09I-01*
					Dec-99	Dec-99	Dec-99	Dec-99	Dec-99	Dec-99	Dec-99
Inorganics (µg/L) (USEPA Method SW-846 6010B)											
Aluminum	--	200	37,000	--	128	<73.6	<73.6	<73.6	<73.6	<73.6	<73.6
Antimony	--	6	15	6	<2.6	3.4	<2.6	<2.6	<2.6	<2.6	<2.6
Arsenic	5.3	50	0.45[ab]	10	4.6	4.0	<2.7	<2.7	<2.7	<2.7	<2.7
Barium	37.8	2,000	2,600	2,000	45.8J	45.5J	3.1J	5.4J	3.3J	3.3J	3.6J
Cadmium	--	5	18	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	226,125	--	--	--	35,900	34,400	87,600	66,800	91,500	98,000	98,600
Chromium	--	100	110	100	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Cobalt	--	420	2,200	--	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Iron	494	300	11,000	--	**833**	**702**	**315**	<87.8	**847**	**906**	<32
Lead	2	15	--	15	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Magnesium	184,393	--	--	--	65,700	62,700	23,200	54,300	18,800	20,400	30,800
Manganese	141	50	880	--	22.8	22.7	**147**	20.1	38.6	41.4	31.7
Nickel	--	100	730	--	1.7	4.0	3.4	1.8	<1.3	<1.3	<1.3
Potassium	--	--	--	--	80,200	79,300	4,710	16,100	9,620	10,400	4570
Sodium	1,524,588	160,000	--	--	**1,150,000**	**1,100,000**	16,100	24,200	17,900	19,300	26,900
Thallium	--	2	--	2	<0.29	**10.0**	<0.27	<0.13	7.6	<7.1	<0.10
Vanadium	6	49	260	--	<0.5	<0.5	<0.5	1.4	2.8	2.5	0.89
Zinc	5.8	5,000	11,000	--	<9.8	<16	<16.2	50.2	<4.9	<5	<8.2

See notes at end of table.

Table 5-6 (Continued)
Summary of Inorganics Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX PRG[3]	USEPA MCL[4]	MPT-TC-GW-DPW		MPT-AC-GW-DPW				
					09D-01*	04S-01*	01S-01*	01I-01*	01D-01	02S-01*	02I-01*
					Dec-99	Dec-99	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
Inorganics (µg/L) (USEPA Method SW-846 6010B)											
Aluminum	--	200	37,000	--	<73.6	<73.6	<73.6	<73.6	**1,650**	<73.6	192
Antimony	--	6	15	6	<2.6	<2.6	<2.6	<2.6	3.2	<2.6	<2.6
Arsenic	5.3	50	0.45[ab]	10	<2.7	<3.1	<2.7	<2.7	3.3	<2.7	<2.7
Barium	37.8	2,000	2,600	2,000	11.4J	<1.6	2.9	4.7	14.5	8.2	6.1
Cadmium	--	5	18	5	<0.2	<0.2	<0.21	<0.2	<0.2	<0.2	<0.2
Calcium	226,125	--	--	--	34,500	69,100	106,000J	68,800J	38,900J	62,000J	93,000J
Chromium	--	100	110	100	<1.6	<1.6	<1.6	<1.6	<2.5	<1.9	<1.6
Cobalt	--	420	2,200	--	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Iron	494	300	11,000	--	**410**	<102	**343J**	**1,280J**	**?**	**8,630J**	**1,700J**
Lead	2	15	--	15	<1.5	<1.5	<1.5	<1.5	1.7	<1.5	<1.5
Magnesium	184,393	--	--	--	38,100	6,030	15,400J	13,500J	50,800J	14,300J	20,900J
Manganese	141	50	880	--	31.6	41.7	**93.1J**	44.1J	14.5J	**136J**	**72.9J**
Nickel	--	100	730	--	1.7	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Potassium	--	--	--	--	42,900	1,120	6,340J	4,820J	50,700J	1,570J	6,310J
Sodium	1,524,588	160,000	--	--	**283,000**	9,270	15,600	8,740	**431,000**	17,300	14,200
Thallium	--	2	--	2	<0.10	<0.20	<0.10	<0.10	**10.2**	<0.14	<0.10
Vanadium	6	49	260	--	0.66	3.2	<0.9	<0.5	<2.7	<0.5	<1.5
Zinc	5.8	5,000	11,000	--	<13.4	<10.2	<4.2	<15	<11.9	<20.6	<5.8

See notes at end of table.

Table 5-6 (Continued)
Summary of Inorganics Detected in Groundwater, Building 191

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX PRG[3]	USEPA MCL[4]	MPT-AC-GW-DPW						
					DU03	02D-01*	03S-01*	03I-01*	03D-01	09I-01*	09D-01*
					Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
Inorganics (µg/L) (USEPA Method SW-846 6010B)											
Aluminum	--	200	37,000	--	<73.6	<73.6	161	<73.6	<73.6	<15.5	<15.5
Antimony	--	6	15	6	<2.6	<2.6	<3.1	<2.6	<2.6	<1.6	<1.6
Arsenic	5.3	50	0.45[ab]	10	<2.7	<2.7	<2.5	<2.7	<2.7	<2.5	<12.2
Barium	37.8	2,000	2,600	2,000	5.2	5.5	13.6	3.2	41.2	8.7	38.5
Cadmium	--	5	18	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	226,125	--	--	--	92,400J	39,800J	19,900J	38,300J	85,700J	91,300J	103,000J
Chromium	--	100	110	100	<1.7	<1.6	<2.6	<1.6	<1.6	<2.6	<2.6
Cobalt	--	420	2,200	--	<0.7	<0.7	<1.5	<0.7	<0.7	<1.5	1.6
Iron	494	300	11,000	--	**1,820J**	**2,700J**	**1,560J**	**410J**	**994J**	<63.6	**3,170J**
Lead	2	15	--	15	<1.5	<1.5	<1.4	<1.5	<1.5	<1.4	<1.4
Magnesium	184,393	--	--	--	21,100J	27,800J	949J	7,710J	151,000J	30,100J	126,000J
Manganese	141	50	880	--	**78.9J**	47.8J	**53.5 J**	32.0J	**386J**	47.4J	**67J**
Nickel	--	100	730	--	<1.3	<1.3	<1.7	<1.3	<1.3	<1.7	<4.3
Potassium	--	--	--	--	6,430J	28,900J	<536	3,250J	109,000J	6,520J	107,000J
Sodium	1,524,588	160,000	--	--	14,800	79,300	15,700J	14,800	**1,800,000**	78,200J	**1,650,000J**
Thallium	--	2	--	2	<7.1	<0.24	<0.10	<0.10	7.5	<0.10	<0.10
Vanadium	6	49	260	--	<1.7	<0.5	3.3	<.91	<.96	<2.1	<2.1
Zinc	5.8	5,000	11,000	--	40.6	<4.3	<21.1	<8.8	<23.1	<8.8	<7.9

Notes:
[1]Recalculation of BSVs, NAVSTA Mayport, Florida, TtNUS, 2001
[2]FDEP GCTLs, Chapter 62-777, FAC
[3]USEPA Region IX PRGs
[4]USEPA MCLs
*Well resampled for thallium in April 2003.
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

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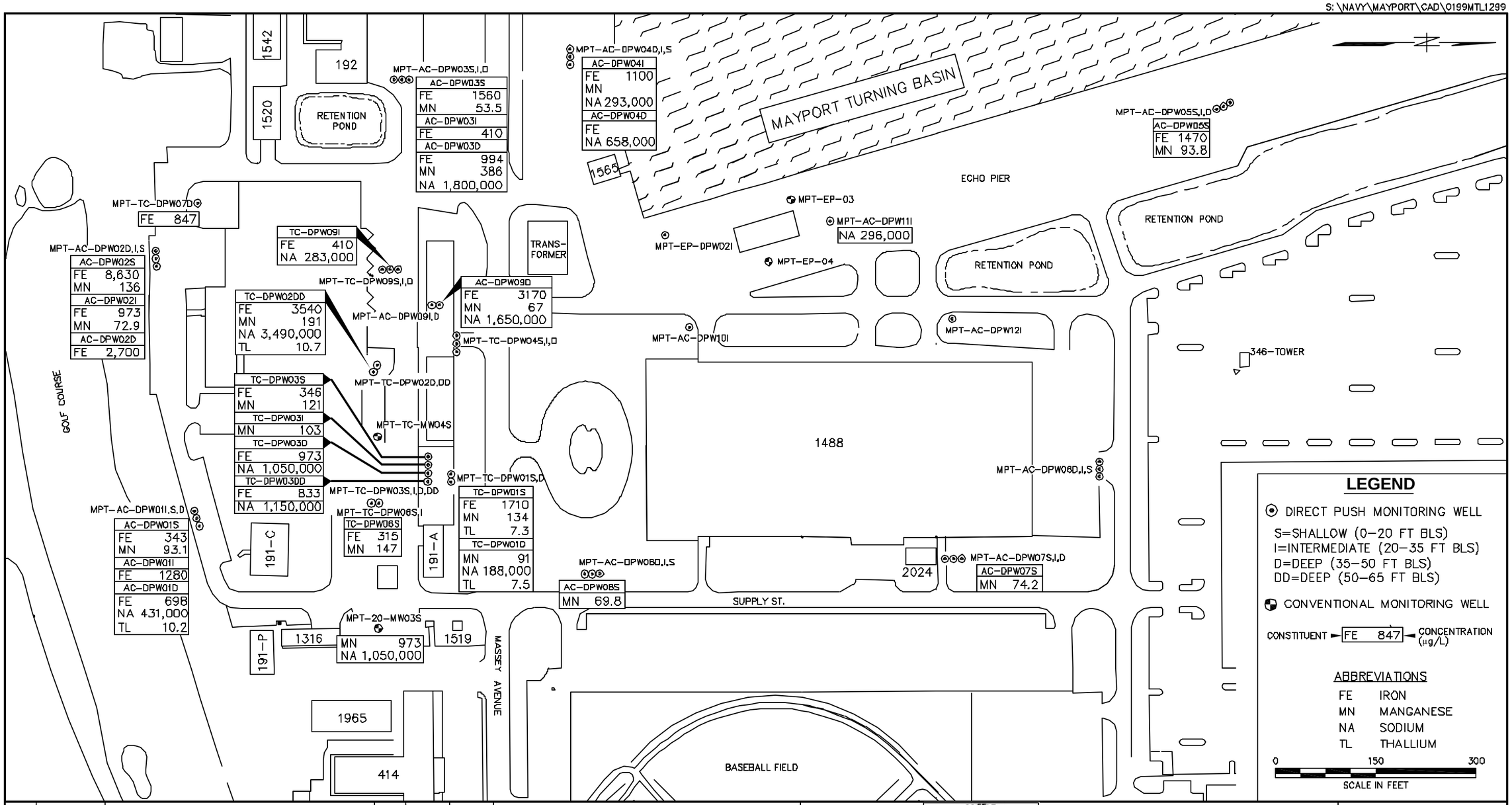

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 5/03/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

INORGANIC GROUNDWATER CONCENTRATIONS
EXCEEDING CURRENT FDEP CRITERIA
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 5-3
REV. 0

FORM CADD NO. SDIV_BH.DWG - REV 0 - 1/20/98

Aluminum was detected in monitoring well MPT-AC-DPW01D at 1,650 µg/L, which exceeded the FDEP GCTL of 200 µg/L. The FDEP GCTL for aluminum is a FDEP secondary drinking water standard provided in Chapter 62-550, FAC. There is not a BSV, USEPA Region IX PRG, or USEPA MCL for aluminum.

Arsenic was detected in the groundwater samples collected at Building 191 ranging from 3.3 to 9.2 µg/L. There was one detection that exceeded the BSV (5.0 µg/L) and three detections that exceeded the USEPA Region IX PRG for a cancer endpoint (0.45 µg/L). The results did not exceed the FDEP GCTL (50 µg/L), the USEPA Region IX PRG for a non-cancer endpoint (11 µg/L), or the USEPA MCL (10 µg/L).

Iron was detected in the groundwater samples collected at Building 191 ranging from 315 to 3,540 µg/L. There were 13 detections that exceeded the BSV of 494 µg/L and 15 detections that exceeded the FDEP GCTL of 300 µg/L. The BSV developed for iron at NAVSTA Mayport is above the FDEP GCTL. The FDEP GCTL for iron is a secondary drinking water standard provided in FDEP Chapter 62-550, FAC. Iron was not detected in the groundwater samples at concentrations that exceeded the USEPA Region IX PRG of 23,000 µg/L. There is not an USEPA MCL for iron.

Manganese was detected in the groundwater samples collected at Building 191 ranging from 14.5 to 386 µg/L. There were three detections that exceeded the BSV of 141 µg/L and 12 detections that exceeded the FDEP GCTL of 50 µg/L. The BSVs developed for manganese at NAVSTA Mayport are above the FDEP GCTL. The FDEP GCTL for manganese is a secondary drinking water standard provided in FDEP Chapter 62-550, FAC. Manganese was not detected in the groundwater samples at concentrations that exceeded the USEPA Region IX PRG of 8,800 µg/L. There is not an USEPA MCL for manganese.

Sodium was detected in the groundwater samples collected at Building 191 ranging from 8,740 to 3,490,000 µg/L. There were three detections that exceeded the BSV of 1,524,588 µg/L and eight detections that exceeded the FDEP GCTL of 160,000 µg/L. The BSV developed for sodium at NAVSTA Mayport exceeds the FDEP GCTL. The FDEP GCTL for sodium is a secondary drinking water standard provided in FDEP Chapter 62-550, FAC. There is not an USEPA Region IX PRG or USEPA MCL for sodium.

Thallium was detected in the groundwater samples collected at Building 191 ranging from 7.5 to 10.2 µg/L. There were three detections that exceeded the FDEP GCTL and USEPA MCL of 2 µg/L. The FDEP GCTL for thallium is a primary drinking water standard provided in FDEP Chapter 62-550, FAC. There is not an established USEPA Region IX PRG or USEPA MCL for thallium.

5.3.1.5.4 Pesticides in the Groundwater at Building 191

Two pesticides were detected in the groundwater samples collected at Building 191. Beta-BHC was detected in the groundwater sample collected from monitoring well MPT-TC-DPW03D at 0.069 µg/L. This result exceeded the USEPA Region IX PRG of 0.037 µg/L; however, it did not exceed the FDEP GCTL of 0.2 µg/L. There is no USEPA MCL for beta-BHC.

Gamma-BHC (lindane) was detected in the groundwater sample collected from monitoring well MPT-TC-DPW03D at 0.076 µg/L. This result exceeded the USEPA Region IX PRG of 0.052 µg/L; however, it did not exceed the FDEP GCTL or the USEPA MCL of 0.2 µg/L.

5.3.1.5.5 Interpretation of Groundwater Data for Building 191

Four VOCs (1,1-dichloroethene; total dichloroethene; tetrachloroethene; and trichloroethene), one SVOC (1,4-dioxane), and five inorganics (aluminum, iron, manganese, sodium, and thallium) were detected in the groundwater samples at concentrations that exceed FDEP GCTLs.

Volatiles

The analytical results suggest that migration of the tetrachloroethene and its associated breakdown products (trichloroethene and 1,2-dichloroethene), historically present in the shallow zone of the Surficial aquifer, have migrated into the intermediate and deep zones of the Surficial aquifer at Building 191. The majority of constituents typically associated with tetrachloroethene, that were detected in the groundwater at Building 191, were present in the intermediate and deep zones of the Surficial aquifer. Only trace concentrations of some of these constituents were detected in the shallow zone of the Surficial aquifer at two monitoring well locations.

Total 1,2-dichloroethene, which consists of cis- and trans-1,2-dichloroethene, was detected above the FDEP GCTL in the deep zone of the Surficial aquifer with a maximum detection of 74 µg/L in monitoring well MPT-TC-DPW02D. 1,2-Dichloroethene is a degradation product from reductive dechlorination of trichloroethene, which was also detected in the groundwater samples collected at Building 191.

Trichloroethene was detected above the FDEP GCTL in the intermediate and deep zones of the Surficial aquifer with maximum concentration of 81 µg/L in monitoring well MPT-TC-DPW02D. Trichloroethene is a manmade chemical typically used as a solvent. It is also a degradation product resulting from reductive dechlorination of tetrachloroethene and was collected at Building 191.

Tetrachloroethene was detected above the FDEP GCTL in intermediate zone of the Surficial aquifer with a maximum concentration of 3.4 µg/L at monitoring well MPT-TC-DPW09I. Tetrachloroethene's uses include degreasing and cold cleaning of metals, as a drying agent for metals and certain other solids, paint removers, printing inks, and soot removal from industrial boilers. Tetrachloroethene is considered a dense non-aqueous phase liquid with a low solubility and a specific gravity that is greater than water.

1,1-Dichloroethene was detected above the FDEP GCTL in the deep zone of the Surficial aquifer at a maximum concentration of 7.8 µg/L in monitoring well MPT-TC-DPW07D. 1,1-Dichloroethene is a degradation product from reductive dechlorination of 1,1,1-trichloroethane. 1,1-Dichloroethane and 1,2-dichloroethane, which are both breakdown products of 1,1,1-trichloroethane, were also present in trace concentrations in the groundwater at Building 191. 1,1,1-Trichloroethane was not detected in any of the groundwater samples collected at Building 191.

The presence and ratios of breakdown products combined with the relatively low concentrations of these constituents suggest that natural attenuation is occurring and may be expected to reduce COPC levels to target concentrations within a reasonable time.

Semivolatiles

1,4-Dioxane was detected in one groundwater sample in the deep zone of the Surficial aquifer at 1.3 µg/L in monitoring well MPT-TC-DPW07D. It is used primarily as a stabilizer in chlorinated solvents, particularly 1,1,1-trichloroethane (also present in the same sample), and is also used as a solvent for lacquers, plastics, varnishes, paints, dyes, resins, oils, fats, waxes, greases, and polyvinyl polymers. 1,4-Dioxane is highly soluble in water and is persistent in the environment. 1,4-Dioxane has not been previously detected in the groundwater samples collected from AOC C.

Inorganics

Aluminum, iron, manganese, and sodium were detected in the groundwater samples collected at Building 191. Aluminum was detected in one groundwater sample in the deep zone of the Surficial aquifer. Iron, manganese, and sodium, detected at AOC C in each zone of the Surficial aquifer, are pervasive groundwater constituents across NAVSTA Mayport and have BSVs that exceed their respective FDEP GCTLs. It is likely that inorganic analytes detected in the groundwater are related to deposition and natural leaching from the dredge material used to construct the land mass at AOC C (ABB-ES, 1996b).

5.3.2 Shore Intermediate Maintenance Area

Eleven monitoring wells were installed at SIMA. Three monitoring wells were screened at or above 15 ft bls, five were screened at approximately 30 to 35 ft bls, and three were screened at approximately 45 to 50 ft bls. Groundwater samples from these monitoring wells were collected in support of the RFI. Figure 4-2 presents the groundwater sampling locations at SIMA.

5.3.2.1 Groundwater at SIMA

Eleven groundwater samples, shown in Figure 4-2, were collected at SIMA. Target analytes detected in groundwater samples collected at SIMA consisted of VOCs and inorganics. SVOCs, PCBs, pesticides, and herbicides were not detected in the groundwater samples collected at SIMA.

5.3.2.1.1 Volatile Organic Compounds in the Groundwater at SIMA

Six VOCs were detected in the groundwater samples collected at SIMA. Only chloroform was detected at concentrations that exceed regulatory benchmark values. Figure 5-1 presents the VOC results exceeding FDEP GCTLs. Table 5-7 presents the VOC analytical results for groundwater at SIMA.

Chloroform was detected in the groundwater samples collected from monitoring wells MPT-AC-DPW08I (0.29 µg/L) and MPT-AC-DPW11I (4.6 µg/L), exceeding the USEPA Region IX PRG of 0.16 µg/L. The results did not exceed the FDEP GCTL of 5.7 µg/L. There is not a USEPA MCL for chloroform.

5.3.2.1.2 Inorganics in the Groundwater at SIMA

Fourteen inorganics were detected in the groundwater samples collected at SIMA. Zinc was the only inorganic detected in the groundwater samples at concentrations that exceeded BSVs. Four inorganic target analytes (cadmium, calcium, potassium, and selenium) detected in samples collected at SIMA during this RFI were not detected in the background groundwater samples (ABB-ES, 1995). Manganese and sodium were detected in the groundwater samples at concentrations that exceed at least one regulatory benchmark value and are discussed below. Figure 5-3 presents the inorganic concentrations exceeding FDEP GCTLs. Table 5-8 presents the inorganic analytical results for groundwater at SIMA.

Table 5-7
Summary of Volatiles Detected in Groundwater, SIMA

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-AC-GW-					
				DPW06S-01	DU05	DPW06I-01	DPW06D-01	DPW07S-01	DPW07I-01
				Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
VOCs (USEPA Method SW-846 8260B) (µg/L)									
1,2-Dichloroethene (total)	63	--	--	<1	<1	<1	<1	<1	<1
1,2-Dichloroethene, cis-	70	61	70	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethene, trans-	100	120	100	<0.5	<0.5	<0.5	<1	<0.5	<0.5
Carbon disulfide	700	1,000	--	<1	0.58J	0.54J	0.62J	0.15J	0.24J
Chloroform	5.7	0.16	--	<1	0.12J	<1	<1	<1	<1

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-AC-GW-					
				DPW07D-01	DPW08S-01	DPW08I-01	DPW08D-01	DPW11I-01	DPW12I-01
				Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
VOCs (USEPA Method SW-846 8260B) (µg/L)									
1,2-Dichloroethene (total)	63	--	--	<1	<1	<1	<1	2.0	<1
1,2-Dichloroethene, cis-	70	61	70	<0.5	<0.5	<0.5	<0.5	1.8	<0.5
1,2-Dichloroethene, trans-	100	120	100	<0.5	<0.5	<0.5	<0.5	0.16J	<0.5
Carbon disulfide	700	1,000	--	<1	<1	<1	0.97J	<1	<1
Chloroform	5.7	0.16	--	<1	<1	0.29J	0.11J	4.6	<1

Notes:
[1]FDEP GCTLs, Chapter 62-777, FAC
[2]USEPA Region IX PRGs
[3]USEPA MCLs
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

Table 5-8
Summary of Inorganics Detected in Groundwater, SIMA

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX	USEPA MCL[4]	MPT-AC-GW-DPW					
					06S-01	DU05	06I-01	06D-01	07S-01	07I-01
					Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
Inorganics (USEPA Method SW-846 8260B)(µg/L)										
Barium	37.8	2,000	2,600	2,000	<0.69	<1.7	<2.8	<2.1	<2.7	<0.31
Beryllium	--	4	73	4	<0.2	<0.2	<0.2	<0.2	<0.2	0.21
Cadmium	--	5	18	5	<0.7	0.83	<0.7	<0.7	<0.7	<0.7
Calcium	--	--	--	--	57,400J	27,900J	73,000J	38,600J	76,100J	78,000J
Chromium	--	100	18	100	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
Iron	494	300	11,000	--	<80	<43.7	<105	<262	<106	<160
Magnesium	184,393	--	--	--	1,950J	26,900J	13,900J	26,600J	10,500J	17,700J
Manganese	141	50	880	--	13.0J	<8.1	13.8J	14.4J	**74.2J**	14.3J
Nickel	--	100	730	--	<5.7	<1.7	<1.7	<1.7	<1.7	<1.7
Potassium	--	--	--	--	<1940	28,600J	6,840J	26,600J	6,180J	11,500J
Selenium	--	50	--	50	<3.1	<3.1	3.5	<3.1	<3.1	<3.1
Sodium	1,524,588	160,000	--	--	7,020J	109,000J	18,900J	22,600J	15,600J	13,300J
Vanadium	6	49	260	--	<2.1	3.2	<2.1	<2.1	<2.1	<2.1
Zinc	5.8	5,000	11,000	--	<8.1	<4.7	<4.6	<4.4	<8.2	<12.2

See notes at end of table.

Table 5-8 (Continued)
Summary of Inorganics Detected in Groundwater, SIMA

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX	USEPA MCL	MPT-AC-GW-DPW					
					07D-01	08S-01	08I-01	08D-01	11I-01	12I-01
					Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
Inorganics (USEPA Method SW-846 8260B)(µg/L)										
Barium	37.8	2,000	2,600	2,000	<2.9	4.6	<1.5	<1.7	<2.5	<2.6
Beryllium	--	4	73	4	<6.2	<0.39	<0.3	<0.3	<0.3	<0.3
Cadmium	--	5	18	5	<0.7	<0.25	<0.2	<0.2	<0.2	<0.2
Calcium	--	--	--	--	43,700J	100,000J	24,900J	17,100J	16,400J	50,400J
Chromium	--	100	18	100	3.3	<0.7	<1.9	<3.1	<3.3	<1.6
Iron	494	300	11,000	--	<274	439J	<22.5	<69.1	<79.5	<32
Magnesium	184,393	--	--	--	28,800J	15,000J	25,100J	19,000J	9,350J	30,000J
Manganese	141	50	880	--	13.4J	**69.8J**	7.8J	9.2J	16.0J	16.5J
Nickel	--	100	730	--	<1.7	1.4	<1.3	<1.3	<1.3	<1.3
Potassium	--	--	--	--	27,200J	5,100J	32,500J	31,800J	16,200J	23,300J
Selenium	--	50	--	50	<3.1	<4.7	<4.7	<4.7	<4.7	<4.7
Sodium	1,524,588	160,000	--	--	89,100J	14,100	85,800	154,000	**296,000**	30,600
Vanadium	6	49	260	--	3.0	<0.75	<2.8	<6.2	<3.2	<0.5
Zinc	5.8	5,000	11,000	--	26.4	<15.9	<16.5	<17.6	55.0	<16.1

Notes:
[1]Recalculation of BSVs, NAVSTA Mayport, Florida, TtNUS, 2001
[2]FDEP GCTLs, Chapter 62-777, FAC
[3]USEPA Region IX PRGs
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

Manganese was detected in monitoring wells MPT-AC-DPW07S (74.2 µg/L) and MPT-AC-DPW08S (69.8 µg/L), which exceeded the FDEP GCTL of 50 µg/L. The FDEP GCTL for manganese is a secondary drinking water standard provided in FDEP Chapter 62-550, FAC. The results for manganese did not exceed the BSV of 141 µg/L or the USEPA Region IX PRG of 8,800 µg/L. There is not an USEPA MCL for manganese.

Sodium was detected in all monitoring wells at SIMA ranging from 7,020 to 296,000 µg/L. There were eight detections that exceeded the FDEP GCTL of 160,000 µg/L with a maximum detection of 296,000 µg/L in MPT-AC-DPW11I. The FDEP GCTL for sodium is a secondary drinking water standard provided in FDEP Chapter 62-550, FAC. There were no detections exceeding the BSV of 1,524,588 µg/L for sodium. There is not an USEPA Region IX PRG or USEPA MCL for sodium.

Zinc was detected in monitoring wells MPT-AC-DPW07D at 26.4 µg/L and MPT-AC-DPW11I at 55 µg/L exceeding BSV of 5.8 µg/L. Zinc did not exceed the FDEP GCTL of 5,000 µg/L or USEPA Region IX PRG of 23,000 µg/L. There is not an USEPA MCL for zinc.

5.3.2.1.3 Interpretation of Groundwater Data for SIMA

Two inorganics (manganese and sodium) were detected in the groundwater samples at concentrations that exceed FDEP GCTLs. Both of these analytes are pervasive groundwater constituents across NAVSTA Mayport, and each have BSVs that exceed FDEP GCTLs. It is likely that inorganic analytes detected in the groundwater are related to deposition and natural leaching from the dredge material used to construct the land mass at AOC C (ABB-ES, 1996b).

5.3.3 Echo Pier

Seven monitoring wells were installed at Echo Pier. Two monitoring wells were screened at or above 15 ft bls, three were screened at approximately 30 to 35 ft bls, and two were screened at approximately 45 to 50 ft bls. Groundwater samples from these monitoring wells and an additional three monitoring wells were collected in support of the RFI. Figure 4-2 includes the sampling locations at Echo Pier.

5.3.3.1 Groundwater at Echo Pier

Ten groundwater samples, shown in Figure 4-2, were collected at Echo Pier. Target analytes detected in groundwater samples collected at Echo Pier consisted of VOCs, SVOCs, pesticides, and inorganics. PCBs and herbicides were not detected in the groundwater samples.

5.3.3.1.1 Volatile Organic Compounds in the Groundwater at Echo Pier

Ten VOCs were detected in the groundwater samples collected at Echo Pier. Vinyl chloride and 1,1-dichloroethene were the only VOCs detected in the groundwater samples at concentrations that exceed a regulatory benchmark value and is discussed below. Table 5-9 presents the VOC analytical results for groundwater at Echo Pier. Figure 5-1 presents the VOC analytical results exceeding FDEP GCTLs.

1,1-Dichloroethene was detected in monitoring well MPT-AC-DPW04I at 0.71 µg/L exceeding the USEPA Region IX PRG of 0.046 µg/L. 1,1-Dichloroethene did not exceed the FDEP GCTL or USEPA MCL of 7 µg/L.

Vinyl chloride was detected in monitoring well MPT-EP-DPW02I at 4.3 µg/L exceeding the FDEP GCTL of 1 µg/L, the USEPA Region IX PRG of 0.02 µg/L, and the USEPA MCL of 2 µg/L. Vinyl chloride was also detected in the groundwater sample collected from monitoring well MPT-EP-MW04S at 0.49 µg/L, which exceeded the USEPA Region IX PRG. Vinyl chloride did not exceed the FDEP GCTL and the USEPA MCL in monitoring well MPT-EP-MW04S.

5.3.3.1.2 Semivolatile Organic Compounds in the Groundwater at Echo Pier

Thirteen SVOCs were detected in the groundwater samples collected at Echo Pier. Five SVOCs consisting of polynuclear aromatic hydrocarbon (PAH) compounds detected in well MPT-EP-DPW02I were detected at concentrations that exceed at least one regulatory benchmark value and are discussed below. Table 5-10 presents the SVOC analytical results for groundwater at Echo Pier. Figure 5-2 presents the SVOC analytical results exceeding FDEP GCTLs.

Monitoring well MPT-EP-DPW02I contained 2-methylnaphthalene at 95 µg/L exceeding the FDEP GCTL of 20 µg/L; acenaphthene at 99 µg/L exceeding the FDEP GCTL of 20 µg/L; carbazole at 18 µg/L exceeding the FDEP GCTL of 4 µg/L and the USEPA Region IX PRG of 3.4 µg/L; dibenzo(a,h)anthracene at 56 µg/L exceeding the FDEP GCTL of 0.2 µg/L; and naphthalene at 140 µg/L exceeding the FDEP GCTL of 20 µg/L. There are no USEPA Region IX RPGs for 2-methylnaphthalene; acenaphthene; dibenzo(a,h)anthracene; or naphthalene. There are no USEPA Region IX MCLs for 2-methylnaphthalene; dibenzo(a,h)acenaphthene; carbazole; or naphthalene.

Table 5-9
Summary of Volatiles Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-EP-			MPT-AC-		
				DPW02I	MW03S	MW04S	DPW04S	DU04	DPW04I
				Dec-99	Dec-99	Dec-99	Jan-00	Jan-00	Jan-00
VOCs (USEPA Method SW-846 8260B) (µg/L)									
1,1-Dichloroethane	70	810	--	0.7J	<5	0.45J	<1	<1	12
1,1-Dichloroethene	7	0.046	7	<1	<5	<1.7	<1	<1	0.71J
1,2-Dichloroethane	3	0.12	5	<1	<5	<1.7	<1	<1	0.087J
1,2-Dichloroethene (total)	63	--	--	0.33J	1.6J	1.7	<1	<1	0.96J
1,2-Dichloroethene, cis-	70	61	70	0.2J	1.6J	1.7	<0.5	<0.5	0.96J
1,2-Dichloroethene, trans-	100	120	100	0.13J	<5	<0.83	<0.5	<0.5	<0.5
Carbon disulfide	700	1,000	--	<1	4.5J	<1.7	<1	<1	0.35J
Chloroform	5.7	0.16	--	<1	<5	<1.7	<1	<1	<1
Dichlorodifluoromethane	1,400	--	--	<1	<5	0.78J	<1	<1	<1
Trichloroethene	3	1.6	5	<1	<5	<1.7	<1	<1	0.082J
Vinyl chloride	1	0.02	2	**4.3**	<5	0.49J	<1	<1	0.19J

See notes at end of table.

Table 5-9 (Continued)
Summary of Volatiles Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-AC-				
				DPW04D	DPW05S	DPW05I	DPW05D	DPW10I
				Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
VOCs (USEPA Method SW-846 8260B) (µg/L)								
1,1-Dichloroethane	70	810	--	2	<1	<1	<1	<1
1,1-Dichloroethene	7	0.046	7	<1	<1	<1	<1	<1
1,2-Dichloroethane	3	0.12	5	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	63	--	--	<1	<1	<1	<1	<1
1,2-Dichloroethene, cis-	70	61	70	0.34J	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethene, trans-	100	120	100	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon disulfide	700	1,000	--	<1	<1	0.63J	0.84J	0.48J
Chloroform	5.7	0.16	--	<1	<1	<1	<1	<1
Dichlorodifluoromethane	1,400	--	--	<1	<1	<1	<1	<1
Trichloroethene	3	1.6	5	<1	<1	<1	<1	<1
Vinyl chloride	1	0.02	2	<1	<1	<1	<1	<1

Notes:
[1]FDEP GCTLs, Chapter 62-777, FAC
[2]USEPA Region IX PRGs
[3]USEPA MCLs
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

Table 5-10
Summary of Semivolatile Organic Compounds Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-EP-			MPT-AC-		
				DPW02I	MW03S	MW04S	DPW04S	DU04	DPW04I
				Dec-99	Dec-99	Dec-99	Jan-00	Jan-00	Jan-00
SVOCs (USEPA Method SW-846 8270C) (µg/L)									
1,4-Dioxane	5	6.1	--	<10	<10	<10	<10	<10	2.0J
2-Methylnaphthalene	20	--	--	**95**	<10	<10	<10	<10	<10
Acenaphthene	20	--	--	**99**	1.7J	<10	<10	<10	<10
Acenaphthylene	110	--	--	1.8J	<10	<10	<10	<10	<10
Anthracene	2,100	--	--	2.1J	<10	<10	<10	<10	<10
Carbazole	4	3.4	--	**18**	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	0.2	--	--	**<10**	<10	<10	<10	<10	<10
Fluoranthene	280	--	--	4.8J	<10	<10	<10	<10	<10
Fluorene	280	--	--	40	<10	<10	<10	<10	<10
Naphthalene	20	6.2	--	**140**	<10	<10	<10	<10	<10
Phenanthrene	210	--	--	29	<10	<10	<10	<10	<10
Pronamide	53	--	--	<10	<10	<10	<10	<10	<10
Pyrene	210	1,800	--	3.6J	<10	<10	46	<10	<10

See notes at end of table.

Table 5-10 (Continued)
Summary of Semivolatile Organic Compounds Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-AC-				
				DPW04D	DPW05S	DPW05I	DPW05D	DPW10I
				Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
SVOCs (USEPA Method SW-846 8270C) (µg/L)								
1,4-Dioxane	5	6.1	--	<10	<10	<10	<10	<10
2-Methylnaphthalene	20	--	--	<10	<10	<10	<10	<10
Acenaphthene	20	--	--	<10	<10	<10	<10	<10
Acenaphthylene	110	--	--	<10	<10	<10	<10	<10
Anthracene	2,100	--	--	<10	<10	<10	<10	<10
Carbazole	4	3.4	--	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	0.2	--	--	<10	<10	<10	<10	<10
Fluoranthene	280	--	--	<10	<10	<10	<10	<10
Fluorene	280	--	--	<10	<10	<10	<10	<10
Naphthalene	20	6.2	--	<10	<10	<10	<10	<10
Phenanthrene	210	--	--	<10	<10	<10	<10	<10
Pronamide	53	--	--	<10	<10	<10	<10	<10
Pyrene	210	1,800	--	<10	<10	<10	<10	<10

Notes:
[1]FDEP GCTLs, Chapter 62-777, FAC
[2]USEPA Region IX PRGs
[3]USEPA MCLs
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

5.3.3.1.3 Inorganics in the Groundwater at Echo Pier

Thirteen inorganics were detected in the groundwater samples collected at Echo Pier. Three inorganic target analytes (arsenic, iron, and zinc) were detected at concentrations that exceed BSVs. Four inorganic target analytes (chromium, copper, potassium, and thallium) detected in the samples collected at Echo Pier during this RFI were not detected in the NAVSTA Mayport background samples (ABB-ES, 1995b). Four inorganic target analytes (iron, manganese, sodium, and thallium) were detected in the groundwater samples at concentrations that exceed at least one regulatory benchmark value and are discussed below. Table 5-11 presents the inorganic analytical results for groundwater at Echo Pier. Figure 5-3 presents the inorganic analytical results exceeding FDEP GCTLs.

Iron was detected in monitoring wells MPT-EP-MW03S (2,570 µg/L), MPT-AC-DPW04I (1,110 µg/L), MPT-AC-DPW04D (856 µg/L), and MPT-AC-DPW05S (1,470 µg/L) at levels exceeding the BSV of 474 µg/L and FDEP GCTL of 300 µg/L. The BSV exceeds the FDEP GCTL for iron. Iron is a FDEP secondary drinking water standard provided in Chapter 62-550, FAC. It was not detected in the groundwater samples at concentrations exceeding the USEPA Region IX PRG of 23,000 µg/L.

Manganese was detected in the groundwater samples collected from monitoring wells MPT-EP-DPW02I (83.6 µg/L), MPT-EP-MW03S (137 µg/L), and MPT-AC-DPW04I (78.1 µg/L) exceeding the FDEP GCTL of 50 µg/L. Manganese is a FDEP secondary drinking water standard provided in Chapter 62-550, FAC. Manganese was not detected in the groundwater samples at concentrations exceeding the BSV of 141 µg/L or the USEPA Region IX PRG of 8,800 µg/L. The BSV for manganese exceeds the FDEP GCTL. There is no USEPA MCL for manganese.

Sodium was detected in the groundwater samples collected from monitoring wells MPT-AC-DPW04I (293,000 µg/L) and MPT-AC-DPW04D (658,000 µg/L) exceeding the FDEP GCTL of 160,000 µg/L.

5.3.3.1.4 Pesticides in the Groundwater at Echo Pier

Three organophosphorous pesticides (phorate, sulfotepp, and thionazin) were detected in the groundwater samples collected at Echo Pier. None of these constituents was detected at concentrations that exceed any of the regulatory benchmark values. Table 5-12 presents the pesticide analytical results for groundwater at Echo Pier.

Sodium is a FDEP secondary drinking water standard provided in Chapter 62-550, FAC. Sodium was not detected in the groundwater samples at concentrations that exceed the BSV of 1,524,588 µg/L. The BSV for sodium exceeds the FDEP GCTL. There is no USEPA Region IX PRG or USEPA MCL for sodium.

Table 5-11
Summary of Inorganics Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX PRG[3]	USEPA MCL[4]	MPT-EP-			MPT-AC-		
					DPW02I*	MW03S	MW04S	DPW04S*	DU04	DPW04I*
					Dec-99	Dec-99	Dec-99	Jan-00	Jan-00	Jan-00
Inorganics (USEPA Method SW-846 6010B) (µg/L)										
Arsenic	5.3	50	0.45[ab]	10	<2.7	9.0	<2.7	<4.6	<2.5	<2.7
Barium	37.8	2,000	2,600	2,000	30.2J	12.8J	26.7J	10.5	<2.1	13.0
Calcium	226,125	--	--	--	102,000	105,000	93,100	63,700J	77,500J	80,900J
Chromium	--	100	110	100	2.5	<1.6	<1.6	<2.6	<2.6	<1.6
Copper	--	1,000	1,400	1,300	3.0	<1.1	<1.1	<2.9	<2.9	<0.7
Iron	494	300	11,000	--	207	**2,570**	<81.3	<341	<90.6	**1,110J**
Magnesium	184,393	--	--	--	32,200	43,900	23,200	2,560J	10,700J	40,900J
Manganese	141	50	880	--	**83.6**	**137**	14.3	26.9J	**73.4J**	**78.1J**
Potassium	--	--	--	--	27,600	29,100	14,300	<15.6	6,280J	24,800J
Sodium	1,524,588	160,000	--	--	87,100	59,300	55,700	5,460J	15,200J	**293,000**
Thallium	--	2	--	2	<0.18	<7.1	**7.9**	<0.20	<9.4	<0.10
Vanadium	6	49	260	--	1.4	3.9	1.7	3.3	<0.5	<0.10
Zinc	5.8	5,000	11,000	--	223	<1.7	<6.1	<9.9	<12.7	<14

See notes at end of table.

Table 5-11 (Continued)
Summary of Inorganics Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	BSV[1]	FDEP GCTL[2]	USEPA Region IX PRG[3]	USEPA MCL[4]	MPT-AC-				
					DPW04D*	DPW05S	DPW05I	DPW05D	DPW10I*
					Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
Inorganics (USEPA Method SW-846 6010B) (µg/L)									
Arsenic	5.3	50	0.45[ab]	10	<2.7	<2.5	<2.7	<2.7	<2.5
Barium	37.8	2,000	2,600	2,000	7.5	<3.4	3.5	3.6	<1.7
Calcium	226,125	--	--	--	26,300J	119,000J	48,900J	82,400J	27,700J
Chromium	--	100	110	100	<2.4	<2.6	<1.6	<1.6	<2.6
Copper	--	1,000	1,400	1,300	<1.1	<2.9	<0.7	<1.1	<2.9
Iron	494	300	11,000	--	**856J**	**1,470J**	269J	<120	<43.7
Magnesium	184,393	--	--	--	47,300J	12,000J	9,940J	18,900J	26,500J
Manganese	141	50	880	--	37.7J	**93.8J**	16.5J	17.2J	<8.6
Potassium	--	--	--	--	61,600J	22,800J	6,090J	10,800J	31,700J
Sodium	1,524,588	160,000	--	--	**658,000**	30,900J	15,500	66,500	112,000J
Thallium	--	2	--	2	<0.44	<9.4	<7.1	<7.1	<0.24
Vanadium	6	49	260	--	<3.5	<2.1	<0.5	<0.5	3.1
Zinc	5.8	5,000	11,000	--	<4.6	<4.7	<8.2	<16.7	<3.7

Notes:
[1]Recalculation of BSVs, NAVSTA Mayport, Florida, TtNUS, 2001
[2]FDEP GCTLs, Chapter 62-777, FAC
[3]USEPA Region IX PRGs
[4]USEPA MCLs
*Well resampled for thallium in April 2003.
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

Table 5-12
Summary of Pesticides Detected in Groundwater, Echo Pier

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-EP-			MPT-AC-		
				DPW02I	MW03S	MW04S	DPW04S	DU04	DPW04I
				Dec-99	Dec-99	Dec-99	Jan-00	Jan-00	Jan-00
Organophosphorous Pesticides (USEPA Method SW-846 8141A) (µg/L)									
Phorate	1.4	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sulfotepp	3.5	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Thionazn	--	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Analyte	FDEP GCTL[1]	USEPA Region IX PRG[2]	USEPA MCL[3]	MPT-AC-				
				DPW04D	DPW05S	DPW05I	DPW05D	DPW10I
				Jan-00	Jan-00	Jan-00	Jan-00	Jan-00
Organophosphorous Pesticides (USEPA Method SW-846 8141A) (µg/L)								
Phorate	1.4	--	--	<1.0	<1.0	<1.0	<1.0	0.42J
Sulfotepp	3.5	--	--	<1.0	<1.0	<1.0	<1.0	0.40J
Thionazn	--	--	--	<1.0	<1.0	<1.0	<1.0	0.50J

Notes:
[1]FDEP GCTLs, Chapter 62-777, FAC
[2]USEPA Region IX PRGs
[3]USEPA MCLs
J indicates the presence of a chemical at a concentration less than the reporting limit and greater than the method detection limit.
< indicates that the value is less than the detection limit.
Bold results are above the groundwater criteria from Chapter 62-777, FAC.

Thallium was detected in the groundwater sample collected from monitoring well MPT-EP-MW04S at 7.9 µg/L, exceeding the FDEP GCTL and USEPA MCL of 2 µg/L. There is not a BSV or USEPA Region IX PRG for thallium.

5.3.3.1.5 Interpretation of Groundwater Data for Echo Pier

One VOC (vinyl chloride), five SVOCs (2-methylnaphthalene; acenaphthene; carbazole; dibenzo(a,h)anthracene; and naphthalene) and four inorganics (iron, manganese, sodium, and thallium) were detected in the groundwater samples at concentrations that exceed FDEP GCTLs. All FDEP GCTL exceedances for the organic target analytes occurred in the groundwater sample collected from monitoring well MPT-EP-DPW02I.

Volatiles

Vinyl chloride, historically detected in the shallow zone of the Surficial aquifer, has migrated vertically into the intermediate zone of the Surficial aquifer. Vinyl chloride may be introduced into the environment anthropogenically or through the degradation of parent compounds such as tetrachloroethene and 1,1,1-trichloroethane. Although neither tetrachloroethene nor 1,1,1-trichloroethane was detected in the groundwater samples collected at Echo Pier, other breakdown products of tetrachloroethene were detected along with vinyl chloride. The evidence suggests that either the source area has not been identified or that once present tetrachloroethene has undergone significant degradation.

Semivolatiles

Acenaphthene; 2-methylnapthalene; carbazole; dibenzo(a,h)anthracene; and naphthalene were detected in the intermediate zone of the Surficial aquifer. These analytes are often found in concomitant existence with one another and are likely a result of a petroleum release at Echo Pier. Free product has historically been detected in nearby monitoring wells MPT-EP-MW01S and MPT-EP-MW02S, which are monitored under the petroleum program and further discussed in Section 3.1.3.3. No other significant detections of these target analytes occurred in the monitoring wells sampled at Echo Pier.

Inorganics

Three inorganic target analytes (iron, manganese, and sodium) were detected in the groundwater samples collected at Echo Pier in concentrations that exceed FDEP GCTLs. Iron, manganese, and sodium are pervasive groundwater constituents across NAVSTA Mayport and each have BSVs that exceed FDEP GCTLs. Based on comparison to the BSVs, range of reporting limits, and range of detected concentrations taken from the GIR Background Data and Recalculation of Media BSVs for

NAVSTA Mayport, manganese and sodium do not exceed their respective values. Therefore, it is likely that inorganic analytes detected in the groundwater are naturally occurring and are related to the parent material used to construct the land mass at AOC C (ABB-ES, 1996b) and not the processes which take place at the site. Although iron was detected above its respective background screening concentration, it has commonly been detected above background concentrations in areas initiating land use controls at various sites on base. The iron concentrations in groundwater will be further evaluated during the CMS stage.

6.0 HUMAN HEALTH RISK ASSESSMENT

The purpose of the HHRA is to characterize the risks to humans associated with the potential exposures to chemicals in surface soil, subsurface soil, groundwater, surface water, and sediment. This HHRA is conducted in accordance with applicable USEPA and FDEP guidance documents.

The methodology for the HHRA consists of the following five steps:

- Data evaluation.
- Selection of COPCs.
- Exposure assessment.
- Toxicity assessment.
- Risk characterization (including uncertainty analysis).

Collectively, these components are used to identify significant site-related contaminants, known as COPCs, and estimate the potential magnitude of exposure and risk associated with these contaminants.

The location, physical description, history, and environmental setting associated with AOC C are described in Chapters 1.0 and 2.0 of this report. During the site investigation of AOC C for this report, surface soil, subsurface soil, surface water, sediment, and groundwater samples were collected. The investigation methodology, sampling locations, and the sampling rationale are presented in Chapter 4.0 of this report. A discussion of the nature and extent of contamination based on the analytical results is presented in Chapter 5.0. Appendix K provides supporting HHRA information and calculations. Note that tables in Appendix K are numbered in accordance with the requirements of *Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)* (USEPA, 1998a) and, therefore, are not necessarily referred to in sequential order in this chapter.

6.1 DATA EVALUATION

The data evaluation involves numerous activities, including sorting the data by medium, evaluating the quality of data with respect to qualifiers and codes, and developing a data set for use in risk assessment.

Data for this HHRA consisted of analytical results for surface soil, subsurface soil, surface water, sediment, and groundwater samples collected during the investigation for this report. Surface water and sediment samples were collected. For groundwater, unfiltered samples were collected and analyzed. Risk estimates for groundwater were based on the analytical data collected during the most recent

sampling effort in 1999 and 2000. Groundwater data from older investigations in 1995 and 1997 were not used for the risk evaluation. The Data Quality Objectives (DQOs) for collecting environmental samples and conducting laboratory analyses are described in the RCRA Confirmation and RFI Work Plan for AOC C (TtNUS, 1999a). Sample collection and analysis followed QA/QC procedures as described in the approved RFI GIR (ABB-ES, 1995b).

Chemical analyses were performed in accordance with SW-846 methodologies. The analytical results were evaluated using the National Functional Guidelines (USEPA, 1994a and 1994b) to assess data usability and the laboratory's compliance with the analytical methodology. The analytical data were reviewed, validated, and evaluated using the criteria specified in the DQOs. All validated data (and qualifiers, as necessary) are presented in Appendix H. All unqualified positive detections and "J" qualified detections (estimated values) were considered as detected concentrations for this HHRA. All non-detections (indicated with a "U" qualifier) were retained in the HHRA data set. Any samples with a "UR" qualifier (indicating a rejected non-detect result) or "R" qualifier (indicating a rejected positive detection) were not included in the HHRA data set. Based upon the evaluation of the analytical data in conformance with the DQOs, the data presented in this report are acceptable for use in this HHRA.

For the 1999 and 2000 groundwater sampling, direct push sampling locations and monitoring wells AC-DPW01S, I and D; AC-DPW02S, I, and D; AC-DPW03S, I, and D; AC-DPW04S, I, and D; AC-DPW05S, I, and D; AC-DPW06S, I, and D; AC-DPW07S, I, and D; AC-DPW08S, I, and D; AC-DPW09I and D; AC-DPW10I; AC-DPW11I; AC-DPW12I; EP-DPW02I; EP-MW03S; EP-MW04S; TC-DPW01S and D; TC-DPW02D and DD; TC-DPW03S, I, D, and DD; TC-DPW06S and I; TC-DPW07D; TC-DPW09I and D; and TC-MW04S were included in AOC C. Surface soil samples were collected from sampling locations MPT-AC-SS03-01, MPT-AC-SS04-01, TCS00101, TCS00201, TCS00301, TCS00401, and MPT-55-SS-06-01. Subsurface soil samples were collected from sampling locations MPT-AC-SU-01-05, MPT-AC-SU-02-05, MPT-AC-SU03-04, MPT-AC-SU04-04, TCB00203, TCB00103, TCB00403, TCB00303, MPT-G4-SU-39-05, and MPT-G4-SU-40-05. One surface water and one sediment sample were collected from the small pond southwest of the Building 191 parking lot along the northern boundary of the golf course.

The data evaluation included the calculation of basic descriptive statistics for each data set evaluated in the HHRA. Basic statistics included frequency of detection (FOD), range of positive detections, arithmetic mean, normal 95 percent Upper Confidence Level (UCL-N) on the mean, and log-normal 95 percent Upper Confidence Level (UCL-L) on the mean. Appendix K-12 provides the references for equations and calculations used to determine the UCL-L and the UCL-N on the mean.

6.2 SELECTION OF CHEMICALS OF POTENTIAL CONCERN FOR HHRA

COPCs for baseline HHRA are limited to those chemicals that exceed a selection criterion. For this risk assessment, State risk-based and health-based criteria were used to reduce the number of chemicals and exposure routes considered in a risk assessment. The premise of this screening step is that risk is typically dominated by a few chemicals and that, although dozens may actually be detected, many chemicals may contribute minimally to the total risk.

FDEP guidelines and criteria were used to select COPCs (FDEP, 2000, 2001a, and 2001b). For soil, surface water, sediment, and groundwater, COPCs were selected for each medium (e.g., arsenic in surface soil). The COPCs were defined as chemicals that were positively detected in an environmental medium at a maximum concentration exceeding background and screening values.

For each medium, the following criteria were used to exclude detected analytes from the list of COPCs. Each criterion by itself was justification for excluding the analyte:

- Infrequent Detection. FOD defined as the number of samples in which the analyte is detected divided by the number of samples analyzed for that analyte. A chemical was considered a candidate for exclusion if (1) it had a low FOD (e.g., less than 5 percent), (2) it was not detected in other sampled media or at high concentrations (i.e., contaminated "hot spots" do not exist), and (3) there was no reason to believe that the chemical may be present (USEPA, 1998a). Although several chemicals were detected at less than 5 percent frequency in groundwater, the samples represent more than one possible area of impact at AOC C (see Site History and Nature and Extent for discussion of the possible releases at AOC C) and were, therefore, retained because there is reason to believe the chemical may be present, and the detections were not less than 5 percent of the samples taken at one possible area of impact. No chemicals were eliminated from this HHRA based on the FOD screening criteria.

- Less than Background Screening Concentrations. If the maximum detected concentration of an analyte in a medium was less than twice the arithmetic mean of the background concentration (inorganics only), the analyte was not selected as a COPC (USEPA, 1995). The BSVs were taken from the *Recalculation of Media Background Screening Values Memorandum* (TtNUS, 2000) (Appendix J).

- Less than Risk-Based Screening Concentrations, Standards, and Guidelines. If the maximum detected concentration of the analyte in a medium was less than its corresponding adjusted Florida risk-based screening concentrations, the analyte was not selected as a COPC. Florida risk-based screening concentrations were based on residential use and were taken from *Technical Report: Development of*

Soil Cleanup Target Levels for Chapter 62-777, FAC (FDEP, 2000). In the FDEP tables, the target cancer risk is 1 x 10^{-6} and the target HQ is 1. All screening levels based on noncarcinogenic effects were adjusted to represent a target HQ of 0.1 in accordance with FDEP guidance (FDEP, 2000). To make this adjustment, all risk-based screening levels for noncarcinogenic effects were divided by 10. All risk-based screening levels for carcinogenic effects were adjusted to account for cumulative cancer effects by dividing the screening level by the number of detected carcinogenic chemicals in accordance with FDEP guidance (FDEP, 2000). GCTLs based on Primary or Secondary Standards were not adjusted.

- Less than Essential Nutrient Screening Values. If the maximum detected concentration of an essential nutrient (i.e., calcium, magnesium, potassium, and sodium) in a medium was below a toxic level or consistent with or only slightly above its background concentration, the essential nutrient was not selected as a COPC. The derivation of essential nutrient screening values for calcium, magnesium, potassium, and sodium is presented in Appendix C-1 of the *Remedial Investigation and Feasibility Study, General Information Report, Naval Air Station Whiting Field, Milton, Florida* (ABB-ES, 1998).

USEPA Region IX PRGs were presented as a point of comparison, but were not used in the determination of COPCs.

Tables 2.1 through 2.5 in Appendix K-2 provide the basic descriptive statistics for analytes detected in each medium, identify which analytes were selected as COPCs, and present the COPC selection rationale. Appendix K-3, Tables 3.1 through 3.5, provide the EPC determinations for the COPCs in each medium.

6.2.1 Chemicals of Potential Concern for AOC C

Sections 6.2.1.1 through 6.2.1.5 identify AOC C COPCs in surface soil, subsurface soil, surface water, sediment, and groundwater, respectively. Arsenic, determined to be a COPC in all soil and sediment media in AOC C, was a component of herbicides that were commonly used in the past. VOCs were only determined to be COPCs in groundwater and include tetrachloroethene and its degradation products. SVOCs were found to be COPCs in surface soil and groundwater. A number of metals were determined to be COPCs in groundwater, while fewer metals were determined to be COPCs in the remaining media. Arsenic was the only chemical determined to be a COPC in sediment and cyanide was the only chemical determined to be a COPC in surface water.

6.2.1.1 Surface Soil – AOC C

Location identification numbers for AOC C surface soil samples considered for AOC C COPCs are listed in Section 6.1. Figure 4-1 depicts the location of these soil samples. There were 10 detected carcinogenic chemicals; therefore, the carcinogenic screening levels were divided by 10. Table 6-1 lists analytes selected as COPCs for surface soil at AOC C. The COPC selection process AOC C is summarized in Appendix K-2, Table 2.1. The following chemicals were identified as COPCs: benzo(a)pyrene (equivalent), Aroclor-1260, antimony, arsenic, and iron.

6.2.1.2 Subsurface Soil – AOC C

Location identification numbers for subsurface soil samples considered for AOC C COPCs are listed in Section 6.1. Figure 4-1 depicts the location of these soil samples. There were six (6) detected carcinogenic chemicals; therefore, the carcinogenic screening levels were divided by six. Table 6-1 lists analytes selected as COPCs at AOC C. The COPC selection process for subsurface soils in AOC C is summarized in Appendix K-2, Table 2.2. Arsenic and mercury were identified as COPCs for AOC C subsurface soil.

6.2.1.3 Surface Water – AOC C

One surface water sample was collected from the pond at the southwest corner of the Building 191 parking lot and considered for AOC C COPCs. Figure 4-1 depicts the location the surface water sample. There were three detected carcinogenic chemicals; therefore, the carcinogenic screening levels were divided by three. Table 6-1 lists the analyte selected as a COPC for surface water at AOC C. The COPC selection process for surface water is summarized in Appendix K-2, Table 2.3. Cyanide was identified as a COPC for AOC C surface water.

6.2.1.4 Sediment – AOC C

One sediment sample was collected from the pond at the southwest corner of the Building 191 parking lot and considered for AOC C COPCs. Figure 4-1 depicts the location the sediment sample. There were three (3) detected carcinogenic chemicals; therefore, the carcinogenic screening levels were divided by three. Table 6-1 lists the analyte selected as a COPC for sediment at AOC C. The COPC selection process for sediment is summarized in Appendix K-2, Table 2.4. Arsenic was identified as a COPC for AOC C sediment.

Table 6-1
Summary of COPCs at AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

COPC	Surface Soil	Subsurface Soil	Sediments	Surface Water	Groundwater
1,1-Dichloroethene	no	no	no	no	**yes**
1,2-Dichloroethane	no	no	no	no	**yes**
1,2-Dichloroethene (total)	no	no	no	no	**yes**
1,4-Dioxane	no	no	no	no	**yes**
2-Methylnaphthalene	no	no	no	no	**yes**
4,4-DDT	no	no	no	no	**yes**
Acenaphthene	no	no	no	no	**yes**
Aldrin	no	no	no	no	**yes**
Aluminum	no	no	no	no	**yes**
Antimony	**yes**	no	no	no	no
Aroclor-1260	**yes**	no	no	no	no
Arsenic	**yes**	**yes**	**yes**	no	no
Benzo(a)pyrene (equiv)	**yes**	no	no	no	no
beta-BHC	no	no	no	no	**yes**
Bromodichloromethane	no	no	no	no	**yes**
Cadmium	no	no	no	no	no
Carbazole	no	no	no	no	**yes**
Chlorodibromomethane	no	no	no	no	**yes**
Chloroform	no	no	no	no	**yes**
Cis-1,2-dichloroethene	no	no	no	no	**yes**
Cyanide	no	no	no	**yes**	no
Dibenzofuran	no	no	no	no	**yes**
Fluoranthene	no	no	no	no	**yes**
Fluorene	no	no	no	no	**yes**
gamma-BHC	no	no	no	no	**yes**
Iron	**yes**	no	no	no	**yes**
Magnesium	no	no	no	no	**yes**
Manganese	no	no	no	no	**yes**
Mercury	no	**yes**	no	no	no
Naphthalene	no	no	no	no	**yes**
Nickel	no	no	no	no	no
Phenanthrene	no	no	no	no	**yes**
Phorate	no	no	no	no	**yes**
Pyrene	no	no	no	no	**yes**
Sodium	no	no	no	no	**yes**
Sulfotepp	no	no	no	no	**yes**
Tetrachloroethene	no	no	no	no	**yes**
Thallium	no	no	no	no	**yes**
Trans-1,2-dichloroethene	no	no	no	no	**yes**
Trichloroethene	no	no	no	no	**yes**
Vinyl chloride	no	no	no	no	**yes**

6.2.1.5 Groundwater – AOC C

Location identification numbers for groundwater samples considered for AOC C COPCs are listed in Section 6.1. Figure 4-2 depicts the location of the sampled monitoring wells. There were 15 detected carcinogenic chemicals; therefore, the carcinogenic screening levels were divided by 15. Table 6-1 lists analytes selected as COPCs for groundwater at AOC C. The COPC selection process for groundwater in AOC C is summarized in Appendix K-2, Table 2.5. The following chemicals were identified as COPCs for AOC C in groundwater: 1,1-dichloroethane; 1,1-dichloroethene; 1,2-dichloroethene (total); bromodichloromethane; chlorodibromomethane; chloroform; tetrachloroethene; trichloroethene; vinyl chloride; 1,4-dioxane; 2-methylnaphthalene; acenaphthene; carbazole; dibenzofuran; fluoranthene; fluorine; naphthalene; phenanthrene; pyrene; 4,4-DDT; aldrin; beta-BHC; sulfotepp; phorate; aluminum; iron; manganese; and thallium.

Groundwater samples were collected from shallow, intermediate, and deep DPT sampling locations and permanent shallow monitoring wells. Maximum concentrations of bromodichloromethane, chlorodibromomethane, chloroform, and tetrachloroethene were less than their respective MCLs.

6.3 EXPOSURE ASSESSMENT

The exposure assessment was conducted to identify the pathways by which humans are potentially exposed, the magnitude of potential human exposure, and the frequency and duration of exposure. This process involves several steps:

- Characterization of the exposure setting in terms of physical characteristics and the populations that may potentially be exposed to site-related chemicals.
- Identification of potential exposure pathways and receptors.
- Quantification of exposure for each receptor in terms of the amount of chemical that is ingested, inhaled, or absorbed through the skin from all potentially complete exposure pathways.

6.3.1 Exposure Setting Characterization

Chapter 2.0 describes the regional and site-specific environmental setting of AOC C. AOC C is located southeast of the NAVSTA Mayport Turning Basin and includes buildings and facilities around the southern portion of Echo Pier, Building 191, and the SIMA Building. The SIMA building is used in support of maintenance activities for ships at NAVSTA Mayport. Storage areas at Building 191 are used to support

ship and shore services at NAVSTA Mayport by providing areas to receive, temporarily store, and distribute supplies. The outlying buildings are used to warehouse hazardous materials such as solvents and compressed gasses.

6.3.2 Identification of Potential Receptors and Exposure Pathways

The receptors to be evaluated were selected based on the current and plausible future use of the sites and surrounding areas. The property is currently being used for non-residential Naval activities and is expected to remain non-residential for the foreseeable future.

The following five potential receptors were evaluated for AOC C assuming current and future land use scenarios:

- Military residents – Individuals who live on base with their families during their tour of duty at NAVSTA Mayport. Typically, a tour of duty is three years. These residents use groundwater extracted from NAVSTA Mayport's deep on-base water supply wells. The groundwater is treated using activated carbon at the wellhead. The screened interval for the on-base water supply wells is approximately 400 ft bls and is, therefore, not from the potentially contaminated shallow aquifer.

- Hypothetical future on-site residents – Individuals who may reside on AOC C in the future. These residents may come into direct contact with contaminants in surface soils, surface water, and sediments and may rely on the shallow groundwater aquifer as a domestic water supply. This scenario is considered unlikely, but is included for purposes of completeness and to provide information to the risk managers.

- Trespassers – Individuals who may from time to time enter a site without proper authorization and come into contact with surface soil. Exposure to authorized visitors is also considered under this scenario.

- Construction Workers – Individuals who may come into contact with surface soils, subsurface soils, or groundwater while excavating or performing construction activities near contaminated sites.

- Base Workers – Individuals who, during their 8-hour work shifts, may come into contact with surface soils. Use of the shallow aquifer for a potable water supply was not considered likely for the same reasons listed for the military residents. Exposure of base workers is very task-dependant. For example, the exposure of office workers to site-related media may be much lower than the exposure of landscapers.

Hypothetical future adult and child (ages 1 to 6) on-site residents were quantified for purposes of completeness only. NAVSTA Mayport is an active Naval Base and is expected to remain so in the foreseeable future.

A summary of the potential exposure pathways for the aforementioned receptors at AOC C is presented in Table 6-2. Information in these tables includes the scenario period, exposure medium, potentially exposed receptor population, exposure route, and the rationale for pathway selection or exclusion. Sections 6.3.2.1 through 6.3.2.5 describe the receptors considered to be potentially exposed to surface soil, subsurface soil, surface water, sediment, and groundwater, respectively.

6.3.2.1 Surface Soil

The receptors considered to be potentially exposed to surface soil are:

- Hypothetical future on-site residents who may directly contact contaminants in surface soils. These receptors were evaluated for purposes of completeness only because the site is expected to remain non-residential.

- Current and future base workers who may come in contact with surface soils while performing work.

- Current and future construction workers who may come in contact with surface soils while performing excavation or construction work.

- Current and future trespassers who may come in contact with contaminated surface soils while visiting the site.

Exposures of hypothetical potential future residents (adult and child), current and future base workers, current and future construction workers, and current and future trespassers (combined adolescent and adult) to surface soil contaminants were evaluated in this HHRA. Incidental ingestion, dermal contact, and inhalation exposure routes were considered.

6.3.2.2 Subsurface Soil

The receptors considered to be potentially exposed to subsurface soil are current and future construction workers who may come in contact with subsurface soils while performing excavation or construction work.

Table 6-2
Summary of Cancer Risks and Hazard Indices

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Receptor	Exposure Medium	Exposure Route	Cancer Risk (RME)	Chemicals with Cancer Risks >10-4	Chemicals with Cancer Risks >10-5	Chemicals with Cancer Risks >10-6	HI (RME)	Chemicals with HI > 1
Base Worker	Surface Soil	Ingestion	7.5E-06	--	--	Benzo(a)pyrene (equiv)	3.3E-02	--
		Dermal Contact	1.0E-06	--	--	Benzo(a)pyrene (equiv)	8.6E-03	--
		Inhalation	1.2E-09	--	--	--	4.0E-05	--
		Total	8.6E-06	--	--	Benzo(a)pyrene (equiv)	4.1E-02	--
Construction Worker	Surface Soil	Ingestion	2.3E-07	--	--	--	2.5E-02	--
		Dermal Contact	1.2E-08	--	--	--	2.4E-03	--
		Inhalation	3.7E-12	--	--	--	3.2E-06	--
		Total	2.4E-07	--	--		2.8E-02	--
Construction Worker	Subsurface Soil	Ingestion	4.6E-09	--	--	--	7.5E-04	--
		Dermal Contact	2.3E-10	--	--	--	3.8E-05	--
		Inhalation	1.6E-13	--	--	--	2.8E-08	--
		Total	4.9E-09	--	--		7.8E-04	--
Construction Worker	Groundwater	Ingestion	2.2E-10	--	--	--	2.1E-04	--
		Dermal Contact	4.8E-09	--	--	--	1.3E-02	--
		Inhalation	1.8E-10	--	--	--	8.4E-06	--
		Total	5.2E-09	--	--		1.3E-02	--
		TOTAL	2.5E-07				4.1E-02	

See notes at end of table.

Table 6-2 (Continued)
Summary of Cancer Risks and Hazard Indices

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Receptor	Exposure Medium	Exposure Route	Cancer Risk (RME)	Chemicals with Cancer Risks >10-4	Chemicals with Cancer Risks >10-5	Chemicals with Cancer Risks >10-6	HI (RME)	Chemicals with HI > 1
Trespasser	Surface Soil	Ingestion	1.9E-06	--	--	Benzo(a)pyrene (equiv)	2.0E-02	--
Adolescent		Dermal Contact	1.7E-06	--	--	Benzo(a)pyrene (equiv)	3.5E-02	--
		Inhalation	1.4E-10	--	--	--	1.2E-05	--
		Total	3.6E-06	--	--	Benzo(a)pyrene (equiv)	5.6E-02	--
Trespasser	Surface Soil	Ingestion	2.2E-06	--	--	Benzo(a)pyrene (equiv)	1.2E-02	--
Adult		Dermal Contact	1.3E-06	--	--	Benzo(a)pyrene (equiv)	7.2E-06	--
		Inhalation	1.7E-10	--	--	--	1.3E-02	--
		Total	3.5E-06	--	--	Benzo(a)pyrene (equiv)	2.5E-02	--
		TOTAL	7.1E-06				8.1E-02	
Hypothetical Future On-Site Resident	Surface Soil	Ingestion	6.7E-05	--	Benzo(a)pyrene (equiv)	Aroclor-1260, Arsenic	NA	--
Adult and Child		Dermal Contact	1.9E-05	--	Benzo(a)pyrene (equiv)	--	NA	--
		Inhalation	3.4E-09	--	--	--	NA	--
		Total	8.7E-05	--	Benzo(a)pyrene (equiv)	Aroclor-1260, Arsenic	NA	--
Hypothetical Future On-Site Resident	Surface Water	Ingestion	--	--	--	--	NA	--
Adult and Child		Dermal Contact	--	--	--	--	NA	--
		Inhalation	--	--	--	--	NA	--
		Total	0.0E+00	--	--	--	NA	--

See notes at end of table.

Table 6-2 (Continued)
Summary of Cancer Risks and Hazard Indices

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Receptor	Exposure Medium	Exposure Route	Cancer Risk (RME)	Chemicals with Cancer Risks >10-4	Chemicals with Cancer Risks >10-5	Chemicals with Cancer Risks >10-6	HI (RME)	Chemicals with HI > 1
Hypothetical Future On-Site Resident	Groundwater	Ingestion	2.9E-05	--	Vinyl Chloride	1,1-Dichloroethene, Carbazole, Aldrin	NA	--
Adult and Child		Dermal Contact	2.9E-06	--	--	--	NA	--
		Inhalation	2.4E-05	--	Vinyl Chloride	1,1-Dichloroethene	NA	--
		Total	5.5E-05	--	1,1-Dichloroethene, Vinyl Chloride	Tetrachloroethene, Carbazole, Aldrin	NA	--
		TOTAL	1.4E-04					
Hypothetical Future On-Site Resident	Surface Soil	Ingestion	NA	NA	NA	NA	9.2E-02	--
Adult		Dermal Contact	NA	NA	NA	NA	1.0E-01	--
		Inhalation	NA	NA	NA	NA	5.6E-05	--
		Total	NA	NA	NA	NA	2.0E-01	--
Hypothetical Future On-Site Resident	Surface Water	Ingestion	NA	NA	NA	NA	4.4E-05	--
Adult		Dermal Contact	NA	NA	NA	NA	7.9E-05	--
		Inhalation	NA	NA	NA	NA	--	--
		Total	NA	NA	NA	NA	1.2E-04	--
Hypothetical Future On-Site Resident	Groundwater	Ingestion	NA	NA	NA	NA	7.3E-01	--
Adult		Dermal Contact	NA	NA	NA	NA	2.2E-01	--
		Inhalation	NA	NA	NA	NA	2.9E-02	--
		Total	NA	NA	NA	NA	9.8E-01	--
		TOTAL					1.2E+00	

See notes at end of table.

Table 6-2 (Continued)
Summary of Cancer Risks and Hazard Indices

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Receptor	Exposure Medium	Exposure Route	Cancer Risk (RME)	Chemicals with Cancer Risks >10-4	Chemicals with Cancer Risks >10-5	Chemicals with Cancer Risks >10-6	HI (RME)	Chemicals with HI > 1
Hypothetical Future On-Site Resident Child	Surface Soil	Ingestion	NA	NA	NA	NA	7.2E-01	--
		Dermal Contact	NA	NA	NA	NA	2.1E-01	--
		Inhalation	NA	NA	NA	NA	1.3E-04	--
		Total	NA	NA	NA	NA	9.3E-01	--
Hypothetical Future On-Site Resident Child	Surface Water	Ingestion	NA	NA	NA	NA	2.3E-03	--
		Dermal Contact	NA	NA	NA	NA	3.6E-04	--
		Inhalation	NA	NA	NA	NA	--	--
		Total	NA	NA	NA	NA	2.6E-03	--
Hypothetical Future On-Site Resident Child	Groundwater	Ingestion	NA	NA	NA	NA	1.2E+00	--
		Dermal Contact	NA	NA	NA	NA	3.7E-01	--
		Inhalation	NA	NA	NA	NA	6.8E-02	--
		Total	NA	NA	NA	NA	1.7E+00	--
		TOTAL					2.6E+00	

Notes:
RME - Reasonable maximum exposure
NA - not applicable

Exposures of current and future construction workers to subsurface soil contaminants were evaluated in this HHRA. Incidental ingestion, dermal contact, and inhalation exposure routes were considered.

6.3.2.3 Surface Water

Surface water sampling was limited to the small pond located southwest of the Building 191 parking lot. The Mayport Turning Basin is located adjacent to AOC C. However, an evaluation of COPCs in surface water and sediments of the Turning Basin is beyond the scope of this HHRA. This is primarily because the basin in dredged every two to three years for safe berthing of Navy ships. Dredged sediments are transferred through a slurry pipeline to SWMU 50, the Western Dredge Spoil area. Data from any surface water or sediment sampling that would be collected for this investigation, and subsequent evaluation of human risks, would be unusable the next time the basin is dredged. The receptors considered to be potentially exposed to surface water (i.e., the small pond) are hypothetical future residents who may wade in the surface water. These receptors were evaluated for purposes of completeness only, because it is expected that the land will continue to be used as a Naval base.

Base workers, construction workers, and trespassers may also be exposed to the surface waters of the small pond; however, based on the size and location of the pond, the exposure is likely to be minimal. Consequently, exposure is not quantified for these receptors in this HHRA.

Hypothetical future residents (adult and child) exposed to surface water contaminants were evaluated in this HHRA. Incidental ingestion and dermal contact exposure routes were considered.

6.3.2.4 Sediment

The sediments sampled are those associated with the surface water in the small pond located southwest of the Building 191 parking lot. The water level in the pond may vary with rainfall; sediments are periodically exposed. The hypothetical future resident, base worker, construction worker, and trespasser may be potentially exposed to sediment; however, the exposure is likely to be minimal and is not quantified in this HHRA. Therefore, although COPCs were developed for sediment, risk due to exposure to sediment was not evaluated further in this risk assessment. Additionally, arsenic is the only COPC in sediment. Arsenic impact is more likely due to herbicides that were commonly used in the past rather than site related activities.

The Mayport Turning Basin is located adjacent to AOC C. However, the evaluation of risks as a result of exposure to surface waters and sediments in the Turning Basin is beyond the scope of the HHRA. This is primarily because the basin in dredged every two to three years for safe berthing of Navy ships. Dredged

sediments are transferred through a slurry pipeline to SWMU 50, the Western Dredge Spoil area. Data from any surface water or sediment sampling that would be collected for this investigation, and subsequent evaluation of human risks would be unusable the next time the basin is dredged.

6.3.2.5 Groundwater

The receptors considered to be potentially exposed to groundwater are as follows:

- Hypothetical future on-site residents who may use groundwater from wells in the contaminated shallow aquifer. These receptors were evaluated for purposes of completeness only, because it is expected that the land will continue to be used as a Naval base. In addition, drinking water is provided to the area from the NAVSTA Mayport's deep on-base water supply wells, and it is unlikely that hypothetical future residents would install domestic water supply wells in the shallow aquifer. In addition, the results of water quality indicator parameters (total dissolved solids, sodium, calcium, magnesium, potassium, etc.) suggest that groundwater in the site vicinity is similar to seawater and does not meet the criteria of a Class G-I or G-II drinking water supply. Degradation of the Surficial aquifer is likely due to seawater intrusion or leaching of dredge material used as fill during NAVSTA Mayport construction activities.

- Current and future construction workers who may come in contact with groundwater while performing excavation.

On-base water supply wells exist on NAVSTA Mayport and are used for groundwater supply to on-base military residents. The groundwater is extracted from approximately 400 ft bls and is treated. Therefore, exposure to the contaminated shallow aquifer is not considered for the military resident receptor, the base worker, or the trespasser.

6.3.3 Exposure Point Concentration

The EPC is the concentration of a COPC used to best estimate the intake. Ideally, the EPC should be the true average concentration within the exposure unit. However, because of the uncertainty associated with estimating the true average concentration at a site, the 95 percent DEFINE - UCL of the arithmetic mean is used as the EPC. If there were less than 10 samples, the maximum concentration was chosen as the EPC as the UCL does not provide a good estimation of the upper bound of the mean concentration for these small data sets. If there were more than 10 samples, each data set was evaluated using the Shapiro-Wilk W test to determine if the data set more closely reflected a normal or lognormal distribution. If results were inconclusive, the data were assumed to be log-normally distributed. The 95 UCL-L and

95 UCL-N were calculated for each analyte in each medium and data set using one-half the reporting limit for non-detection results and the average for samples with duplicates. The UCL-N was used as the EPC if the Shapiro-Wilk W test indicated a normal distribution, and the UCL-L was used as the EPC if the Shapiro-Wilk W test indicated a log-normal distribution. If the calculated 95 UCL exceeded the maximum detected concentration, the maximum detected concentration was selected as the EPC. EPCs were calculated for analytes in surface soil, subsurface soil, surface water, sediment, and groundwater samples located in AOC C.

USEPA Region IV guidance (USEPA, 1995) was followed to determine an equivalent benzo(a)pyrene EPC concentration to represent the carcinogenic PAHs. The Region IV guidance uses a Toxicity Equivalency Factor (TEF) methodology to convert each of the reported carcinogenic PAHs to benzo(a)pyrene equivalents. The equivalent benzo(a)pyrene EPC is referred to as benzo(a)pyrene (equivalent) EPC in this HHRA. The following TEFs were used to convert each PAH concentration to a benzo(a)pyrene (equivalent) concentration: (1) benzo(a)pyrene, TEF = 1.0; (2) benzo(a)anthracene, TEF = 0.1; (3) benzo(b)fluoranthene, TEF = 0.1; (4) dibenzo(a,h)anthracene, TEF = 1.0; (5) benzo(k)fluoranthene, TEF = 0.01; (6) chrysene, TEF = 0.001; and (7) indeno(1,2,3-cd)pyrene, TEF = 0.1. If any of the carcinogenic PAHs were detected at a sample location, the benzo(a)pyrene (equivalent) concentration was calculated for that location by multiplying the concentration of each carcinogenic PAH by the appropriate TEF and summing the resultant values. If any of the carcinogenic PAHs were below detection limits at that sample location, then half the detection limit of that PAH was used as a surrogate concentration. If all of the carcinogenic PAHs were below detection limits at a sample location, then the benzo(a)pyrene (equivalent) concentration was calculated by multiplying half the detection limit for each carcinogenic PAH by the appropriate TEF and summing the resultant values.

6.3.4 Exposure Quantification

6.3.4.1 Base Workers

Base workers are those individuals, other than construction workers, who work at AOC C and may come into contact with contaminated environmental media. Table 4.1 in Appendix K-4 provides exposure dose equations used to estimate chemical intake for base workers exposed to surface soil. Where available, the exposure assumptions used in the equations were those suggested by standard USEPA guidance documents. Table 4.1 provides a reference for each exposure assumption.

Intake values for base worker exposures to AOC C noncarcinogens are provided in Appendix K-7, Table 7.1. Intake values for base worker exposures to AOC C carcinogens are provided in Appendix K-8, Table 8.1.

6.3.4.2 Construction Workers

Construction workers are those individuals who work at AOC C and may come into contact with contaminated media during excavation or construction activities. Tables 4.2, 4.3, and 4.4 in Appendix K-4 provide exposure dose equations used to estimate chemical intake for construction workers exposed to surface soil, subsurface soil, and groundwater, respectively. Where available, exposure assumptions used in the equations were those suggested by standard USEPA guidance documents. Tables 4.2, 4.3, and 4.4 in Appendix K-4 provide a reference for each exposure assumption. Exposure assumptions that are not standard USEPA values include the exposure frequency (EF). EF was assumed to be equal to one worker month per year. A worker month is equal to 20 days. This value was taken from the Risk Assessment Information System Internet site (http://risk.lsd.ornl.gov/homepage/tm/for_exc_so.shtml) listing exposure parameters for an excavation worker.

Intake values for construction worker exposures to AOC C noncarcinogens are provided in Appendix K-7, Tables 7.2, 7.3, and 7.4. Intake values for construction worker exposures to AOC C carcinogens are provided in Appendix K-8, Tables 8.2, 8.3, and 8.4.

6.3.4.3 Adult and Adolescent Trespassers

Trespassers, both adult and adolescent, were assumed to be individuals other than authorized personnel who may from time to time enter the site and contact contaminated environmental media. Risks estimated for this receptor also represent the exposure to authorized site visitors. Tables 4.5 and 4.6 in Appendix K-4 provide exposure dose equations used to estimate chemical intake for adolescent and adult trespassers, respectively, exposed to surface soil. Where available, exposure assumptions used in the equations were those suggested by standard USEPA guidance documents. Tables 4.5 and 4.6 (Appendix K-4) provide a reference for each exposure assumption. Exposure assumptions that are not standard USEPA values include the following:

- The soil ingestion rate was assumed to be 100 milligrams per day (mg/day) for both adults and adolescents. This is the same as the soil ingestion rate assumed for resident adults given in the USEPA Region IV supplemental risk assessment guidance (USEPA, 1995).

- The exposure duration was assumed to be 20 years for adults and 10 years for adolescents. This is based on the 30-year exposure duration also assumed for a residential land use scenario. The adolescent is assumed to range in age from 7 to 18 years (or 10 of the 30 years exposure duration), assuming 20 years exposure as an adult.

- An exposure frequency of 100 events per year or days per year was assumed for adolescent exposure to surface soil. This value was selected to be greater than the adult exposure frequency of 45 events per year (USEPA, 1995) based on the belief that adolescents are more likely than adults to trespass. The value selected for adolescents is equivalent to approximately twice per week during the course of a year.

Intake values for adolescent trespasser exposures to AOC C noncarcinogens are provided in Appendix K-7, Table 7.5. Intake values for adult trespasser exposures to AOC C noncarcinogens are provided in Appendix K-7, Table 7.6. Intake values for adolescent trespasser exposures to AOC C carcinogens are provided in Appendix K-8, Table 8.5. Intake values for adult trespasser exposures to AOC C carcinogens are provided in Appendix K-8, Table 8.6.

6.3.4.4 Hypothetical Future Adult and Child Onsite Residents

Risks to the hypothetical future onsite resident adult and child were quantified for purposes of completeness only. NAVSTA Mayport is expected to remain a Naval base; therefore, onsite residential land use is not expected in the foreseeable future. The adult and child intakes were quantified for exposure to surface soil, surface water, and groundwater COPCs.

Tables 4.7, 4.9, and 4.11 in Appendix K-4 provide exposure dose equations used to estimate chemical intake for the hypothetical future adult resident exposed to surface soil, surface water, and groundwater, respectively. Tables 4.8, 4.10, and 4.12 in Appendix K-4 provide exposure dose equations used to estimate chemical intake for the hypothetical future child resident exposed to surface soil, surface water, and groundwater, respectively. Inhalation intake of VOCs vaporizing from groundwater was not quantified for hypothetical future adult and child residents because the inhalation risk (for VOCs) was assumed to be equal to the ingestion risk (USEPA, 1995). Where available, exposure assumptions used in the equations were those suggested by standard USEPA guidance documents. Tables 4.7 through 4.12 (Appendix K-4) provide a reference for each exposure assumption. Exposure assumptions that are not standard USEPA values include the following:

- No standard USEPA exposure assumptions were found for event frequency for adult and child dermal exposure to surface water. An event frequency of one event/day was assumed.

- An exposure frequency of 100 events per year or days per year was assumed for child exposure to surface water. This value was selected to be greater than the adult exposure frequency of 45 events per year (USEPA, 1995) based on the belief that children are more likely to participate in wading

activities than adults. The value selected for the child is equivalent to approximately twice per week during the course of a year.

Surface soil, surface water, and groundwater intake values for hypothetical future adult resident exposures to AOC C noncarcinogens are provided in Appendix K-7, Tables 7.7, 7.9, and 7.11. Surface soil, surface water, and groundwater intake values for hypothetical future child resident exposures to AOC C noncarcinogens are provided in Appendix K-7, Tables 7.8, 7.10, and 7.12. Surface soil, surface water, and groundwater intake values for hypothetical future adult resident exposures to AOC C carcinogens are provided in Appendix K-8, Tables 8.7, 8.9, and 8.11. Surface soil, surface water, and groundwater intake values for hypothetical future child resident exposures to AOC C carcinogens are provided in Appendix K-8, Tables 8.8, 8.10, and 8.12.

6.4 TOXICITY ASSESSMENT

The toxicity assessment for the COPCs examines information concerning the potential human health effects of exposure to COPCs. For each COPC, the goal of the toxicity assessment is to provide a quantitative estimate of the relationship between the magnitude and type of exposure and the severity or probability of human health effects. The toxicity values presented in this section are integrated with the exposure assessment (Section 6.3) to characterize the potential for the occurrence of adverse health effects.

The toxicological evaluation involves a critical review and interpretation of toxicity data from epidemiological, clinical, animal, and in vitro studies. This review of the data ideally determines both the nature of the health effects associated with a particular chemical and the probability that a given quantity of a chemical could result in the referenced effect. This analysis defines the relationship between the dose received and the incidence of an adverse effect for the chemicals of potential concern.

The entire toxicological database is used to guide the derivation of cancer slope factors (CSFs) for carcinogenic effects and Reference Doses (RfDs) for noncarcinogenic effects. These data may include epidemiological studies, long-term animal bioassays, short-term tests, and evaluations of molecular structure. Data from these sources are reviewed to determine if a chemical is likely to be toxic to humans. Because of the lack of available human studies, however, the majority of toxicity data used to derive CSFs and RfDs comes from animal studies.

For noncarcinogenic effects, the most appropriate animal model (the species most biologically similar to the human) is identified. Pharmacokinetic data often enter into this determination. In the absence of sufficient data to identify the most appropriate animal model, the most sensitive species is chosen. The

RfD is generally derived from the most comprehensive toxicology study that characterizes the dose-response relationship for the critical effect of the chemical. Preference is given to studies using the exposure route of concern. In the absence of such data, however, a RfD for one route of exposure may be extrapolated from data from a study that evaluated a different route of exposure. Such extrapolation must take into account Pharmacokinetic and toxicological differences between the routes of exposure. Uncertainty factors are applied to the highest no-observed-adverse-effect level (NOAEL) to adjust for inter- and intra-species variation, deficiencies in the toxicological database, and use of subchronic rather than chronic animal studies. Additional uncertainty factors may be applied to estimate a NOAEL from a lowest-observed-adverse-effect level (LOAEL) if the key study failed to determine a NOAEL. When chemical-specific data are not sufficient, a RfD may be derived from data for a chemical with structural and toxicologic similarity.

CSFs for weight-of-evidence Group A or B chemicals are generally derived from positive cancer studies that adequately identify the target organ in the test animal data and characterize the dose-response relationship. CSFs are derived for Group C compounds for which the data are sufficient, but they are not derived for Group D or E chemicals. (An explanation/definition of these weight-of-evidence classes is provided in Section 6.4.1). No consideration is given to similarity in the animal and human target organs because a chemical capable of inducing cancer in any animal tissue is considered potentially carcinogenic to humans. Preference is given to studies using the route of exposure of concern, in which normal physiologic function was not impaired, and in which exposure occurred during most of the animal's lifetime. Exposure and Pharmacokinetic considerations are used to estimate equivalent human doses for computation of the CSF. When a number of studies of similar quality are available, the data may be combined in the derivation of the CSF.

Toxicological profiles for each of the COPCs are presented in Appendix K-11. These profiles present a summary of the available literature on carcinogenic and noncarcinogenic effects associated with human exposure to the chemical.

6.4.1 Carcinogenic Effects

The toxicity information considered in the assessment of potential carcinogenic risks includes a weight-of-evidence classification and a slope factor. The weight-of-evidence classification qualitatively describes the likelihood that a chemical is a human carcinogen and is based on an evaluation of the available data from human and animal studies. A chemical may be placed in one of three groups in USEPA's classification system to denote its potential for carcinogenic effects:

- Group A - known human carcinogen.
- Group B1 or B2 - probable human carcinogen.
- Group C - possible human carcinogen.

Chemicals that cannot be classified as human carcinogens because of a lack of data are placed in Group D, and those for which there is evidence of noncarcinogenicity in humans are in Group E.

The CSF is the toxicity value used to quantitatively express the carcinogenic hazard of cancer-causing chemicals. It is defined as the upperbound estimate of the probability of cancer incidence per unit dose averaged over a lifetime. Slope factors are derived from studies of carcinogenicity in humans and/or laboratory animals and are typically calculated for compounds in Groups A, B1, and B2, although some Group C carcinogens also have slope factors and some B2 carcinogens such as lead have none. Slope factors are specific to a chemical and route of exposure and are expressed in units of milligrams per kilogram per day $[mg/kg\text{-}day]^{-1}$ for both oral and inhalation routes. Inhalation cancer toxicity values are usually expressed as inhalation unit risks in units of reciprocal microgram per cubed meter ($\mu g/m^3$) $[1/(\mu g/m^3)]$. The inhalation unit risk must be converted to an inhalation slope factor. This is done by assuming that humans weigh 70 kilograms (kg) and inhale 20 cubed meters (m^3) of air per day [i.e., the inhalation unit risk ($1/\mu g/m^3$) is divided by 20 m^3 per day, multiplied by 70 kg, and multiplied by 1,000 micrograms per milligram to yield the mathematical equivalent of an inhalation slope factor $(mg/kg\text{-}day)^{-1}$] (USEPA, 1995). CSFs for COPCs at AOC C are presented in Appendix K-6 in Tables 6.1 and 6.2. The primary sources of information for these values are the Integrated Risk Information System (IRIS) (USEPA, 2001) and the annual Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997a).

The IRIS database (USEPA, 2001) was consulted as the primary source for CSF values, as well as for RfDs. USEPA intends that IRIS supersede all other sources of toxicity information for risk assessment. If values are not available in IRIS, the HEAST values (USEPA, 1997a) were consulted. If no CSF is available from any of these sources, carcinogenic risks are not quantified and potential exposures are addressed in the general uncertainty section, Section 6.5.

CSFs exist for several (but not all) Class C compounds, which are identified as "possible" human carcinogens. Based on data for these compounds, there is inadequate evidence of carcinogenicity in humans and limited evidence of carcinogenicity in animals. In this HHRA, Class C compounds are evaluated quantitatively as class A/B1/B2 compounds, but the risks associated with exposure to Class C compounds are also discussed separately if these chemicals are major risk drivers, underscoring the uncertainty associated with these estimations.

Dermal CSFs are derived from the corresponding oral values. In the derivation of a dermal CSF, the oral CSF is divided by the gastrointestinal absorption efficiency to determine a CSF based on an absorbed dose rather than an administered dose. The oral CSF is divided by the absorption efficiency because CSFs are expressed as reciprocal doses. Dermal CSFs and the absorption efficiencies used in their determination are also included in Appendix K-6 in Table 6.1. When no absorption rate is available in the literature, no adjustment is made.

Risk estimates for PAHs have, in the past, assumed that all carcinogenic PAHs have a potency equal to that for benzo(a)pyrene. A benzo(a)pyrene equivalent concentration is calculated using TEFs for the other Class B2 PAHs as explained in Section 6.1. While benzo(a)pyrene was well studied, other Class B2 PAHs had insufficient data with which to calculate a CSF.

6.4.2 Noncarcinogenic Effects

For noncarcinogens, it is assumed that a dose exists below which no adverse health effects will be seen. Below this "threshold" dose, exposure to a chemical can be tolerated without adverse effects. Toxic effects are manifested only when physiologic protective mechanisms are overcome by exposures to a chemical above its threshold level. Maternal and developmental endpoints are considered systemic toxicity.

Comparing an exposure estimate (intake or dose) to a RfD assesses the potential for noncarcinogenic health effects resulting from exposure to chemicals. The RfD is expressed in units of mg/kg-day and represents a daily intake of contaminant per kilogram of body weight that is not sufficient to cause the threshold effect of concern. A RfD is specific to the chemical, the route of exposure, and the duration over which the exposure occurs. Separate RfDs are presented for ingestion and inhalation pathways. In particular, Reference Concentrations (RfCs) in units of milligrams per cubed meter (mg/m^3) are typically presented for the inhalation pathway. Because characterization of noncarcinogenic effects requires an estimate of dose in units of mg/kg-day, the inhalation RfC must be converted to an inhalation RfD. The conversion is performed by assuming that humans weigh 70 kg and inhale 20 m^3 of air per day [i.e., the inhalation RfC (mg/m^3) is multiplied by 20 m^3 per day and divided by 70 kg to yield an inhalation RfD with units of mg/kg-day] (USEPA, 1995).

To derive a RfD, USEPA reviews all relevant human and animal studies for each compound and selects the study (studies) pertinent to the derivation of the specific RfD. Each study is evaluated to determine the NOAEL or, if the data are inadequate for such a determination, the LOAEL. The NOAEL corresponds to the dose (in mg/kg-day) that can be administered over a lifetime without inducing observable adverse effects. The LOAEL corresponds to the lowest daily dose that induces an observable adverse effect.

The toxic effect characterized by the LOAEL is referred to as the "critical effect." To derive a RfD, the NOAEL (or LOAEL) is divided by uncertainty factors to ensure that the RfD will be protective of human health. Uncertainty factors are applied to account for extrapolation of data from laboratory animals to humans (interspecies extrapolation), variation in human sensitivity to the toxic effects of a compound (intraspecies differences), derivation of a chronic RfD based on a subchronic rather than a chronic study, or derivation of an RfD from the LOAEL rather than the NOAEL. In addition to these uncertainty factors, modifying factors between 1 and 10 may be applied to reflect additional qualitative considerations in evaluating the data. For most compounds, the modifying factor is one.

Multiplying an oral RfD (based on an administered dose) by the gastrointestinal tract absorption factor develops a dermal RfD. The resulting dermal RfD, based on an absorbed dose, is used to evaluate the dermal (absorbed) dose calculated by the dermal exposure algorithms.

RfDs for the COPCs at AOC C are presented in Appendix K-5 in Tables 5.1 and 5.2. The primary source of these values is the IRIS database, followed by other USEPA sources described for the carcinogens. This table also includes the primary target organs affected by a particular chemical. This information may be used in the risk characterization section to segregate risks by target organ effects, unless the total HI is below unity.

6.5 RISK CHARACTERIZATION, UNCERTAINTY ANALYSIS, AND CONCLUSIONS

6.5.1 Risk Characterization for AOC C

A summary of the risk characterization for AOC C is presented in this section. Total noncarcinogenic and carcinogenic risks for each exposure route, as well as the cumulative risks for each receptor are presented in Tables 9.1 through 9.6 in Appendix K-9. The following receptors were evaluated:

- The base worker.
- The construction worker.
- The trespasser (adult and adolescent).
- The hypothetical future resident (adult and child).

Example calculations and relevant risk calculation spreadsheets are presented in Appendix K.

6.5.1.1 Noncarcinogenic Risks for AOC C

HIs developed for the aforementioned receptors and presented in the referenced tables were as follows:

Receptor	HI	Table in Appendix K
Base Worker (Current/Future)	4.1E-02	9.1
Construction Worker (Current/Future)	4.1E-02	9.2
Adolescent Trespasser (Current/Future)	5.6E-02	9.3
Adult Trespasser (Current/Future)	2.5E-02	9.4
Hypothetical Adult Resident (Future)	1.2E+00	9.5
Hypothetical Child Resident (Future)	2.6E+00	9.6

HIs calculated for the base worker, the construction worker, and the adult/adolescent trespassers are equal to or less than 1, indicating that adverse noncarcinogenic health effects are not anticipated under the conditions established in the exposure assessment.

HIs calculated for the hypothetical future resident exceed 1 when the hypothetical future adult or child is the receptor of concern. The HIs calculated for the adult and small child resident routinely exposed to soils only were 2.0E-01 and 9.3E-01, respectively. The HIs calculated for the adult and small child occasionally exposed to local surface water only were 1.2E-04 and 2.6E-03, respectively. The HIs calculated for the adult and small child resident routinely exposed to groundwater were 9.8E-01 and 1.7E+00, respectively. HIs calculated on a target organ-specific basis did not exceed one. The risk estimates presented for the environmental media are subject to several significant sources of uncertainty. This includes the fact that a very conservative RfD for iron was used to conduct the risk analysis. These significant sources of uncertainty are further discussed in Section 6.5.1.3.

6.5.1.2 Carcinogenic Risks for AOC C

ILCR estimates calculated for the aforementioned receptors and presented in the referenced tables were as follows:

Receptor	HI	Table in Appendix K
Base Worker (Current/Future)	8.6E-06	9.1
Construction Worker (Current/Future)	2.5E-07	9.2
Adolescent Trespasser (Current/Future)	3.6E-06	9.3
Adult Trespasser (Current/Future)	3.5E-06	9.4
Hypothetical Adult Resident (Future)	6.8E-05	9.5
Hypothetical Child Resident (Future)	7.4E-05	9.6

The ILCR estimate developed for the construction worker (2.5E-07) exposed to AOC C media does not exceed the USEPA target risk range of 1E-04 to 1E-06. ILCR estimates calculated for the base worker and the trespasser are within the USEPA target risk range but exceed the State of Florida risk benchmark of 1E-06. Cancer risk estimates for the hypothetical future resident (combined adult and child) do exceed the USEPA target risk range and the State of Florida risk benchmark of 1E-06. A review of the media and chemical-specific risk results indicate benzo(a)pyrene (equivalent), Aroclor-1260, and arsenic in surface soil and 1,1-dichloroethene; tetrachloroethene; vinyl chloride; carbazole; and aldrin in groundwater are the predominant risk drivers for AOC C.

Receptor	Media	Cancer Risk Estimate	Table in Appendix K
Base Worker (Current/Future)	Surface Soil	8.6E-06	9.1
	Total	**8.6E-06**	**9.1**
Construction Worker (Current/Future)	Surface Soil	2.4E-07	9.2
	Subsurface Soil	4.9E-09	9.2
	Groundwater	5.2E-09	9.2
	Total	**2.5E-07**	**9.2**
Adolescent Trespasser (Current/Future)	Surface Soil	3.6E-06	9.3
	Total	**3.6E-06**	**9.3**
Adult Trespasser (Current/Future)	Surface Soil	3.5E-06	9.4
	Total	**3.5E-06**	**9.4**
Total for Trespasser		**7.1E-06**	
Hypothetical Adult Resident (Future)	Surface Soil	3.2E-05	9.5
	Groundwater	3.5E-05	9.5
	Total	**6.8E-05**	**9.5**
Hypothetical Child Resident (Future)	Surface Soil	5.4E-05	9.6
	Groundwater	2.0E-05	9.6
	Total	**7.4E-05**	**9.6**
Total for Resident		**1.4E-05**	

As noted above, benzo(a)pyrene (equivalent), Aroclor-1260, and arsenic were the carcinogenic COPCs selected for surface soils. The chemical-specific risk estimates for exposure to benzo(a)pyrene (equivalent) are within the USEPA target risk range of 1E-04 to 1E-06 for all receptors evaluated except the construction worker, where the risk estimate is less than 1E-06. The risk estimates for exposure to Aroclor-1260 and arsenic are within the USEPA target risk range of 1E-04 to 1E-06 for the hypothetical resident and less than 1E-06 for all other receptors.

As noted above, the predominant risk drivers for groundwater are 1,1-dichloroethene; tetrachloroethene; vinyl chloride; carbazole; and aldrin. Chemical-specific risk estimates for the five chemicals are within the target risk range of 1E-04 to 1E-06 for the hypothetical resident and less than 1E-06 for all other receptors.

There were no carcinogenic COPCs in surface water.

The cancer risk estimates presented for the environmental media are subject to several significant sources of uncertainty. This includes the fact that the carcinogenic PAH concentrations noted in the soils at AOC C are within the range of concentrations reported in the literature as representing anthropogenic background. These significant sources of uncertainty are further discussed in Section 6.5.1.3.

6.5.1.3 Uncertainty Analysis for AOC C

Uncertainty in the selection of COPCs is related to the current status of the predictive databases, the grouping of samples, and the procedures used to include or exclude constituents as COPCs. Uncertainty associated with the exposure assessment includes the values used as input variables for a given intake route/scenario, the assumptions made to determine exposure point concentrations, and the predictions regarding future land-use and population characteristics. Uncertainty in the toxicity assessment includes the quality of the existing toxicity data needed to support dose-response relationships and the weight-of-evidence used for determining the carcinogenicity of COPCs. Uncertainty in the risk characterization includes that associated with exposure to multiple chemicals and the cumulative uncertainty from combining conservative assumptions made in earlier steps of the risk assessment process.

Whereas there are various sources of uncertainty as described earlier, the direction of uncertainty can be influenced by the assumptions made throughout the risk assessment, including selection of COPCs and selection of values for dose-response relationships. In general, assumptions, which consider safety factors, are made so that the final calculated risks are overestimated.

Once the risk assessment is complete, the results must be reviewed and evaluated to identify the type and magnitude of uncertainty involved. Reliance on results from a risk assessment without consideration of uncertainties, limitations, and assumptions inherent in the process can be misleading.

6.5.1.3.1 Uncertainty in COPC Selection

The following uncertainties should be considered when evaluating the results of the risk characterization conducted for AOC C:

6.5.1.3.2 Existing Databases

All data used for this evaluation have been validated according to guidelines. Therefore, uncertainties associated with the quality of the data are considered to be minimal. For most media, few samples (less than 10) were collected. The use of small data sets may result in additional uncertainty both in the COPC

selection and in the calculated risks. Additionally, the field sampling program was biased towards areas most likely to demonstrate contamination.

6.5.1.3.3 COPC Screening Levels

The use of risk-based screening values should ensure that the significant contributors to risk from a site area not incorrectly screened out but are retained for evaluation. Screening values were based on conservative land-use scenarios (i.e., residential land use for soil) and protective levels of risk corresponding to an ILCR of 10^{-6} (divided by the number of initial carcinogenic COPCs) and a HI of 0.1.

6.5.1.3.4 Absence of COPC Screening Levels

Essential human nutrients (magnesium, potassium, calcium, and sodium) are considered toxic only at very high doses and do not have screening levels listed in the GCTL/SCTL tables referenced in this report. These nutrients were eliminated from consideration as COPCs. Exclusion of these chemicals as COPCs is not expected to add significant uncertainty to the risk.

6.5.1.3.4.1 Frequency of Detection

Carbazole and aldrin, COPCs in groundwater, were each detected in only 1 of 51 samples. Their FOD was, therefore, less than 5 percent. However, the chemicals were retained for consideration of risk because there is more than one possible area of groundwater impact at AOC C and; therefore, the detections were not less than 5 percent of the samples collected at one possible area of impact. No chemicals were eliminated from this HHRA based on the frequency screening criteria, leading to possible overestimation of risk for these chemicals.

It should also be noted that the remaining three risk drivers in groundwater (1,1-dichloroethene; tetrachloroethene; and vinyl chloride), although detected in several samples, were detected above their respective GCTLs in only 1 of 51 samples.

6.5.1.3.4.2 USEPA Region 9 Preliminary Remediation Goals

USEPA Region IX PRGs were presented in the COPC selection tables but not used in COPC selection. Because Florida SCTLs and GCTLs are primarily conservative, risk-based screening levels, it is unlikely that the fact that PRG values were not used for COPC screening would result in the underestimation of risk. However, for many chemicals, the Region IX PRG value and the State of Florida screening value are different. There are some cases in which a chemical would have been selected as a COPC based on a comparison of the maximum concentration to the PRG but the chemical was eliminated as a COPC

based on a comparison of the maximum concentration and the Florida screening values. This is limited to a few chemicals in groundwater, surface soil, and surface water.

In groundwater, the maximum concentrations of 1,2-dichloroethane; gamma-BHC; and arsenic exceeded their unadjusted PRG. 1,2-Dichloroethane and gamma-BHC were both detected at relatively low frequencies (8 percent and 4 percent, respectively), and their maximum concentrations exceeded their respective PRGs by approximately a factor of two. For arsenic, the FOD was somewhat low at 12 percent, and the maximum concentration only exceeded background by a factor of two. Therefore, it is unlikely that significant underestimation of risk resulted from the omission of these chemicals as COPCs in groundwater.

In surface soil, the maximum concentrations of heptachlor epoxide and chromium exceeded their respective adjusted PRGs (divided by 10 to account for carcinogenic additivity), but do not exceed the unadjusted PRGs.

In surface water, the maximum concentrations of bromodichloromethane, chlorodibromomethane, and chloroform exceeded their respective PRGs. The maximum concentrations do not exceed Federal MCLs, and contamination from these chemicals is often linked to treatment (chlorination) of drinking water. Therefore, it is unlikely that significant underestimation of risk resulted from the omission of these chemicals as COPCs in surface water.

6.5.1.3.5 Uncertainty in the Exposure Assessment

6.5.1.3.5.1 Land-Use

The current land use patterns of NAVSTA Mayport are well established, thereby reducing the uncertainty associated with land use assumptions. Current land use receptors are base workers, construction workers, and site trespassers; this list of receptors is not expected to change in the foreseeable future.

6.5.1.3.5.1.1 Mayport Turning Basin

Mayport Turning Basin is located adjacent to AOC C. However, potential risks resulting from exposure to surface water and sediment in the Turning Basin were not evaluated in this HHRA. This is primarily because the basin in dredged every 2 to 3 years for safe berthing of Navy ships. Dredged sediments are transferred through a slurry pipeline to SWMU 50, the Western Dredge Spoil area. Data from any surface water or sediment sampling that would be collected for this investigation, and subsequent evaluation of human risks would be unusable the next time the basin is dredged. It is possible that personnel could be exposed to surface water in the Turning Basin through swimming or ingestion of fish.

6.5.1.3.6 Exposure Point Concentration

The maximum concentrations of COPCs in surface soil, surface water, and sediment were selected as the exposure point concentrations for the HHRA. Consequently, risk estimates are likely to be overestimated because it is unlikely that potential receptors would be exposed to maximum concentration only for the entire assumed exposure period.

The method used to calculate the benzo(a)pyrene (equivalent) concentration for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) may also overestimate the risk. USEPA Region IV guidance (USEPA, 1995) was followed to determine a benzo(a)pyrene (equivalent) concentration representative of total cPAHs in each sample. The Region IV guidance suggests the following TEF for each cPAH to calculate the benzo(a)pyrene (equivalent) concentration:

- Benzo(a)pyrene, TEF = 1.0.
- Benzo(a)anthracene, TEF = 0.1.
- Benzo(b)fluoranthene, TEF = 0.1.
- Dibenzo(a,h)anthracene, TEF = 1.0.
- Benzo(k)fluoranthene, TEF = 0.01.
- Chrysene, TEF = 0.001.
- Indeno(1,2,3-cd)pyrene, TEF = 0.1.

If cPAHs were detected at a sample location, the benzo(a)pyrene (equivalent) concentration was calculated for that location by multiplying the concentration of each cPAH by the appropriate TEF and summing these values. If a non-detect result was reported for a cPAH, then half the detection limit of that PAH was used as a surrogate concentration. If cPAHs were not detected at a sample location, then the benzo(a)pyrene (equivalent) concentration was calculated by multiplying half the detection limit for each cPAH by the appropriate TEF and summing these values. As with other analytes in surface soil, the maximum benzo(a)pyrene (equivalent) concentration in an environmental media was used to estimate potential risks.

6.5.1.3.7 Exposure Parameters

The exposure factors (e.g., exposure frequency and duration) used to characterize risks are based on RME assumptions. Generally, default and literature 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. Therefore, the risk is not likely to be underestimated for maximum exposed individuals and is more likely to be overestimated for the general populations exposed to the chemicals in the environmental media at the sites. Assumptions were made for soil ingestion rate,

exposure duration, and exposure frequency for the trespasser and the exposure frequency of a resident child hypothetically exposed to surface water. The assumptions were conservative and are not likely to underestimate the exposure to the receptor.

6.5.1.3.8 Uncertainty in Toxicity Assessment

6.5.1.3.8.1 Derivation of Toxicity Criteria

Uncertainty is associated with hazard assessment and dose-response evaluations. The hazard assessment deals with characterizing the nature and strength of the evidence of causation or the likelihood that a chemical that induces adverse effects in animals will also induce adverse effects in humans. Hazard assessment of carcinogenicity is evaluated as a weight-of-evidence determination using the USEPA methods. Positive animal cancer test data suggest that humans contain tissue(s) that may manifest a carcinogenic response; however, the animal data cannot necessarily be used to predict the target tissue in humans. In the hazard assessment of non-cancer effects, however, the positive animal data often suggest the nature of the effects (i.e., the target tissues and type of effects) anticipated for 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; when the magnitude of the response is clearly dose-related; when Pharmacokinetic data indicate a similar fate in humans and animals; when postulated mechanisms of toxicity are similar for humans and animals; and when the chemical of concern is structurally similar to other chemicals for which the toxicity is more completely characterized.

Uncertainty in the dose-response evaluation is associated with the determination of a CSF for the carcinogenic assessment and derivation of a RfD or RfC for the noncarcinogenic assessment. Uncertainty 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 intra-species variation. Most toxicity experiments are performed with animals that are very similar in age and genotype, so that intra-group biological variation is minimal, but the human population of concern may reflect a great deal of heterogeneity including unusual sensitivity or tolerance to the COPC. Even toxicity data from human occupational exposure reflect a bias because only those individuals sufficiently healthy to attend work regularly (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. For cancer effects, the uncertainty associated with dose-response factors is 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 multistage model, which is used in nearly all quantitative estimations of human risk from 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 noncarcinogenic (Williams and Welsburger, 1991); therefore, the use of the linearized multistage model is conservative for chemicals that exhibit a threshold for carcinogenicity.

For non-cancer effects, additional uncertainty factors may be applied in the derivation of the RfD or RfC to mitigate poor quality of the key study group or gaps in the database. Additional uncertainty for non-cancer effects is associated with a prediction of a threshold dose rate less than which adverse effects are not expected. Therefore, an uncertainty factor is usually applied to the estimate of a no-effects level. Additional uncertainty arises in estimation of a RfD or RfC for chronic exposure from subchronic data. Unless empirical data indicate that effects do not worsen with increasing duration of exposure, an additional uncertainty factor is applied to the no-effect level in the subchronic study. Uncertainty in the derivation of RfDs is mitigated by the use of uncertainty and modifying factors that normally range between 3 and 10. The resulting combination of uncertainty and modifying factors are used to proportionally adjust the RfD downwards and thereby intentionally introduce a conservative bias in the RfD by a factor of 1000 or more.

The derivation of dermal RfDs and CSFs from oral values may cause uncertainty. This is particularly the case when no gastrointestinal absorption rates are available in the literature or when only qualitative statements regarding absorption are available.

6.5.1.3.8.1.1 Toxicity Criteria For Arsenic

The toxicity criteria for arsenic are a major source of uncertainty for this baseline risk assessment. While conventional risk assessment methodology suggests that there is no "zero risk concentration" for a carcinogen such as arsenic, the human body does have a limited capacity to methylate arsenic and this limit is not generally reached until the body's intake of arsenic exceeds 500 micrograms per day (µg/day). Most environmental exposures result in intakes lower than 500 µg/day. Additionally, the USEPA suggests that an order of magnitude adjustment of risk (downward) may be appropriate for arsenic in some cases.

6.5.1.3.9 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 the fate in the body, as additivity may not be an appropriate assumption. However, the assumption of additivity is made to provide a conservative estimate of risk.

Finally, the risk characterization does not consider antagonistic or synergistic effects. Little or no information is available to determine the potential for antagonistic or synergism for the COPCs. Therefore, this uncertainty cannot be discussed for its impact on the risk assessment, as it may either over- or under-estimate potential human health risk.

6.5.1.3.9.1 1,1-Dichloroethene and Vinyl Chloride

The groundwater EPCs calculated for 1,1-dichloroethene (0.867 µg/L) and vinyl chloride (0.704 µg/L) do not exceed their respective GCTLs (7 µg/L and 1 µg/L), yet the estimated risk associated with exposure to both of these chemicals was calculated to be greater than 1.0E-06 (i.e., they are risk drivers). Each chemical was selected as a COPC in groundwater because 1 sample out of 51 had a detectable concentration greater than the GCTL. The GCTL for these two chemicals is a primary drinking water standard, not a risk-based concentration.

6.5.1.3.9.2 Unavailable Toxicity Criteria

Risk-based screening levels and/or toxicity criteria are not available for two analytes detected in AOC C groundwater: thionazin and methane. The University of Maryland lists these as an acute toxin. Acute toxins are defined as substances that have a median lethal dose (LD50) less than or equal to 50 mg/kg body weight by the oral route of entry, 200 mg/kg body weight by the dermal route of entry, or a median lethal concentration (LC50) less than or equal to 0.5 milligrams per liter where time of exposure is eight hours or less. This definition is compatible with the 1994 Department of Transportation definition of "Poison" (http://www.inform.umd.edu/CampusInfo/Departments/EnvirSafety/os/ch/acute.html). Methane is described as a simple asphyxiant that does not produce general systemic effects. However, it is a severe fire and explosion hazard [e.g., methane forms an explosive mixture with air (5 to 15 percent by volume)].

6.5.1.4 Summary and Conclusions for AOC C

A summary of the risk characterization for AOC C is presented in Table 6-2. The following items summarize the results of the risk characterization for AOC C:

- Non-cancer risk estimates (HIs) developed for the base worker, the construction worker, the adult trespasser, and the adolescent trespasser are equal to or less than one, indicating that adverse noncarcinogenic effects are not anticipated under the conditions considered in the risk assessment. The HIs developed for the hypothetical future resident adult and child exceed 1.0. HIs developed for individual COPCs and target organs do not exceed 1.0.

- The ILCR estimate for the construction worker (2.5E-07) does not exceed the USEPA target risk range (1E-04 to 1E-06) or the State of Florida cancer risk benchmark (1E-06).

- The ILCR estimates for the base worker (8.6E-06) and trespasser (7.1E-06) exceed the conservative end of the USEPA target risk range (1E-06). Risk from exposure to benzo(a)pyrene (equivalent) in surface soil exceeds 1E-06 for both receptors.

- The ILCR estimate for the hypothetical future resident (1.4E-04) exceeds the USEPA target risk range (1E-04 to 1E-06). Risk from exposure to benzo(a)pyrene (equivalent), Aroclor-1260, and arsenic in surface soil and 1-1-dichloroethene; tetrachloroethene; vinyl chloride; carbazole; and aldrin in groundwater exceeds 1E-06. The EPCs for both tetrachloroethene and vinyl chloride are below their respective MCLs.

7.0 ECOLOGICAL RISK ASSESSMENT

7.1 OVERVIEW OF SCREENING-LEVEL ERA METHODOLOGY

This section provides an outline of the general approach that was taken to assess the impacts of site contamination on ecological receptors at AOC C and the habitats that support these organisms. This ERA generally followed a two-step process:

Step 1: Preliminary Problem Formulation (Section 7.2) and Preliminary Ecological Effects Evaluation (Section 7.3)

- Preliminary Problem Formulation - This is the first phase of an ERA which discusses the goals, breadth, and focus of the assessment. It includes general descriptions of the site to be investigated with emphasis on the habitats and ecological receptors present. This phase also involves characterization of chemical sources and migration pathways, evaluation of routes of chemical exposure, and selection of analytes to be assessed. Preliminary assessment and measurement endpoints are also selected in this phase. Finally, a preliminary conceptual model is developed that describes how chemicals associated with the site may come into contact with ecological receptors.

- Preliminary Ecological Effects Evaluation - In this phase, medium-specific ecological screening guidelines for each analyte (i.e., concentrations of each chemical above which adverse effects to ecological receptors may occur) are identified. This step is undertaken concurrently with the exposure assessment described below.

Step 2: Preliminary Exposure Estimate (Section 7.4) and Risk Calculation (Section 7.5)

- Preliminary Exposure Estimate - This portion of the ERA includes the identification of data sources containing concentrations of chemicals to which ecological receptors may be exposed in various media. It also includes the selection of exposure point chemical concentrations from those data.

- Preliminary Risk Calculation - In this step, exposure point concentrations are compared to guidelines in order to characterize potential risk to ecological receptors. Analytes found to pose potential risk after these comparisons are selected as ecological COPCs.

The above process, described in further detail below, represents the general ERA approach recommended in the most recent USEPA guidance for performing ERAs (USEPA, 1998b and 1997b).

Region IV has developed region-specific guidance (USEPA, 2000) and has requested that this guidance be followed for all ERAs performed in that region. Region IV guidance is consistent with national USEPA guidance (USEPA, 1998b and 1997b). Hence, this ERA follows Region IV guidance while containing relevant elements of national USEPA guidance. Additional guidance consulted for this ERA includes Department of the Navy ERA policy (Navy, 1999), which refers to this "screening-level assessment" as a "Tier 1" study in the Navy's three-tiered ERA approach.

Because of the potential complexity of ERAs, they are often conducted using a tiered approach and punctuated with Scientific/Management Decision Points (SMDPs). SMDPs are meetings involving the risk assessors, risk managers, and client to control costs, prevent unnecessary analyses, and ensure that the ERA is proceeding in an efficient, timely manner. Information analyzed in one tier is evaluated to determine whether the objectives of the study have been met, and then it may be used to identify the data required for the next tier, if necessary. Again, this ERA can be considered a "screening-level" assessment because it is based only on comparing chemical concentrations against conservative screening values.

A baseline ERA (BERA) may be conducted if the results of the screening-level ERA indicate that additional study is warranted. The BERA includes more focused studies that incorporate the initial screening, but it may also encompass detailed laboratory and field studies or extensive modeling (USEPA, 1997b). The BERA represents Steps 3 through 7 of the 8-step ERA process. The beginning of the BERA presents a more balanced evaluation of the conservativeness inherent in the first two steps in the process (Navy, 1999). It is described in detail in Section 7.6. Step 8 is risk management.

7.2 PRELIMINARY PROBLEM FORMULATION

7.2.1 Habitat Types and Ecological Receptors

AOC C is located south and east of Echo Pier, which is adjacent to Mayport Turning Basin (Figure 1-2). The site is situated in a highly developed portion of the base and is characterized by buildings, roadways, parking lots, and other paved areas. Approximately 15 percent of the aerial extent of AOC C is mowed turf grass. The base golf course is located south of AOC C. A landfill was reported by the Navy to be located beneath the western portion of Building 191. The primary concern for AOC C is tetrachloroethene groundwater contamination suspected to originate from the former landfill.

Due to the highly developed nature of AOC C, terrestrial habitat is poor and of limited quantity and, thus, use by ecological receptors is expected to be minimal. A small runoff retention pond is located west of Building 191. Some culverts lead into the pond, which receives runoff from nearby areas. Limited open

water is present in the retention pond, and some cattails (*Typha* spp.) are present along its margins. The retention pond provides some aquatic habitat, though it is limited in quality and quantity and surrounded by developed areas. Open water is located in the Turning Basin, but the aquatic media associated with this area are not considered to be part of AOC C.

7.2.2 Major Chemical Sources and Migration Pathways

A potential contributor to impacted groundwater at AOC C is believed to be landfilled waste materials under Building 191 and the surrounding paved areas. A tetrachloroethene spill occurred near Building 191 in the early 1990s, but is not thought to be the source of tetrachloroethene in site groundwater. The major contaminant migration pathway in the AOC C is subsurface soil-to-groundwater movement of chemicals. Groundwater-to-surface water migration may occur, as well as discharge from groundwater to the retention pond adjacent to Building 191. There is no known continuous source of potential surface soil contaminants, although some limited surface soil impacts may be present.

7.2.3 Exposure Routes

The chemical exposure routes for AOC C are mainly aquatic and semi-aquatic. Aquatic and semi-aquatic organisms associated with the retention pond may be exposed to chemicals via direct contact with surface water and sediments, incidental ingestion of surface water and sediments, drinking surface water, and consumption of contaminated food items. Exposure can occur also via discharge of chemicals in groundwater to surface water and sediment.

Some surface soil exposure is possible. Terrestrial animals at the site may be exposed to soil contaminants through ingestion of contaminated food items. Animals can incidentally ingest soil while grooming fur, preening feathers, digging, grazing close to the soil, or feeding on items to which soil has adhered (such as roots and tubers). Terrestrial vegetation may be exposed to contaminants via direct aerial deposition and root translocation. Aerial deposition was not investigated, primarily because the contaminant sources at the sites under investigation are largely covered by vegetation, reducing the amount of bare soil and fugitive dust. Exposure to contaminants in the soil via dermal contact may occur, but is unlikely to represent a major exposure pathway because fur, feathers, and chitinous exoskeletons probably minimize transfer of contaminants across dermal tissue. Soil trapped in the fur or feathers could be ingested during grooming or preening activities, which are evaluated as part of the indirect ingestion exposure route. In addition, little information is available (e.g., absorption factors) to evaluate dermal exposures to wildlife. Direct exposure to soil chemicals is also possible for terrestrial invertebrates.

7.2.4 Selection of Analytes to be Investigated

Analytes included in the ERA for quantitative analysis were all chemicals detected in surface water and sediment samples collected in the retention pond area in 2000 (Figure 4-1). Three surface soil samples were collected. Two of these samples were located under pavement, reflecting the general absence of potential surface soil contamination and the absence of surface soil-related exposure routes to ecological receptors. Only surface soil sample MPT-55-SS06-01 was located in exposed surface soil. As agreed to with Region IV ERA, surface water and sediment samples were not collected in Mayport Turning Basin because this area is dredged frequently, severely inhibiting the interpretability of these data.

Calcium, magnesium, potassium, and sodium were excluded as analytes to be investigated because they are essential nutrients that are toxic only in extremely high concentrations. Due to the scarcity of data for these essential nutrients, it would not be possible to develop ranges of toxicity for them, even at high concentrations. The limited toxicity data available indicate that high dietary intake of these nutrients is well tolerated.

7.2.5 Assessment and Measurement Endpoints

As discussed in the USEPA Ecological Risk Assessment Guidance (USEPA, 1997b), one of the major tasks in preliminary problem formulation is the selection of preliminary assessment and measurement endpoints. An assessment endpoint is defined as "an explicit expression of actual environmental values that are to be protected" (USEPA, 1997b). Measurement endpoints are "measurable ecological characteristics that are related to the valued characteristic chosen as the assessment endpoint" (USEPA, 1997b). Region IV has specified that assessment endpoints for the screening-level assessment should be broad and generic and considered preliminary. For this ERA, the preliminary assessment endpoints were protection of aquatic and semi-aquatic biota, as well as terrestrial biota, from adverse effects of chemicals on their growth, survival, and reproduction.

As indicated above, measurement endpoints (also referred to as “measures of effects”) are related to assessment endpoints, but these endpoints are more easily quantified or observed. In essence, measurement endpoints serve as surrogates for assessment endpoints. While declines in populations and shifts in community structure can be quantified, studies of this nature are generally time-consuming and difficult to interpret. However, measurement endpoints indicative of observed adverse effects on individuals are relatively easy to measure in toxicity studies and can be related to the assessment endpoint.

For surface water and sediment in the retention pond, the preliminary measurement endpoints were chemical concentrations in surface water and sediment associated with adverse effects on growth, survival, and reproduction of surface water and benthic organisms, respectively (screening levels). For surface soil, the preliminary measurement endpoints were chemical concentrations in surface soil associated with adverse effects on growth, survival, and reproduction of terrestrial organisms (screening levels). The measurement endpoints listed above incorporate, to the fullest extent possible, the assessment endpoints.

7.2.6 Preliminary Conceptual Site Model

The conceptual model is designed to diagrammatically identify potentially exposed receptor populations and applicable exposure pathways, based on the physical nature of the site and the potential chemical source areas. Actual or potential exposure to chemicals for ecological receptors associated with the AOC C was determined by identifying the most likely pathways of chemical release and transport. A complete exposure pathway has three components: a source of chemicals that can be released to the environment, a route of chemical transport through an environmental medium, and an exposure route or contact point for an ecological receptor. A preliminary conceptual model for AOC C is presented in Figure 7-1.

7.3 PRELIMINARY ECOLOGICAL EFFECTS EVALUATION

For this ERA, exposure point concentrations of detected analytes in surface water, sediment, and surface soil were compared to ecologically based guidelines to determine if they should be selected as COPCs. Surface water, sediment, and surface soil screening levels for this assessment were Region IV ecological screening levels (USEPA, 2000). Freshwater values were used because water in the retention pond is freshwater runoff from portions of AOC C. When screening levels were available for different species of the same metal, the screening level for the most toxic form was used, such as those for hexavalent chromium, trivalent arsenic, and methyl mercury.

7.4 PRELIMINARY EXPOSURE ESTIMATE

Data used to obtain exposure point chemical concentrations in this ERA were obtained from analyses of the surface water and sediment sample collected in 2000 in the retention pond area as part of this investigation, as well as the one surface soil sample collected in exposed surface soil. For this screening assessment, the concentrations of chemicals in the surface water, sediment, and surface soil samples were used as the exposure point concentrations.

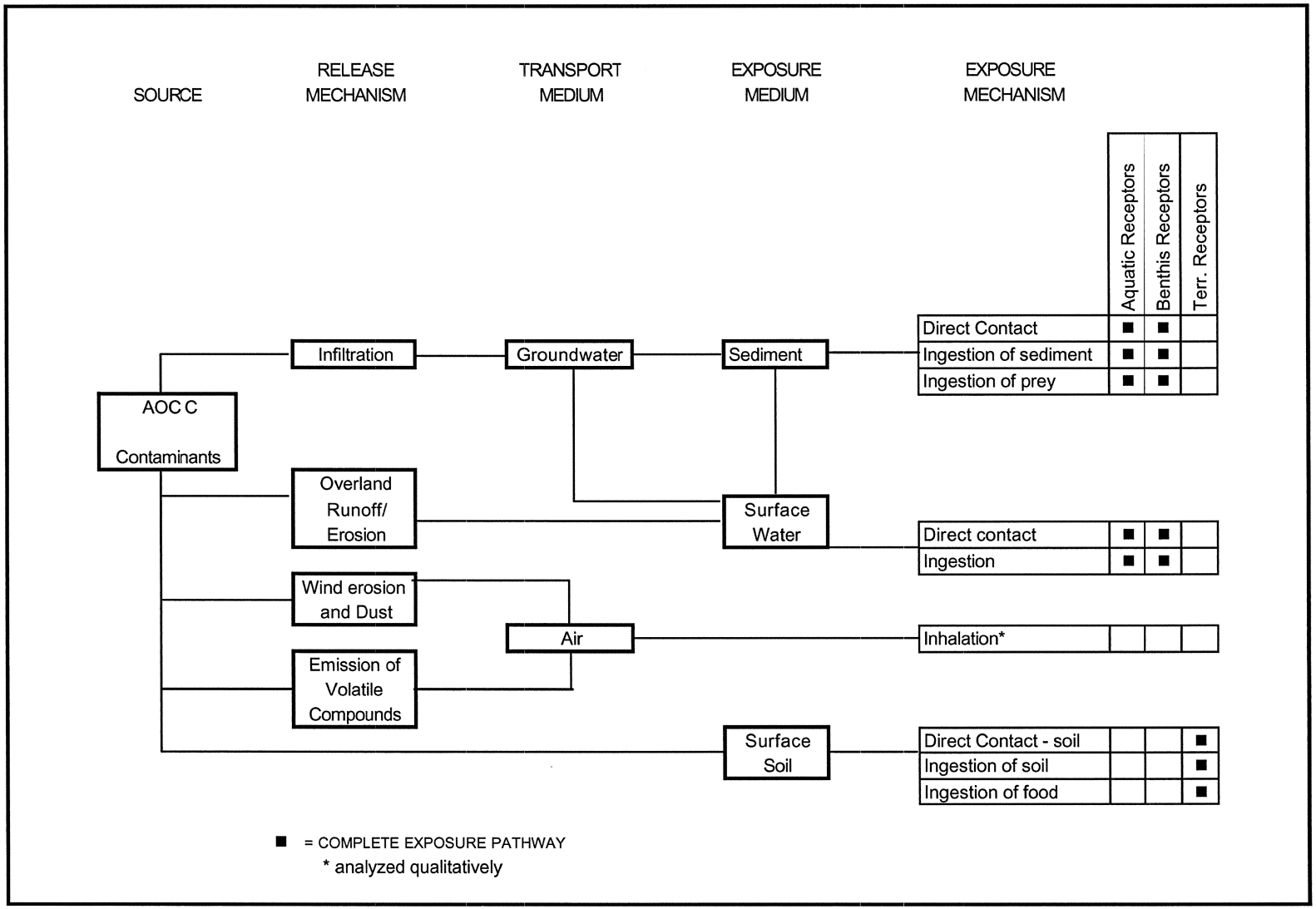

FIGURE 7-1

ECOLOGICAL CONCEPTUAL SITE MODEL - AOC C
NAS MAYPORT, FLORIDA

7.5 PRELIMINARY RISK CALCULATION

As identified by the USEPA (USEPA, 1997b), the preliminary risk calculation step in the ERA process compares the maximum concentrations of chemicals in surface water, sediment, and surface soil to Region IV screening levels. The ratio of the exposure point chemical concentration to the screening level is called HQ and is defined as follows:

$$HQ_i = \frac{EPC_i}{ESG_i}$$

where: HQ_i = Hazard Quotient for analyte "i" (unitless)

EPC_i = Exposure Point Concentration (g/kg or mg/kg)

ESG_i = Ecological Screening Guideline for analyte "i" (µg/kg or mg/kg)

When the ratio of the exposure point concentration to its respective guideline exceeded 1.0, adverse impacts were considered possible, and the chemical was selected as a COPC. The HQ value should not be construed as being probabilistic; rather, it is a numerical indicator of the extent to which an exposure point concentration exceeds, or is less than a guideline. When HQ values exceeded 1.0, it was an indication that ecological receptors are potentially at risk. Additional evaluation or data may be necessary to confirm with greater certainty whether ecological receptors are actually at risk, especially since most screening-level guidelines are conservatively derived.

The use of HQs is probably the most common method used for risk characterization in ERAs. Advantages of this method, according to Barnthouse et al. (Barnthouse, 1986), include the following:

- The HQ method is relatively easy to use, is generally accepted, and can be applied to any data.
- The method is useful when a large number of chemicals must be screened.

This method of risk characterization has some inherent limitations. One primary limitation is that it is a "no/maybe" method for relating toxicity to exposure. That is, it uses single values for exposure concentrations and guidelines. The HQ method does not account for the variability in both these parameters, or for incremental or cumulative toxicity.

The comparisons described above are presented in surface water, sediment, and surface soil screening tables to select COPCs from comparison to screening levels. Screening tables include the exposure point concentrations, the chemical-specific screening levels, and HQs. In addition, Region IV has requested tables that present the detection limits for those chemicals in each medium that had no positive detections (i.e., all non-detects). These tables and a related discussion are presented in the uncertainties section of this ERA. These tables contain Region IV screening levels as well.

7.5.1 Screening Results – Surface Water

No chemical detected in retention pond surface water had a HQ greater than 1.0. Barium, bromodichloromethane, and dibromochloromethane were selected as COPCs because no Region IV screening levels were available. See Table 7-1.

7.5.2 Screening Results – Sediment

No chemical detected in retention pond sediment had a HQ greater than 1.0. Aluminum; barium; cobalt; iron; manganese; carbon disulfide; tetrachloroethene; and 1,1-dichloroethene were selected as COPCs because no Region IV screening levels were available. See Table 7-2.

7.5.3 Screening Results – Surface Soil

Thirteen PAHs had HQs greater than 1.0 in surface soil (Table 7-3). Aluminum, chromium, iron, lead, vanadium, and zinc had HQs greater than 1.0 in surface soil. See Table 7-3.

7.6 STEP 3A: REFINEMENT OF CONTAMINANTS OF POTENTIAL CONCERN

7.6.1 Step 3A Methodology

The use of conservative guidelines and maximum detected concentrations as a starting point for assessing risks in the screening-level assessment is necessary to ensure that potential risks are not underestimated. However, the use of only a comparison of conservative guidelines to maximum detected concentrations has severe limitations as a tool for determining the need for, and the nature and magnitude of, additional ecological work, and/or a complex baseline ERA.

The undertaking of costly additional ecological analyses must be weighed against benefits, especially in such cases where remedial alternatives are limited or do not exist. Moreover, the environment may suffer as sites of lesser ecological significance are given the same priority as sites of clearly greater ecological concern. For these reasons, the consideration of other relevant factors was employed as part of this assessment. The USEPA and the Navy (Navy, 1999) consider the evaluation of these factors as part of Step 3 in the 8-step process, or "Step 3A, Refinement of Contaminants of Potential Concern." The Navy has specified that Step 3A be conducted following all screening-level ERAs at its bases. Region IV USEPA (USEPA, 2000) has indicated that Step 3A assessments can be submitted with the screening-level assessment.

Table 7-1
Selection of Surface Water Chemicals of Potential Concern, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Detected Concentration	Region IV Screening Level	HQ
Inorganics (µg/L)			
Barium	21.6	NA	NA
Organics (µg/L)			
Bromodichloromethane	1.9	NA	NA
Chloroform	3.9	289	0.01
Dibromochloromethane	0.98	NA	NA

Notes:
NA = not available or not applicable

Table 7-2
Selection of Sediment Chemicals of Potential Concern, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Detected Concentration	Region IV Screening Level	HQ
Inorganics (mg/kg)			
Aluminum	317	NA	NA
Arsenic	0.98	7.24	0.14
Barium	2.4	NA	NA
Cobalt	0.84	NA	NA
Iron	493	NA	NA
Lead	0.32	30.2	0.01
Manganese	1.9	NA	NA
Nickel	1.3	15.9	0.08
Organics (mg/kg)			
Carbon Disulfide	3.1	NA	NA
Tetrachloroethene	1.5	NA	NA
1,1-Dichloroethene	1.2	NA	NA

Notes:
NA = not available or not applicable

Table 7-3
Selection of Surface Soil Chemicals of Potential Concern, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Detected Concentration	Region IV Screening Level	HQ
Semivolatiles (mg/kg)			
Anthracene	0.16	0.1	1.60
Benzo(a)anthracene	2.6	0.1	1.60
Benzo(a)pyrene	3.5	0.1	26.00
Benzo(b)fluoranthene	5.7	0.1	35.00
Benzo(g,h,i)perylene	2.7	0.1	57.00
Benzo(k)fluoranthene	2.2	0.1	27.00
Carbazole	0.29	0.1	22.00
Chrysene	3.9	0.1	2.90
Dibenzo(a,h)anthracene	0.73	0.1	39.00
Fluoranthene	5.6	0.1	7.30
Indeno(1,2,3-cd)pyrene	2.6	0.1	56.00
Phenanthrene	1.4	0.1	26.00
Pyrene	4	0.1	14.00
Inorganics (mg/kg)			
Aluminum	978	50	19.56
Antimony	2.7	3.5	0.77
Arsenic	1.1	10	0.11
Barium	10.1	165	0.06
Cadmium	0.58	1.6	0.36
Chromium	5.3	0.4	13.25
Cobalt	0.54	20	0.03
Copper	30.3	40	0.76
Iron	4510	200	22.55
Lead	89.6	50	1.79
Manganese	25.7	100	0.26
Mercury	0.05	0.1	0.50
Vanadium	9.6	2	4.80
Zinc	139	50	2.78

The factors that were used as part of Step 3A in this ERA include the following, and are described in detail below:

- Less conservative screening guideline comparisons
- Toxicological information

Other often used Step 3A information, such as FOD, spatial analysis of exceedances, and magnitude of exceedances, were not relevant to this assessment due to the small sample size and absence of HQs greater than 1.0. In addition, food chain modeling was not relevant to the assessment because the pond is small and located in a highly developed area. Use of the site by semi-aquatic wildlife, such as wading birds and mammals, would be negligible, and the pond would constitute only a small fraction of the home range or feeding territory of these receptors. Also, only one small area of exposed surface soil was present, resulting in negligible exposure for terrestrial wildlife.

7.6.1.1 Inorganics

Barium was a surface water COPC because no Region IV screening level was available. Aluminum, barium, cobalt, iron, and manganese were sediment COPCs because no Region IV screening levels were available. Ecotoxicity data for these inorganics are scarce. Each of these chemicals is generally not associated with ecotoxicity. The detected concentrations of these chemicals appear to be qualitatively low, though their site-specific ecotoxicities cannot be fully determined without site-specific data.

Aluminum, chromium, iron, lead, vanadium, and zinc had HQs greater than 1.0 in surface soils. Aluminum, iron, and vanadium are generally not associated with ecotoxicity. The detected concentrations of these chemicals appear to be qualitatively low, though their site-specific ecotoxicities cannot be fully determined without site-specific data. The elevated HQ for chromium is likely due to its overly-conservative screening level (0.4 mg/kg), which is orders of magnitude lower than common background concentrations. The HQs for lead (HQ = 1.79) and (HQ = 2.78) zinc were relatively low.

7.6.1.2 VOCs

VOCs were detected in surface water and sediment in the retention pond, but no Region IV ecological screening levels were available. Alternate guidelines for these compounds are scarce, but concentrations appear to be qualitatively low. VOCs do not bioaccumulate or biomagnify and are generally of low ecotoxicological significance due their mode of action, carcinogenicity, which is generally irrelevant for ecological receptors.

7.6.1.3 SVOCs

Several PAHs had HQs greater than 1.0 in the surface soil sample. Some of the HQs were relatively elevated. The maximum concentration for total PAHs of 35.38 mg/kg was less than the Dutch Intervention value for PAHs of 40 mg/kg and U.S. Fish and Wildlife "C" value of 200 mg/kg.

7.7 SCREENING-LEVEL AND STEP 3A UNCERTAINTY ANALYSIS

Uncertainty is associated with all aspects of the ERA process. This section provides a summary of the uncertainties involved in each step of the ERA process, with a discussion of how they may affect the final risk values and conclusions.

7.7.1 Uncertainty in the Preliminary Problem Formulation

Measures of effects (i.e., measurement endpoints) are used to evaluate the assessment endpoints that are selected for the ERA. For the most part, the measures of effects are not the same as the assessment endpoints. Therefore, the measures are used to predict effects to the assessment endpoints by selecting surrogate species for evaluation.

7.7.2 Uncertainty in the Ecological Effects Characterization

Some chemicals were present in retention pond media for which no toxicity data were available. These chemicals were selected as COPCs, including some VOCs and inorganics. They were eliminated in nearly all instances for qualitative reasons, but without adequate toxicity data, their ecotoxicity cannot be fully assessed.

Little data exist for investigating risks to reptiles and amphibians in the pond. As a result, direct conclusions about the potential risks to reptiles and amphibians cannot be made, and only qualitative inferences can be drawn. Given the relatively low overall ecological risks associated with AOC C, unacceptable risks to reptiles and amphibians are unlikely.

7.7.3 Uncertainty in the Exposure Assessment

Uncertainty in the exposure assessment arises from the low sample size for surface water and sediments. However, the small retention pond represents the only aquatic habitat or environmental media that are of ecological concern at AOC C, which comprises a relatively small area in a highly developed portion of the base.

The detection limits for site media can also carry uncertainties. That is, it is possible that high detection limits could result in "false negatives," where concentrations are actually present that could result in potential risks. In these cases, the detection limits are normally higher than the screening levels. Tables 7-4, 7-5, and 7-6 present the detection limits for chemicals that were reported as "non-detect" in surface water, sediment, and surface soil, respectively. These tables also present Region 4 screening levels for comparative purposes.

On the whole, detection limits for non-detected chemicals were comparable to or less than Region 4 screening levels. Detection limits for some inorganics in surface water somewhat exceeded screening levels, including those for mercury, silver, and tin. However, it should be noted that the toxicity data used to develop surface water screening levels for these inorganics are usually based on the most toxic form (e.g., methyl mercury and tributyltin). The presence of these most toxic forms is rarely 100 percent of the total individual chemical in abiotic media and is usually much lower. Similar instances existed for PCB mixtures and some pesticides in surface water, where detection limits for some organics exceeded screening levels. Nonetheless, pesticides and PCBs are usually not found in surface water except in cases of unusually high concentrations or a continuous source due to their strong hydrophobicity. No known sources of PCBs, pesticides, mercury, silver, or tin to surface water or other media are known to exist at AOC C. As stated earlier, the main concern at AOC C is tetrachloroethene in groundwater. It is also likely that metals and organics in surface water would be bound to organic carbon and other suspended fractions in the water column, which would reduce the dissolved phase of these chemicals and, thus, result in lowered toxicity.

For the most part, however, the detection limits for surface water were those commonly achieved for these analyses, and could only be lowered by employing seldom-used and complicated laboratory methodologies. Nonetheless, the detection limits for these chemicals introduce uncertainty in the ERA. In sediments and surface soils, generally all detection limits for non-detected chemicals were lower than or comparable to Region 4 screening levels.

7.7.4 Uncertainty in the Risk Calculation

Uncertainty in risk calculation stems, in part, from combining different components of the ERA in this step. Each of those components already contains uncertainty. Thus, uncertainties may be propagated when these components are combined. Uncertainty is associated with the potential for additive, antagonistic, synergistic, or ameliorative effects of chemicals detected in AOC C media. In most cases, little or no data or methodologies exist for quantifying these types of effects and, thus, they cannot be fully assessed.

Table 7-4
Non-Detected Chemicals in Surface Water, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Staiton Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
DINOSEB	0.6	NA	0	0.013	0.6
2,4-D	4	NA	0	0.077	4
2,4,5-T	1	NA	0	0.043	1
2,4,5-TP (SILVEX)	1	NA	0	0.036	1
ALUMINUM	18.8	87	18.8	28	200
ANTIMONY	4.3	160	4.3	2.2	10
ARSENIC	3.6	190	3.6	4.1	10
BERYLLIUM	0.20	0.53	0.2	0.54	5
CADMIUM	0.40	0.66	0.4	0.28	2
CHROMIUM	2.5	11	2	1.4	5
COBALT	2.2	NA	2.2	1.3	7
COPPER	1.9	6.54	1.9	4.2	25
IRON	122	1000	27.3	88	100
LEAD	1.3	1.32	1.3	2.5	3
MANGANESE	12.1	NA	0.4	0.9	15
MERCURY	0.10	0.012	0.1	0.13	0.2
NICKEL	1.9	87.71	1.9	2.2	40
SELENIUM	4.3	5	4.3	4.5	5
SILVER	3.1	0.012	3.1	1.5	5
THALLIUM	5.3	4	5.3	5	10
TIN	2.8	0.026	2.8	8	50
VANADIUM	1.4	NA	1.4	0.82	7
ZINC	7.4	58.9	0.6	12	20
DIMETHOATE	1.0	NA	0	0.26	1
DISULFOTON	1.0	NA	0	0.61	1
FAMPHUR	1.0	NA	0	0.31	1
METHYL PARATHION	1.0	NA	0	0.68	1
O,O,O-TRIETHYL PHOSPHOROTHIOATE	1.0	NA	0	0.36	1
PARATHION	1.0	0.013	0	0.28	1
PHORATE	1.0	NA	0	0.57	1
SULFOTEPP	1.0	NA	0	0.33	1
THIONAZIN	1.0	NA	0	0.32	1
AROCLOR-1016	1.0	0.014	0	0.018	1
AROCLOR-1221	1.0	0.014	0	0.094	1
AROCLOR-1232	1.0	0.014	0	0.16	1
AROCLOR-1242	1.0	0.014	0	0.3	1
AROCLOR-1248	1.0	0.014	0	0.22	1
AROCLOR-1254	1.0	0.014	0	0.096	1
AROCLOR-1260	1.0	0.014	0	0.065	1
ALPHA-BHC	0.050	500	0	0.0059	0.05
ALPHA-CHLORDANE	0.050	0.0043	0	0.0067	0.05
BETA-BHC	0.050	5000	0	0.0062	0.05
DELTA-BHC	0.050	NA	0	0.006	0.05

See notes at end of table.

Table 7-4 (Continued)
Non-Detected Chemicals in Surface Water, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Staiton Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
GAMMA-BHC (LINDANE)	0.050	0.08	0	0.0062	0.05
GAMMA-CHLORDANE	0.050	0.0043	0	0.0065	0.05
ALDRIN	0.050	0.3	0	0.0064	0.05
DIELDRIN	0.050	0.0019	0	0.0069	0.05
ENDOSULFAN SULFATE	0.050	NA	0	0.007	0.05
ENDOSULFAN I	0.050	0.056	0	0.0069	0.05
ENDOSULFAN II	0.050	0.056	0	0.0066	0.05
ENDRIN	0.050	0.0023	0	0.0087	0.05
ENDRIN ALDEHYDE	0.050	NA	0	0.0064	0.05
ENDRIN KETONE	0.050	NA	0	0.0066	0.05
HEPTACHLOR	0.050	0.0038	0	0.0071	0.05
HEPTACHLOR EPOXIDE	0.050	0.0038	0	0.0068	0.05
ISODRIN	0.10	NA	0	0.0043	0.1
KEPONE	1.0	NA	0	0.059	1
METHOXYCHLOR	0.10	0.03	0	0.0084	0.1
TOXAPHENE	2.0	0.0002	0	0.23	2
4,4'-DDD	0.050	0.0064	0	0.0064	0.05
4,4'-DDE	0.050	10.5	0	0.0074	0.05
4,4'-DDT	0.050	0.001	0	0.0072	0.05
A,A-DIMETHYLPHENETHYLAMINE	50	NA	0	12	50
BIS(2-CHLOROETHOXY)METHANE	10	NA	0	2.6	10
BIS(2-CHLOROETHYL)ETHER	10	NA	0	2.1	10
BIS(2-ETHYLHEXYL)PHTHALATE	5	0.3	0	2.1	5
O-TOLUIDINE	10	NA	0	0.63	10
P-DIMETHYLAMINOAZOBENZENE	10	NA	0	0.78	10
P-PHENYLENEDIAMINE	10	NA	0	4	10
ACENAPHTHENE	10	17	0	2.7	10
ACENAPHTHYLENE	10	NA	0	2.7	10
ACETOPHENONE	10	NA	0	3.7	10
ANILINE	10	NA	0	1.1	10
ANTHRACENE	10	NA	0	0.89	10
ARAMITE	10	NA	0	1.3	10
BENZO(A)ANTHRACENE	10	NA	0	2.8	10
BENZO(A)PYRENE	10	NA	0	3	10
BENZO(B)FLUORANTHENE	10	NA	0	2.6	10
BENZO(G,H,I)PERYLENE	10	NA	0	3.3	10
BENZO(K)FLUORANTHENE	10	NA	0	1.2	10
BENZYL ALCOHOL	10	NA	0	1.2	10
BUTYLBENZYL PHTHALATE	10	22	0	1.9	10
CARBAZOLE	10	NA	0	1.1	10
CHLOROBENZILATE	10	NA	0	1.4	10
CHRYSENE	10	NA	0	0.88	10
DI-N-BUTYL PHTHALATE	10	9.4	0	1.1	10

See notes at end of table.

Table 7-4 (Continued)
Non-Detected Chemicals in Surface Water, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Staiton Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
DI-N-OCTYL PHTHALATE	10	NA	0	2	10
DIALLATE	20	NA	0	0.77	20
DIBENZO(A,H)ANTHRACENE	10	NA	0	1.2	10
DIBENZOFURAN	10	NA	0	2.8	10
DIETHYL PHTHALATE	10	521	0	3.2	10
DIMETHYL PHTHALATE	10	330	0	3.7	10
DIPHENYLAMINE	10	NA	0	0.91	10
ETHYL METHANESULFONATE	10	NA	0	0.9	10
FLUORANTHENE	10	NA	0	0.94	10
FLUORENE	10	NA	0	2.9	10
HEXACHLOROBENZENE	10	NA	0	1.8	10
HEXACHLOROBUTADIENE	10	0.93	0	1.2	10
HEXACHLOROCYCLOPENTADIENE	10	0.07	0	3.4	10
HEXACHLOROETHANE	10	9.8	0	2.3	10
HEXACHLOROPROPENE	10	NA	0	0.75	10
INDENO(1,2,3-CD)PYRENE	10	NA	0	1.2	10
ISOPHORONE	10	1170	0	2.7	10
ISOSAFROLE	10	NA	0	0.74	10
METHAPYRILENE	10	NA	0	3.1	10
METHYL METHANESULFONATE	10	NA	0	5.3	10
N-NITROSO-DI-N-BUTYLAMINE	10	NA	0	0.78	10
N-NITROSO-DI-N-PROPYLAMINE	10	NA	0	1	10
N-NITROSODIETHYLAMINE	10	NA	0	0.84	10
N-NITROSODIMETHYLAMINE	10	NA	0	1.7	10
N-NITROSODIPHENYLAMINE	10	58.5	0	0.91	10
N-NITROSOMETHYLETHYLAMINE	10	NA	0	4.2	10
N-NITROSOMORPHOLINE	10	NA	0	0.79	10
N-NITROSOPIPERIDINE	10	NA	0	0.83	10
N-NITROSOPYRROLIDINE	10	NA	0	0.71	10
NAPHTHALENE	10	62	0	0.72	10
NITROBENZENE	10	270	0	2.6	10
PENTACHLOROBENZENE	10	NA	0	0.91	10
PENTACHLOROETHANE	50	NA	0	0.96	50
PENTACHLORONITROBENZENE	10	NA	0	0.71	10
PENTACHLOROPHENOL	10	13	0	0.58	10
PHENACETIN	10	NA	0	0.86	10
PHENANTHRENE	10	NA	0	2.4	10
PHENOL	10	256	0	1.3	10
PRONAMIDE	10	NA	0	0.54	10
PYRENE	10	NA	0	1.4	10
PYRIDINE	10	NA	0	0.85	10
SAFROLE	10	NA	0	0.68	10
SULFOTEPP	50	NA	0	0.87	50

See notes at end of table.

Table 7-4 (Continued)
Non-Detected Chemicals in Surface Water, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Staiton Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
THIONAZIN	50	NA	0	0.79	50
1-NAPHTHYLAMINE	10	NA	0	2.4	10
1,2-DICHLOROBENZENE	10	15.8	0	0.86	10
1,2,4-TRICHLOROBENZENE	10	44.9	0	2.5	10
1,2,4,5-TETRACHLOROBENZENE	10	50	0	0.87	10
1,3-DICHLOROBENZENE	10	50.2	0	1	10
1,3-DINITROBENZENE	10	NA	0	0.8	10
1,3,5-TRINITROBENZENE	10	NA	0	5.2	10
1,4-DICHLOROBENZENE	10	NA	0	0.89	10
1,4-DIOXANE	10	NA	0	1.7	10
1,4-NAPHTHOQUINONE	10	NA	0	4.3	10
2-SEC-BUTYL-4,6-DINITROPHENOL	20	NA	0	18	20
2-ACETYLAMINOFLUORENE	10	NA	0	0.71	10
2-CHLORONAPHTHALENE	10	NA	0	2.5	10
2-CHLOROPHENOL	10	43.8	0	1.6	10
2-METHYLNAPHTHALENE	10	NA	0	0.92	10
2-METHYLPHENOL	10	NA	0	1.1	10
2-NAPHTHYLAMINE	10	NA	0	0.93	10
2-NITROANILINE	25	NA	0	1.4	25
2-NITROPHENOL	10	3500	0	0.99	10
2-PICOLINE	10	NA	0	4.4	10
2,2'-OXYBIS(1-CHLOROPROPANE)	10	NA	0	1.3	10
2,3,4,6-TETRACHLOROPHENOL	10	NA	0	14	10
2,4-DICHLOROPHENOL	10	36.5	0	1	10
2,4-DIMETHYLPHENOL	10	21.2	0	1.1	10
2,4-DINITROPHENOL	25	6.2	0	13	25
2,4-DINITROTOLUENE	10	NA	0	0.8	10
2,4,5-TRICHLOROPHENOL	10	NA	0	1.1	10
2,4,6-TRICHLOROPHENOL	10	NA	0	1.3	10
2,6-DICHLOROPHENOL	10	NA	0	2.1	10
2,6-DINITROTOLUENE	10	NA	0	2.8	10
3-METHYLCHOLANTHRENE	10	NA	0	4.5	10
3-METHYLPHENOL	10	NA	0	0.84	10
3-NITROANILINE	25	NA	0	2	25
3,3'-DICHLOROBENZIDINE	10	NA	0	1.1	10
3,3'-DIMETHYLBENZIDINE	10	NA	0	1.2	10
4-AMINOBIPHENYL	10	NA	0	0.91	10
4-BROMOPHENYL PHENYL ETHER	10	NA	0	1	10
4-CHLORO-3-METHYLPHENOL	10	NA	0	1.2	10
4-CHLOROANILINE	10	NA	0	2.8	10
4-CHLOROPHENYL PHENYL ETHER	10	NA	0	1.3	10
4-METHYLPHENOL	10	NA	0	1.7	10
4-NITROANILINE	25	NA	0	1.2	25

See notes at end of table.

Table 7-4 (Continued)
Non-Detected Chemicals in Surface Water, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Staiton Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
4-NITROPHENOL	25	82.8	0	4.8	25
4-NITROQUINOLINE-1-OXIDE	10	NA	0	7.3	10
4,6-DINITRO-2-METHYLPHENOL	25	NA	0	7.5	25
5-NITRO-O-TOLUIDINE	10	NA	0	3.6	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	NA	0	2.5	10
CIS-1,2-DICHLOROETHENE	0.5	NA	0	0.059	0.5
CIS-1,3-DICHLOROPROPENE	1	NA	0	0.15	1
TRANS-1,2-DICHLOROETHENE	0.5	NA	0	0.11	0.5
TRANS-1,3-DICHLOROPROPENE	1	NA	0	0.12	1
TRANS-1,4-DICHLORO-2-BUTENE	1	NA	0	0.35	1
ACETONE	10	NA	0	0.49	10
ACETONITRILE	20	NA	0	2	20
ACROLEIN	10	2.1	0	2	10
ACRYLONITRILE	10	75.5	0	1.5	10
ALLYL CHLORIDE	1	NA	0	0.036	1
BENZENE	1	53	0	0.096	1
BROMOFORM	1	293	0	0.2	1
BROMOMETHANE	2	NA	0	0.22	2
CARBON DISULFIDE	1	NA	0	0.18	1
CARBON TETRACHLORIDE	1	352	0	0.12	1
CHLOROBENZENE	1	195	0	0.15	1
CHLOROETHANE	1	NA	0	0.25	1
CHLOROMETHANE	1	NA	0	0.17	1
CHLOROPRENE	1	NA	0	0.079	1
DIBROMOMETHANE	1	NA	0	0.1	1
DICHLORODIFLUOROMETHANE	1	NA	0	0.23	1
ETHYL METHACRYLATE	1	NA	0	0.083	1
ETHYLBENZENE	1	453	0	0.22	1
IODOMETHANE	1	NA	0	0.15	1
ISOBUTYL ALCOHOL	50	NA	0	13	50
METHACRYLONITRILE	1	NA	0	0.35	1
METHYL METHACRYLATE	1	NA	0	0.23	1
METHYL TERT-BUTYL ETHER	5	NA	0	0.11	5
METHYLENE CHLORIDE	1	1930	0	0.19	1
PROPIONITRILE	4	NA	0	0.49	4
STYRENE	1	NA	0	0.19	1
TETRACHLOROETHENE	1	84	0	0.21	1
TOLUENE	1	175	0	0.13	1
TRICHLOROETHENE	1	NA	0	0.18	1
TRICHLOROFLUOROMETHANE	2	NA	0	0.21	2
VINYL ACETATE	1	NA	0	0.23	1
VINYL CHLORIDE	1	NA	0	0.097	1
XYLENES, TOTAL	1	NA	0	0.58	1

See notes at end of table.

Table 7-4 (Continued)
Non-Detected Chemicals in Surface Water, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Staiton Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
1,1-DICHLOROETHANE	1	NA	0	0.12	1
1,1-DICHLOROETHENE	1	NA	0	0.3	1
1,1,1-TRICHLOROETHANE	1	528	0	0.16	1
1,1,1,2-TETRACHLOROETHANE	1	NA	0	0.12	1
1,1,2-TRICHLOROETHANE	1	940	0	0.21	1
1,1,2,2-TETRACHLOROETHANE	1	240	0	0.12	1
1,2-DIBROMO-3-CHLOROPROPANE	1	NA	0	0.26	1
1,2-DIBROMOETHANE	1	NA	0	0.16	1
1,2-DICHLOROETHANE	1	2000	0	0.11	1
1,2-DICHLOROETHENE (TOTAL)	1	303	0	0.1	1
1,2-DICHLOROPROPANE	1	NA	0	0.13	1
1,2,3-TRICHLOROPROPANE	1	NA	0	0.32	1
2-BUTANONE	10	NA	0	0.39	10
2-CHLOROETHYL VINYL ETHER	1	NA	0	0.31	1
2-HEXANONE	10	NA	0	0.18	10
4-METHYL-2-PENTANONE	10	NA	0	0.33	10

Notes:
NA = Not Available

Table 7-5
Non-Detected Chemicals in Sediment, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Inorganics (mg/kg)					
ANTIMONY	0.55	12	0.55	0.49	1.3
BERYLLIUM	0.03	NA	0.026	0.046	0.64
CADMIUM	0.05	1	0.052	0.043	0.26
CHROMIUM	1.3	52.3	0.26	0.38	0.64
COPPER	0.25	18.7	0.25	0.27	3.2
MERCURY	0.02	0.13	0.022	0.0084	0.043
SELENIUM	0.55	NA	0.55	0.31	0.64
SILVER	0.40	2	0.4	0.15	0.64
THALLIUM	0.68	NA	0.68	0.5	1.3
VANADIUM	0.36	NA	0.18	0.13	0.9
ZINC	1.2	124	0.077	1.2	2.6
Organics (µg/kg)*					
AROCLOR-1016	42	33	0	6.8	42
AROCLOR-1221	42	33	0	24	42
AROCLOR-1232	42	33	0	14	42
AROCLOR-1242	42	33	0	23	42
AROCLOR-1248	42	33	0	5.9	42
AROCLOR-1254	42	33	0	26	42
AROCLOR-1260	42	33	0	9.5	42
ALPHA-BHC	2.2	NA	0	0.59	2.2
ALPHA-CHLORDANE	2.2	1.7	0	0.76	2.2
BETA-BHC	2.2	NA	0	0.59	2.2
DELTA-BHC	2.2	NA	0	0.62	2.2
GAMMA-BHC (LINDANE)	2.2	3.3	0	0.73	2.2
GAMMA-CHLORDANE	2.2	1.7	0	0.73	2.2
ALDRIN	2.2	NA	0	0.71	2.2
DIELDRIN	2.2	3.3	0	1.9	2.2
ENDOSULFAN SULFATE	2.2	NA	0	0.36	2.2
ENDOSULFAN I	2.2	NA	0	0.86	2.2
ENDOSULFAN II	2.2	NA	0	0.49	2.2
ENDRIN	2.2	3.3	0	0.79	2.2
ENDRIN ALDEHYDE	2.2	NA	0	1.9	2.2
ENDRIN KETONE	2.2	NA	0	0.33	2.2
HEPTACHLOR	2.2	NA	0	0.79	2.2
HEPTACHLOR EPOXIDE	2.2	NA	0	0.85	2.2
METHOXYCHLOR	4.2	NA	0	1.1	4.2
TOXAPHENE	86	NA	0	8.9	86
4,4'-DDD	2.2	3.3	0	1	2.2
4,4'-DDE	2.2	3.3	0	0.73	2.2
4,4'-DDT	2.2	3.3	0	1.7	2.2

See notes at end of table.

Table 7-5 (Continued)
Non-Detected Chemicals in Sediment, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg)* (Continued)					
BIS(2-CHLOROETHOXY)METHANE	420	NA	0	45	420
BIS(2-CHLOROETHYL)ETHER	420	NA	0	42	420
BIS(2-ETHYLHEXYL)PHTHALATE	420	182	0	84	420
ACENAPHTHENE	420	330	0	45	420
ACENAPHTHYLENE	420	330	0	45	420
ANTHRACENE	420	330	0	48	420
BENZO(A)ANTHRACENE	420	330	0	45	420
BENZO(A)PYRENE	420	330	0	42	420
BENZO(B)FLUORANTHENE	420	NA	0	45	420
BENZO(G,H,I)PERYLENE	420	NA	0	58	420
BENZO(K)FLUORANTHENE	420	NA	0	53	420
BUTYLBENZYL PHTHALATE	420	NA	0	57	420
CARBAZOLE	420	NA	0	54	420
CHRYSENE	420	330	0	64	420
DI-N-BUTYL PHTHALATE	420	NA	0	76	420
DI-N-OCTYL PHTHALATE	420	NA	0	64	420
DIBENZO(A,H)ANTHRACENE	420	330	0	49	420
DIBENZOFURAN	420	NA	0	46	420
DIETHYL PHTHALATE	420	NA	0	49	420
DIMETHYL PHTHALATE	420	NA	0	46	420
FLUORANTHENE	420	330	0	49	420
FLUORENE	420	330	0	37	420
HEXACHLOROBENZENE	420	NA	0	53	420
HEXACHLOROBUTADIENE	420	NA	0	40	420
HEXACHLOROCYCLOPENTADIENE	2100	NA	0	190	2100
HEXACHLOROETHANE	420	NA	0	52	420
INDENO(1,2,3-CD)PYRENE	420	NA	0	54	420
ISOPHORONE	420	NA	0	41	420
N-NITROSO-DI-N-PROPYLAMINE	420	NA	0	40	420
N-NITROSODIPHENYLAMINE	420	NA	0	48	420
NAPHTHALENE	420	330	0	45	420
NITROBENZENE	420	NA	0	41	420
PENTACHLOROPHENOL	420	NA	0	44	420
PHENANTHRENE	420	330	0	55	420
PHENOL	420	NA	0	45	420
PYRENE	420	330	0	73	420
1,2-DICHLOROBENZENE	420	NA	0	37	420
1,2,4-TRICHLOROBENZENE	420	NA	0	49	420
1,3-DICHLOROBENZENE	420	NA	0	41	420
1,4-DICHLOROBENZENE	420	NA	0	46	420

See notes at end of table.

Table 7-5 (Continued)
Non-Detected Chemicals in Sediment, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg)* (Continued)					
2-CHLORONAPHTHALENE	420	NA	0	41	420
2-CHLOROPHENOL	420	NA	0	36	420
2-METHYLNAPHTHALENE	420	330	0	42	420
2-METHYLPHENOL	420	NA	0	48	420
2-NITROANILINE	2100	NA	0	42	2100
2-NITROPHENOL	420	NA	0	57	420
2,2'-OXYBIS(1-CHLOROPROPANE)	420	NA	0	120	420
2,4-DICHLOROPHENOL	420	NA	0	58	420
2,4-DIMETHYLPHENOL	420	NA	0	73	420
2,4-DINITROPHENOL	2100	NA	0	190	2100
2,4-DINITROTOLUENE	420	NA	0	53	420
2,4,5-TRICHLOROPHENOL	420	NA	0	89	420
2,4,6-TRICHLOROPHENOL	420	NA	0	73	420
2,6-DINITROTOLUENE	420	NA	0	39	420
3-NITROANILINE	2100	NA	0	42	2100
3,3'-DICHLOROBENZIDINE	2100	NA	0	180	2100
4-BROMOPHENYL PHENYL ETHER	420	NA	0	45	420
4-CHLORO-3-METHYLPHENOL	420	NA	0	40	420
4-CHLOROANILINE	420	NA	0	42	420
4-CHLOROPHENYL PHENYL ETHEF	420	NA	0	46	420
4-METHYLPHENOL	420	NA	0	35	420
4-NITROANILINE	2100	NA	0	61	2100
4-NITROPHENOL	2100	NA	0	450	2100
4,6-DINITRO-2-METHYLPHENOL	2100	NA	0	230	2100
CIS-1,2-DICHLOROETHENE	3.5	NA	0	0.38	3.5
CIS-1,3-DICHLOROPROPENE	7.1	NA	0	0.86	7.1
TRANS-1,2-DICHLOROETHENE	3.5	NA	0	1.1	3.5
TRANS-1,3-DICHLOROPROPENE	7.1	NA	0	0.84	7.1
ACETONE	28	NA	0	2.5	28
BENZENE	7.1	NA	0	0.89	7.1
BROMODICHLOROMETHANE	7.1	NA	0	0.92	7.1
BROMOFORM	7.1	NA	0	0.71	7.1
BROMOMETHANE	14	NA	0	1.7	14
CARBON TETRACHLORIDE	7.1	NA	0	0.88	7.1
CHLOROBENZENE	7.1	NA	0	1	7.1
CHLOROETHANE	14	NA	0	1.3	14
CHLOROFORM	7.1	NA	0	1	7.1
CHLOROMETHANE	14	NA	0	1	14
DIBROMOCHLOROMETHANE	7.1	NA	0	0.81	7.1
ETHYLBENZENE	7.1	NA	0	1.2	7.1

See notes at end of table.

Table 7-5 (Continued)
Non-Detected Chemicals in Sediment, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit (µg/L)	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg)* (Continued)					
METHYLENE CHLORIDE	7.1	NA	0	2	7.1
STYRENE	7.1	NA	0	0.92	7.1
TOLUENE	7.1	NA	0	1.1	7.1
TRICHLOROETHENE	7.1	NA	0	0.99	7.1
VINYL CHLORIDE	14	NA	0	0.93	14
XYLENES, TOTAL	7.1	NA	0	2.8	7.1
1,1-DICHLOROETHANE	7.1	NA	0	0.89	7.1
1,1,1-TRICHLOROETHANE	7.1	NA	0	1	7.1
1,1,2-TRICHLOROETHANE	7.1	NA	0	0.76	7.1
1,1,2,2-TETRACHLOROETHANE	7.1	NA	0	0.99	7.1
1,2-DICHLOROETHANE	7.1	NA	0	0.81	7.1
1,2-DICHLOROETHENE (TOTAL)	7.1	NA	0	0.86	7.1
1,2-DICHLOROPROPANE	7.1	NA	0	0.92	7.1
2-BUTANONE	28	NA	0	6.8	28
2-HEXANONE	28	NA	0	1.7	28
4-METHYL-2-PENTANONE	28	NA	0	4.7	28
CYANIDE, TOTAL	0.64	NA	0	0.22	0.64

Notes:
NA = Not Available
* Values for Aroclors are for total PCBs.

Table 7-6
Non-Detected Chemicals in Surface Soil, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg)					
CIS-1,2-DICHLOROETHENE	3.4	NA	0	0.37	3.4
CIS-1,3-DICHLOROPROPENE	6.8	NA	0	0.83	6.8
TRANS-1,2-DICHLOROETHENE	3.4	NA	0	1.1	3.4
TRANS-1,3-DICHLOROPROPENE	6.8	NA	0	0.81	6.8
TRANS-1,4-DICHLORO-2-BUTENE	6.8	NA	0	1	6.8
ACETONE	27	NA	0	2.5	27
ACETONITRILE	140	NA	0	33	140
ACROLEIN	140	NA	0	16	140
ACRYLONITRILE	140	NA	0	15	140
ALLYL CHLORIDE	14	NA	0	1.2	14
BENZENE	6.8	50	0	0.86	6.8
BROMODICHLOROMETHANE	6.8	NA	0	0.89	6.8
BROMOFORM	6.8	NA	0	0.68	6.8
BROMOMETHANE	14	NA	0	1.6	14
CARBON DISULFIDE	6.8	NA	0	1.5	6.8
CARBON TETRACHLORIDE	6.8	1,000	0	0.85	6.8
CHLOROBENZENE	6.8	50	0	0.98	6.8
CHLOROETHANE	14	NA	0	1.3	14
CHLOROFORM	6.8	1	0	0.97	6.8
CHLOROMETHANE	14	NA	0	1	14
CHLOROPRENE	6.8	NA	0	0.92	6.8
DIBROMOCHLOROMETHANE	6.8	NA	0	0.78	6.8
DIBROMOMETHANE	6.8	NA	0	1.1	6.8
DICHLORODIFLUOROMETHANE	14	NA	0	1.2	14
ETHYL METHACRYLATE	6.8	NA	0	0.94	6.8
ETHYLBENZENE	6.8	50	0	1.1	6.8
IODOMETHANE	6.8	NA	0	2.9	6.8
ISOBUTYL ALCOHOL	270	NA	0	33	270
METHACRYLONITRILE	6.8	NA	0	1.3	6.8
METHYL METHACRYLATE	6.8	NA	0	1.3	6.8
METHYL TERT-BUTYL ETHER	27	NA	0	0.6	27
METHYLENE CHLORIDE	6.8	NA	0	1.9	6.8
PROPIONITRILE	27	NA	0	4.9	27
STYRENE	6.8	NA	0	0.89	6.8
TETRACHLOROETHENE	6.8	10	0	1	6.8
TOLUENE	6.8	NA	0	1	6.8
TRICHLOROETHENE	6.8	1	0	0.96	6.8
TRICHLOROFLUOROMETHANE	14	NA	0	2.5	14
VINYL ACETATE	14	NA	0	1.5	14
VINYL CHLORIDE	14	10	0	0.9	14

See notes at end of table.

Table 7-6 (Continued)
Non-Detected Chemicals in Surface Soil, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg) (Continued)					
XYLENES, TOTAL	6.8	NA	0	2.7	6.8
1,1-DICHLOROETHANE	6.8	NA	0	0.86	6.8
1,1-DICHLOROETHENE	6.8	NA	0	0.92	6.8
1,1,1-TRICHLOROETHANE	6.8	NA	0	0.97	6.8
1,1,1,2-TETRACHLOROETHANE	6.8	NA	0	1.2	6.8
1,1,2-TRICHLOROETHANE	6.8	NA	0	0.74	6.8
1,1,2,2-TETRACHLOROETHANE	6.8	NA	0	0.96	6.8
1,2-DIBROMO-3-CHLOROPROPANE	14	NA	0	4.2	14
1,2-DIBROMOETHANE	6.8	NA	0	0.86	6.8
1,2-DICHLOROETHANE	6.8	NA	0	0.78	6.8
1,2-DICHLOROETHENE (TOTAL)	6.8	NA	0	0.83	6.8
1,2-DICHLOROPROPANE	6.8	NA	0	0.89	6.8
1,2,3-TRICHLOROPROPANE	6.8	NA	0	0.93	6.8
2-BUTANONE	27	NA	0	6.6	27
2-CHLOROETHYL VINYL ETHER	68	NA	0	1.9	68
2-HEXANONE	27	NA	0	1.6	27
4-METHYL-2-PENTANONE	27	NA	0	4.5	27
A,A-DIMETHYLPHENETHYLAMINE	1800	NA	0	580	1800
BIS(2-CHLOROETHOXY)METHANE	360	NA	0	39	360
BIS(2-CHLOROETHYL)ETHER	360	NA	0	36	360
BIS(2-ETHYLHEXYL)PHTHALATE	360	NA	0	72	360
O-TOLUIDINE	730	NA	0	100	730
P-DIMETHYLAMINOAZOBENZENE	730	NA	0	180	730
P-PHENYLENEDIAMINE	3600	NA	0	190	3600
ACENAPHTHENE	360	20000	0	39	360
ACENAPHTHYLENE	360	NA	0	39	360
ACETOPHENONE	360	NA	0	31	360
ANILINE	360	NA	0	42	360
ARAMITE	730	NA	0	28	730
BENZYL ALCOHOL	360	NA	0	40	360
BUTYLBENZYL PHTHALATE	360	NA	0	49	360
CHLOROBENZILATE	360	NA	0	170	360
DI-N-BUTYL PHTHALATE	360	200000	0	65	360
DI-N-OCTYL PHTHALATE	360	NA	0	55	360
DIALLATE	730	NA	0	170	730
DIBENZOFURAN	360	NA	0	40	360
DIETHYL PHTHALATE	360	100000	0	42	360
DIMETHYL PHTHALATE	360	100000	0	40	360
DIPHENYLAMINE	360	NA	0	41	360
ETHYL METHANESULFONATE	360	NA	0	170	360

See notes at end of table.

Table 7-6 (Continued)
Non-Detected Chemicals in Surface Soil, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg) (Continued)					
FLUORENE	360	NA	0	32	360
HEXACHLOROBENZENE	360	NA	0	45	360
HEXACHLOROBUTADIENE	360	NA	0	34	360
HEXACHLOROCYCLOPENTADIENE	1800	10000	0	170	1800
HEXACHLOROETHANE	360	NA	0	44	360
HEXACHLOROPROPENE	3600	NA	0	150	3600
ISOPHORONE	360	NA	0	35	360
ISOSAFROLE	730	NA	0	190	730
METHAPYRILENE	1800	NA	0	360	1800
METHYL METHANESULFONATE	360	NA	0	30	360
N-NITROSO-DI-N-BUTYLAMINE	360	NA	0	170	360
N-NITROSO-DI-N-PROPYLAMINE	360	NA	0	34	360
N-NITROSODIETHYLAMINE	360	NA	0	33	360
N-NITROSODIMETHYLAMINE	360	NA	0	39	360
N-NITROSODIPHENYLAMINE	360	NA	0	41	360
N-NITROSOMETHYLETHYLAMINE	360	NA	0	110	360
N-NITROSOMORPHOLINE	360	NA	0	150	360
N-NITROSOPIPERIDINE	360	NA	0	150	360
N-NITROSOPYRROLIDINE	360	NA	0	150	360
NAPHTHALENE	360	100	0	39	360
NITROBENZENE	360	NA	0	35	360
PENTACHLOROBENZENE	360	NA	0	26	360
2,4-DINITROPHENOL	1800	NA	0	170	1800
2,4-DINITROTOLUENE	360	NA	0	45	360
2,4,5-TRICHLOROPHENOL	360	NA	0	76	360
2,4,6-TRICHLOROPHENOL	360	NA	0	63	360
2,6-DICHLOROPHENOL	360	NA	0	180	360
2,6-DINITROTOLUENE	360	NA	0	33	360
3-METHYLCHOLANTHRENE	730	NA	0	100	730
3-METHYLPHENOL	360	NA	0	180	360
3-NITROANILINE	1800	NA	0	36	1800
3,3'-DICHLOROBENZIDINE	1800	NA	0	150	1800
3,3'-DIMETHYLBENZIDINE	1800	NA	0	440	1800
4-AMINOBIPHENYL	1800	NA	0	300	1800
4-BROMOPHENYL PHENYL ETHER	360	NA	0	39	360
4-CHLORO-3-METHYLPHENOL	360	NA	0	34	360
4-CHLOROANILINE	360	NA	0	36	360
4-CHLOROPHENYL PHENYL ETHER	360	NA	0	40	360
4-METHYLPHENOL	360	NA	0	30	360
4-NITROANILINE	1800	NA	0	52	1800

See notes at end of table.

Table 7-6 (Continued)
Non-Detected Chemicals in Surface Soil, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg) (Continued)					
4-NITROPHENOL	1800	NA	0	390	1800
4-NITROQUINOLINE-1-OXIDE	3600	NA	0	220	3600
4,6-DINITRO-2-METHYLPHENOL	1800	NA	0	200	1800
5-NITRO-O-TOLUIDINE	730	NA	0	29	730
7,12-DIMETHYLBENZ(A)ANTHRACENE	730	NA	0	74	730
ALPHA-BHC	1.9	2.5	0	0.51	1.9
ALPHA-CHLORDANE	1.9	NA	0	0.65	1.9
BETA-BHC	1.9	1	0	0.51	1.9
DELTA-BHC	1.9	NA	0	0.53	1.9
GAMMA-BHC (LINDANE)	1.9	0.5	0	0.63	1.9
GAMMA-CHLORDANE	1.9	NA	0	0.63	1.9
ALDRIN	1.9	2.5	0	0.61	1.9
DIELDRIN	1.9	2.5	0	1.7	1.9
ENDOSULFAN SULFATE	1.9	NA	0	0.31	1.9
ENDOSULFAN I	1.9	NA	0	0.74	1.9
ENDOSULFAN II	1.9	NA	0	0.42	1.9
ENDRIN	1.9	1	0	0.67	1.9
ENDRIN ALDEHYDE	1.9	NA	0	1.7	1.9
ENDRIN KETONE	1.9	NA	0	0.29	1.9
HEPTACHLOR	1.9	NA	0	0.67	1.9
HEPTACHLOR EPOXIDE	1.9	NA	0	0.73	1.9
ISODRIN	3.6	NA	0	0.84	3.6
KEPONE	36	NA	0	18	36
METHOXYCHLOR	3.6	NA	0	0.9	3.6
TOXAPHENE	74	NA	0	7.6	74
4,4'-DDD	1.9	2.5	0	0.87	1.9
4,4'-DDE	1.9	2.5	0	0.63	1.9
4,4'-DDT	1.9	2.5	0	1.4	1.9
DIMETHOATE	1800	NA	0	280	1800
DISULFOTON	1800	NA	0	290	1800
FAMPHUR	1800	NA	0	250	1800
METHYL PARATHION	1800	NA	0	360	1800
O,O,O-TRIETHYL PHOSPHOROTHIOATI	1800	NA	0	190	1800
PARATHION	1800	NA	0	220	1800
PHORATE	1800	NA	0	300	1800
SULFOTEPP	1800	NA	0	610	1800
THIONAZIN	1800	NA	0	230	1800
AROCLOR-1016	36	20*	0	5.8	36
AROCLOR-1221	36	20*	0	21	36
AROCLOR-1232	36	20*	0	12	36

See notes at end of table.

Table 7-6 (Continued)
Non-Detected Chemicals in Surface Soil, AOC C

RCRA Facility Investigation, Area of Concern C
Naval Station Mayport
Mayport, Florida

Analyte	Sample Detection Limit	Region IV Screening Level	Instrument Detection Limit	Method Detection Limit	Contract Required Detection Limit
Organics (µg/kg) (Continued)					
AROCLOR-1242	36	20*	0	20	36
AROCLOR-1248	36	20*	0	5.1	36
AROCLOR-1254	36	20*	0	22	36
AROCLOR-1260	36	20*	0	8.2	36
Inorganics (mg/kg)					
BERYLLIUM	0.55	1.1	0.0088	0.046	0.55
NICKEL	4.4	30	0.22	0.27	4.4
SELENIUM	0.55	0.81	0.44	0.31	0.55
SILVER	0.55	2	0.12	0.15	0.55
THALLIUM	1.1	1	0.75	0.5	1.1
TIN	11	53	0.54	0.66	11

Notes:
NA = Not Available
* Values for Aroclors are for total PCBs,

To try to reduce the overall uncertainty in the risk assessment, the weight of evidence approach is used to make risk decisions. This approach takes the results of all aspects of the assessment into account, including the uncertainties, to make determinations of acceptable risk/unacceptable risk.

7.8 STEP 3A SUMMARY AND CONCLUSIONS

A screening-level ecological risk assessment was performed for AOC C at NAVSTA Mayport. The assessment focused on the retention pond near Building 191 and a small area of exposed surface soil, which represent the only habitat and potentially affected media relevant to ecological receptors. A few inorganic and organic chemicals were detected in retention pond surface water and sediment. This is consistent with the main concern at AOC C, which is tetrachloroethene in groundwater. No detected chemical had a HQ greater than 1.0 in surface water and sediment. Some inorganics and VOCs were selected as COPCs because no Region IV screening levels were available. A few inorganics and several PAHs were COPCs in the screening.

A Step 3A analysis was also conducted, which suggested the chemicals that were detected in surface water and sediment, but had no Region IV screening levels and did not appear to be present in concentrations that could result in unacceptable risks. This was based on toxicity information from the literature and the fact that most of these chemicals were common elements (e.g., aluminum, iron, and manganese) or VOCs, none of which are generally associated with ecotoxicity. The detection limits for some PCBs, pesticides, mercury, silver, and tin were slightly elevated in surface water relative to Region IV screening levels. However, no recognized sources of PCBs, pesticides, mercury, silver, or tin to surface water or other media are known to exist at AOC C. Further, the retention pond is small, contains limited habitat, and its purpose is to receive runoff from portions of AOC C. In general, the inorganics that had HQs greater than 1.0 in the screening were common elements (e.g., aluminum, iron, and vanadium) or had relatively low HQs. Some individual PAHs in surface soils were elevated, but were lower than less conservative, alternate guidelines. More importantly, the only potentially impacted area of surface soil is a small area in the vicinity of one sample. All of the other potentially impacted surface soil at AOC C was under concrete. Terrestrial habitat at AOC is limited in both quality and quantity due to the highly developed nature of the site. As a result, further ecological risk assessment or ecological risk management appears to be unwarranted at AOC C.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

The RFI identified the following items for AOC C:

- Two SVOCs [benzo(a)pyrene and dibenz(a,h)anthracene] were detected in the surface soil samples collected near Building 191 at concentrations that exceed their respective FDEP SCTLs for a residential and industrial exposure scenario. Both constituents were detected in sample MPT-55-SS06-01, which was collected from a stormwater conveyance.

- One inorganic (total cyanide) was detected in the surface water sample collected near Building 191 at a concentration that exceeds the FDEP SWCTL for surface water as provided in FDEP Chapter 62-302, FAC. However, the FDEP SWCTL is based on free cyanide, which is bioavailable. It is unknown if free cyanide is present at levels above regulatory criteria. Cyanide contamination has not previously been associated with any multimedia samples collected at Building 191.

- Five VOCs (1,1-dichloroethene; 1,2-dichloroethene; tetrachloroethene; trichloroethene; and vinyl chloride) at Building 191, five SVOCs (2-methylnaphthalene; acenaphthene; carbazole; dibenz(a,h)anthracene; and naphthalene) at Echo Pier, and five inorganics (aluminum, iron, manganese, sodium, and thallium) at Building 191, SIMA, and Echo Pier were detected in the groundwater samples at concentrations that exceed FDEP GCTLs.

After review of the documents tables, confirmed positive results less than the reporting limit, but greater than the maximum detection limits, were reported by the laboratory as a less than value. In many instances, reported less than values were in exceedances of the GCTL values. Many factors could lead to the above mentioned scenario such as inadequate sample volume, dilution of sample, or low maximum detection limits could all be a factor in the reported value being in excess of the established GCTL value. Please note the higher reporting limits are due to not having fully one liter of the sample.

The HHRA identified the following items for AOC C:

- Non-cancer risk estimates (HIs) developed for the base worker, the construction worker, the adult trespasser, and the adolescent trespasser are equal to or less than one, indicating that adverse noncarcinogenic effects are not anticipated under the conditions considered in the risk assessment. The HIs developed for the hypothetical future resident adult and child exceed 1.0. HIs developed for individual COPCs and target organs do not exceed 1.0.

- The ILCR estimate for the construction worker (2.5E-07) does not exceed the USEPA target risk range (1E-04 to 1E-06) or the State of Florida cancer risk benchmark (1E-06).

- The ILCR estimates for the base worker (8.6E-06) and trespasser (7.1E-06) exceed the conservative end of the USEPA target risk range (1E-06). Risk from exposure to benzo(a)pyrene (equivalent) in surface soil exceeds 1E-06 for both receptors.

- The ILCR estimate for the hypothetical future resident (1.4E-04) exceeds the USEPA target risk range (1E-04 to 1E-06). Risk from exposure to benzo(a)pyrene (equivalent), Aroclor-1260, and arsenic in surface soil and 1-1-dichloroethene; tetrachloroethene; vinyl chloride; carbazole; and aldrin in groundwater exceeds 1E-06. The EPCs for both tetrachloroethene and vinyl chloride are below their respective MCLs.

The ERA identified the following items for AOC C:

- The screening-level ERA concluded that no detected chemical had a HQ greater than 1.0 in surface water or sediment, which was the only media determined to be a potential risk to ecological receptors at AOC C.

- Some inorganics and VOCs were selected as COPCs because no Region IV screening levels were available. However, a Step 3A analysis suggested that these chemicals were not present in quantities that could result in unacceptable risks.

- The industrialized nature of AOC C does not facilitate widespread ecological habitation. No further ecological risk assessment or ecological risk management appears to be warranted for AOC C.

8.2 RECOMMENDATIONS

Based on the sampling results, a gap currently exists in the surface soil sampling data at AOC C. Benzo(a)pyrene and dibenz(a,h)anthracene were detected above regulatory benchmarks, and benzo(a)pyrene was identified in the HHRA with the ILCR above USEPA target levels in some scenarios. Therefore, it is recommended that additional delineation be performed to identify the extent of contamination present in the surface soil surrounding MPT-55-SS06-01. Once completed, a letter report will be issued presenting the results and recommendations and incorporated into the RFI report as an appendix.

Furthermore, TtNUS recommends a CMS to evaluate and recommend a remedial action to mitigate groundwater contamination at AOC C. At a minimum, the CMS should evaluate the implementation of natural attenuation of COPCs in groundwater and land use controls.

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APPENDICES

Due to volume, appendices will be issued in electronic format on compact disc with no hard copies provided.

APPENDIX A

FINAL CONTAMINATION ASSESSMENT REPORT, ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY/METHODOLOGY AT THE SWMU 15 AND BUILDING 191 AREA

ONLY COPY

FINAL CONTAMINATION ASSESSMENT REPORT

ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY / METHODOLOGY AT THE SWMU 15 AND BUILDING 191 AREA NAVSTA MAYPORT, FLORIDA

FILE

Contract No. N47408-96-C-7246

FILE

Prepared For:

NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC) PORT HUENEME, CALIFORNIA

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SEPTEMBER, 1998

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September 29, 1998

Attn: Mr. Randy Bishop
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Environmental Division
Naval Station Mayport
Mayport, FL 32228-0067
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BUREAU OF WASTE CLEANUP
OCT 06 1998
TECHNICAL REVIEW SECTION

to JHC

Subject: **Final Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA Mayport, Florida; Contract No. N47408-96-C-7246**

Dear Mr. Bishop,

ICON Environmental Services, Inc. (ICON) submits the referenced report. The distribution has been made according to the list at the end of this letter. Comments on the Draft Contamination Assessment Report were issued by Ms. Martha Berry, Remedial Project Manager at EPA. No other comments were issued by reviewing parties. Comments were addressed and incorporated into this Final report as follows:

1.0 General Comments

Ms. Berry provided an overview of direct-push well technology, and indicated that the project objectives were accomplished: [a] the delineation of the groundwater contamination using the DPW technology and conventional wells; and [b] a demonstration and evaluation of the DPW technology with conventional technology. We are in agreement that additional data are needed to conduct a statistical evaluation of sampling comparisons between the two technologies. As Ms. Berry indicated, there existed some significant bias between laboratory results of samples from the DPW and conventional wells. However, ICON submits that during this study, and in all other projects in which this technology is utilized, we invariably note higher laboratory results in samples from DPWs as compared to conventional wells. Since the DPW technology does not introduce concentrations of contaminates of concern, the only conclusion that can be made is that a more discrete sample is acquired from DPW wells as compared to conventional wells. This bias may possibly result from dilution by cleaner higher-permeability stringers encountered in conventional wells, aggravated by an additional two feet of filter sand over a five foot screen, larger diameter of disturbed aquifer, etc.

2.0 Specific Comments

2.1 All references to Figure 1-1 in Section 2.0 were corrected to reference Figure 2-1.

2.2 We agree that in order to conduct a statistically sound evaluation of the DPW technology, that additional rounds of sampling should be performed. Three sets of twinned DPW/conventional wells were installed at Building 191, and one set at the SWMU 15 site.

2.3 The observed concentrations of PCE, TCE and DCE in DPW wells at Building 191 were 25% to 100% greater than those from conventional wells at DPW2d/MW07d. When concentrations are near the detection limit, these differences are not as great. Ms. Martha Berry suggested that contaminant concentrations in the hot spot area where DPW technology was used should be evaluated further. ICON suggests that this could be accomplished through several events of concurrent sampling of the paired wells DPW2d/MW07d and other wells in the area for laboratory analysis of Halocarbons. ICON suggests that these data differences are likely to continue because DPW2d was installed with much less disturbance to the surrounding aquifer as compared to the adjacent conventional well MW07d. Additionally, two feet of sand filter pack extends above the conventional well screen providing additional dilution to the well, assuming that the higher concentrations are located at the base of the zone, immediately above the clay. As previously mentioned, the installation and sampling of DPW2d did not contribute to the observed levels of PCE, TCE or DCE in the groundwater samples.

The calculated hydraulic conductivity values obtained from slug testing the DPWs are generally smaller than those obtained from the conventional wells. All results are within the same order of magnitude, which is the general accuracy of slug tests. It should be noted that in general, the DPW test more often results in a linear straight-line plot (7 of the 11 tests conducted at Building 191), as compared to the conventional wells which in three tests exhibited double or triple-straight line plots. Therefore, interpretation of the DPW slug test data is less ambiguous because of the lack of a sand filter pack that otherwise could contribute to multiple straight-line effects.

2.4 The calculation of hydraulic conductivity based on slug test analysis was evaluated using the Bouwer and Rice method. As per the method, if the screen is fully saturated during the test, the falling head results should mirror the rising head result. In actuality, the falling head test is easier to conduct (by the addition

of water to the well) in DPWs because of the small diameter of the DPW. Because of the ambiguity associated with multiple straight-line plots in some of the data, those wells exhibiting multiple straight-line plots were recalculated as presented in Sections 3 and 4, and Appendix G. If an outlier resulted from either early or late straight-line data plot, that outlier was flagged and not used in calculation of groundwater flow velocity. Outliers were determined based on results of retesting if the data were available, and/or the result was generally resulting from the early straight-line portion of the data, indicative of a development skin. Other than outliers, data were averaged into one value for calculation of mean groundwater flow velocity.

2.5 The method of comparing hydraulic conductivity values and lab results as presented in the draft reports was more accurately a percent difference (versus relative percent difference), because the "true" value was not known. We simply compared the difference in results for each measured parameter. In reference to analytical results of DPW2d / MW07d at Building 191, we had available a preliminary sample in May 1997, and a resample result with a blind duplicate in September 1997 for DPW2d. We had only one result in September 1997 for the adjacent conventional well MW07d. We recalculated the relative percent difference using the DPW as the "true" value. The DPW results were chosen as the true result because: a) we had available resampling and duplicate data, thereby increasing the confidence in the DPW result and b) at higher concentrations, the DPWs generally yield higher results, and because constituents are not concentrated or added to groundwater samples, the higher results have to be more representative of the discrete screened interval. Recalculated results for lab results are as follows:

Parameter (ug/L)	DPW2d	MW7d	RPD (%)	DPW8s	MW8s	RPD (%)	DPW8i	MW8i	RPD (%)[1]
Tetrachloroethene	200/280[2]	160	20/43	nd	nd	0	<1.0	1.4	-40
Trichloroethene	950/980[2]	610	36/38	1.2	<1	16	<1.0	1.0	0
Chloroform	nd	Nd	0	nd	nd	0	<1.0	2.0	-100
1,1-Dichloroethane	nd	Nd	0	nd	nd	0	14	<1	93
cis-1,2-Dichlorethene	150/150[2]	75	50	nd	nd	0	nd	nd	0

1 - detection limit used in calculating %RPD; 2 - two results indicate the sample and its blind duplicate.

Using similar analysis for hydraulic conductivity results for Building 191 wells yields:

Test Results (ft/day)	DPW2d Falling Head	MW7d Rising Head	RPD between wells (%)
Test 1 - 8/28/97 (avg of early&late)	31.83	70.33	-120.9 %
Test 2 - 8/28/97 (avg of early&late)	33.68	114.86	-241 %
% difference between tests	*5.5 %*	*38.7 %*	
	DPW8s Falling Head	MW8s Falling Head	
Test 1 - 9/2/97	26.65	23.07	*13.4 %*

As stated in the draft document, the DPWs yielded a single straight line plot in seven of eleven tests, and the conventional wells yielded double or triple straight line plots in all three tests. Interpretation of conventional well tests was thus more subjective.

2.6 The cost of borehole geophysical logging is not included in the cost comparison between DPW and conventional wells. This is because the geophysical surveys were used for both the conventional and DPW well screen design during this demonstration project.

The use of geophysical surveys is integral to DPW installation, and is comparable to continuous core sampling associated with conventional well installation. Continuous core sampling was not conducted for the conventional wells installed for this project. Such a comparison would therefore have to be based on past project experience. Typical historical results indicate that two 70-foot deep borings for characterization of lithology can be drilled and geophysically logged within 6 hours. Additionally, a "through pipe" log using direct push methods can be completed and grouted within 45 minutes, and would generate no cuttings. Lithological characterization using continuous coring for the same two borings would require approximately 15 hours, and would result in more soil cuttings.

It has been a pleasure completing this project for you and the US Navy. We welcome any future questions concerning this project. Should you have any specific questions or comments, feel free to call us at (225) 769-2073.

Sincerely,

ICON Environmental Services, Inc.

Gregory Miller, P.G.

Sr. Geologist/Principal

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FINAL CONTAMINATION ASSESSMENT REPORT

ADDITONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY / METHODOLOGY AT THE SWMU 15 AND BUILDING 191 AREA NAVSTA MAYPORT, FLORIDA

Prepared For:

NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC) PORT HUENEME, CALIFORNIA

Certifications

This document was prepared under my direct supervision and responsible charge. Procedures specified in this document conform to industry-standard practices for acquisition of defensibly valid data. All field sampling and measurement activities will be conducted according to this plan; the approved project quality assurance/quality control plan (QA/QC); and/or in accordance with industry-standard US EPA recommended procedures.

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Reviewed and Approved By:

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September, 1998

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1.0 INTRODUCTION

1.1 INTRODUCTION

Two sites at the Naval Station Mayport (NAVSTA), Florida reported soil and groundwater contamination, and were categorized as eligible for an Innovative Technology demonstration project under the Navy Environmental Leadership Program (NELP) program. Each site has had a complete delineation of shallow soil impact requiring no further soil assessment. Each site had confirmed groundwater impact, requiring further investigation to define horizontal and vertical extent of groundwater impact. ICON Environmental Services, Inc. (ICON) was retained by the US Department of the Navy to implement delineation of groundwater impacts at each site using innovative technology.

1.2 PROJECT OVERVIEW

The overall objectives of the project were twofold: 1) the horizontal and vertical delineation of groundwater impact using technically defensible groundwater sample results; and 2) the innovative technology demonstration including data to evaluate the operating range of the technique, the precision of the sampling technique, and the relative cost of the technique.

The following tasks were conducted at both of the project sites:

- Detailed vertical characterization of subsurface geology, using modified borehole geophysical logging equipment; the primary objectives were to determine the lateral extent of low-permeability sediments within the thick permeable zones previously identified at the sites;
- Installation of direct-push monitoring wells, throughout the area of concern. These wells were vertically stratified to ensure horizontal and vertical delineation of groundwater impact;
- Installation of conventionally-installed monitoring wells adjacent to selected direct-push wells, to allow comparison to the conventional installation;
- Groundwater sampling and aquifer testing of direct-push wells, existing wells, and new conventionally installed wells.

The project objectives (horizontal and vertical delineation of groundwater impact, and innovative technology demonstration) were addressed at each site as follows:

- Two perimeter boreholes were drilled at SWMU 15 and Building 191 to a depth of approximately 65 feet using rotary wash drilling technique (Figure 2-1and 2-2). Layne Environmental Drilling provided drilling services using a Gus Pech drilling rig with a 5" x 6" mud pump. These perimeter borings were geophysically logged using: natural gamma (calibrated to API standard), natural gamma (counts per second), spontaneous potential (SP), single point resistance, and 6" normal resistivity. Several existing monitoring wells at SWMU 15 were logged through casing using natural gamma, and several direct push borings were logged using natural gamma through steel casing at Building 191.
- During the initial phase of the project (April and May 1997), direct-push wells (DPWs) were installed, fifteen at Building 191 and seventeen at SWMU 15. Direct push wells were nested, with two or more screened intervals (depths) at one location. DPW driving was accomplished by either direct pushing with rig hydraulics in combination with the weight of the drill rig (Gus Pech) or by hammering with a downhole air hammer supplied by the air compressor installed on the drill rig. All DPWs were completed with flush-grade surface completions, and were developed by pumping with a peristaltic pump. Upon receipt of the lab results from the initial phase of the project, our contract was modified to include nine additional DPWs at Building 191 to further delineate the groundwater plume, and one additional DPW at SWMU 15. These additional DPWs and the conventional wells were installed in August and September 1997.
- Three conventional monitoring wells twinned adjacent to DPWs at each site were originally planned; however, upon evaluation of preliminary results, Navy personnel requested that two of the conventional monitoring wells at SWMU 15 be installed as stand-alone wells to provide additional lateral data on Arsenic concentrations. The conventional wells were installed using the hollow-stem auger drilling technique, and soil samples were acquired for lithology using split spoon samplers. Conventional wells were constructed with a five foot screened interval, adjacent to DPWs with the same screened interval (if twinned). Some of the conventional wells installed below the first groundwater zone included isolation casing to minimize potential carry down. The

conventional wells provided samples and aquifer test data that the direct-push well samples can be compared to in order to assess the precision of the innovative technology.

- ICON conducted sampling and head measurements of direct push wells, and all existing monitoring wells. Groundwater samples were sent to Quality Analytical Laboratories (QAL, CH_2M Hill Labs), a Navy-approved subcontracted offsite analytical laboratory. Falling head insitu tests were conducted in twinned DPWs and adjacent conventional wells, and data was evaluated for comparative analysis.

1.3 PREVIOUS INVESTIGATIONS

The two sites at Naval Station Mayport include: Building 191 Area, an active warehouse facility with tetrachloroethene (PCE) groundwater impacts; and Solid Waste Management Unit (SWMU) 15, listed in the HSWA permit as requiring a RCRA Facility Investigation (RFI) for pesticide impact (benzene hexachloride and arsenic). The history and characteristics of each site follows.

1.3.1 BUILDING 191 AREA

A contamination assessment was conducted in 1994, for the release of diesel fuel from underground piping associated with an aboveground storage tank located on the south side of Building 191. Tetrachloroethene (PCE) was detected in one of the wells on the north site of the building. A groundwater assessment targeting PCE was conducted in May 1995. The assessment included the installation of six (6) shallow monitoring wells (MPT-TC-MW01s through MPT-TC-MW06s) screened at a range of 2.5 to 14 feet bls, and one deeper well (MPT-TC-MW01I) screened at 35 to 40 feet bls. Organic analytes detected in groundwater were reported in the *SWMU Assessment Report for TCE Release near Building 191, US Naval Station Mayport, Florida, 1996* as follows:

Parameter (ug/L)	MPT-TC-MW2s (27-Jun-95)	MPT-TC-MW4s (27-Jun-95)	MPT-TC-MW05s (26-Jun-95)[2]
Tetrachloroethene	Nd[1]	26	100 / 73
Trichloroethene	Nd	9	10 / 8
Chloroform	11	Nd	Nd
1,2-Dichloroethene	Nd	1 J	1 J
Bromodichloromethane	5	Nd	Nd
Dibromochloromethane	1 J	Nd	Nd

1 – Nd – not detected; 2 - two results indicate the sample and its blind duplicate; J – estimated value.

Wells MW04s and MW05s are located on the north side of Building 191, and MW02s is located on the south side of the building. None of these compounds were detected in subsurface soil samples (2-3 feet bls) analyzed during that sampling event.

Groundwater occurred at water table conditions at an average depth of 4.5 feet below land surface. Potentiometric data indicated groundwater flow to the west at an average hydraulic gradient of 0.009.

1.4.2 SWMU 15

Pesticides and application equipment were stored in a covered shed east of Building 48A during 1963 and 1964. As a result of probable washing and rinsing activities, area soils and groundwater exhibit impact from pesticides. An initial investigation of SWMU 15 was conducted in 1993, and additional sampling was conducted in 1994.

Surface soil samples were acquired and the following compounds were detected: 4-4'-DDE, 4,4'-DDT, Chlordane, Heptachlor, and Heptachlor epoxide; additionally, Arsenic and Beryllium were detected at concentrations that exceeded benchmark concentrations. Shallow soil sample data indicated that shallow pesticide impact occurs in numerous "hot spots" at the surface, with minimal downward migration.

Groundwater was sampled utilizing six shallow monitoring wells (MPT-15-MW01s through MPT-15-MW05s) screened at a maximum depth of 18 feet bls, and on well (MPT-15-MW5I) screened at 25-30 feet bls. Pesticides were detected in two of the wells, including alpha-, beta-, and gamma-benzene hexachloride (BHC). Arsenic and Sodium were also detected at levels above benchmark and background screening concentrations. A summary of these detected compounds is as follows:

Parameter (ug/L)	MPT-15-MW01s (27-Jun-95)	MPT-15-MW02s (27-Jun-95)	MPT-15-MW03s (27-Jun-95)	MPT-15-MW04s (27-Jun-95)	MPT-15-MW05s (27-Jun-95)	MPT-15-MW05i (27-Jun-95)
Arsenic	9J / 10.4	0.7J	1.6J	62J	nd[1]	2.9J
Benzene Hexachloride (total)	0.927	nd	nd	3.83	nd	nd

1 – nd – not detected; 2 - two results indicate the sample and its blind duplicate; J – estimated value.

Groundwater occurred at shallow depths, generally within 4 feet below land surface. Potentiometric data indicated groundwater flow to the northwest at an average hydraulic gradient of 0.004.

1.4 REPORT ORGANIZATION

The success of the innovative technology demonstration is discussed in a separate report entitled Direct-Push Well (DPW) Innovative Technology Evaluation Report, Additional Assessment Using Innovative Technology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida, ICON, January 1997.

Methodology used at both sites is discussed in Section 2.0 of this report. Results of assessment at Building 191 are presented in Section 3.0, and results of assessment at SWMU 15 are presented in Section 4.0. A summary is presented in Section 5.0.

2.0 PROJECT DESIGN

The overall objectives of the project were twofold: 1) the horizontal and vertical delineation of groundwater impact using technically defensible groundwater sample results; and 2) the innovative technology demonstration including data to evaluate the operating range of the technique, the precision of the sampling technique, and the relative cost of the technique.

A description of the innovative technology follows.

2.1 OVERVIEW OF INNOVATIVE TECHNOLOGY

The direct-push well (DPW) technology includes two key components: the DPW drive assembly and well with associated completion materials; and borehole geophysical logging equipment modified for shallow geological environments capable of through-casing or open hole logging. The geophysical logs indicate subsurface stratigraphy and the exact target depth for installation of the DPW, and allow for cost effective vertical profiling of groundwater bearing zones with high precision and accuracy using nested wells.

Integral to the design of the technology is the ability to use locally available standard drilling equipment for implementation. For this project, ICON selected a Gus Pech drilling rig with a mud pump for rotary drilling, and an air compressor for air hammering. Therefore, the rig could accomplish the following tasks in a single mobilization:

- Define subsurface geology (aquifers and confining zones) by conventional methods (hollow stem auger with soil coring, and mud rotary drilling with soil coring); and by geophysical logging fluid filled open boreholes,
- Additional geological characterization by geophysical logging (natural gamma) through sealed pushed or hammered drive pipe,
- Installation of direct push wells (DPWs),
- And installation of conventional monitoring wells, by hollow stem auger (for shallow wells and for installation of surface casing of deep wells) or mud rotary (for deep wells through isolation casing).

The method can be utilized at any location, dependant only on drilling rig availability. Additionally, if hard rock refusal or dense soil is encountered (eliminating use of all direct push techniques) the drilling rig can still complete the assessment using conventional drilling techniques in the same mobilization.

2.1.1 DPW DRIVE ASSEMBLY AND WELL CONSTRUCTION

The method includes use of a sealed steel drive tube with a sacrificial sealed tip that is driven to within five feet of the desired screened interval (See Figure 2-1). Driving is facilitated using a standard drilling rig by pushing with the rig hydraulics, or hammering with a downhole air hammer driven by an air compressor supplied on drilling rig. Inside the sealed drive tube is a 5-foot long 1.25-inch diameter PVC screen with 0.008-inch factory slots, and a 2-foot upper blank riser pipe. Once the desired depth is reached, the screen is hammered out six an one-half feet below the bottom of the drive pipe into the groundwater zone to be sampled, thereby placing 1.5 foot blank riser pipe directly against native soils. A 3/4-inch diameter Schedule 40-PVC well with flush-coupled threaded joints and 5 feet of 0.01-inch slot screen is then lowered through the drive pipe, and into the 1.25-inch screen to the bottom of the sump.

A Teflon packer seal is pre-installed around the 3/4 inch PVC riser pipe approximately 1.5 foot above the screen and seals the 3/4-inch well pipe to the top of the 1.25 inch screen to prevent grout from entering the annulus of the inner and outer screen sections. The annular space between the 3/4-inch diameter PVC riser pipe and the steel drive casing is filled with grout, and the riser pipe is held in place as the drive casing is withdrawn from the hole. The grout slurry is therefore placed under the vacuum pressure caused by the drive casing retrieval, and extends from the Teflon packer up to ground surface. A 3/4-inch diameter monitoring well is therefore constructed with a five-foot long screen at a discrete depth with proper grout to surface.

2.1.2 GEOPHYSICAL LOGGING

Subsurface lithology was characterized using two applications of geophysical logging: logging at the perimeter of an area of interest (outside the contaminated area) in open fluid-filled boreholes for definition of lithology and groundwater bearing zones; and logging within the area of interest through steel casing to correlate the lateral and vertical extent of lithological units defined at the perimeter.

2.1.2.1 Perimeter Logging

A borehole is rotary washed to the desired depth and geophysical logging tools are lowered through the borehole. Multiple gamma ray, single-point-resistance, resistivity, spontaneous potential and caliper logs are run in the borehole to obtain detailed occurrences of soil types, soil changes (vertical and lateral), groundwater occurrence and some degree of groundwater quality. Furthermore, caliper logs are acquired to measure borehole changes in diameter in order to correct any of the logs erroneous responses due to borehole diameter fluctuation (common in rotary washed boreholes). Soil cores should be obtained continuously from a minimum of one geophysically logged borehole to identify and correlate soil types to log responses.

2.1.2.2 Logging in the Area of Concern

The steel casing with an expendable tip is pushed to the desired depth (i.e. through multiple zones) and a small diameter (1.375 inch) natural gamma logging tool is lowered through the drive casing on a wireline and natural gamma is recorded. Gamma ray logs exhibit distinct signatures for a given zone in addition to delineating soil bed boundaries, and are correlated between logged boreholes. The gamma ray logs are correlated to the perimeter logs to define the lateral and vertical changes of soil distribution and groundwater bearing zones, to precisely place the screen of the DPW clusters at each location (defining areas of contamination).

2.2 METHODOLOGY

2.2.1 BOREHOLE GEOPHYSICAL LOGGING

Any monitor well installation requires knowledge of subsurface lithology and groundwater occurrence to optimize utility of the well. ICON used a refinement of borehole geophysical logging to accomplish this objective. The refinements include a capability of slower logging speed than most commercial logging services; use of several-conductor cable to enable acquisition of multiple curves with one pass (gamma, single-point-resistance, resistivity, etc.); gamma logging at a constant speed directly adjusted to smaller and larger time constants to optimize detail and to minimize statistical error and an experienced professional geologist wireline operator. The following suite of tools were run:

Natural Gamma - The gamma curve responds to radioactivity, and typically will read higher adjacent to clays because of the relatively more abundant Potassium-40 (K-40) radioisotope, particularly in potassium silicate clays. The gamma curve increases counts (deflects to the right) adjacent to clays, and decreases counts (deflects to the left) in clean sands. Thus, the tool is capable of delineating clay lenses as thin as 2 inches. The gamma curve is the only tool in the suite able to log through casing. The bentonite seal in monitoring wells increases gamma counts to maximum deflection to the right due to the high natural gamma count of bentonitic soils as well as the proximity of the seal directly against the casing. The open hole and monitor well gamma tools utilized scintillating crystal detectors and the drive casing 1.75" I.D. gamma tool utilize a Geiger-Mueller (GM) detector. The GM detects both gamma and beta radiation, but all beta is generally filtered by the tool housing prior to detection; the resulting curve closely matches natural gamma.

Single Point Resistance - Measures relative resistance of aquifer bulk matrix and groundwater directly at the borehole wall. Resistance generally reads higher (increasing ohms) adjacent to fresh-water bearing permeable zones, and low (decreasing ohms) adjacent to clay and brackish-water filled permeable zones. This tool provides high resolution, delineating clay lenses as thin as one inch.

Six-Inch Normal Resistivity - Measures resistivity of aquifer bulk matrix and groundwater at an average depth of 6 inches beyond the borehole wall. Fresh water sands are highly resistive, and clays and brackish water exhibit low resistivity. This curve provides quantitative measurements.

Spontaneous Potential - Indicative of clay/sand boundaries fining and coarsening, and can be used to indicate highly permeable zones where borehole fluid is invading the aquifer.

Caliper - Measures the borehole diameter, and indicates zones of washout and cave in which can cause erroneous effects on the previously mentioned logs.

Prior to use and between wells, the tool and cable were decontaminated by pressure washing the tool and cable. The logs were run at an optimal speed between 8 and 12 feet per minute, using an optimal time constant factor of 2 counts per second. Several runs were conducted in each of the 65-foot core-sampled boreholes at each site, to determine the optimal speed and time constant appropriate to each site. Subsequent logs were run at the same parameters to facilitate correlation and evaluation.

Two 4.25-inch diameter perimeter borings were drilled at each site using the rotary wash method. One rotary wash boring at each site was selected for core sampling; cores were acquired using

split barrel samplers continuously to 20 ft bls, and at five foot centers thereafter. In the other rotary wash borings, cuttings were continuously logged as drilling progressed. A professional geologist described core samples and cuttings. Upon completion of each rotary wash boring, the boreholes were logged using the full suite of geophysical logs. Upon completion of geophysical logging, each rotary washed borehole was grouted full depth from bottom to surface using a bentonite-cement slurry.

Upon completion of all logging activities, the logs were photocopied and correlated onsite. Cross section diagrams were drawn and used to determine the depth of direct-push wells.

The geophysical curves were calibrated to site-specific lithological and groundwater conditions by comparing log response to the continuously core-sampled boreholes. The logs of existing borings were of limited use because lithological sampling occurred at 5-foot intervals, and core recovery was often less than 50%. The boring logs of the continuously sampled borings were qualitatively compared to the geophysical logs to determine log deflection of subsurface soils.

Geophysical logs, and log of boring diagrams (core logs) for the Building 191 site are included in Appendix A-1, and for the SWMU 15 Area in Appendix A-2.

2.2.2 DIRECT PUSH WELLS

The depth of the nested direct-push wells (DPW) was determined after interpreting the results of the borehole geophysical surveys. In general, nomenclature for DPWs at SWMU-15 was as follows:

- The *shallow* DPWs intersected the top of the water table (between 3 and 8 feet bls) and were screened in dredge spoil above the first encountered clay from 8 to 10 feet bls;
- The *intermediate* DPWs were installed below the first clay in the second permeable zone below the site (between 10 and 15 feet bls);
- The *deep* DPWs were installed predominantly below the second clay encountered at the site within the third permeable zone below the site (between an average of 26.5 and 31.5 feet bls).

In general at Building 191, nomenclature for DPWs and suffixes *s, i,* and *d* were used only for depth designation within a cluster and not related to site specific subsurface zones. The DPWs at

Building 191 were installed in three different zones as determined by the geophysical logs and are labeled in this report as follows:

- The "A" Zone (first permeable zone) consisting of dense beach/tidal delta sand with shell fragments, thin reef material, and clay zones. DPWs were installed with five foot screens at three depths: intersecting the water table (between 3 to 8 feet bls, top of the "A" Zone), mid-"A" zone (between 10 and 27 feet bls), and the base of the A zone above the first clay layer (between an average of 26.5 to 31.5 feet bls,
- The "B" zone (second permeable zone) below the first encountered clay layer (between an average of 35 to 40 feet bls),
- The "C" zone (third permeable zone) below the second encountered clay layer at the site (between an average of 42 to 47 feet bls).

The DPW outer screen, telescopically encased and driven to a desired depth within a carbon steel drive assembly, was generally pushed at SWMU 15 and was hammered at Building 191 to the desired depth. The drive assembly consists of a 7-foot long carbon steel lower chamber with a top hold-back sub, and a bottom shoe (Figure 2-1). Two identical drive assemblies were utilized to allow one to be decontaminated while the other was being driven. The outer screen was housed in the 7-foot carbon steel lower chamber drive pipe, with 2.25-inches outside diameter (or equivalent size). The outer screen consisted of a 5-foot long PVC screen with 2-foot long blank riser pipe. and was housed inside the lower chamber while driving, sealed with buna O-rings above a solid PVC and or steel bottom cone tip. Screen configuration of the outside screen was staggered horizontally slotted configuration using 0.008-inch slots. In dense sands (greater than 35 blows per foot), the compressive strength of the PVC cone tip would occasionally fail. A carbon steel metal cone tip was used in dense sands, to enable penetration without compromising the integrity of the cone tip. The metal cone tip was isolated from the bottom of the well screen by a section of blank PVC pipe (sub), and was retained using a pin (see Figure 2-1).

The outer screen was telescopically housed within the lower chamber and was pushed or hammered to the desired depth (determined from geophysical logs) by adding 5-foot carbon steel chambers. Upon reaching the desired depth, a steel drop rod assembly was lowered through the drive assembly and outer screen, and was used to hammer on the solid cone tip at the base of the outer screen, to extend the screen 6.5 feet below the end of the drive shoe Figure 2-1.

The drop rods were removed, and a 0.75-inch (I.D.) PVC well consisting of 5-foot long screen with 0.010-inch slots and blank riser pipe (inner screen) was lowered through the drive casing into the outer screen, and was sealed to the upper circumference of the outer screen using a Teflon™ packer seal. A temporary cap was placed at the top of the 0.75-inch riser pipe to prevent grout from entering the well. A Volclay™ slurry followed by grout slurry was then poured in the annular space above the packer seal, between the inner PVC riser pipe and the steel drive rods. Grout slurry was prevented from entering the screen area by the Teflon packer seal. The drive assembly was retracted while holding the PVC riser and screen in place, and the grout was drawn into place by the negative pressure induced as the drive rods were withdrawn. Total grout used was compared to the total calculated annular space to verify a good seal.

The DPWs included flush-grade surface completions consisting of bolt-down covers within a concrete apron, and a PVC well cap. Wells were developed by pumping using a peristaltic pump with dedicated Teflon drop tubing.

The drive shoe assembly, pipe, and drop rods were decontaminated by pressure washing followed by a deionized water rinse prior to use at each location.

Well construction diagrams for the DPWs at Building 191 are included in Appendix B-1, and well construction diagrams DPWs at the SWMU 15 area are included in Appendix B-2.

2.2.3 HOLLOW STEM AUGERING AND WELL INSTALLATION

Conventional wells were installed using the hollow-stem auger technique. Soil borings were advanced using 4.25-inch inside diameter (I.D.) hollow stem augers. Soil samples were acquired using split barrel samplers. A standard penetration test (SPT), following the guidance of American Society for Testing Materials (ASTM-D1586-84) was performed each time the soil sampler was advanced. The blow counts were recorded and used to identify relative changes in the density of material at each sample interval. This information was useful in comparing the boring logs to historical construction borings at Building 191. The site geologist supervising and directing soil boring activities described soil samples. Log of boring diagrams are included in Appendix B-1 and B-2, for Building 191 and SWMU 15 borings, respectively.

Upon reaching total depth, a monitoring well was installed in each boring. The wells consisted of 2-inch diameter Schedule 40 PVC pipe with a 5-foot long commercially fabricated, threaded,

flush joint PVC screen with 0.01-inch slots. A filter pack consisting of 20/40 silica sand was placed to approximately 2 feet above the top of the screen. Filter pack was placed to approximately 1 foot above the top of the screen in the shallow wells, to allow for a proper seal. A 2-foot bentonite seal was installed above the filter pack; a 1-foot bentonite seal was used in the shallow wells. The bentonite seal was allowed to hydrate for a minimum of 8 hours prior to grout placement. A non-shrinking cement-bentonite grout was placed above the seal to ground surface, unless shallow screen placement precluded grout placement. The cement-bentonite mixture consisted of the following compounds in proportion:

- 94 pounds of neat Type II Portland Cement
- Not more than 4 pounds of 100 percent sodium bentonite powder
- Not more than 7 gallons of potable water

A flush-grade surface completion was installed consisting of an 8-inch diameter (or equivalent) well box with bolt down gasket cover, and a water-tight well cap. The well box included a cement shroud sloped to prevent ponding over the well. Well construction diagrams for Building 191 and SWMU 15 are included in Appendix B-1 and B-2, respectively.

The wells were developed by pumping with a decontaminated 2-inch diameter Grundfos pump. Field parameters (pH, specific conductance, temperature, and turbidity) were monitored during development. Development was considered complete when field parameters stabilized to within five percent of consecutive readings. A target turbidity level of 10 NTU was attempted. Well development field data were recorded on field sheets, and are included in Appendix C-1 (Building 191 wells) and C-2 (SWMU 15 Area wells).

The location of each well, ground surface and top of casing elevation was determined by Holland & Bassett Professional Land Surveyors, Jacksonville, Florida. A copy of the elevation survey is included in Appendix E.

2.2.4 WELL SAMPLING

All existing monitoring wells at each site were sampled concurrent with sampling of the DPWs during the March/April 1997 field event. Because ICON had not yet received approval of the Comprehensive Quality Assurance Plan (CompQAPP), Southeastern Environmental Audits, Inc, Jacksonville, Florida (CompQAP #910008G) was subcontracted to direct sampling activities for

the March/April 1997 event. ICON's CompQAP was approved and issued CompQAP #970041. ICON resampled selected DPWs and existing wells, concurrent with sampling of the recently installed DPWs and conventional wells during the August/September 1997 field event.

Sampling was conducted using low-flow purging and sampling procedures, using a peristaltic pump for purging. Field measurements of pH, Specific Conductance, temperature, and turbidity were recorded on field sampling sheets, included in Appendix D1 (Building 191 wells) and D2 (SWMU 15 wells). Indicator parameters were considered to be stabilized when pH variation was less than 0.2 SU, temperature variation less than 1°F, conductivity variation less than 10 percent, and turbidity variation less than 10%. A target turbidity level of less than 10 NTU was attempted prior to sampling. Field equipment was calibrated three times daily and adjusted for drift, as necessary.

Upon completion of purging, wells at the Building 191 area were sampled for laboratory analysis of Chlorinated Halocarbons (EPA Method 8010) by allowing the dedicated Teflon tubing to fill to equilibrated groundwater levels, sealing the top of the tubing with a gloved finger, and lifting the finger to slowly fill laboratory-supplied 40 ml VOA vials. Vials were filled to form a slight meniscus and capped to eliminate bubbles from the sample.

Upon completion of purging, wells at SWMU 15 were sampled for laboratory analysis of Pesticides (EPA Method 8080) and Arsenic (Method SW846 7060-GFAA) by plumbing the dedicated Teflon tubing into a decontaminated glass drop-out vessel. Decontamination included washing with Liquinox laboratory-grade detergent, rinse with potable water, rinse with laboratory grade isopropyl alcohol (IPA), rinse with potable water, rinse with nitric acid, and triple rinse with deionized water. The peristaltic pump was used to create a vacuum on the drop-out vessel, thereby inducing flow. The vessel was allowed to fill, and the first fill was wasted; subsequent fills were decanted into laboratory-supplied containers.

Samples were placed on ice in sealed ice chests. A complete chain of custody record was maintained for all sample sets at all times during transport by common carrier (Federal Express) to Quality Analytical Laboratory, Inc. (QAL)'s Redding, California or Atlanta, Georgia laboratory.

The potentiometric surface was determined at each site on a minimum of two separate dates using an electronic water elevation detector.

2.2.5 INSITU AQUIFER TESTING

Insitu hydraulic conductivity testing was conducted in several DPWs and adjacent conventional wells at each site. A falling head test was conducted in selected DPWs by pouring a known volume of well water into the well and measuring the rate of water level decline using a Druck 50 psi 0.63-inch diameter pressure transducer and a Hermit Data Logger. Rising head and falling head tests were also conducted in selected conventional monitoring wells. Rising head tests were conducted by bailing a known volume of water from the well, and monitoring the recharge rate. The pressure transducer was placed near the bottom of the well. Data was entered into a computer program, and time-drawdown curves were generated. Data was evaluated using the Bouwer and Rice Method (*WWR, June 1976; Groundwater V27, No. 3, June 1989*). Calculations are included in Appendix G1 (Building 191 wells) and Appendix G2 (SWMU 15 wells).

2.2.6 QUALITY CONTROL AND DATA EVALUATION

The precision of the sampling and laboratory analysis was evaluated using two duplicate samples per site (two samples collected independently at a sampling location during a single act of sampling). This resulted in an average of one duplicate sample per every 10 samples.

The accuracy of the sampling technique was evaluated using equipment blanks (clean reagent water collected from pumping through precleaned dedicated tubing to determine whether the sampling equipment was introducing bias). Two equipment blanks were acquired per site. A peristaltic pump was allowed to pump through pre-cleaned dedicated tubing into the sample container or a clean vessel.

Trip Blanks, another indicator of sample accuracy, function as an indictor of possible contamination during transit to and from the laboratory. One trip blank was prepared by the laboratory and placed in a cooler designated for shipping of volatile organic compounds, and accompanied the samples at all times.

Laboratory results were validated as per guidance in the USEPA CLP National Functional Guidelines for Organic Data Review, Multi-Media Multi-Concentration and Low Concentration Water (December 1994). Validation work sheets are included in Appendix H.

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Contractor Address: 5637 Superior Drive Suite B-1, Baton Rouge, LA 70816
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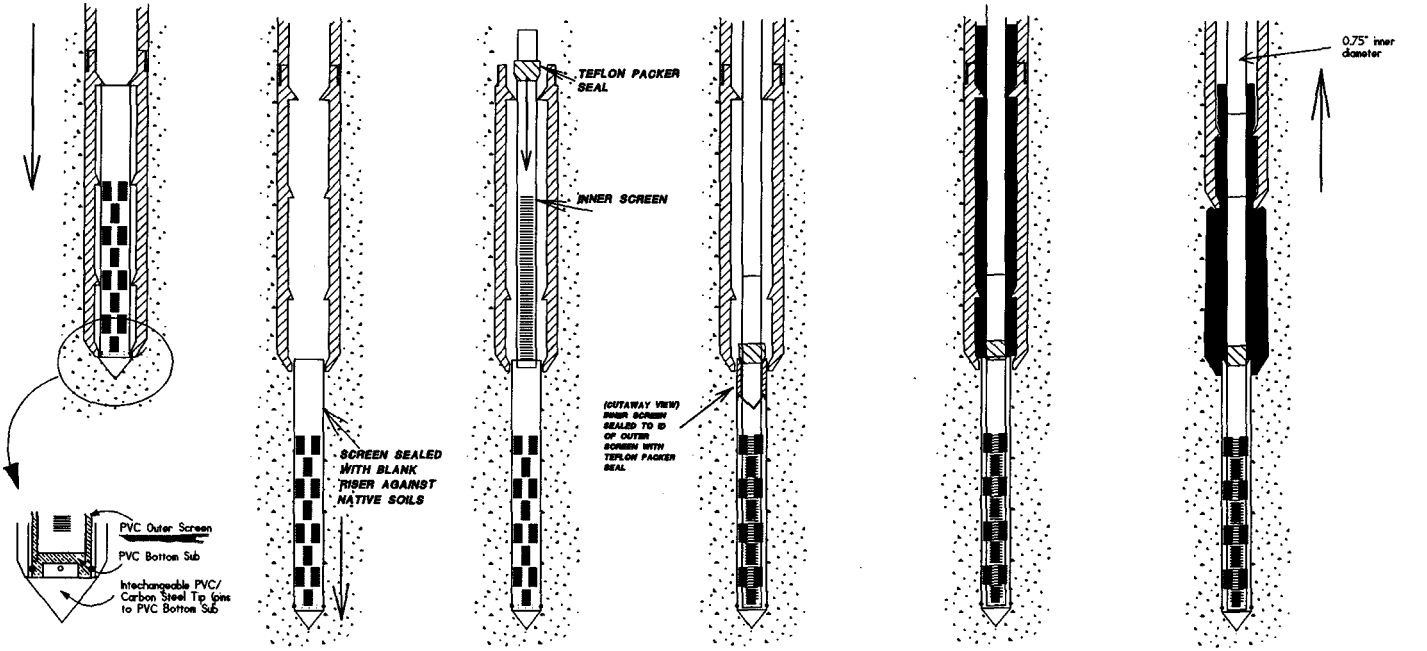

DRIVE SHOE WITH OUTER SCREEN IN CLOSED POSITION IN DRIVE SHOE

DRIVE SHOE SEATED OUTER SCREEN HAMMERED OUT AHEAD OF DRIVE SHOE

INNER SCREEN IS LOWERED THROUGH DRIVE SHOE AND INTO OUTER SCREEN

INNER SCREEN SEATED WITHIN OUTER SCREEN; SEALED ABOVE BLANK RISER WITH TEFLON SEAL.

WITH DRIVE SHOE IN PLACE, VOLCLAY FOLLOWED BY BENTONITE SLURRY IS PLACED IN THE ANNULAR SPACE

AS DRIVE SHOE IS WITHDRAWN, BENTONITE/VOLCLAY SEAL IS DRAWN INTO ANNULAR SPACE UNDER VACUUM PRESSURE.

Figure 2-1

DIRECT PUSH WELL INSTALLATION AND DRIVE ASSEMBLY SCHEMATIC
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
SWMU 15 AND BUILDING 191 AREA
NAVSTA MAYPORT, FLORIDA

ICON
6160 Perkins Road, Suite 100, Baton Rouge, LA 70808

File Name: dvshoe	Date: Jan 1998
Project Number: 9052-001-0100	Source:
Revision Number 4	ICON ENVIRONMENTAL 1998
File Directory \data\navy\	
Drawn By gwm	

3.0 RESULTS OF ASSESSMENT AT BUILDING 191

3.1 SUBSURFACE GEOLOGY

Subsurface geology was characterized using data from: previously installed wells (hollow stem auger borings); two open hole borings (MPT-TC-B1 and MPT-TC-B2) in which one was core sampled and both were geophysically logged; three pushed borings in which natural gamma was logged through the drive assembly (MPT-TC-DP3 through MPT-TC-DP5); and from the borings of conventional wells installed during this study (hollow stem auger). Boring locations can be found on Figure 3-1.

The open-hole borings were continuously sampled to 20 feet (bls), and sampled at five-foot centers to 65 feet (bls). Core samples were obtained using split-spoon core barrels, advanced using the rig hammer following the guidance of American Society for Testing Materials (ASTM-D1586-84). The blow counts were recorded and used to identify relative changes in the density of material at each sample interval. Core samples were visually described based on the Unified Soil Classification System. Upon completion of core sampling the boring was geophysically logged.

Log interpretations at Boring MPT-TC-B1 (correlated to cores from that boring) were then correlated to the geophysical log at open-hole Boring MPT-TC-B2 across the area of interest, and to three through-casing gamma ray logs in the area of interest (MPT-TC-DP1 through MPT-TC-DP3). Cross sections with subsurface geology were generated based on the geophysical log data and are presented in Figures 3-2 and 3-3. Subsurface geology across the site from west to east was generally consistent from surface to approximately 65 feet (bls) and is as follows:

Depth Feet (bls)	**Description**
0.0' - 33.0'	Poorly Sorted Sand (SP), dark gray, shell layers and fragments, worm reef (3") at 24 feet (bls), herein denoted *Zone "A"*. This zone extends to 41.0 feet (bls) in the western section of the project area.
33.0' - 36.0'	Silty Clay (CL), gray, sand and shell lenses.
36.0' - 39.0'	Silty Sand (SM), gray with sand lenses, herein denoted *Zone "B"*. This zone exists only in the eastern section of the project area.
39.0' - 43.0'	Sandy Clay (SC), gray-green, with sand lenses .

Depth Feet (bls)	Description (continued)
43.0' - 47.0'	Silty Sand (SM), dark gray, clayey with shell fragments, shell reef (3") near base of zone, herein denoted *Zone "C".*
47.0' - 49.0'	Silty Clay (CL), dark gray with shells and shell fragments,
49.0' - 64.0'	Poorly Sorted Sand (SP), dark gray, shell layers and fragments.

Sediments beneath Building 191 were probably deposited in a marine environment within the tidal delta offshore bar area.

3.2 GROUNDWATER FLOW

Additional wells and DPWs were installed at Building 191 during the September 1997 sampling event. The potentiometric elevation on September 3, 1997 in each well is summarized on Table 3-1, and was used to generate the potentiometric contour map presented as Figure 3-4. Because of a significant vertical hydraulic gradient, potentiometric maps were drawn on a layered basis for the following screened intervals:

Top of Zone A

Groundwater flow generally to the west shifting to the southwest along the southern site boundary, with apparent hydraulic loading (mounding) in the northeast, possibly related to leaky water lines; average horizontal hydraulic gradient of 0.029 in the northeast, and 0.0006 elsewhere across the site.

Mid-Zone A

Groundwater flow generally to the west in the northern half, and to the south in the southern half of the site at an average horizontal hydraulic gradient of 0.001.

Base of Zone A

Similar flow pattern to that in Mid-Zone A, with a similar average horizontal hydraulic gradient of 0.001.

Zone C

Groundwater flow to the west with gradually increasing gradient to the east at an average horizontal hydraulic gradient of 0.004.

The vertical potentiometric hydraulic gradient is illustrated in cross section diagrams as Figures 3-5 (east-west) and 3-6 (north-south). The area of mounding at the top of Zone A in the northeast portion of the site (Figure 3-4), combined with an upward vertical hydraulic gradient near DPW1 and DPW3 clusters, results in a lower potentiometric elevation at the Base of Zone A and in Zone B as compared to zones above and below. The vertical gradient flattens and is negligible at the northwest corner of the site. A downward vertical hydraulic gradient of 0.032 was observed to the west and south near clusters DPW8 and DPW7. The vertical gradient exceeded the horizontal gradient in this area.

Results of twinned DPW-conventional wells screened at identical vertical intervals for purposes of the technology evaluation yielded a maximum difference in hydraulic head of 0.03 ft. This data suggests that hydraulic head from the DPWs is representative of actual conditions.

3.3 GROUNDWATER CHEMISTRY

3.3.1 Data Validation

Samples from two sampling events (May and September 1997) were sent to CH_2MHill Analytical Services, Montgomery, Alabama (formerly QAL, Inc.). Groundwater samples were analyzed for Purgeable Halocarbons as per SW-846 Method 8010A-modified. A summary of the laboratory data validation is included in Appendix H1.

The May 1997 samples were shipped as a single batch, and included 17 groundwater samples, two (2) equipment rinsate samples, two (2) field duplicates, and one (1) trip blank. The laboratory package indicated that 4 method blanks were run. All results were determined to be usable, resulting in a completeness of 100%. Chain of custody records were in agreement with laboratory information. Analyses were conducted within method holding times, surrogate recoveries were within method limits, and matrix spike/LCS samples were within required limits. No blank contamination was detected. Documentation necessary to verify initial and continuing calibrations was not available, but the lab package stated that all calibration acceptance criteria were met.

The September 1997 samples were shipped as a single batch, and included 13 groundwater samples, one (1) equipment rinsate sample, one (1) field duplicate, and one (1) trip blank. The laboratory package indicated that 4 method blanks were run. All results were determined to be usable, resulting in a completeness of 100%. Chain of custody records were in agreement with laboratory information. Analyses were conducted within method holding times, surrogate recoveries were within method limits, and matrix spike/LCS samples were within required limits. No blank contamination was detected. Documentation necessary to verify initial and continuing calibrations was not available, but the lab package stated that all calibration acceptance criteria were met.

3.3.2 Summary of Results

A summary of field and laboratory results is included in Table 3-2. Copies of the Laboratory Report are included in Appendix F1. Because of the low concentration and sporadic detection of target analytes, approximate areas of contaminant occurrence in each zone are indicated as hatched zones on Figure 3-7, instead of the more common presentation using isopleth contours. To exhibit the vertical distribution of groundwater impact, laboratory results are presented on cross-section diagrams in Figures 3-8 and 3-9.

Note that the well designations *s,i,d* refer only to the relative screened depth at a particular well cluster, and do not indicate an absolute depth of the screened interval. Because of this, discrete groundwater bearing zones have been designated as *Zone A* through *Zone C* in this report.

In general, the highest concentration (160 to 980 ug/L) of purgeable Halocarbons consisted of Tetrachloroethene (PCE) and Trichloroethene (TCE), detected in one small area north of Building 191 in the twinned wells DPW2d / MW07d, both screened at the base of Zone A. All parameters were non-detect (<1 ug/L) in the mid and upper portion of Zone A at the same location (DPW2s & DPW2d). The compound cis-1,2-Dichloroethene was also detected in the twinned wells DPW2d/MW07d, at concentrations of 75 to 150 ug/L. This compound is frequently cited as a degradation compound of PCE under reducing groundwater conditions, and was also detected at low concentrations (less than 6 ug/L) in DPWs to the west screened at the base of Zone A, and in Zones B and C (Figures 3-1 and 3-3). Other compounds detected at low concentrations (23 ug/L or less), generally to the west and southwest of DPW2d included 1,1-Dichloroethane and 1,1-Dichloroethene.

Another detected compound that appears to be unrelated to those previously cited was Chloroform, sporadically detected at low concentrations (less than 3.1 ug/L) in top- and mid-Zone A at DPW4, and at the base of Zone A at the DPW8 cluster.

Detected analytes were compared to benchmark concentrations, and are presented in Table 3-3. The source of benchmark values is denoted on the table. Three wells (or twinned DPW/well cluster) exhibited groundwater analyte concentrations exceeding benchmark values, as follows:

Well	Compounds Exceeding Benchmark Values
DPW2d / MW7d	Tetrachloroethene
	Trichloroethene
	cis-1,2-Dichloroethene
MW04s	Tetrachloroethene
DPW7d	1,1-Dichloroethene

Results of three sets of twinned DPW-Conventional wells screened at identical vertical intervals were evaluated for the technology demonstration using data from the September 1997 sampling event. In general, results of the DPW samples were approximately 20 - 30 % higher as compared to samples from conventional wells. Results of resampling the same DPW (May - September events) yielded differences of approximately 50%; and results of blind duplicate analysis during the same sampling event of the same DPW yielded an average difference of 22%. The compound cis-1,1-Dichloroethene was not detected in MPT-TC-DPW2d during the May 1997 event, but was detected at 150 ug/L during the September 1997 event. Laboratory variability was clearly higher than the variability between DPWs and conventional wells.

3.4 MEAN GROUNDWATER FLOW VELOCITY

Twinned DPWs/conventional wells in which insitu radial hydraulic conductivity testing was conducted at Building 191 included:

MPT-TC-DPW2d / MPT-TC-MW7d (falling head test vs. rising head test)
MPT-TC-DPW8s / MPT-TC-MW8s (both falling head tests)

The theory of the Bouwer and Rice Method states that falling head data should mirror rising head data in the same well; however, experience of this author suggests that differences may result

from these two methods. Each of these twinned well clusters are screened well below the static water level, and were modeled as partially penetrating wells. Other wells tested included DPW2i, DPW2d, DPW7i, DPW7d, DPW9s, and DPW9i. The drawdown curves (Appendix G1) indicate that the DPW data results in a more linear curve as compared to the conventional wells. Out of 11 DPW tests (multiple tests on some DPW wells), 7 exhibited a single straight line slope, and 4 exhibited double-straight line effects. Of three conventional well tests (multiple tests of MW7D), two exhibited double-straight line effects, and one (MW8S) exhibited triple-straight-line effects.

Publications suggest that late time data be used in slug test evaluation of data exhibiting double-straight line effects, to eliminate potential effects of an overdeveloped well bore skin *(Wellbore Skin Effect in Slug-Test Data Analysis for Low-Permeability Geologic Materials, Yang & Gates, Ground Water, Vol. 35,Number 6, Nov/Dec, 1997)*. Results of data evaluation using both early and late straight line data from Building 191 wells are presented as follows:

Slug Test Results DPW and Conventional Wells	Location	Zone	Hydraulic Conductivity (ft/day)
DPW2s – Test 1 (early/late)	North of 191	Top of Zone A	5.02# / 2.33
DPW2s – Test 2 (linear plot)	North of 191	Top of Zone A	1.89
DPW2i - Test 1 (linear plot)	North of 191	Mid Zone A	27.76
DPW2i – Test 2 (linear plot)	North of 191	Mid Zone A	27.21
DPW2d - Test 1 (early/late)	North of 191	Base Zone A	46.31 / 17.34
DPW2d – Test 2 (early/late)	North of 191	Base Zone A	46.15 / 21.2
MW07D – Test 1 (early/late)*	North of 191	Base Zone A	153.86# / 70.33
MW07D – Test 2 (early/late)*	North of 191	Base Zone A	177.88# / 114.86
DPW7i – (linear plot)	South of 191	Base Zone A	73.39
DPW7d – (linear plot)	South of 191	Zone C	13.98
DPW8s – (early/late)	West of 191	Mid Zone A	39.84 / 13.45
MW08S – (early/middle/late)	West of 191	Mid Zone A	97.73# / 39.34 / 6.79
DPW9s – (linear plot)	North of 191	Base Zone A	10.89
DPW9I – (linear plot)	North of 191	Zone B	1.43

* - Results are for rising head test; all other tests were falling head.
\# - Result is viewed as outlier due to either suspected skin effect, or retesting results.

Results viewed as probable outliers due either to suspected skin effects or to retesting results are not included in hydraulic conductivity evaluation. All other results per screened interval are averaged for purposes of flow velocity evaluation. Reports of previously conducted insitu radial

hydraulic conductivity testing at Building 191 were made available to ICON. The range in hydraulic conductivity in shallow wells screened at zones analogous to the "Top of Zone A" were: (north of Building 191) 1.4 to 11.4 ft/day; and (south of 191) 11.5 – 20.5 ft/day. The wells tested at Building 191 in similarly screened zones include DPW2s (screened 3-8 feet bls) and MW8s/DPW8s (screened at 10 – 15 feet bls), with results of 2.11 ft/day and 24.86 ft/day (average) correlate well to previously reported data.

The average linear velocity in the direction of horizontal groundwater flow can be calculated using an assumed effective porosity of 0.35, the measured horizontal hydraulic gradient, and the average hydraulic conductivity (ft/day) as follows:

$v = (K)(i) / (n)$, where : K (hydraulic conductivity) [ft/day]
i (hydraulic gradient) [ft/ft – dimensionless]
n (porosity) = [dimensionless]

Calculated average linear groundwater flow velocities using the gradient observed on the September 1997 event are as follows:

Wells	Zone	Hydraulic Conductivity (ft/day)	Hydraulic Gradient	Average Linear Groundwater Flow Velocity (ft/year)
DPW2s	Top of Zone A	2.11	0.0011	2.42
DPW2i	Mid Zone A	27.49	0.0018	51.6
DPW2d / MW8s	Base Zone A	52.7	0.0016	87.93
DPW7i	Base Zone A	73.39	0.002	153.1
DPW7d	Zone C	13.98	0.0016	23.3
DPW8s / MW8s	Mid Zone A	24.86	0.0006	15.56
DPW9s	Base Zone A	10.89	0.0011	12.5
DPW9i	Zone B	1.43	0.0015	0.78

These calculations indicate that contaminant transport is expected to be at the fastest rate at the Base of Zone A. The distribution of detected compounds as indicated on Figure 3-7, supports the calculations.

The most ~~probably~~ Probable source of impact to groundwater at Building 191 is landfill debris, believed to be located beneath Building 191. Landfill debris was encountered in borings west of Building 191 (MPT-TC-DPW8 cluster). PCE and TCE were detected in groundwater at the Base of Zone A, and apparent secondary plumes of degradation compounds (1,1-DCA, cis-1,2-DCE) appear to be migrating through advection and dispersion in that zone, and in lower zones (Zone B and Zone C).

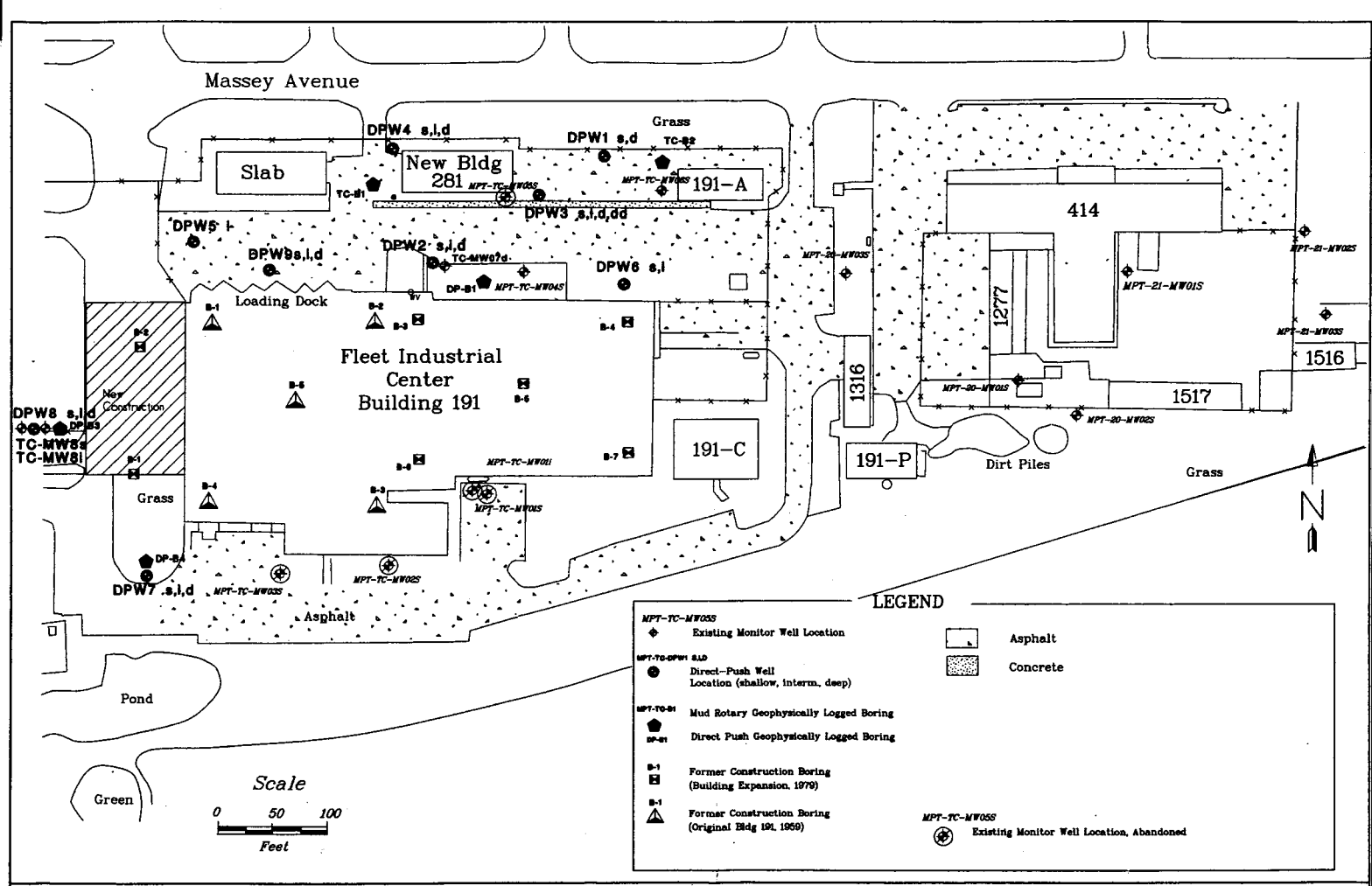

Figure 3-1

BUILDING 191 AREA SITE PLOT PLAN
NAVSTA MAYPORT, FLORIDA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY/METHODOLOGY
NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC)

ICON
ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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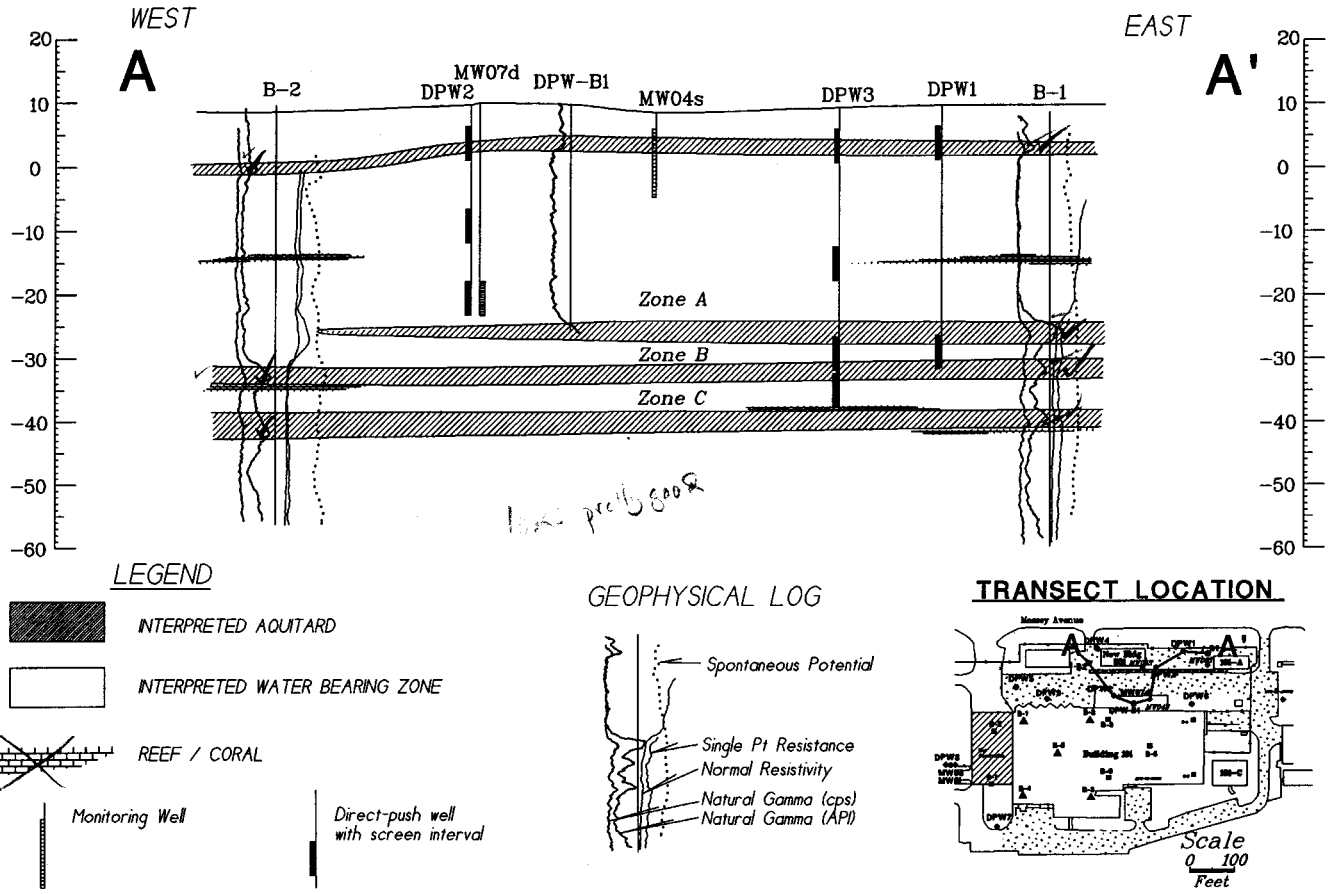

Figure 3-2

EAST-WEST CROSS SECTION DIAGRAM DEPICTING SUBSURFACE GEOLOGY
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON
5437 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
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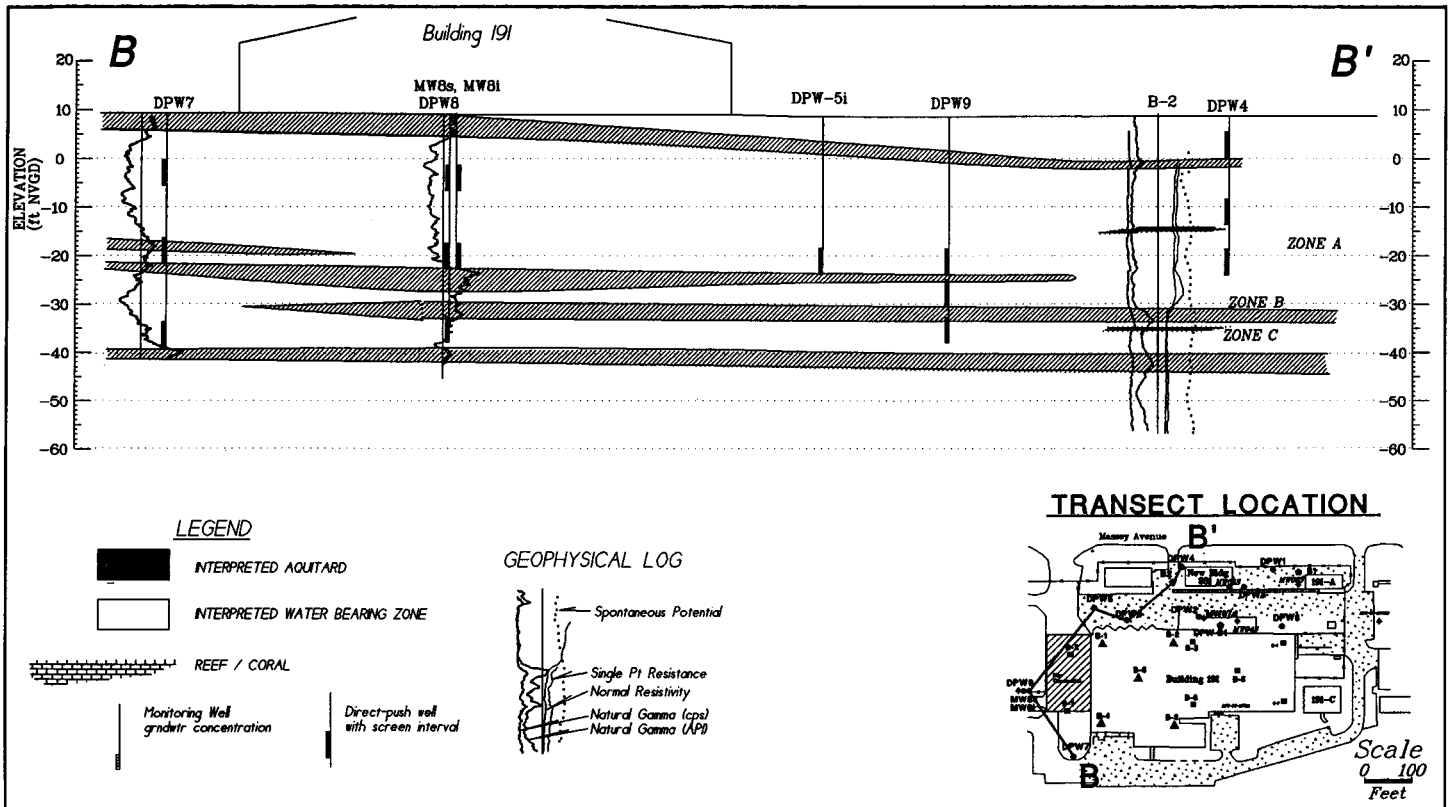

Figure 3-3

NORTH - SOUTH CROSS SECTION DIAGRAM DEPICTING SUBSURFACE GEOLOGY
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON
5437 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
File Directory	
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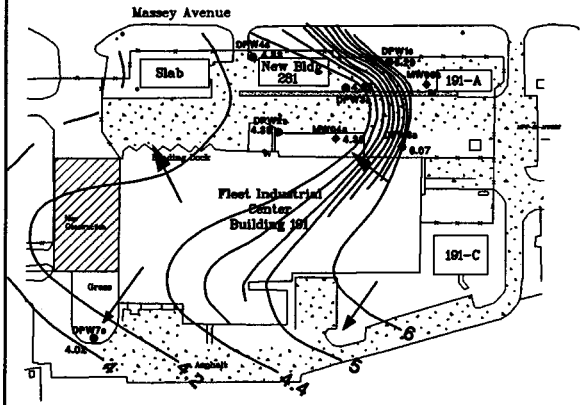
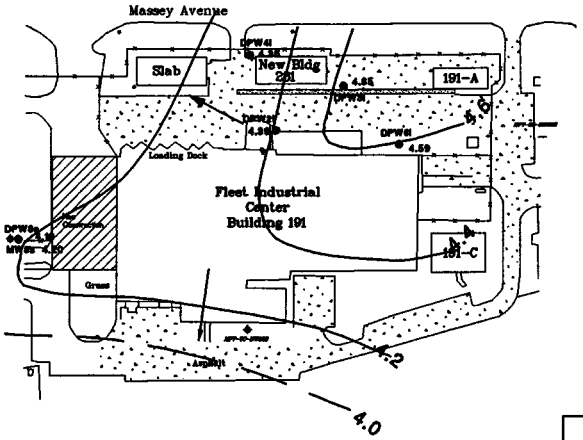
TOP OF FIRST ZONE (TOP OF ZONE "A")



MIDDLE OF FIRST ZONE (MID-ZONE "A")



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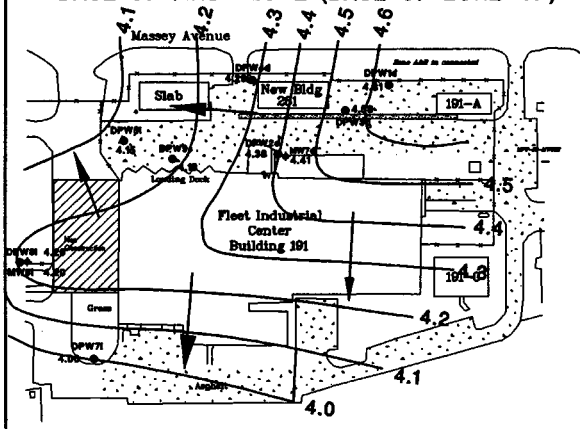
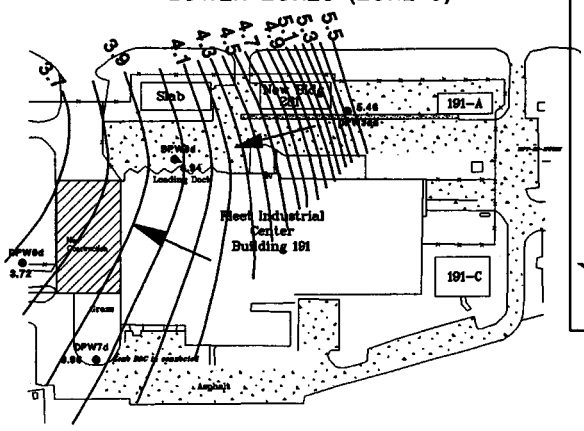


LOWER ZONES (ZONE C)



LEGEND

DPW8d
Direct-Push Well (s.i.d – vert. sequence in the well cluster)

MW08s
Monitor Well Location (s.i.d – vert. sequence in the well cluster)

3.72 Potentiometric Elevation (feet NVGD) – Sept 3, 1997

3.9 Potentiometric Contour (feet NVGD) – Sept 3, 1997

Groundwater Flow Line

Note: only wells screened in respective zone are indicated on Figures

Scale
0 50 100
Feet

N

Figure 3-4
POTENTIOMETRIC CONTOURS, BUILDING 191 AREA, SEPTEMBER 3, 1997
NAVSTA MAYPORT, FLORIDA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY/METHODOLOGY
NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC)

ICON environmental services
6146 Perkins Road Suite 100 Baton Rouge, LA 70808
(504) 769-2073 fax (504) 761-4469

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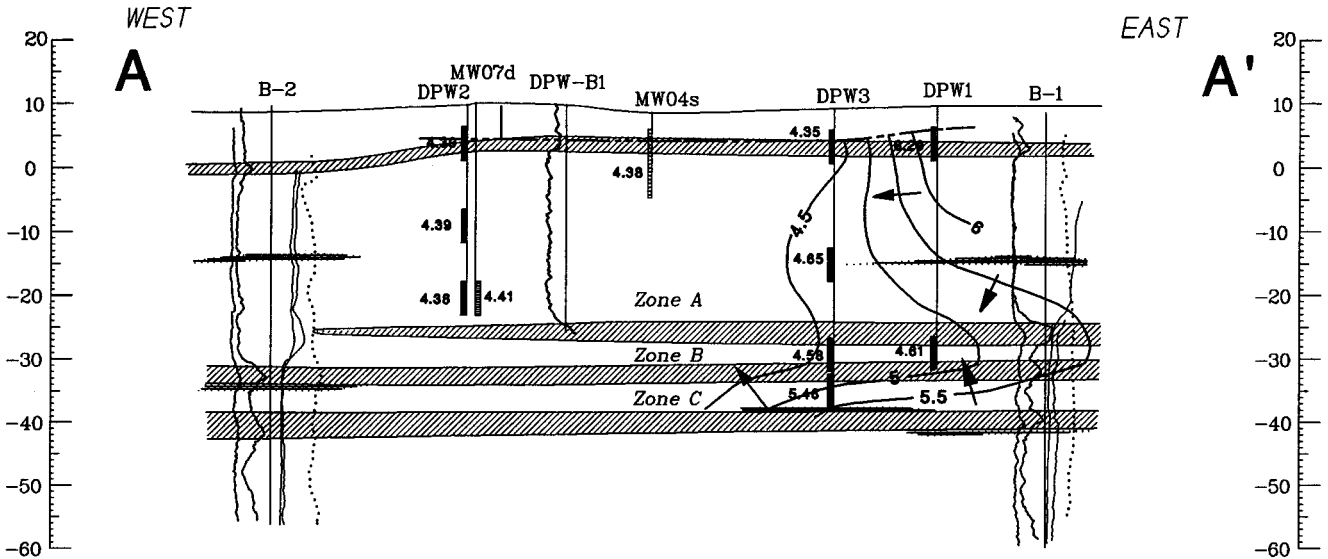


LEGEND

INTERPRETED AQUITARD

INTERPRETED WATER BEARING ZONE

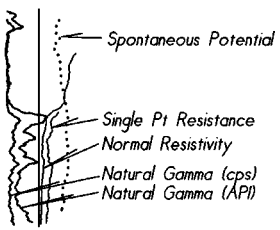
REEF / CORAL

Monitoring Well

Direct-push well with screen interval

4.65 - Potentiometric Elev. (ft msl) Sept 1997

GEOPHYSICAL LOG



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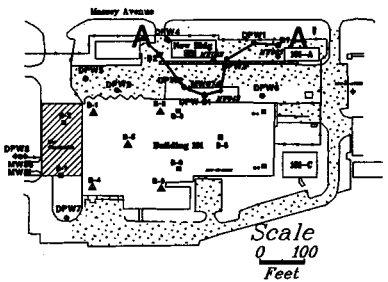

Figure 3-5

EAST-WEST CROSS SECTION DIAGRAM WITH POTENTIOMETRIC CONTOURS - SEPT 1997
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON
5437 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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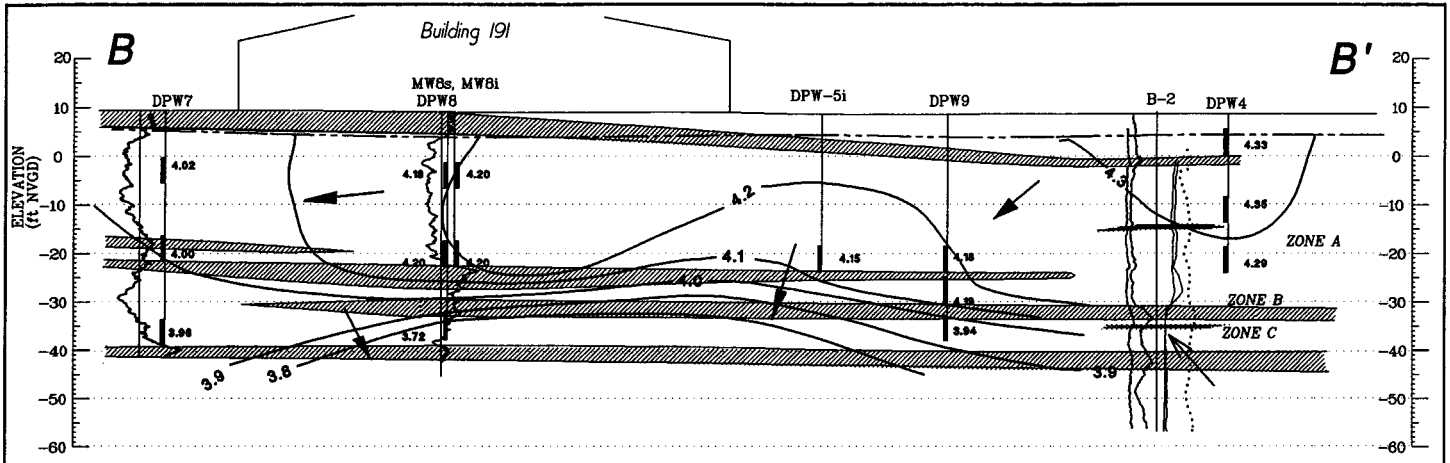
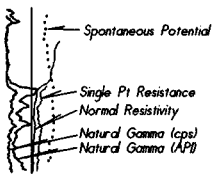


LEGEND

- INTERPRETED AQUITARD
- INTERPRETED WATER BEARING ZONE
- REEF / CORAL
- Monitoring Well grndwtr concentration
- 4.50 - Potentiometric Elev. (ft NVGD) Sept 1997
- Direct-push well with screen interval

GEOPHYSICAL LOG



TRANSECT LOCATION

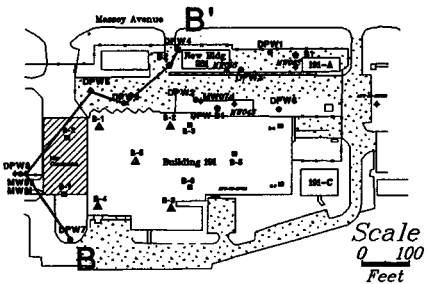


Figure 3-6

NORTH - SOUTH CROSS SECTION DIAGRAM WITH POTENTIOMETRIC CONTOURS - SEPT 1997
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON
5437 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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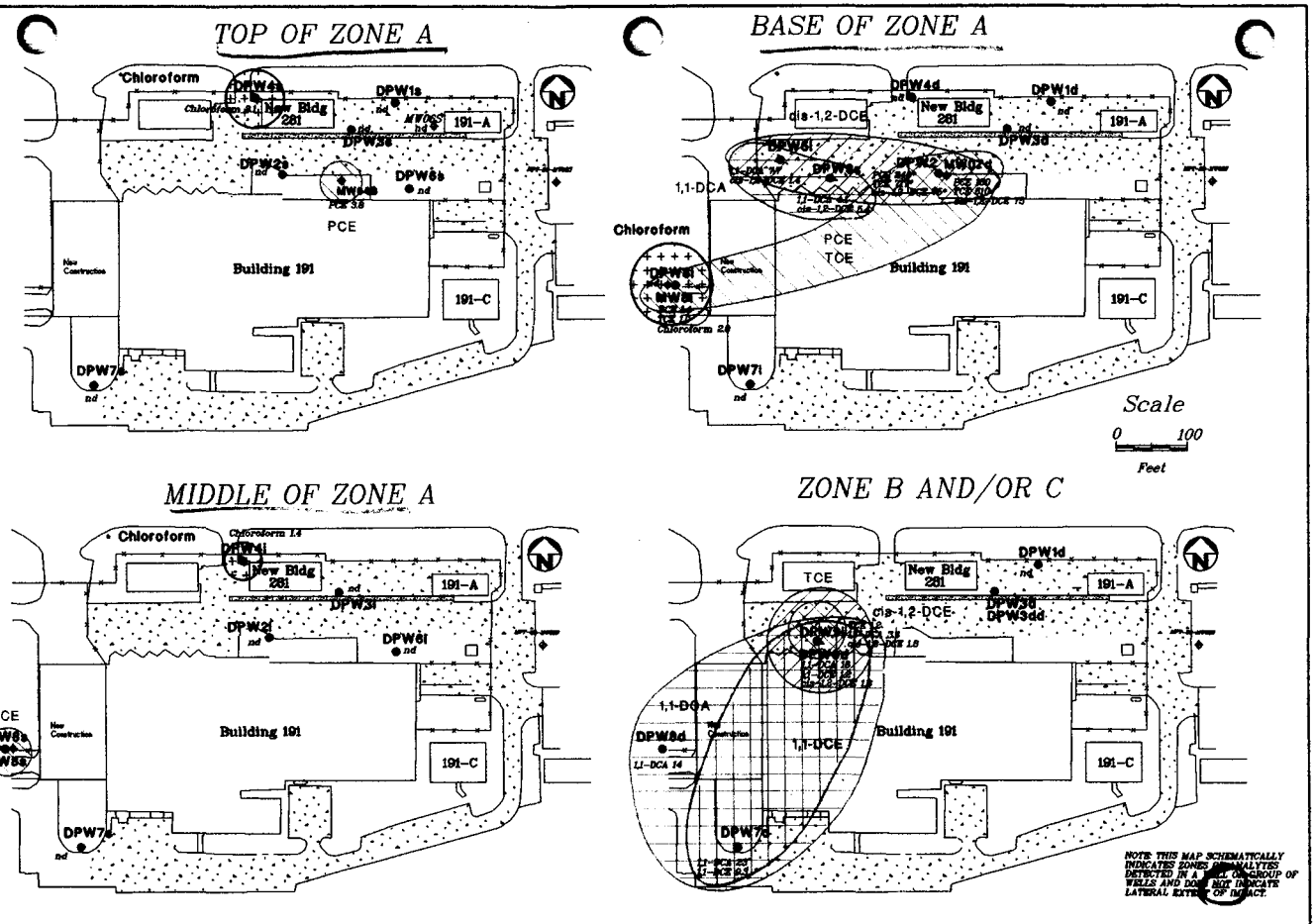
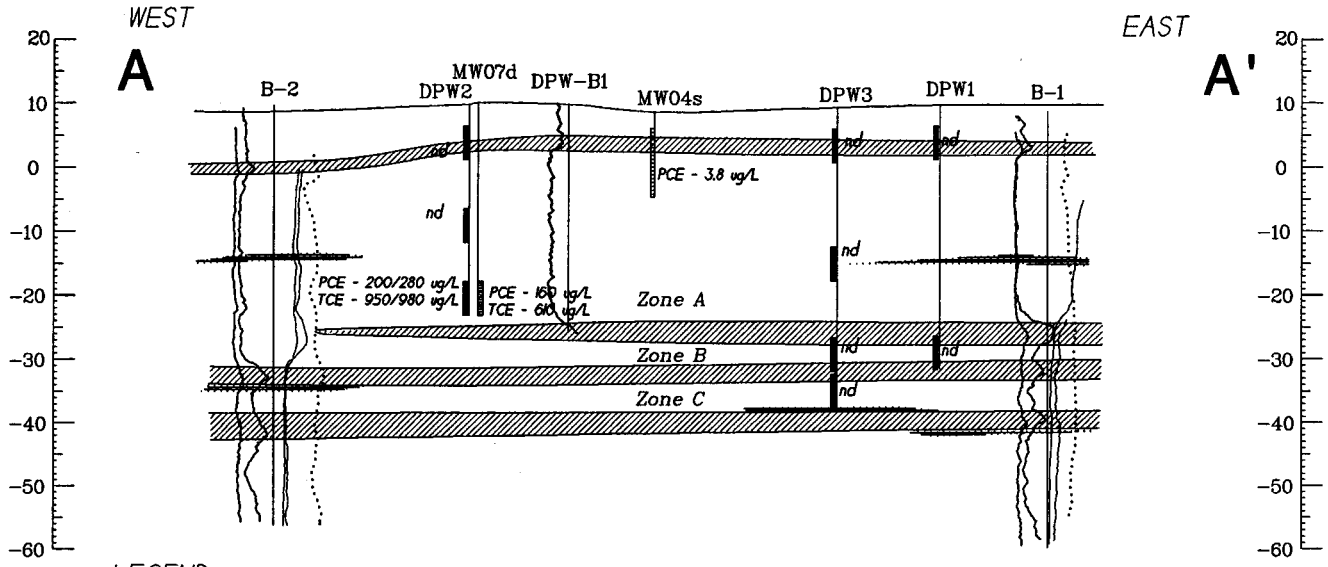


Figure 3-7

BUILDING 191 WELL LOCATIONS WITH ZONES OF DETECTED ANALYTES
NAVSTA MAYPORT, FLORIDA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY/METHODOLOGY
NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC)

ICON
6140 Perkins Road Suite 100 Baton Rouge, LA 70808
(504) 769-2975 fax (504) 761-4469

File Name: 191-pote.ged	Date: January 1997
Project Number: 0052-001-0100	Source: NFESC
Revision Number: 0	Field Measurement
File Directory: data\navy	ICON Env. Svcs.; 1996, 1997
Drawn By: Greg Miller	



LEGEND

INTERPRETED AQUITARD

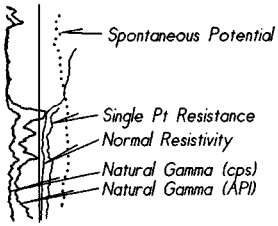
INTERPRETED WATER BEARING ZONE

REEF / CORAL

Monitoring Well
grndwtr concentration
PCE - 3.8 ug/L

Direct-push well
with screen interval

GEOPHYSICAL LOG



TRANSECT LOCATION

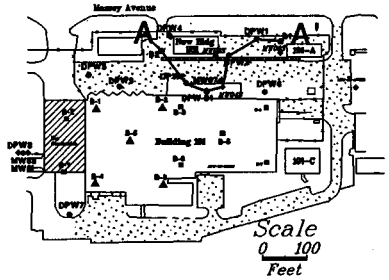


Figure 3-8

EAST-WEST CROSS SECTION DIAGRAM, WITH GROUNDWATER CHLORINATED HALOGEN RESULTS
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1995; 1996
Revision Number	
File Directory	
Drawn By	

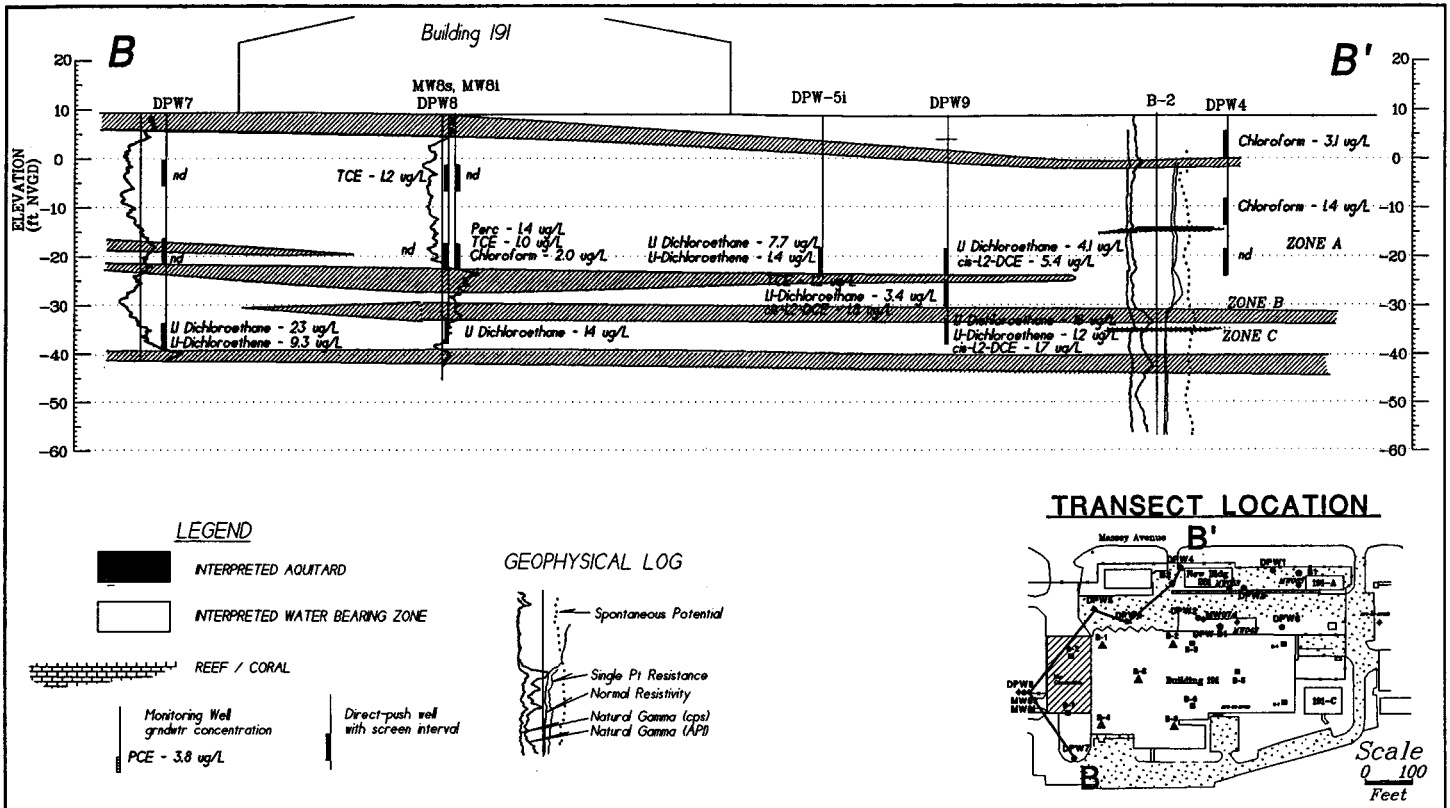


Figure 3-9

NORTH - SOUTH CROSS SECTION DIAGRAM WITH GROUNDWATER CHLORINATED HALOGEN RESULTS
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON
5437 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1995; 1996
Revision Nuber	
File Directory	
Drawn By	

TABLE 3-1
BUILDING 191 HYDRAULIC HEAD DATA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

Well	TOC Elev. (ft NGVD)	Water Bearing Zone	Screened Interval (ft bls)	Screened Interval (ft NGVD)	MAY 9, 1997 Depth to Wtr (ft)	MAY 9, 1997 Wtr Elev. (ft NGVD)	3-Sep-97 Depth to Wtr (ft)	3-Sep-97 Wtr Elev. (ft NGVD)
MPT-TC-DPW1s	9.64	Top-A	3.0 - 8.0	6.64 - 1.64	3.18	6.46	3.35	6.29
MPT-TC-DPW1d	9.65	Base A / B	36.5 - 41.5	-26.85 - -31.85	4.96	4.69	5.04	4.61
MPT-TC-DPW2s	9.75	Top-A	3.0 - 8.0	6.75 - 1.75	5.15	4.60	5.36	4.39
MPT-TC-DPW2i	9.92	Mid-A	17.0 - 22.0	-7.08 - -12.08	5.35	4.57	5.53	4.39
MPT-TC-DPW2d	9.95	Base A	27.0 - 32.0	-17.05 - -22.05	5.43	4.52	5.57	4.38
MPT-TC-MW7d	10.06	Base A	27.0 - 32.0	-16.94 - -21.94	ni		5.65	4.41
MPT-TC-DPW3s	9.09	Top-A	3.0 - 8.0	6.09 - 1.09	3.59	5.50	4.74	4.35
MPT-TC-DPW3i	9.03	Mid-A	22.0 - 27.0	-12.97 - -17.97	4.39	4.64	4.38	4.65
MPT-TC-DPW3d	9.10	Base-A / B	35.5 - 40.5	-26.40 - -31.40	4.57	4.53	4.52	4.58
MPT-TC-DPW3dd	9.10	C	41.5 - 46.5	-32.40 - -37.40	4.97	4.13	3.64	5.46
MPT-TC-DPW4s	8.78	Top-A	3.0 - 8.0	5.78 - 0.78	4.27	4.51	4.45	4.33
MPT-TC-DPW4i	8.75	Mid-A	17.0 - 22.0	-8.25 - -13.25	4.25	4.50	4.40	4.35
MPT-TC-DPW4d	8.65	Base A	27.5 - 32.5	-18.85 - -23.85	4.18	4.47	4.36	4.29
MPT-TC-DPW5i	8.65	Base A	27.0 - 32.0	-18.35 - -23.35	4.37	4.28	4.50	4.15
MPT-TC-DPW6s	9.72	Top A	3.2 - 8.2	6.52 - 1.52	3.55	6.17	3.65	6.07
MPT-TC-DPW6i	9.84	Mid-A	22.0 - 27.0	-12.16 - -17.16	5.13	4.71	5.25	4.59
MPT-TC-DPW7s	9.68	Mid-A	10.0 - 15.0	-0.32 - -5.32	ni		5.66	4.02
MPT-TC-DPW7i	9.82	Base A	26.0 - 31.0	-16.18 - -21.18	ni		5.82	4.00
MPT-TC-DPW7d	9.74	Zone C	43.5 - 48.5	-33.76 - -38.76	ni		5.78	3.96
MPT-TC-DPW8s	8.72	Mid A	10.0 - 15.0	-1.28 - -6.28	ni		4.54	4.18
MPT-TC-MW8s	8.60	Mid-A	10.0 - 15.0	-1.40 - -6.40	ni		4.40	4.20
MPT-TC-DPW8i	8.70	Base A	26.0 - 31.0	-17.30 - -22.30	ni		4.50	4.20
MPT-TC-MW8i	8.65	Base A	26.0 - 31.0	-17.35 - -22.35	ni		4.45	4.20
MPT-TC-DPW8d	8.70	Zone C	41.0 - 46.0	-32.30 - -37.30	ni		4.98	3.72
MPT-TC-DPW9s	8.26	Base A	26.5 - 31.5	-18.24 - -23.24	ni		4.08	4.18
MPT-TC-DPW9i	8.27	Zone B	33.0 - 38.0	-24.73 - -29.73	ni		4.08	4.19
MPT-TC-DPW9d	8.32	Zone C	41.0 - 46.0	-32.68 - -37.68	ni		4.38	3.94
MPT-20-MW3s	12.01	Top-A	6.0 - 16.0	6.01 - -3.99	3.63	8.38	nm	
MPT-TC-MW4s	8.68	Top-A	5.0 - 15.0	3.68 - -6.32	4.12	4.56	4.30	4.38
MPT-TC-MW6s	9.84	Top-A	4.5 - 9.5	5.34 - 0.34	3.98	5.86	nm	
MPT-TC-MW8i	8.65	Base A	26.0 - 31.0	-17.35 - -22.35	ni		4.45	4.20

ni - not installed
nm - not measured

TABLE 3-2
NAVSTA MAYPORT, FLORIDA
BUILDING 191 AREA
SAMPLING SUMMARY - DETECTED COMPOUNDS

	MW04s	MW06s	DPW1s	DPW1d	DPW2s	DPW2i	DPW2d	DPW2d	MW07d	DPW3s	DPW3i	DPW3d	DPW3dd
Sample Date	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	9/3/97	9/3/97	5/9/97	5/9/97	5/9/97	5/9/97
Screen Depth (ft bls)													
top	3	2.5	3	36.5	3	17	27	27	27	3	22	35.5	41.5
bottom	13	12.5	8	41.5	8	22	32	32	32	8	27	40.5	46.5
Zone	Top-A	Top-A	Top-A	Zone B	Top-A	Mid-A	Base-A	Base-A	Base-A	Top-A	Mid-A	Zone B	Zone C
Depth to Wtr (5/8/97)	4.12	3.98	3.09	4.88	5.14	5.37	5.38	5.57	5.65	3.37	4.35	4.65	5.38
Develop Volume (gal)	n/a	n/a	7.5	9.3	5	13	13	n/a	110	3.8	4	8.3	7
Purge Volume (gal)	4.2	3.3	0.5	1.8	1.5	1.3	1.4	3	2.7	1.8	1.75	2.8	31
Field Turbidity (ntu)	11.7	2.5	2.1	5	4.2	10.1	3	5	2	1.9	2.9	9.5	2.5
Field PH (std units)	7	7.3	7.8	7.7	7.2	7.8	7.5	7.2	7.1	7.2	7.4	7.5	7.1
Field Cond (uS/cm)	300	500	600	1,800	400	300	700	655	618	600	600	7100	15,400
Field Appearance	Initial Biosolids	red bacteria	clear	clear, slight H_2S odor	clear	clear	clear w/ sl gry color	clear	clear	clear	clear w/ sl gry color	clear	clear
Tetrachloroethene (ug/L)	**3.8**	< 1	< 1	< 1	< 1	< 1	**240**	**200 / 280**	**160**	< 1	< 1	< 1	< 1
Trichloroethene (ug/L)	< 1	< 1	< 1	< 1	< 1	< 1	**470**	**950 / 980**	**610**	< 1	< 1	< 1	< 1
Chloroform (ug/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**150 / 150**	**75**	< 1	< 1	< 1	< 1

2.9/2.9 - denotes sample and blind duplicate result
< 0.6 - less than limit of quantification

TABLE 3-2
NAVSTA MAYPORT, FLORIDA
BUILDING 191 AREA
SAMPLING SUMMARY - DETECTED COMPOUNDS

	DPW4s	DPW4i	DPW4d	DPW5i	DPW6s	DPW6i	DPW7s	DPW7i	DPW7d
Sample Date	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97
Screen Depth (ft bls)									
top	3	17	27.5	27	3.2	22	10	26	43.5
bottom	8	22	32.5	32	8.2	27	15	31	48.5
Zone	Top-A	Mid-A	Base-A	Base-A	Top-A	Mid-A	Mid-A	Base-A	Zone C
Depth to Wtr (ft fm TOC)	4.21	4.19	4.2	4.37	3.53	5.08	5.66	5.82	5.78
Develop Volume (gal)	7.8	8	8.5	13	2.4	5.7	3.5	7	5
Purge Volume (gal)	2.2	1.2	1.7	2.7	1.5	2	3.1	3.3	3.1
Field Turbidity (ntu)	17	4.1	4.2	22	2.2	2.6	9	18	5
Field PH (std units)	7.8	8	7.6	7.4	7.5	7.6	7.5	8.7	7
Field Cond (uS/cm)	200	600	600	700	700	600	420	350	1151
Field Appearance	clear sl gry color	clear	clear	sl turbid, milky white	clear	clear	clear sl yellow	clear sl yellow	clear H_2S odor
Tetrachloroethene (ug/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trichloroethene (ug/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Chloroform (ug/L)	**3.1**	**1.4**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-Dichloroethane (ug/L)	< 1	< 1	< 1	**7.7**	< 1	< 1	< 1	< 1	**23**
1,1-Dichloroethene (ug/L)	< 1	< 1	< 1	**1.4**	< 1	< 1	< 1	< 1	**9.3**
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

2.9/2.9 - denotes sample and blind duplicate result
< 0.6 - less than limit of quantification

TABLE 3-2
NAVSTA MAYPORT, FLORIDA
BUILDING 191 AREA
SAMPLING SUMMARY - DETECTED COMPOUNDS

	DPW8s	MW08s	DPW8i	MW08i	DPW8d	DPW9s	DPW9i	DPW9d
Sample Date	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97	5/9/97
Screen Depth (ft bls)								
top	10	10	26	26	41	26.5	33	41
bottom	15	15	31	31	46	31.5	38	46
Zone	Mid-A	Mid-A	Base-A	Base-A	Zone C	Base-A	Zone B	Zone C
Depth to Wtr (ft fm TOC)	4.54	4.4	4.5	4.45	4.98	4.08	4.08	4.38
Develop Volume (gal)	6	45	8.5	80	8.9	9	4.5	6.5
Purge Volume (gal)	2.8	2.9	3.3	3.5	3.3	5	4	3.2
Field Turbidity (ntu)	2	2.9	5	5	10	41	25	7
Field PH (std units)	7.2	7	7.1	7.4	7.2	7.5	7.3	7.6
Field Cond (uS/cm)	501	536	595	629	5,550	659	4,990	3,610
Field Appearance	clear	clear, sl yellow	clear	clear	clear	white milky turbidity	yellow	clear
Tetrachloroethene (ug/L)	< 1	< 1	< 1	**1.4**	< 1	< 1	< 1	< 1
Trichloroethene (ug/L)	**1.2**	< 1	< 1	**1.0**	< 1	< 1	**1.2**	< 1
Chloroform (ug/L)	< 1	< 1	< 1	**2.0**	< 1	< 1	< 1	
1,1-Dichloroethane (ug/L)	< 1	< 1	< 1	< 1	**14**	**4.1**	**3.4**	**18**
1,1-Dichloroethene (ug/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**1.2**
cis-1,2-Dichloroethene	< 1	< 1	< 1	< 1	< 1	**5.4**	**1.8**	**1.7**

2.9/2.9 - denotes sample and blind duplicate result
< 0.6 - less than limit of quantification

TABLE 3-3
GROUNDWATER SUMMARY STATISTICS AND BENCHMARK VALUE COMPARISONS
BUILDING 191, NAVSTA MAYPORT, FLORIDA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY

Parameter	Frequency of Detection[1]	Concentration Range in Detected Samples	Water Quality Criteria (ug/L)	Source[2]	Number of Wells Exceeding Benchmark Concentrations	Identification of Well with Exceedances
Tetrachloroethene (ug/L)	3 / 26	1.4 - 280	3	FDER	2	DPW2d/MW7d [*160 to 280 ug/L*] MW04s [*3.8 ug/L*]
Trichloroethene (ug/L)	4 / 26	1.0 - 980	3	FDER	1	DPW2d/MW7d [*470 - 980 ug/L*]
Chloroform (ug/L)	3 / 26	1.4 - 2.0	none	FDER[3]	n/a	
1,1-Dichloroethane	6 / 26	3.4 - 23	none	FDER[3]	n/a	
1,1-Dichloroethene	3 / 26	1.2 - 9.3	7	FDER/MC	1	DPW7d *[9.3 ug/L]*
cis-1,2-Dichloroethene	4 / 26	1.7 - 150	70	FDER/MC	1	DPW2d/MW7d *[75 - 150 ug/L]*

1 - Frequency of detection is the number of wells in which the analyte was detected divided by the total number of wells sampled; the arithmetic average of duplicate samples was used as one value; results of twinned DPW/MW well results were evaluated as a single well because the twinned wells are both representative of water quality at one location.

2 - MCL (EPA maximum contaminant level) and/or FDER (Florida Department of Environmental Protection, Groundwater Guidance Concentrations, 1997).

3 - No current criteria; listed as a Group II contaminant requiring monitoring

n/a - not applicable

5.0 SUMMARY

5.1 BUILDING 191

Existing monitoring wells were screened within 15 feet below land surface (bls), and historically yielded groundwater samples exhibiting Tetrachloroethene (PCE) and Trichloroethene (TCE) on the north side of Building 191. Bromodichloromethane and chloroform were detected in one well on the south side of the building. One previous well (MW5s) was destroyed during recent construction activities. Two wells remained for sampling during this project.

ICON installed 24 direct-push wells (DPWs) using innovative technology in May and September 1997. ICON also installed three conventional wells, all twinned to adjacent DPWs to evaluate the technology. Geology was characterized using the log of boring of conventional wells, and by geophysically logging two open-hole borings and three direct-push borings (through pipe). Groundwater was sampled from all DPWs and conventional wells. All wells were surveyed, and depth to water measurements were obtained to determine groundwater flow direction.

The geophysical and core logs indicated three distinctive water-bearing zones within 50 feet bls, denoted in this report as *Zone A* (0 – 33 ft bls), *Zone B* (36 – 39 feet bls), and *Zone C* (43 – 47 feet bls). The zones are separated by silty or sandy clay. Groundwater in Zones A and B generally flows to the west north of Building 191, and to the southwest south of Building 191. Groundwater in Zone C flows to the west. An upward vertical hydraulic gradient was observed in the northeast corner of the site, and a net downward vertical gradient elsewhere. The following compounds were detected in groundwater from the site:

Top of Zone A	Chloroform **PCE**	No published benchmark level. Slightly above benchmark levels.
Middle of Zone A	Chloroform, TCE	Both below benchmark levels.
Base of Zone A	**TCE, PCE, cis-1,2-Dichloroethene** 1,1-Dichloroethane	All above benchmark levels. No published benchmark level.
Zone B	TCE, cis-1,2-Dichloroethene 1,1-Dichloroethane	Both below benchmark levels. No published benchmark level.
Zone C	**1,1-Dichloroethene** 1,1-Dichloroethane cis-1,2-Dichloroethene	Above benchmark level. No published benchmark level. Below benchmark level.

Hydraulic conductivity tests were conducted in selected DPWs and conventional wells. The calculated mean groundwater flow velocity averaged 2.42 feet/year (ft/yr) at the top of Zone A, 84.5 ft/yr at the Base of Zone A, and 23 ft/yr in Zone C. The source of groundwater impact is believed to be a former landfill reportedly beneath the Building 191 foundation.

5.2 SWMU 15

Five existing monitoring wells are screened within 18 feet below land surface (bls); one well is screened from 25 – 30 feet bls. Historically, groundwater samples from some of these wells exhibited Arsenic and beta-BHC at levels above background benchmark screening values. All six wells remained onsite for verification sampling during this study.

ICON installed 18 direct-push wells (DPWs) using innovative technology in May and September 1997. ICON also installed three conventional wells; one was twinned to an adjacent DPW to evaluate the technology. Geology was characterized using the log of boring of conventional wells; and by geophysically logging two open-hole borings, one direct push (through pipe) boring, and several of the existing wells. Groundwater was sampled from all DPWs and conventional wells. All wells were surveyed, and depth to water measurements were obtained to determine groundwater flow direction.

The geophysical and core logs indicated three water-bearing zones within 36 feet bls, within silty clay/silty sand sequences. Some organics and peat layers were observed in this interval. Below 36 feet bls, lithology changed becoming predominantly sand with some clay layers to the north, and silty sand/clay sequences to the south. Groundwater in the upper two zones (within 15 feet bls) flowed to the northwest, and to the southwest in the southern half of the site. Groundwater flow patterns in the deeper zones (22 – 32 feet bls) was characterized by a north-south trending elongate mound with flow to the east and west. A substantial downward vertical hydraulic gradient was observed throughout the site.

Pesticides were detected in two conventional wells. The pesticide beta-BHC was detected in MW4s and MW6s, at concentrations below benchmark screening levels. Additionally, heptachlor epoxide and 4,4'-DDE were detected in MW6s at concentrations below benchmark screening levels. Arsenic was detected in 18 wells at the site; arsenic concentrations from MW4s and MW6s exceeded benchmark screening levels.

Hydraulic conductivity tests were conducted in selected DPWs and conventional wells. Historical data was available for the existing wells. The calculated mean groundwater flow velocity averaged 27.5 feet/year (ft/yr) in shallow groundwater bearing intervals, and 32.4 ft/yr in deeper intervals (correlating to the intermediate zone in previously published studies.

Groundwater impact at this site is believed to originate from a surficial source near wells MW4s and MW6s, near the former location of the pesticide and equipment storage building, now decommissioned.

Appendix A

Geophysical Logs and Log of Boring Diagrams

BOREHOLE GEOPHYSICAL LOG

ICON ENVIRONMENTAL SERVICES

ICON Environmental Services, Inc.
5637 Superior Drive, Baton Rouge, Louisiana 70816
(504) 291-9499

DATE: 5/1/97

COMPANY: U.S. Navy
HOLE NO.: MPT-TC-B1
AREA: Building 191
CITY: Mayport STATE: Florida
SECTION: TOWNSHIP: RANGE: LOG MEASURED FROM:

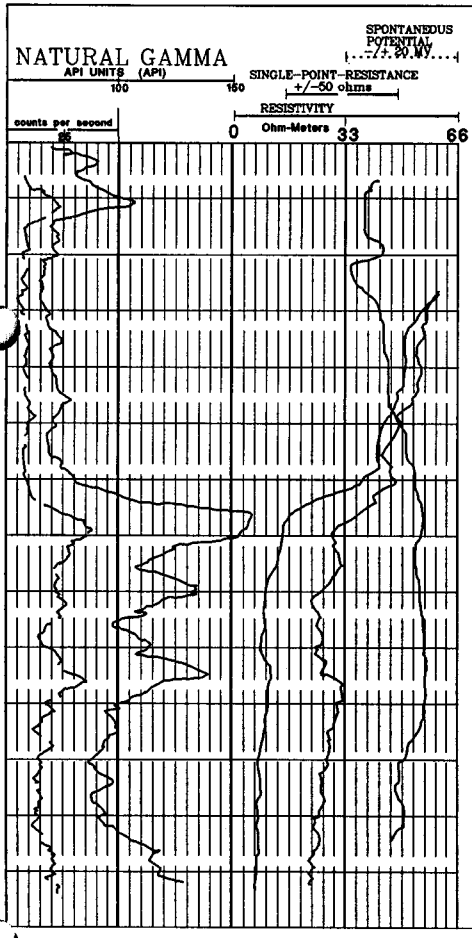
INITIAL RUN	RERUNS
T.D. LOGGED: 67 FT.	T.D. LOGGED: 67 FT.
PROBE TYPE/SER. NO.: Gamma (API), resistivity (S inch)	PROBE TYPE/SER. NO.: Gamma (cps), sp, resistance, /1
LOGGING SPEED: 12 FT/MIN.	LOGGING SPEED: 12 FT/MIN.
GAMMA-SCALE: As indicated below CPS/IN	GAMMA-SCALE: CPS/IN
TIME CONSTANT: 2 SEC.	TIME CONSTANT: 2 SEC.
RESISTIVITY (FULL SCALE)	RESISTANCE (FULL SCALE) OHMS

WELL DATA

T.D. Logged: FT.
T.D. Drilled: 68 FT.
Driller: Layne Environmental
Bit Size: 4"
Type Fluid in Hole: Groundwater
Casing Size:
Fluid Level: Grade FT.
Bottom Hole Temp. °F
Resistivity: OHM-M
Density:
Viscosity: Temp. °F
OTHER SERVICES / REMARKS:

LOG TIME: Start Stop Minutes Total

Witnessed By: Robert Stiles



LOG OF BORING DIAGRAM

Lithology Interpretation	SOIL PROFILE	Depth (Ft)	Standard Penetration Test Blows\Foot	Percent Recovery	Sample Type & Location
POORLY SORTED SAND (SP) dark gray		2	21	90	
		4	15	80	
		6	5	20	
		8	2	50	
		10	9	90	
		12	21	60	
peat layer		14	21	50	
		16	29	65	
		18	36	65	
		20	40	70	
		22			
reef at 24'		24	~~31~~	~~100~~	
		26			
		28			
		30	38	65	
		32			
SILTY CLAY (CL) gray with sand and shell lenses, reef		34	>50	~~100~~	
		36			
SILTY SAND (SM) gray, sand lenses		38			
		40	18	70	
SANDY CLAY (SC) gray-green		42			
SILTY SAND (SM) dark gray clayey shell fragments		44	~~13~~	~~60~~	
		46			
SILTY CLAY (CL) shells		48			
		50	28	80	
POORLY SORTED SAND (SP) dark gray shell layers and fragments		52			
		54		~~N/R~~	
		56			
		58			
		60	17	70	
		62			
		64		~~20~~	
		66			
		68			

LOG OF BORING DIAGRAM
B-1

LEGEND

Shelby Tube

Split Spoon

BOREHOLE GEOPHYSICAL LOG

ICON ENVIRONMENTAL SERVICES

ICON Environmental Services, Inc.
5637 Superior Drive, Baton Rouge, Louisiana 70816
(504) 291-9499

DATE: 5/2/97

COMPANY: DEPARTMENT OF THE NAVY
HOLE NO: MPT-TC-B2
AREA: Building 191
CITY: Mayport STATE: Florida
SECTION: TOWNSHIP: RANGE: LOG MEASURED FROM:

INITIAL RUN

T.D. LOGGED:	67 FT.
PROBE TYPE/SER. NO.:	Gamma (API), resistivity (6 inch)
LOGGING SPEED:	12 FT/MIN.
GAMMA-SCALE	As indicated below CPS/IN
TIME CONSTANT:	2 SEC.
RESISTIVITY (FULL SCALE)	

RERUNS

T.D. LOGGED:	67 FT.
PROBE TYPE/SER. NO.:	Gamma (cps), SP, resistance, /1
LOGGING SPEED:	12 FT/MIN.
GAMMA-SCALE:	CPS/IN
TIME CONSTANT:	2 SEC.
RESISTANCE (FULL SCALE)	OHMS

WELL DATA

T.D. Logged:	FT.
Driller:	Layne Environmental
Type Fluid in Hole:	Groundwater
Fluid Level:	Grade FT.
Resistivity:	OHM-M
Density:	
Viscosity:	Temp. °F
OTHER SERVICES / REMARKS:	
T.D. Drilled:	68 FT.
Bit Size:	4"
Casing Size:	
Bottom Hole Temp.:	°F

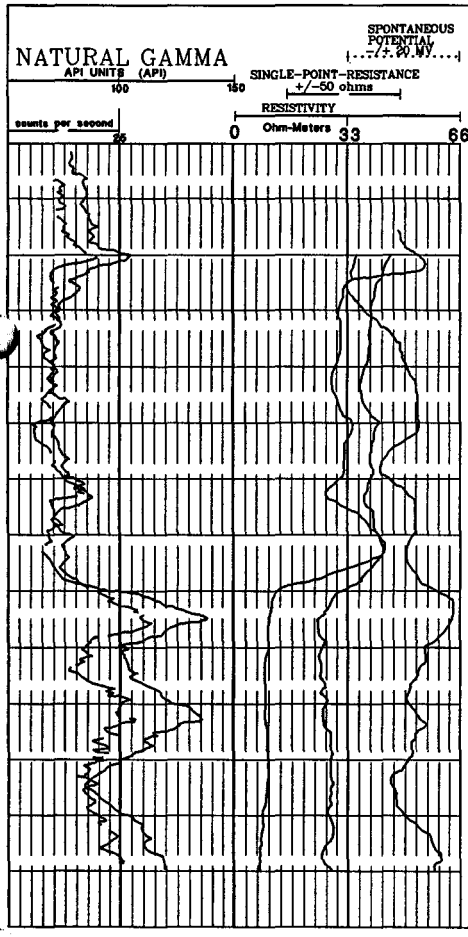
LOG TIME

Minutes

Start: Stop: Total:

Witnessed By: Robert Stiles

LOG OF BORING DIAGRAM



Lithology Interpretation	SOIL PROFILE	Depth (Ft)	Standard Penetration Test Blows\Foot	Percent Recovery	Sample Type & Location
POORLY SORTED SAND (SP)		2			
		4			
		6			
		8			
CLAYEY		10			
peat layer		12			
		14			
		16			
		18			
		20			
		22			
reef		24			
		26			
		28			
		30			
CLAYEY		32			
		34			
		36			
		38			
		40			
SANDY CLAY (SC)		42			
		44			
SILTY SAND (SM) dark gray		46			
reef		48			
SILTY CLAY (CL) shells		50			
		52			
POORLY SORTED SAND (SP)		54			
		56			
		58			
		60			
		62			
		64			
		66			
		68			

LOG OF BORING DIAGRAM
B-2

LEGEND

Shelby Tube

Split Spoon

BOREHOLE GEOPHYSICAL LOG

ICON ENVIRONMENTAL SERVICES

ICON Environmental Services, Inc.
5637 Superior Drive, Baton Rouge, Louisiana 70816
(504) 291-9499

DATE: 8/26/97

COMPANY: U.S. Navy
HOLE NO.: MPT-TC-DPB1
AREA: Building 191
CITY: Mayport STATE: Florida
SECTION: TOWNSHIP: RANGE: LOG MEASURED FROM:

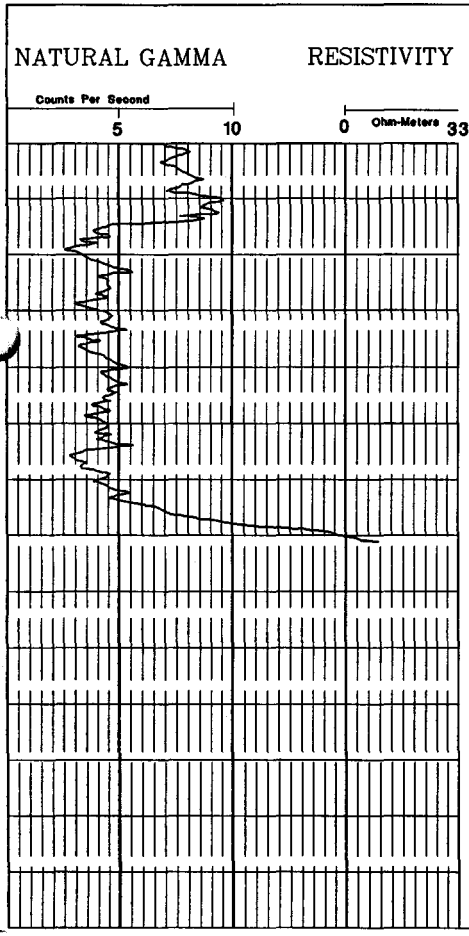
INITIAL RUN		RERUNS	
T.D. LOGGED:	31 FT.	T.D. LOGGED:	FT.
PROBE TYPE/SER. NO.:	gm-1	PROBE TYPE/SER. NO.:	
LOGGING SPEED:	8 FT/MIN.	LOGGING SPEED:	FT/MIN.
GAMMA-SCALE:	5 CPS/IN	GAMMA-SCALE:	CPS/IN
TIME CONSTANT:	8 SEC.	TIME CONSTANT:	SEC.
RESISTIVITY (FULL SCALE)		RESISTANCE (FULL SCALE)	OHMS

WELL DATA

T.D. Logged	FT.	T.D. Drilled	110 FT.
Driller		Bit Size	4"
Type Fluid in Hole		Casing Size	
Fluid Level	FT.	Bottom Hole Temp.	°F
Resistivity	OHM-M	LOG TIME	
Density		Start	Stop Minutes Total
Viscosity	Temp. °F	Witnessed By:	

OTHER SERVICES / REMARKS:

LOG OF BORING DIAGRAM



Lithology Interpretation	SOIL PROFILE	Depth (Ft)	Standard Penetration Test Blows\Foot	Percent Recovery	Sample Type & Location
Silty Sand (SM)		2			
		4			
Silty Clay (CL)		6			
		8			
Poorly Sorted Sand (SP)		10			
		12			
		14			
		16			
		18			
		20			
		22			
		24			
		26			
		28			
		30			
		32			
Silty Clay (CL)		34			
		36			
		38			
		40			
		42			
		44			
		46			
		48			
		50			
		52			
		54			
		56			
		58			
		60			
		62			
		64			
		66			
		68			

LOG OF BORING DIAGRAM
DPB-1

LEGEND

Shelby Tube

Split Spoon

BOREHOLE GEOPHYSICAL LOG

ICON ENVIRONMENTAL SERVICES

ICON Environmental Services, Inc.
5637 Superior Drive, Baton Rouge, Louisiana 70816
(504) 291-9499

DATE: 8/26/97

COMPANY: U.S. Navy
HOLE NO.: MPT-TC-DPB2
AREA: Building 191
CITY: Mayport
STATE: Florida
SECTION: TOWNSHIP: RANGE: LOG MEASURED FROM:

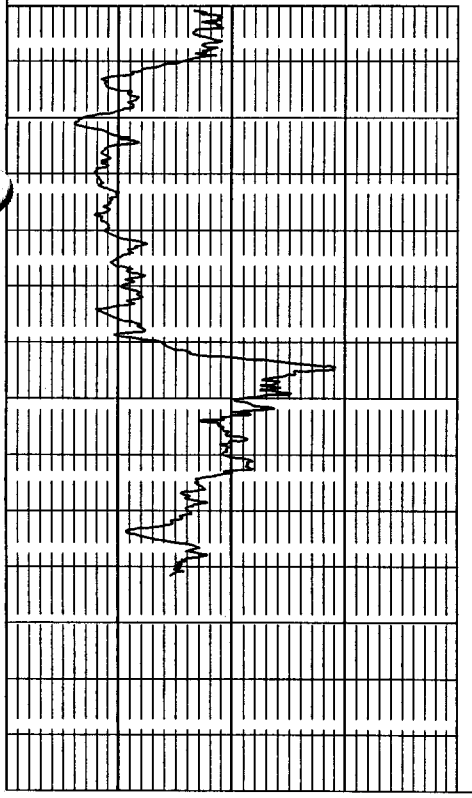
INITIAL RUN		RERUNS	
T.D. LOGGED:	31 FT.	T.D. LOGGED:	FT.
PROBE TYPE/SER. NO.:	gm-1	PROBE TYPE/SER. NO.:	
LOGGING SPEED:	8 FT/MIN.	LOGGING SPEED:	FT/MIN.
GAMMA-SCALE:	5 CPS/IN	GAMMA-SCALE:	CPS/IN
TIME CONSTANT:	8 SEC.	TIME CONSTANT:	SEC.
RESISTIVITY (FULL SCALE)		RESISTANCE (FULL SCALE)	OHMS

WELL DATA

T.D. Logged	FT.	T.D. Drilled	110 FT.
Driller		Bit Size	4"
Type Fluid in Hole		Casing Size	
Fluid Level	FT.	Bottom Hole Temp.	°F
Resistivity	OHM-M	LOG TIME	
Density		Start / Stop / Total	Minutes
Viscosity / Temp.	°F	Witnessed By:	

OTHER SERVICES / REMARKS:

LOG OF BORING DIAGRAM



Depth (ft bls)

0, 10, 20, 30, 40, 50, 60

Lithology Interpretation	SOIL PROFILE	Depth (Ft)	Standard Penetration Test Blows\Foot	Percent Recovery	Sample Type & Location
Silty Clay (CL)		2, 4			
Poorly Sorted Sand (SP)		6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30			
Silty Clay (CL)		32, 34			
Silty Sand (SM)		36, 38			
Silty Clay (CL)		40, 42			
Silty Sand (SM)		44, 46, 48			
Silty Clay (CL)		50, 52, 54, 56, 58, 60, 62, 64, 66, 68			

LOG OF BORING DIAGRAM
DPB-2

LEGEND

Shelby Tube

Split Spoon

BOREHOLE GEOPHYSICAL LOG

ICON ENVIRONMENTAL SERVICES

ICON Environmental Services, Inc.
5637 Superior Drive, Baton Rouge, Louisiana 70816
(504) 291-9499

DATE: 8/26/97

COMPANY: U.S. Navy
HOLE NO.: MPT-TC-DPB3
AREA: Building 191
CITY: Mayport STATE: Florida
SECTION: TOWNSHIP: RANGE: LOG MEASURED FROM:

INITIAL RUN

T.D. LOGGED: 31 FT.
PROBE TYPE/SER. NO.: gm-1
LOGGING SPEED: 8 FT/MIN.
GAMMA-SCALE: 5 CPS/IN
TIME CONSTANT: 8 SEC.
RESISTIVITY (FULL SCALE)

RERUNS

T.D. LOGGED: FT.
PROBE TYPE/SER. NO.:
LOGGING SPEED: FT/MIN.
GAMMA-SCALE: CPS/IN
TIME CONSTANT: SEC.
RESISTANCE (FULL SCALE) OHMS

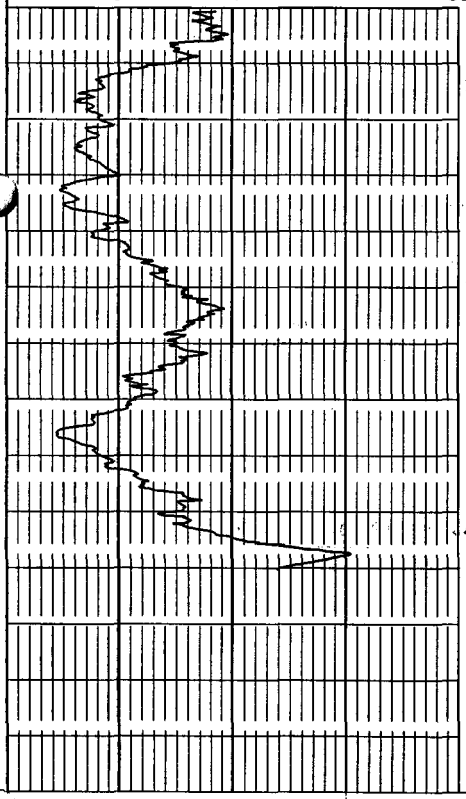
WELL DATA

T.D. Logged FT.
T.D. Drilled 110 FT.
Driller
Bit Size 4"
Type Fluid in Hole
Casing Size
Fluid Level FT.
Bottom Hole Temp. °F
Resistivity OHM-M
Density
Viscosity Temp. °F
OTHER SERVICES / REMARKS:

LOG TIME

Minutes
Start Run Total
Witnessed By:

LOG OF BORING DIAGRAM



Depth (ft bls)	Lithology Interpretation	SOIL PROFILE	Depth (Ft)	Standard Penetration Test Blows\Foot	Percent Recovery	Sample Type & Location
0	Silty Clay (CL)		2			
			4			
	Poorly Sorted Sand (SP)		6			
10			8			
			10			
			12			
			14			
			16			
20			18			
			20			
			22			
			24			
	Silty Clay (CL)		26			
	Silty Sand (SM)		28			
30	Silty Clay (CL)		30			
			32			
	Silty Sand (SM)		34			
			36			
			38			
40			40			
			42			
			44			
			46			
	Silty Clay (CL)		48			
50			50			
			52			
			54			
			56			
			58			
60			60			
			62			
			64			
			66			
			68			

LOG OF BORING DIAGRAM
DPB-3

LEGEND

Shelby Tube

Split Spoon

ICON Environmental Services, Inc.
224 Rue Beauregard Suite 205 Lafayette, LA 70508

LOG OF BORING

Sheet 1 of 2

Client: U.S. Department of Navy
Location: Building 191 NAVSTA MAYPORT, FLORIDA

Boring Number: MPT-TC-B4

Project No: 9052-001-0300
First Encountered Water: 3.5'
Total Depth: 32'
Date Completed: 8/26/97

Drilled By: Layne Environmental
Logged By: Pat Broussard
Rig Type: Gus Pech
Drilling Method: Hollow Stem Auger

Ground Elev: 8.80
Coordinates:
Sec/Township/Range:
Borehole Diam.: 8"

MW-8i

DESCRIPTION	DEPTH (ft bls)	Standard Penetration Test (Blows/Foot)	Microtip (PID) (ppm)	Liquid Limit	Plasticity Index	WATER LEVEL	Sample Type	Recovery	PROFILE	WELL DESIGN
CLAYEY SILT (ML), Brown	2	20	4					1.7		
	4	21	7			First Observed		1.3		
	6	14	4					1.5		
POORLY SORTED SAND (SP), Brown	8	35	4					1.7		
brown to gray	10	25	2					1.4		
	12									
	14	23	2					1.0		
	16									
	18									
Did not sample below 20'	20	44	>1					0.5		
	22									
	24									
	26									
	28									
	30									
Bottom of Borehole at 31'	32									
	34									

WELL DESIGN: 8" PVC Surface Casing; 2" PVC Well Casing

LEGEND FOR WELL DETAILS
- 20/40 sand pack
- Bentonite pellets
- Cement/Bentonite Grout

Unified Soil Class. Symbols Used in Profile - See Legend Page

SAMPLING METHOD
- SHELBY TUBE
- SPLIT SPOON SAMPLER
- AUGER CUTTINGS/ NO RECOVERY

ICON Environmental Services, Inc.
234 Rue Beauregard Suite 203 Lafayette, LA 70508

LOG OF BORING

Sheet 1 of 2

Client: U.S. Department of Navy
Location: Building 191 NAVSTA MAYPORT, FLORIDA

Boring Number: **MPT-TC-B3**

Project No: 9052-001-0300
First Encountered Water: 3.5'
Total Depth: 32'
Date Completed: 6/26/97

Drilled By: Layne Environmental
Logged By: Pat Broussard
Rig Type: Gus Pech
Drilling Method: Hollow Stem Auger

Ground Elev: 10.00
Coordinates:
Sec/Township/Range:
Borehole Diam.: 8"

MW-7d

DESCRIPTION	DEPTH (ft bls)	Standard Penetration Test (Blows/Foot)	Microtip (PID) (ppm)	Liquid Limit	Plasticity Index	WATER LEVEL	Sample Type	Recovery	PROFILE	WELL DESIGN
POORLY SORTED SAND (SP), Brown	2									
	4	28				First Observed		1.3		
	6									
	8	58						1.3		
	10									
	12									
shell layer at 14'	14	>50						1.0		
	16									
	18	220						0.5		
	20	300						0.5		
Could not acquire samples below 21' due to flowing sand in to the augers	22									
	24									
	26									
	28									
	30									
Bottom of Borehole at 32'	32									
	34									

2" PVC Well Casing

LEGEND FOR WELL DETAILS
- 20/40 sand pack
- Bentonite pellets
- Cement/Bentonite Grout

Unified Soil Class. Symbols Used in Profile -
See Legend Page

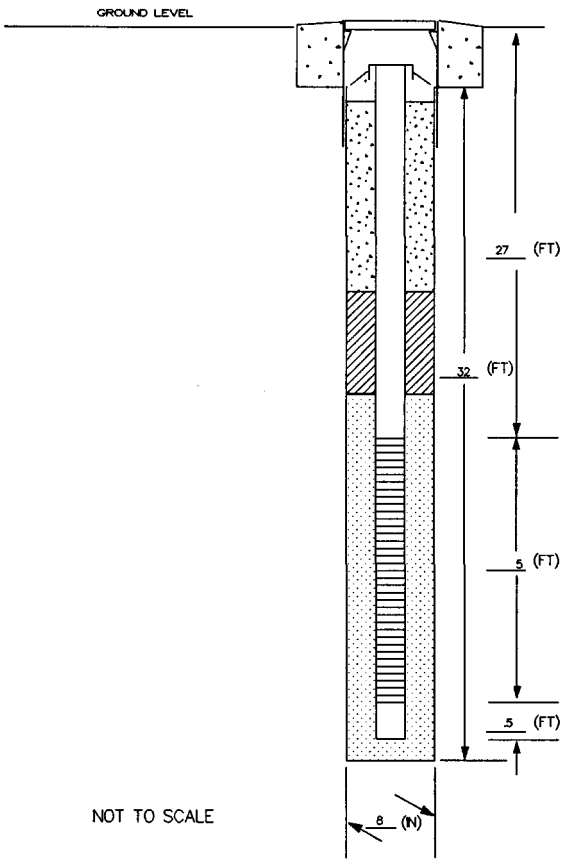
SAMPLING METHOD
- SHELBY TUBE
- SPLIT SPOON SAMPLER
- AUGER CUTTINGS/ NO RECOVERY

Appendix B

Well and DPW Construction Diagrams

WELL CONSTRUCTION DETAILS
FLUSH GRADE

CROSS–SECTIONAL VIEW



NOT TO SCALE

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	CARBON STEEL
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	.2'

WELL CASING

MATERIAL	PVC
DIAMETER	2"
JOINT TYPE	FLUSH
LENGTH	27'

BACKFILL AROUND CASING

MATERIAL	14 lbs./gallon Cem./Ben.
INTERVAL BGS	0'–22'

SEAL

TYPE OF SEAL	Bentonite Pellets
INTERVAL BGS	22'–25'

FILTER PACK

TYPE OF FILTER	20/40
INTERVAL BGS	25'–32'

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	2"
INTERVAL BGS	27'–32'
SLOT SIZE	0.01

SUMP LENGTH	.5'
DEPTH TO BOTTOM OF WELL	32'
DEPTH TO BOTTOM OF FILTER SAND	32'
DIAMETER OF BOREHOLE	8"

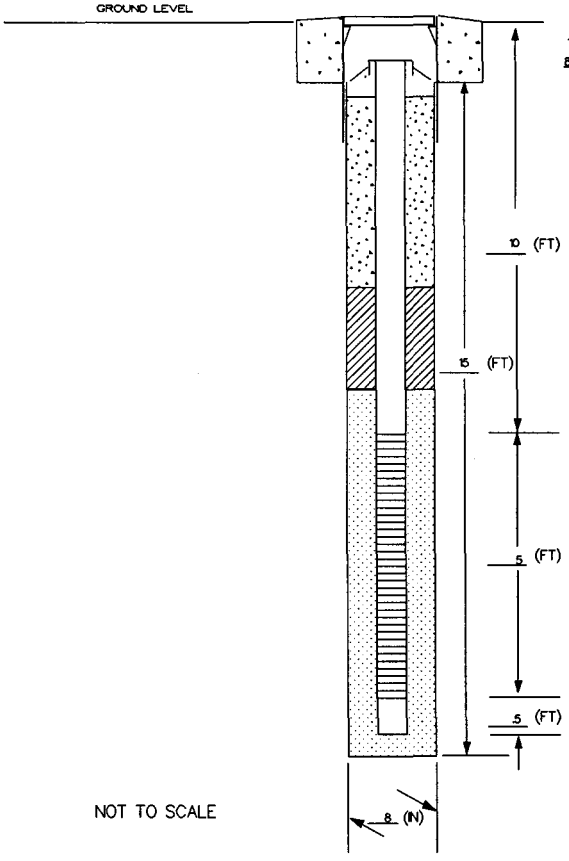
WELL ID: MPT-TC-MW7d	BORING ID: c-2
PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DATE OF CONSTRUCTION	8/26/97
DRILLING METHOD	Hollow Stem Auger
DRILLING CONTRACTOR	Layne Environmental Services
GEOLOGIST	P. Brousseard

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: wcflush.gcd	Date: 02/2/97
Project Number:	Source:
Revision Number 01	
File Directory \data\forms\	
Drawn By GWM	

WELL CONSTRUCTION DETAILS
FLUSH GRADE

CROSS-SECTIONAL VIEW



NOT TO SCALE

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	CARBON STEEL
SHROUD DIAMETER	8"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	.2'

WELL CASING

MATERIAL	PVC
DIAMETER	2"
JOINT TYPE	FLUSH
LENGTH	10'

BACKFILL AROUND CASING

MATERIAL	14 bs./gallon Cem./Ben.
INTERVAL BGS	0'-8'

SEAL

TYPE OF SEAL	Bentonite Pellets
INTERVAL BGS	8'-10'

FILTER PACK

TYPE OF FILTER	20/40
INTERVAL BGS	8'-15'

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	2"
INTERVAL BGS	10'-15'
SLOT SIZE	0.01"

SUMP LENGTH	.5'
DEPTH TO BOTTOM OF WELL	15'
DEPTH TO BOTTOM OF FILTER SAND	15'
DIAMETER OF BOREHOLE	8"

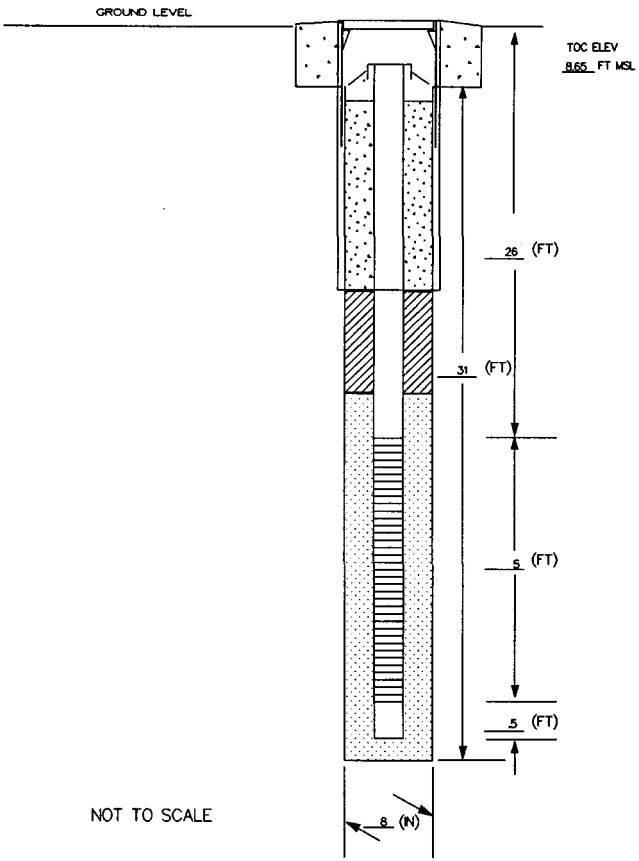
WELL ID: MPT-TC-MW8s	BORING ID:
PROJECT NAME	Additional Assessmnet Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DATE OF CONSTRUCTION	8/27/97
DRILLING METHOD	Hollow Stem Auger
DRILLING CONTRACTOR	Layne Environmental Services
GEOLOGIST	P. Broussard

ICON
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: wcflush.gcd	Date: 02/2/97
Project Number:	Source:
Revision Number 01	
File Directory \data\forms\	
Drawn By GWH	

WELL CONSTRUCTION DETAILS
FLUSH GRADE

CROSS-SECTIONAL VIEW



NOT TO SCALE

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	CARBON STEEL
SHROUD DIAMETER	8"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	.2"

SURFACE CASING

MATERIAL	PVC
DIAMETER	8"
INTERVAL BGS	0'-18'

WELL CASING

MATERIAL	PVC
DIAMETER	2"
JOINT TYPE	FLUSH
LENGTH	26'

BACKFILL AROUND CASING

MATERIAL	14 lbs./gallon Cem./Ben.
INTERVAL BGS	0'-22'

SEAL

TYPE OF SEAL	Bentonite Pellets
INTERVAL BGS	22'-24'

FILTER PACK

TYPE OF FILTER	20/40
INTERVAL BGS	24'-31'

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	2"
INTERVAL BGS	26'-31'
SLOT SIZE	0.01"

SUMP LENGTH	.5'
DEPTH TO BOTTOM OF WELL	31'
DEPTH TO BOTTOM OF FILTER SAND	15'
DIAMETER OF BOREHOLE	14" to 18.5', 8" to 31'

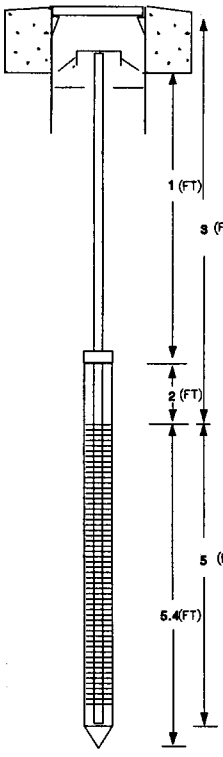
WELL ID: MPT-TC-MW8I	BORING ID:
PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DATE OF CONSTRUCTION	8/29/97
DRILLING METHOD	Hollow Stem Auger / Rotary Wash
DRILLING CONTRACTOR	Layne Environmental Services
GEOLOGIST	P. Broussard

ICON
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: wcflush.gcd	Date: 02/2/97
Project Number:	Source:
Revision Number: 01	
File Directory: \data\forms\	
Drawn By: GWH	

DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW1s
DATE OF CONSTRUCTION 5/5/97
TOP OF CASING ELEVATION (NGVD) 9.64
DEPTH TO WATER (FEET) AND DATE 3.09 - 5/9/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	Bentonite Chips
INTERVAL BGS	0'-1'

SEAL

TYPE OF SEAL	Packer (1.55" O.D.)
INTERVAL BGS	1'-3'

FILTER PACK

TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	3'-5'

OUTER WELL SCREEN

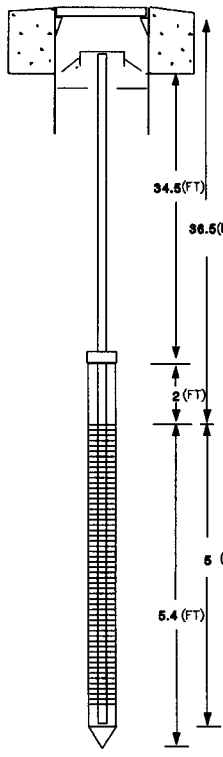
SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	3'-5'
SLOT SIZE	0.008"

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	3'-5'
SLOT SIZE	0.010"

SUMP LENGTH	2"
TOTAL DEPTH OF WELL	5.4'
DIAMETER OF BOREHOLE	2.25"

DIRECT PUSH WELL NUMBER MPT-TC-DPW1d
DATE OF CONSTRUCTION 5/5/97
TOP OF CASING ELEVATION (NGVD) 9.65
DEPTH TO WATER (FEET) AND DATE 4.88 - 5/9/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	14 lbs/gallon ben/cem.
INTERVAL BGS	0'-34.5'

SEAL

TYPE OF SEAL	Packer (1.55" O.D.)
INTERVAL BGS	34.5'-36.5'

FILTER PACK

TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	36.5'-41.5'

OUTER WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	36.5'-41.5'
SLOT SIZE	0.008"

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	36.5'-41.5'
SLOT SIZE	0.010"

SUMP LENGTH	2"
TOTAL DEPTH OF WELL	51.9'
DIAMETER OF BOREHOLE	2.25" to 34.5' 1.55" to 41.5'

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW1

PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON Environmental Corp.
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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Project Number: 9052-001-0300	Source:
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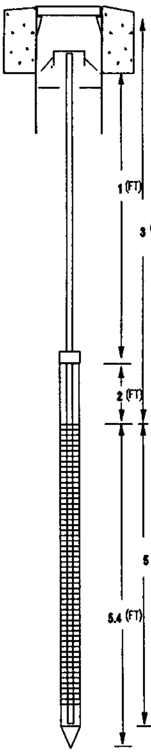
Drawn By pb	

DIRECT PUSH WELL DETAIL LOG

CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW2s
DATE OF CONSTRUCTION 5/6/97
TOP OF CASING ELEVATION (NGVD) 9.75
DEPTH TO WATER (FEET) AND DATE 5.14



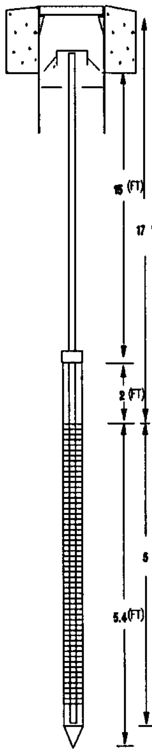
NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	10"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"
INNER WELL CASING	
MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'
OUTER WELL CASING	
MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'
ANNULAR FILLER MATERIAL	
MATERIAL	Bentonite Chips
INTERVAL BGS	0'-1'
SEAL	
TYPE OF SEAL	Packer (1.56" O.D.)
INTERVAL BGS	1'-3'
FILTER PACK	
TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	3'-8'
OUTER WELL SCREEN	
SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	3'-8'
SLOT SIZE	0.006"
WELL SCREEN	
SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	3'-8'
SLOT SIZE	0.010"
SUMP LENGTH	2"
TOTAL DEPTH OF WELL	8.4'
DIAMETER OF BOREHOLE	2.25"

DIRECT PUSH WELL NUMBER MPT-TC-DPW-2i
DATE OF CONSTRUCTION 5/6/97
TOP OF CASING ELEVATION (NGVD) 9.92
DEPTH TO WATER (FEET) AND DATE 5.37 - 5/9/97



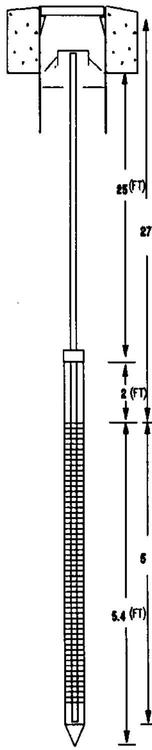
NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	10"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"
INNER WELL CASING	
MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'
OUTER WELL CASING	
MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'
ANNULAR FILLER MATERIAL	
MATERIAL	14 lbs/gallon ben/cem.
INTERVAL BGS	0'-15'
SEAL	
TYPE OF SEAL	Packer (1.55" O.D.)
INTERVAL BGS	15'-17'
FILTER PACK	
TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	17'-22'
OUTER WELL SCREEN	
SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	17'-22'
SLOT SIZE	0.006"
WELL SCREEN	
SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	17'-22'
SLOT SIZE	0.010"
SUMP LENGTH	2"
TOTAL DEPTH OF WELL	22.4'
DIAMETER OF BOREHOLE	2.25" to 15' 1.50" to 22'

DIRECT PUSH WELL NUMBER MPT-TC-DPW2d
DATE OF CONSTRUCTION 5/6/97
TOP OF CASING ELEVATION (NGVD) 9.95
DEPTH TO WATER (FEET) AND DATE 5.38' - 5/9/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	10"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"
INNER WELL CASING	
MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'
OUTER WELL CASING	
MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'
ANNULAR FILLER MATERIAL	
MATERIAL	14 lbs/gallon ben/cem.
INTERVAL BGS	0'-25'
SEAL	
TYPE OF SEAL	Packer (1.56" O.D.)
INTERVAL BGS	25'-27'
FILTER PACK	
TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	27'-32'
OUTER WELL SCREEN	
SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	27'-32'
SLOT SIZE	0.006"
WELL SCREEN	
SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	27'-32'
SLOT SIZE	0.006"
SUMP LENGTH	2"
TOTAL DEPTH OF WELL	32.4'
DIAMETER OF BOREHOLE	2.25" to 25' 1.50" to 32'

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW2

PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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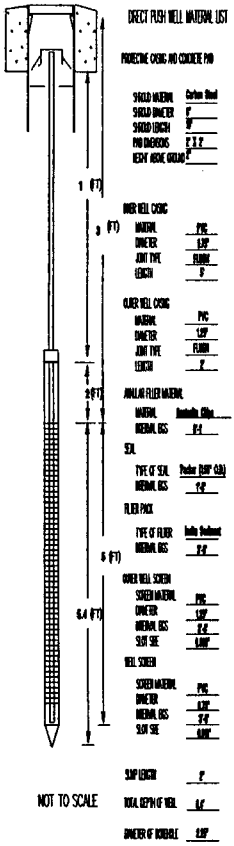
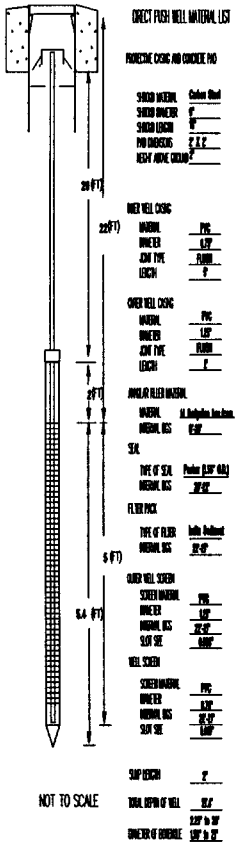
DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

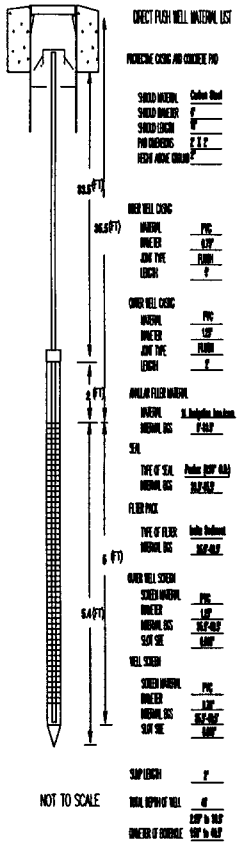
DIRECT PUSH WELL NUMBER MPT-TC-DPW3
DATE OF CONSTRUCTION 5/7/97
TOP OF CASING ELEVATION (NGVD) 9.89
DEPTH TO WATER (FEET) AND DATE 5.37' - 5/9/97



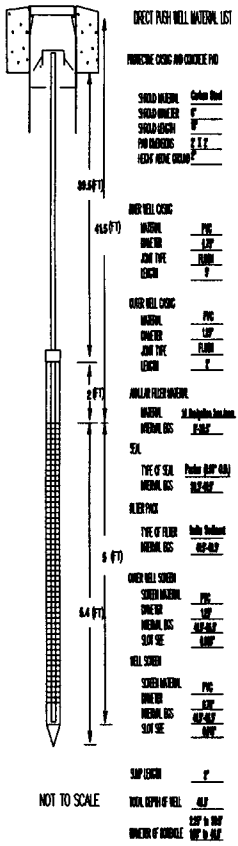
DIRECT PUSH WELL NUMBER MPT-TC-DPW4
DATE OF CONSTRUCTION 5/7/97
TOP OF CASING ELEVATION (NGVD) 9.83
DEPTH TO WATER (FEET) AND DATE 4.95' - 5/9/97



DIRECT PUSH WELL NUMBER MPT-TC-DPW5
DATE OF CONSTRUCTION 5/7/97
TOP OF CASING ELEVATION (NGVD) 9.91
DEPTH TO WATER (FEET) AND DATE 4.89' - 5/9/97



DIRECT PUSH WELL NUMBER MPT-TC-DPW6
DATE OF CONSTRUCTION 5/7/97
TOP OF CASING ELEVATION (NGVD) 9.78
DEPTH TO WATER (FEET) AND DATE 5.30' - 5/9/97



DIRECT PUSH WELL CLUSTER NUMBER	MPT-TC-DPW3
PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON ENVIRONMENTAL CORP.
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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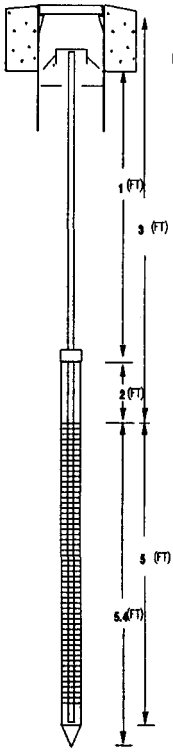
DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW4a
DATE OF CONSTRUCTION 5/6/97
TOP OF CASING ELEVATION (NGVD) 8.78
DEPTH TO WATER (FEET) AND DATE 4.21' - 5/7/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2"

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 5'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: Bentonite Chips
INTERVAL BGS: 0'-1'

SEAL
TYPE OF SEAL: Packer (1.69" O.D.)
INTERVAL BGS: 1'-2'

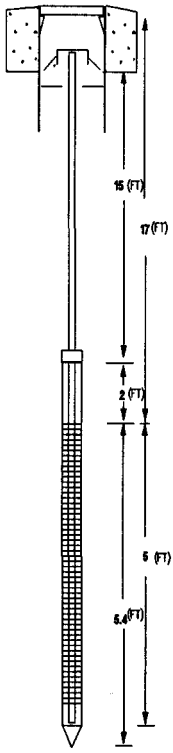
FILTER PACK
TYPE OF FILTER: Quartz Sediment
INTERVAL BGS: 2'-5'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 5'-8'
SLOT SIZE: 0.010"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 5'-8'
SLOT SIZE: 0.010"

SUMP LENGTH: 2'
TOTAL DEPTH OF WELL: 8.4'
DIAMETER OF BOREHOLE: 2.25"

DIRECT PUSH WELL NUMBER MPT-TC-DPW4l
DATE OF CONSTRUCTION 5/6/97
TOP OF CASING ELEVATION (NGVD) 8.75
DEPTH TO WATER (FEET) AND DATE 4.19' - 5/8/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2"

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 5'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Hedgehog Bentonite
INTERVAL BGS: 1'-15'

SEAL
TYPE OF SEAL: Packer (1.69" O.D.)
INTERVAL BGS: 15'-17'

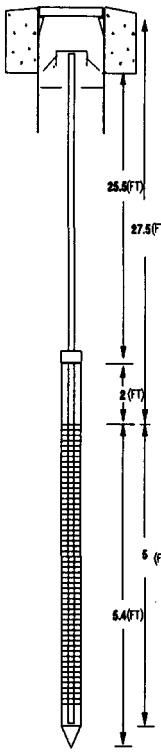
FILTER PACK
TYPE OF FILTER: Quartz Sediment
INTERVAL BGS: 17'-22'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 17'-22'
SLOT SIZE: 0.010"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 17'-22'
SLOT SIZE: 0.010"

SUMP LENGTH: 2'
TOTAL DEPTH OF WELL: 22.4'
DIAMETER OF BOREHOLE: 2.25" to 15'
1.69" to 22'

DIRECT PUSH WELL NUMBER MPT-TC-DPW4d
DATE OF CONSTRUCTION 5/6/97
TOP OF CASING ELEVATION (NGVD) 8.65
DEPTH TO WATER (FEET) AND DATE 4.2' - 5/8/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2"

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 5'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Hedgehog Bentonite
INTERVAL BGS: 1'-25.5'

SEAL
TYPE OF SEAL: Packer (1.69" O.D.)
INTERVAL BGS: 25.5'-27.5'

FILTER PACK
TYPE OF FILTER: Quartz Sediment
INTERVAL BGS: 27.5'-32.5'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 27.5'-32.5'
SLOT SIZE: 0.010"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 27.5'-32.5'
SLOT SIZE: 0.010"

SUMP LENGTH: 2'
TOTAL DEPTH OF WELL: 32.9'
DIAMETER OF BOREHOLE: 2.25" to 15.5'
1.69" to 32.5'

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW4

PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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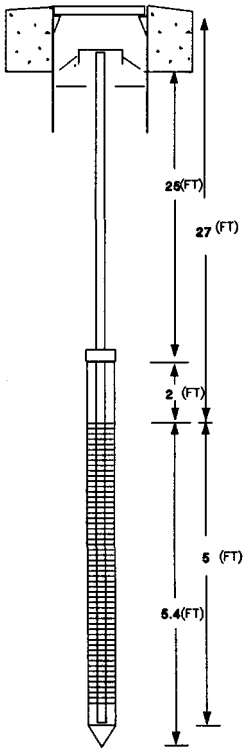
DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW5I
DATE OF CONSTRUCTION 5/8/97
TOP OF CASING ELEVATION (NGVD) 8.65
DEPTH TO WATER (FEET) AND DATE 4.37' - 5/9/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	14 lbs/gallon ben./cem.
INTERVAL BGS	0'-25'

SEAL

TYPE OF SEAL	Packer (1.55" O.D.)
INTERVAL BGS	25'-27'

FILTER PACK

TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	27'-32'

OUTER WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	27'-32'
SLOT SIZE	0.008"

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	27'-32'
SLOT SIZE	0.010"

SUMP LENGTH	2"
TOTAL DEPTH OF WELL	32.4'
DIAMETER OF BOREHOLE	2.25" to 25' 1.55" to 32'

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW5

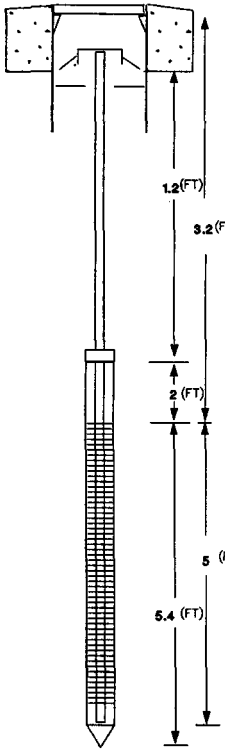
PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON
5627 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: data\navy\report	Date: 1/28/97
Project Number: 9052-001-0300	Source:
Revision Number	
File Directory \data\forms\	
Drawn By pb	

DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW6e
DATE OF CONSTRUCTION 5/7/97
TOP OF CASING ELEVATION (NGVD) 9.72
DEPTH TO WATER (FEET) AND DATE 3.53' - 5/9/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	8"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2'

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	Bentonite Chips
INTERVAL BGS	0'-1.2'

SEAL

TYPE OF SEAL	Packer (1.55" O.D.)
INTERVAL BGS	1.2'-3.2'

FILTER PACK

TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	3.2'-8.2'

OUTER WELL SCREEN

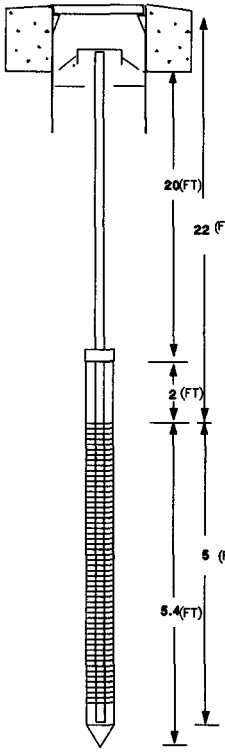
SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	3.2'-8.2'
SLOT SIZE	0.008"

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	3.2'-8.2'
SLOT SIZE	0.010"

SUMP LENGTH	2"
TOTAL DEPTH OF WELL	8.8'
DIAMETER OF BOREHOLE	2.25" to 8.2'

DIRECT PUSH WELL NUMBER MPT-TC-DPW6i
DATE OF CONSTRUCTION 5/8/97
TOP OF CASING ELEVATION (NGVD) 9.84
DEPTH TO WATER (FEET) AND DATE 5.08' - 5/9/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	8"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2'

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	14 lbs/gallon ben/cem
INTERVAL BGS	0'-20'

SEAL

TYPE OF SEAL	Packer (1.55" O.D.)
INTERVAL BGS	20'-22'

FILTER PACK

TYPE OF FILTER	Insitu Sediment
INTERVAL BGS	22'-27'

OUTER WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	22'-27'
SLOT SIZE	0.008"

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	22'-27'
SLOT SIZE	0.010"

SUMP LENGTH	2"
TOTAL DEPTH OF WELL	27.4'
DIAMETER OF BOREHOLE	2.25" to 20' 1.55" to 27'

DIRECT PUSH WELL CLUSTER NUMBER **MPT-TC-DPW6**

PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

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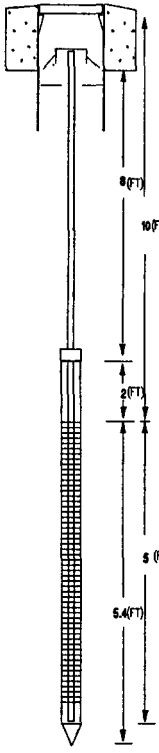
DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW7a
DATE OF CONSTRUCTION 9/27/97
TOP OF CASING ELEVATION (NGVD) 9.68
DEPTH TO WATER (FEET) AND DATE 5.66' - 9/3/97



DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	#1 Hydrogeologic Sand/Aggregate
INTERVAL BGS	8'-10'

SEAL

TYPE OF SEAL	Powder (1.56" O.D.)
INTERVAL BGS	5'-8'

FILTER PACK

TYPE OF FILTER	Inside Bentonite
INTERVAL BGS	10'-15'

OUTER WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	10'-15'
SLOT SIZE	0.010"

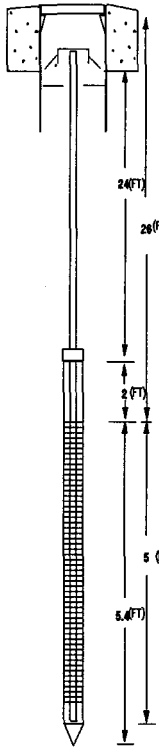
WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	10'-15'
SLOT SIZE	0.010"

SUMP LENGTH	2'
TOTAL DEPTH OF WELL	15.4'
DIAMETER OF BOREHOLE	2.25" to 5' 1.50" to 15'

NOT TO SCALE

DIRECT PUSH WELL NUMBER MPT-TC-DPW7f
DATE OF CONSTRUCTION 9/27/97
TOP OF CASING ELEVATION (NGVD) 9.82
DEPTH TO WATER (FEET) AND DATE 5.82' - 9/3/97



DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	#1 Hydrogeologic Sand/Aggregate
INTERVAL BGS	24'-26'

SEAL

TYPE OF SEAL	Powder (1.56" O.D.)
INTERVAL BGS	21'-24'

FILTER PACK

TYPE OF FILTER	Inside Bentonite
INTERVAL BGS	26'-31'

OUTER WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	26'-31'
SLOT SIZE	0.010"

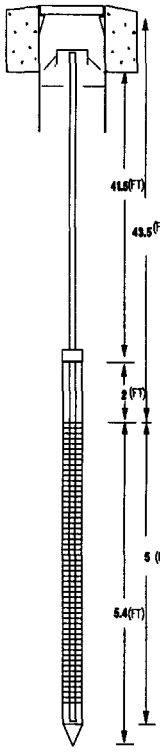
WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	26'-31'
SLOT SIZE	0.010"

SUMP LENGTH	2'
TOTAL DEPTH OF WELL	31.4'
DIAMETER OF BOREHOLE	2.25" to 24' 1.50" to 31'

NOT TO SCALE

DIRECT PUSH WELL NUMBER MPT-TC-DPW7d
DATE OF CONSTRUCTION 9/27/97
TOP OF CASING ELEVATION (NGVD) 9.74
DEPTH TO WATER (FEET) AND DATE 5.78' - 9/3/97



DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD

SHROUD MATERIAL	Carbon Steel
SHROUD DIAMETER	6"
SHROUD LENGTH	18"
PAD DIMENSIONS	2' X 2'
HEIGHT ABOVE GROUND	2"

INNER WELL CASING

MATERIAL	PVC
DIAMETER	0.75"
JOINT TYPE	FLUSH
LENGTH	5'

OUTER WELL CASING

MATERIAL	PVC
DIAMETER	1.25"
JOINT TYPE	FLUSH
LENGTH	2'

ANNULAR FILLER MATERIAL

MATERIAL	#1 Hydrogeologic Sand/Aggregate
INTERVAL BGS	41.5'-43.5'

SEAL

TYPE OF SEAL	Powder (1.56" O.D.)
INTERVAL BGS	41.5'-43.5'

FILTER PACK

TYPE OF FILTER	Inside Bentonite
INTERVAL BGS	43.5'-48.5'

OUTER WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	1.25"
INTERVAL BGS	43.5'-48.5'
SLOT SIZE	0.010"

WELL SCREEN

SCREEN MATERIAL	PVC
DIAMETER	0.75"
INTERVAL BGS	43.5'-48.5'
SLOT SIZE	0.010"

SUMP LENGTH	2'
TOTAL DEPTH OF WELL	48.5'
DIAMETER OF BOREHOLE	2.25" to 41.5' 1.50" to 48.5'

NOT TO SCALE

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW7

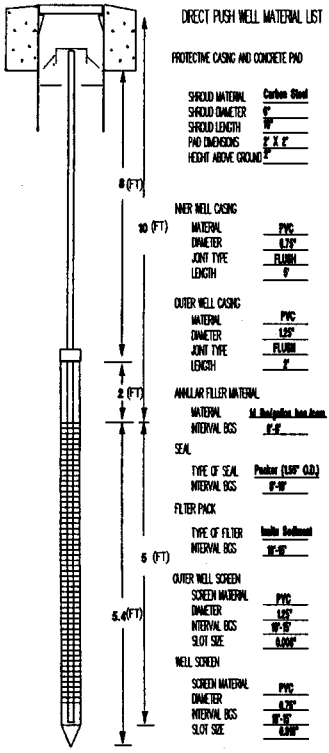
PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Broussard

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: data\navy\report	Date: 1/28/97
Project Number: 9052-001-0300	Source:
Revision Number	
File Directory \data\forms\	
Drawn By pb	

DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW8a
DATE OF CONSTRUCTION 9/27/97
TOP OF CASING ELEVATION (NGVD) 8.72
DEPTH TO WATER (FEET) AND DATE 4.54' - 9/3/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2'

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 8'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Quikgallon Sand Accom.
INTERVAL BGS: 0'-8'

SEAL
TYPE OF SEAL: Pentonr (1.05" O.D.)
INTERVAL BGS: 8'-10'

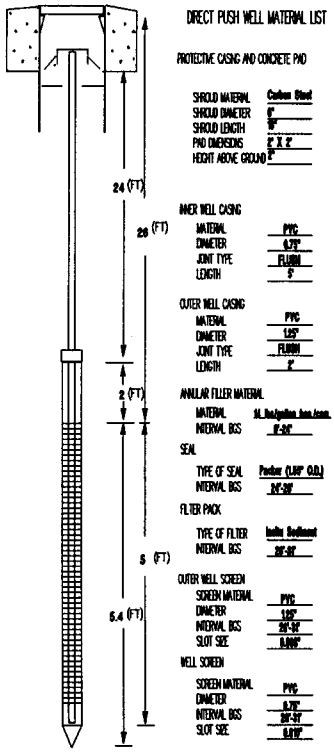
FILTER PACK
TYPE OF FILTER: Inside Sediment
INTERVAL BGS: 10'-15'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 10'-15'
SLOT SIZE: 0.006"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 10'-15'
SLOT SIZE: 0.010"

SUMP LENGTH: 1'
TOTAL DEPTH OF WELL: 15.4'
DIAMETER OF BOREHOLE: 2.25"

DIRECT PUSH WELL NUMBER MPT-TC-DPW8
DATE OF CONSTRUCTION 9/27/97
TOP OF CASING ELEVATION (NGVD) 8.70
DEPTH TO WATER (FEET) AND DATE 4.5' - 9/3/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2'

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 24'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Quikgallon Sand Accom.
INTERVAL BGS: 0'-24'

SEAL
TYPE OF SEAL: Pentonr (1.05" O.D.)
INTERVAL BGS: 24'-26'

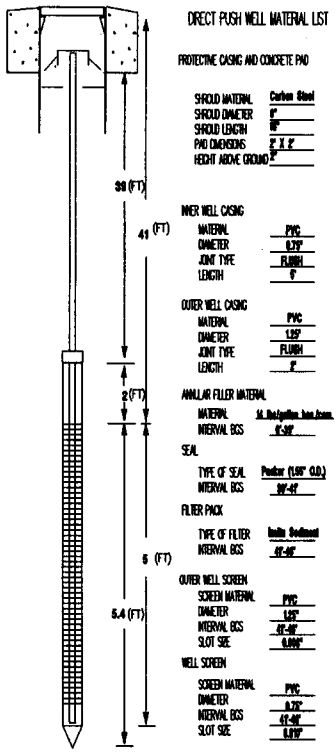
FILTER PACK
TYPE OF FILTER: Inside Sediment
INTERVAL BGS: 26'-31'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 26'-31'
SLOT SIZE: 0.006"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 26'-31'
SLOT SIZE: 0.010"

SUMP LENGTH: 1'
TOTAL DEPTH OF WELL: 31.4'
DIAMETER OF BOREHOLE: 2.25"

DIRECT PUSH WELL NUMBER MPT-TC-DPW8d
DATE OF CONSTRUCTION 9/27/97
TOP OF CASING ELEVATION (NGVD) 8.79
DEPTH TO WATER (FEET) AND DATE 4.98' - 9/3/97



NOT TO SCALE

DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2'

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 39'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Quikgallon Sand Accom.
INTERVAL BGS: 0'-39'

SEAL
TYPE OF SEAL: Pentonr (1.05" O.D.)
INTERVAL BGS: 39'-41'

FILTER PACK
TYPE OF FILTER: Inside Sediment
INTERVAL BGS: 41'-46'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 41'-46'
SLOT SIZE: 0.006"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 41'-46'
SLOT SIZE: 0.010"

SUMP LENGTH: 1'
TOTAL DEPTH OF WELL: 46.6'
DIAMETER OF BOREHOLE: 2.25" to 39'
1.05" to 46'

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW8

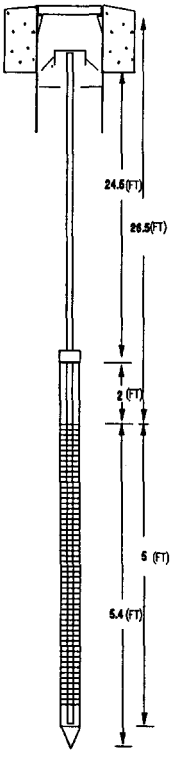
PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Brousseard

ICON
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: data\navy\report	Date: 1/28/97
Project Number: 9052-001-0300	Source:
Revision Number	
File Directory \data\forms\	
Drawn By pb	

DIRECT PUSH WELL DETAIL LOG
CROSS-SECTIONAL VIEW

DIRECT PUSH WELL NUMBER MPT-TC-DPW8
DATE OF CONSTRUCTION 9/28/97
TOP OF CASING ELEVATION (NGVD) 8.26
DEPTH TO WATER (FEET) AND DATE 4.08' - 9/3/97



DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2'

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 0'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Backgallon bon-bons
INTERVAL BGS: 0'-24.5'

SEAL
TYPE OF SEAL: Pocket (1.50" O.D.)
INTERVAL BGS: 24.5'-26.5'

FILTER PACK
TYPE OF FILTER: Ionite Sediment
INTERVAL BGS: 26.5'-31.5'

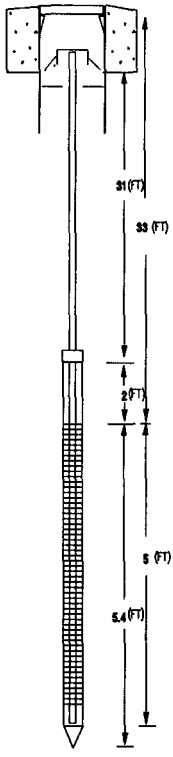
OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 26.5'-31.5'
SLOT SIZE: 0.010"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 26.5'-31.5'
SLOT SIZE: 0.010"

SUMP LENGTH: 2'
TOTAL DEPTH OF WELL: 31.5'
DIAMETER OF BOREHOLE: 2.25" to 24.5'; 1.50" to 31.5'

NOT TO SCALE

DIRECT PUSH WELL NUMBER MPT-TC-DPW9
DATE OF CONSTRUCTION 9/29/97
TOP OF CASING ELEVATION (NGVD) 8.27
DEPTH TO WATER (FEET) AND DATE 4.5' - 9/3/97



DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2'

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 0'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Backgallon bon-bons
INTERVAL BGS: 0'-33'

SEAL
TYPE OF SEAL: Pocket (1.50" O.D.)
INTERVAL BGS: 31'-33'

FILTER PACK
TYPE OF FILTER: Ionite Sediment
INTERVAL BGS: 33'-38'

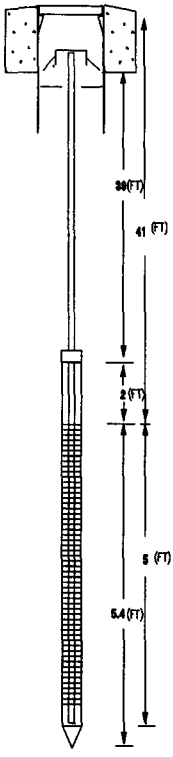
OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 33'-38'
SLOT SIZE: 0.010"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 33'-38'
SLOT SIZE: 0.010"

SUMP LENGTH: 2'
TOTAL DEPTH OF WELL: 38.4'
DIAMETER OF BOREHOLE: 2.25" to 31'; 1.50" to 38'

NOT TO SCALE

DIRECT PUSH WELL NUMBER MPT-TC-DPW10
DATE OF CONSTRUCTION 9/29/97
TOP OF CASING ELEVATION (NGVD) 8.32
DEPTH TO WATER (FEET) AND DATE 4.96' - 9/3/97



DIRECT PUSH WELL MATERIAL LIST

PROTECTIVE CASING AND CONCRETE PAD
SHROUD MATERIAL: Carbon Steel
SHROUD DIAMETER: 6"
SHROUD LENGTH: 18"
PAD DIMENSIONS: 2' X 2'
HEIGHT ABOVE GROUND: 2'

INNER WELL CASING
MATERIAL: PVC
DIAMETER: 0.75"
JOINT TYPE: FLUSH
LENGTH: 0'

OUTER WELL CASING
MATERIAL: PVC
DIAMETER: 1.25"
JOINT TYPE: FLUSH
LENGTH: 2'

ANNULAR FILLER MATERIAL
MATERIAL: #1 Backgallon bon-bons
INTERVAL BGS: 0'-39'

SEAL
TYPE OF SEAL: Pocket (1.50" O.D.)
INTERVAL BGS: 39'-41'

FILTER PACK
TYPE OF FILTER: Ionite Sediment
INTERVAL BGS: 41'-46'

OUTER WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 1.25"
INTERVAL BGS: 41'-46'
SLOT SIZE: 0.010"

WELL SCREEN
SCREEN MATERIAL: PVC
DIAMETER: 0.75"
INTERVAL BGS: 41'-46'
SLOT SIZE: 0.010"

SUMP LENGTH: 2'
TOTAL DEPTH OF WELL: 46.4'
DIAMETER OF BOREHOLE: 2.25"

NOT TO SCALE

DIRECT PUSH WELL CLUSTER NUMBER MPT-TC-DPW9

PROJECT NAME	Additional Assessment Using Innovative Technology
PROJECT LOCATION	BUILDING 191 NAVSTA MAYPORT, FLORIDA
DRILLING METHOD	Direct Push
DRILLING CONTRACTOR	Layne Environmental Drilling Services
GEOLOGIST	Pat Brousseard

ICON ENVIRONMENTAL SERVICES
5437 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name: data\navy\report	Date: 1/28/97
Project Number: 9052-001-0300	Source:
Revision Number	
File Directory \data\forms\	
Drawn By pb	

Appendix C

Well Development Logs

WELL DEVELOPMENT LOG

WELL: TC-DMW15

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Bldg 191 Date: 5-7-97 Start Time: 1000

Project Number: End Time: 1020

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	8.43 / 3.09	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1015	1018	1020		
Water Temperature	C F	72.8	72.9	72.9		
Hydrogen Ion Activity (pH)	Std. Units	7.6	7.4	7.4		
Spec. Cond.	uS, mS	1313	1315	1315		
~~Dissolved Oxygen (DO)~~ Vol:	mg/L, ppm	2.7 GAL	3.0 GAL	3.5 GAL		
Turbidity	NTU, JTU	8.0	6.5	7.5		
Field Headspace	ppm	clear	clear	clear		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
	Bristaltic w/ Dedicated Teflon Tubing	HYDAC Thermoc.	PHTestr2 DIG MAC	HYDAC DIG MAC	X	Orbeco Hellige DIG

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller - ICON Date: 5-7-97

Recorded by: Date:

Reviewed by: Date:

ICON — WELL DEVELOPMENT LOG — WELL: TC-DPW1d

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - BLDG 191 Date: 5-7-97 Start Time: 1105

Project Number: End Time: 1150

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW1d			Bottom 1 Ft of Well Pumped SI Turb
Total Depth of Well/ Depth to Water	40.97 / 11.88	Finish Start FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: / bucket

Well	Well ID (in)	Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2	0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3	0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4	0.653	X		-		X	3 5	-		X	3 5 10	-	
			X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1140	1144	1148	1150	
Water Temperature	C F	76.0	76.0	76.0	76.0	
Hydrogen Ion Activity (pH)	Std. Units	7.3	7.3	7.3	7.3	
Spec. Cond.	uS, mS	3880	3890	3890	3890	
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	7.56ALS	8.56ALS	9.06ALS	9.36ALS	
Turbidity	NTU, JTU	25.3	13.8	19.6	17.8	
~~Field Headspace~~	ppm		Clear, SI H2S odor			

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
	Peristaltic w/ Dedicated Teflon Tubing	HYDAC Thermocouple	PHTestr-2 DIGITAL	HYDAC DIGITAL	✓	Dibco Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller - ICON Date: 5-7-97

Recorded by: Date:

Reviewed by: Date:

ICON Environmental Services, Inc. — WELL DEVELOPMENT LOG

WELL: TC-DPW2S

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - BLDG 191 **Date:** 5-8-97 **Start Time:** 1145

Project Number: **End Time:** 1210

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW2S			
Total Depth of Well/ Depth to Water	7.25 / 5.36	FEET	Pumped V little sand
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1155	1158	1203	1205	1210
Water Temperature	C (F)	75	75.1	75.0	75	75
Hydrogen Ion Activity (pH)	Std. Units	7.2	7.1	7.0	6.9	6.9
Spec. Cond.	(uS) mS	577	570	565	566	565
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	2 GALS	2.5 GALS	3.7 GALS	4.2 GALS	5 GALS
Turbidity	NTU, JTU	18.5	15.3	7.7	5.5	5.4
Field Headspace	ppm		clear			

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO	Turb:
	Peristaltic Pump w/ Dedicated Teflon Tubing	HYDAC Thermocouple	PHTESTR2 DIGITAL	HYDAC DIGITAL	V	Orbeco Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 5-8-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG WELL: TC-DPW2i

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT **Date:** 5-7-97 **Start Time:** 1500

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW2i			WTR level maintained @ ±
Total Depth of Well/ Depth to Water	122.5	*FEET*	4FT above base of well
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1508	1513			
Water Temperature	C F	12.2	12.1	STOPPED, WELL		
Hydrogen Ion Activity (pH)	*Std. Units*	73.0	73.3	NEEDS TO BE		
Spec. Cond.	*uS, mS*	3130	2250	REPLACED		
~~Dissolved Oxygen (DO)~~ Vol	*mg/L, ppm*	3.2GAL	4 GALS			
Turbidity	*NTU, JTU*	13.0	14.2			
Field Headspace	*ppm*					

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: _____ **Date:** _____

Recorded by: _____ **Date:** _____

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-DPW2i

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT- BLDG 191 **Date:** 5-8-97 **Start Time:** 0750

Project Number: **End Time:** 0845

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW2i			More turbid @ base of well
Total Depth of Well/ Depth to Water	21.65 / ~~5.55~~ 5.37 (5.47)	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	0830	0837
Measurement Time		0756	0810	0816	0841	0845		
Water Temperature	C F	70.7	70.8	70.7	70.7	70.7	70.8	70.7
Hydrogen Ion Activity (pH)	*Std. Units*	8.1	7.9	7.9	7.8	7.8	7.8	7.8
Spec. Cond.	*uS, mS*	492	487	487	486	486	486	487
~~Dissolved Oxygen (DO)~~ Volume	*mg/L, ppm*	2 GALS	5 GALS	6.5 GALS	7.5 GALS	8 GALS	9 GALS	11 GAL
Turbidity	*NTU, JTU*	159	42	43	35.5	30.2	25.5	17.1
Field Headspace	*ppm*							

SAMPLING AND EQUIPMENT INFORMATION

0840 0845
707 70.7
7.8 7.8
489 488
12 GAL 13 GAL
16.5 14.5

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic Pump/ Dedicated Teflon Tubing Development	HYDAC Temp:	ORION 250A pH:	HYDAC DIGITAL Cond:	DO	Orbeco Hellige Turb: DIGITAL
		thermocouple	DIGITAL		✓	

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: _____ **Date:** _____

Recorded by: _____ **Date:** _____

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-DPW2d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT- BLDG 191 **Date:** 5-8-97 **Start Time:** 1044

Project Number: **End Time:** 1145

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW2d			
Total Depth of Well/ Depth to Water	32.00 / 5.38	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	
Measurement Time		1056	1103	1110	1125	1140	1145
Water Temperature	C F	74.1	74.0	74.2	74.2	74.3	74.3
Hydrogen Ion Activity (pH)	*Std. Units*	7.6	7.4	7.3	7.2	7.3	7.3
Spec. Cond.	*uS, mS*	1018	1018	1029	1032	1040	1040
~~Dissolved Oxygen (DO)~~ VOL	*mg/L, ppm*	3.5GALS	5GALS	7GALS	10GALS	12GALS	13GALS
Turbidity	*NTU, JTU*	44.5	38.6	24.4	25.8	12.8	12.4
~~Field Headspace~~	*ppm*	slight HC odor				clear, slight	

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
	Peristaltic Pump w/ Dedicated Teflon Tubing	HYDAC Thermocouple	ATI ESRZ DIGITAL	HYDAC DIGITAL		Orbeco Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 5-8-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: [redacted]

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA-Mayport- Bldg 191 **Date:** 5-8-97 **Start Time:** [redacted]

Project Number: **End Time:** [redacted]

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DW36		
Total Depth of Well/ Depth to Water	7.90 / 3.37	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		911	914	917	920	
Water Temperature	C F	76.8	76.8	76.9	76.9	
Hydrogen Ion Activity (pH)	*Std. Units*	7.5	7.4	7.4	7.4	
Spec. Cond.	*uS, mS*	1021	1018	1019	1018	
~~Dissolved Oxygen (DO)~~ Vol	*mg/L, ppm*	2GALS	2.5GALS	3GALS	3.8GALS	
Turbidity	*NTU, JTU*	13.7	12.0	7.9	7.2	
Field Headspace	*ppm*	clear	clear	clear	clear	

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO	Turb:
	Peristaltic w/ Dedicated Teflon Tubing	Hydac Thermac	Portest-2 DIGITAL	Hydac DIGITAL	/	Grundfos Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] **Date:** 5-8-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: [redacted]

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - BLDG 191 **Date:** 5-8-97 **Start Time:** [redacted]

Project Number: **End Time:** [redacted]

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-IC-DPN3i			
Total Depth of Well/ Depth to Water	26.47 / 4.35	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		855	900	905		
Water Temperature	C F	75.5	75.2	75.5		
Hydrogen Ion Activity (pH)	*Std. Units*	7.5	7.5	7.5		
Spec. Cond.	*uS, mS*	1036	1030	1029		
~~Dissolved Oxygen (DO)~~ VOL	*mg/L, ppm*	1.5GAL	3.5GAL	4GAL		
Turbidity	*NTU, JTU*	7.9	5.2	5.1		
Field Headspace	*ppm*	V slight H2S odor - wtr slightly gray				

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
	Peristaltic w/ Dedicated Teflon Tubing	HYDAC Thermocouple	PHTESTR2 DIGITAL	HYDAC DIGITAL	X	Orbeco Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] **Date:** 5-8-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-DPN3d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Bldg 191 **Date:** 5-8-97 **Start Time:** 8:10

Project Number: **End Time:** 8:50

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPN3d			Bottom 1 Ft turbid, NTU w/
Total Depth of Well/ Depth to Water	40.75 / 4.65	*FEET*	tubing @ 38 @ 9:28 is 11.6
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: bucket

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)			Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-		
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-		
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-		
				X		-		X	3 5	-		X	3 5 10	-		

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		825	830	843	847	850
Water Temperature	C (F)	75.0	75.0	75.0	75.1	75.1
Hydrogen Ion Activity (pH)	*Std. Units*	7.2	7.2	7.2	7.2	7.2
Spec. Cond.	uS/mS	15,970	15,860	15,690	15,560	15,550
~~Dissolved Oxygen (DO)~~ Vol	*mg/L, ppm*	4 GAL	5 GAL	7 GAL	8 GAL	6.3 GAL
Turbidity	*NTU, JTU*	65	75	51.4	~~22~~ 19.8	20.2
Field Headspace	*ppm*	Tubing on bottom-ultroader				

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing Development	Hydac Thermoc. Temp:	PH Test 2 D16 FAL pH:	Hydac OX6 FAL Cond:	DO: X	Orbeco Hellige Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 5-8-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-DPW3dd

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT- BLDG 191 **Date:** 5-8-97 **Start Time:** 0615

Project Number: **End Time:** 0645

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW3dd			
Total Depth of Well/ Depth to Water	44.75, 5.68	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		0625	0635	0643		
Water Temperature	C (F)	73.7	73.4	73.3		
Hydrogen Ion Activity (pH)	*Std. Units*	6.9	6.9	6.9		
Spec. Cond.	(uS) mS	730,000	730,000	730,000		
~~Dissolved Oxygen (DO)~~ V/I	*mg/L, ppm*	3 GALS	4 GALS	7 GALS		
Turbidity	*NTU, JTU*	23.2	15.4	18.9		
Field Headspace	*ppm*			clear		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water: Drum 13

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO	Turb:
	Peristaltic Pump w/ Dedicated Teflon Tubing	HYDAC Thermocouple	HYDAC DIGITAL	HYDAC DIGITAL	V	Hach Ratio DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5-8-97

Recorded by: Date:

Reviewed by: Date:

ICON WELL DEVELOPMENT LOG WELL: TC-DPW45

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Build. 191 **Date:** 5-7-97 **Start Time:** 1240

Project Number: **End Time:** 1315

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW45			
Total Depth of Well/ Depth to Water	7.94 / 4.21	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1250	1255	1305	1310	1315
Water Temperature	C F	73.5	73.3	73.4	73.4	73.4
Hydrogen Ion Activity (pH)	*Std. Units*	7.8	7.7	7.6	7.5	7.5
Spec. Cond.	*uS, mS*	400	380	318	318	318
Dissolved Oxygen (DO) Vol	*mg/L, ppm*	3GALS	3.5GALS	6.5GALS	7GALS	7.8GALS
Turbidity	*NTU, JTU*	35	29.5	29.6	10.4	11.5
Field Headspace	*ppm*	clear, sl grey	clear, sl grey	v sl grey	clear	clear

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing (Development)	Hydac Thermoc. (Temp:)	PHTSTR-C (pH: DIGITAL)	HYDAC DIG. (Cond:)	X (DO:)	Orbeco Hellbag (Turb: DIGITAL)

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Tibbs **Date:** 5-7-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-DPW41

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA Mayport - Bldg 191 **Date:** 5-7-97 **Start Time:** 1315

Project Number: **End Time:** 1900

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	21.20 / 14.19	*FEET*	Purged dry sd
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: Dr Beat /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1350	1357	1400		
Water Temperature	C F	72.9	73.3	73.2		
Hydrogen Ion Activity (pH)	*Std. Units*	7.1	7.5			
Spec. Cond.	*uS, mS*	9.18	9.17	9.14		
~~Dissolved Oxygen (DO)~~ Vol	*mg/L, ppm*	6.5 gal	7.5 GAL	8 GAL		
Turbidity	*NTU, JTU*	8.4	8.2	8.4		
Field Headspace	*ppm*	clear	clear	clear		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing (Development)	Hydac Thermocouple (Temp:)	PHTestr 2 DIGITAL (pH:)	Hydac DIGITAL (Cond:)	✓ (DO:)	Hydac Range DIGITAL (Turb:)

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 5-7-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-DPW4d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT Date: 5-7-97 Start Time: 1405

Project Number: End Time:

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW4d			SL. more turbid @ base of
Total Depth of Well/ Depth to Water	32.40 / 4.20	FEET	screen (32.4-36.0)
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: Duckett

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1420	1435	1440	1445	
Water Temperature	C (F)	73.4	73.1	73.5	73.5	
Hydrogen Ion Activity (pH)	Std. Units	7.5	7.5	7.5	7.5	
Spec. Cond.	uS, mS	1066	1049	1057	1053	
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	4.56AL	7.56AL	8.26AL	8.56AL	167
Turbidity	NTU, JTU	29.5	17.8	17.3	-tubing bottom	
~~Field Headspace~~	ppm	clear NO ODOR			turbid/tubing @ 30':9.3 @ 1440	

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing Development	HYDAC Thermo. Temp:	PHTSTR-2 pH: D16 GAL	HYDAC D16 Cond:	✓ DO:	Hach Hellige Turb: D16

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller Date: 5-7-97

Recorded by: Date:

Reviewed by: Date:

WELL DEVELOPMENT LOG

WELL: TC-DPW5I

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT- BLDG 191 Date: 5-9-97 Start Time: 0650

Project Number: End Time: 0740

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW5I			initial purge wtr milky white;
Total Depth of Well/ Depth to Water	30.95 / 4.37 (5-8-97)	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		0656	0724	0730	0735	0740
Water Temperature	C (F)	72.9	72.8	72.8	72.8	72.9
Hydrogen Ion Activity (pH)	Std. Units	7.6	7.4	7.4	7.4	7.4
Spec. Cond.	uS/mS	1159	1131	1128	1128	1129
~~Dissolved Oxygen (DO)~~ Volume	mg/L, ppm	2.5 GALS	9 GALS	11 GALS	12 GALS	13 GALS
Turbidity	NTU, JTU	236	62	70.8	61.1	55.5
Field Headspace	ppm	MILKY GRY				SL TURBID-GRY

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water: Drum 13

Development Method:

Eqpmnt ID #	Peristaltic Pump w/ Dedicated Teflon Tubing Development	HYDAC Thermocouple Temp:	ATTESTOR2 DIGITAL pH:	HYDAC DIGITAL Cond:	DO:	Geotech Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5-9-97

Recorded by: Date:

Reviewed by: Date:

WELL DEVELOPMENT LOG

WELL: TC-DPW65

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Bldg 191 **Date:** 5-8-97 **Start Time:** 1010

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			Lower yield, maintained
Total Depth of Well/ Depth to Water	8.23 / 3.53	*FEET*	6" wtr column while
Column of Water in Well		*FEET*	developing
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: bucket /

Well	Well ID (in)	Gallons per Foot	Water Col. Ht. (ft)	Well Vol. (gallons)	# of Vol. (circle)	Purge Vol. (gallons)	Bails/Gal. (circle)	# of Bails
Purge	2	0.163	X	-	X 3 5	-	X 3 5 10	-
Vol.	3	0.367	X	-	X 3 5	-	X 3 5 10	-
Calc.	4	0.653	X	-	X 3 5	-	X 3 5 10	-
			X	-	X 3 5	-	X 3 5 10	-

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1015	1018	1020		
Water Temperature	C (F)	75.5	75.5	75.6		
Hydrogen Ion Activity (pH)	*Std. Units*	7.5	7.5	7.5		
Spec. Cond.	(S) *mS*	1079	1078	1080		
~~Dissolved Oxygen (DO)~~ Volume	*mg/L, ppm*	16AL	2.2GAL	2.4GAL		
Turbidity	*NTU, JTU*	9.9	4.8	3.7		
Field Headspace	*ppm*	clear				

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing Development	HYDAC Thermocouple Temp:	PHTestr2 DIGITAL pH:	HYDAC DIGITAL Cond:	X DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Wilder **Date:** 5-8-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: [redacted]

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA Mayport - Bldg 191 Date: 5-8-97 Start Time: [redacted]

Project Number: End Time: 1040

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW6:			
Total Depth of Well/ Depth to Water	26.40 / 5.08	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		0953	0957	1000	1005	1008
Water Temperature	C F	74.2	74.6	74.5	74.7	74.6
Hydrogen Ion Activity (pH)	Std. Units	7.7	7.5	7.5	7.5	7.5
Spec. Cond.	uS, mS	947	942	941	940	940
~~Dissolved Oxygen (DO)~~ VOL	mg/L, ppm	2.5GAL	3GAL	4GAL	5.2GAL	5.7GAL
Turbidity	NTU, JTU	28.3	27.1	19.6	12.8	12.4
Field Headspace	ppm	V slight H_2S odor		- None H_2S odor -		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing Development	Hydac thermocouple Temp:	PHTestr-2 DIGITAL pH:	HYDAC DIGITAL Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5-8-97

Recorded by: Date:

Reviewed by: Date:

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

WELL DEVELOPMENT LOG

WELL: TC DDN 75

Project/Site Name: NAVSTA Mayport Bldg 191 **Date:** 9-2-97 **Start Time:** 1715

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			NOTE: started purging this well last week
Total Depth of Well/ Depth to Water	15.03 / 5.72	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		17:20	17:27	17:35		
Water Temperature	C (F)	80	80	80		
Hydrogen Ion Activity (pH)	*Std. Units*	7.8	7.6	7.5		
Spec. Cond.	(uS) mS	389	413	410		
~~Dissolved Oxygen (DO)~~	*mg/L, ppm*	clear, sulfur	"	"		
Turbidity	*NTU, JTU*	17.0	13.0	12		
~~Field Headspace~~ Vol (GAL)	*ppm*	2.5	3.2	3.5		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Peristaltic w/ Dedicated Teflon tub.

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: _____ **Date:** _____

Recorded by: _____ **Date:** _____

Reviewed by: **Date:**

ICON Environmental Services, Inc.

WELL DEVELOPMENT LOG

WELL: TC DPW 7i

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA Mayport Bldg 191 **Date:** 9-2-97 **Start Time:** 1600

Project Number: **End Time:** 1635

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW7i			Recalibrated all Field Instr.
Total Depth of Well/ Depth to Water	31.45 / 5.91	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1615	1625	1630	1635	
Water Temperature	C (F)	78	77	77.5 <25.27	76 <24.67	
Hydrogen Ion Activity (pH)	*Std. Units*	8.4	7.7	8.8	8.8	
Spec. Cond.	(uS)/mS	336	325	331	335	
Dissolved Oxygen (DO)	*mg/L, ppm*		clear	clear	clear	
Turbidity	*NTU, JTU*	35	20	23	24	
~~Field Headspace~~ Vol (gal)	~~ppm~~ GAL	4	5	6	7	

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Peristaltic Pump w/ Dedicated Teflon Tubing

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
		Thermometer	Digital Meter	OAKTON	✓	Orbeco Hellage

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9-2-97

Recorded by: Date:

Reviewed by: Date:

ICON Environmental Services, Inc.

WELL DEVELOPMENT LOG

WELL: TC DPW 7d

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Bldg 191 **Date:** 9-2-97 **Start Time:** 1638

Project Number: **End Time:** 1710

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	18.03 / 5.98	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1655	1705	1710		
Water Temperature	C (F)	77.0	77.0	77.0		
Hydrogen Ion Activity (pH)	*Std. Units*	8.4	8.0	7.9		
Spec. Cond.	(uS) mS	614	746	744		
Dissolved Oxygen (DO)	*mg/L, ppm*		clear	clear		
Turbidity	*NTU, JTU*	64	28	12		
~~Field Headspace~~ Volume	*ppm*	3 GALS	4 GALS	5 GALS		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Peristaltic & Dedicated Teflon Tubing

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
		Therm				

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: _____ **Date:** 9-2-97

Recorded by: _____ **Date:** _____

Reviewed by: **Date:**

ICON Environmental Services, Inc. — WELL DEVELOPMENT LOG

WELL: TC DPW89

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA Mayport - Bldg 191 **Date:** 9-2-97 **Start Time:** 1335

Project Number: **End Time:** 1410

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	/	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1345	1357	1410		
Water Temperature	C (F)	80.0	79.5	79.5		
Hydrogen Ion Activity (pH)	*Std. Units*	7.9	7.9	7.8		
Spec. Cond.	(uS) mS	640	615	603 611		
~~Dissolved Oxygen (DO)~~	*mg/L, ppm*	Clear	clear	clear		
Turbidity	(NTU) JTU	3.0	3.0	3.0		
~~Field Headspace~~ Vol (cpl)	*ppm*	≈ 2	≈ 4	≈ 6		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
	Peristaltic w/ Dedicated Teflon Tubing					

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: _____ **Date:** _____

Recorded by: _____ **Date:** _____

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC DPWB1

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name:

Date: 9-2-97 Start Time: 12:35

Project Number:

End Time: 13:20

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			Intake taking 2" from bottom
Total Depth of Well/ Depth to Water	30.74 / 4.79	*FEET*	
Column of Water in Well	25.95	*FEET*	
Well Casing Diameter	1.25	*INCH*	
Volume of Water in Well	1.66	*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
	1.25		0.064	X	25.95	-	1.66	X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		12:47	13:05	13:15	13:20	
Water Temperature	C (F)	76.0	75.5	76.0	76.0	
Hydrogen Ion Activity (pH)	*Std. Units*	7.7	7.6	7.8	7.7	
Spec. Cond.	(uS) mS	807	738	740	740	
~~Dissolved Oxygen (DO)~~	*mg/L, ppm*	sl cloudy	sl cloudy	clear	clear	
Turbidity	*NTU, JTU*	97	38	17	16	
~~Field Headspace~~ Vol (Gal)	*ppm*	2	6	8	8.5	

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing	Temp: Therm	pH: digital meter	Cond: OAKton	DO: /	Turb: Orbeco Hellige
	Development					

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Tibbs Date: 9-2-97

Recorded by: Date:

Reviewed by: Date:

ICON Environmental Services, Inc.

WELL DEVELOPMENT LOG WELL: TC DPW8d

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT BLDG 191 **Date:** 9-2-97 **Start Time:** 1415

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW8d			
Total Depth of Well/ Depth to Water	75.60 / 4.95	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1435	1445	1455	1504	1508
Water Temperature	C (F)	78.0	78.0	78.0	78.0	78.0
Hydrogen Ion Activity (pH)	*Std. Units*	7.9	7.9	8.2	8.1	8.1
Spec. Cond. mS	uS (mS)	3.78	3.50	3.48	3.40	3.39
~~Dissolved Oxygen (DO)~~	*mg/L, ppm*	2 turbid	5 yellow	5 yellow	clear	clear
Turbidity	*NTU, JTU*	101	79	39	14	13
~~Field Headspace~~ Vol (gal)	*ppm*	4 GALS	6 GALS	7 GALS	8.5 GALS	8.9 GALS

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water: Drum 10A

Development Method: Peristaltic w/ Dedicated Teflon Tubing

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
		Therm	Digital Meter	Oakton	✓	Orbeco Hellige

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Tuller **Date:** 9-2-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: DPW9s

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Bldg 191 **Date:** 9-2-97 **Start Time:** 8:10

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW9S			Removed little water
Total Depth of Well/ Depth to Water	30.45 / 4.09	*FEET*	
Column of Water in Well	26.36	*FEET*	
Well Casing Diameter	1.25	*INCH*	
Volume of Water in Well	1.68	*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge Vol. Calc.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
	1.25		0.064	X	26.36	-	1.68	X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	
Measurement Time		835	850	904	910	920	930
Water Temperature	C (F)	75	75	76	75.5	75.5	75.5
Hydrogen Ion Activity (pH)	*Std. Units*	6.9	7.5	7.8	8.1	8.0	8.1
Spec. Cond.	~~µS~~ mS	651	619	618	628	636	633
~~Dissolved Oxygen (DO)~~	*mg/L, ppm*	cloudy-white	cloudy-white	cloudy white	cloudy white	clearer	slt turbid
Turbidity	NTU, *JTU*	362	170	177	113	82	81
~~Field Headspace~~ Volume (GALS)	*ppm*	3.2	4.0	5.0	6.0	7.5	9.0

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Pump w/ Peristaltic

Eqpmnt ID #	Peristaltic Pump w/ Dedicated Teflon Tubing (Development)	Therm (Temp:)	digital meter (pH:)	OAKTON (Cond:)	X (DO:)	ORBECO-Hellige (Turb:)

Comments (weather, etc.): screen @ ± 25-30 ft BLS - tubing @ 8" fm bottom. weather cloudy, ± 78°F

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 9-2-97

Recorded by: **Date:**

Reviewed by: **Date:**

ICON Environmental Services, Inc.

WELL DEVELOPMENT LOG WELL: DPW9i

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA Mayport - Bldg 191 **Date:** 9-2-97 **Start Time:** 9:35

Project Number: **End Time:** 10:40

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW9i		gal 2.10 (post development)	Removed much f sand/silts
Total Depth of Well/ Depth to Water	36.90 / 4.03	FEET	-Cond in MS
Column of Water in Well	32.87	FEET	
Well Casing Diameter	1.25	INCH	Post Develop TD: 37.85
Volume of Water in Well	2.1	GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
	1.25		0.064	X	32.87	-	2.1	X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1005	1010	1025	1030	1035
Water Temperature	C (F)	76.3	76.0	76.5	76.0	76.0
Hydrogen Ion Activity (pH)	Std. Units	7.7	7.8	7.7	7.7	7.6
Spec. Cond.	~~µS~~ mS	3.08	4.21	4.21	4.31	4.31
Dissolved Oxygen (DO)	mg/L, ppm	sl turbid	v sl turbid	clear	clear	sl yellow
Turbidity	NTU, JTU	158	56	25	18	17
~~Field Headspace~~ Gallons	ppm	0.8	1.3	3.0	4.0	4.5

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Pump w/ Peristaltic

Eqpmnt ID #	Peristaltic w/ Dedicated Teflon Tubing	Therm	digital meter	OAKTON	X	Orbeco Hellige
	Development	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 9-2-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: DPW9d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MAYPORT - Bldg 191 **Date:** 9-2-97 **Start Time:** 10:40

Project Number: **End Time:** 11:30

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	DPW9d		
Total Depth of Well/ Depth to Water	45.50 / 4.28	*FEET*	Sp. Cond in mS
Column of Water in Well	41.22	*FEET*	
Well Casing Diameter	~~2~~ 1.25	*INCH*	
Volume of Water in Well	2.63	*GAL*	
Actual Volume Removed/Time Comp.	1		Checked with: bucket /

Well	Well ID (in)	Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2	0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3	0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4	0.653	X		-		X	3 5	-		X	3 5 10	-	
	1.25	0.064	X	41.22	-	2.63	X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		11:00	11:20	11:25		
Water Temperature	C (F)	77.0	77.0	77.0		
Hydrogen Ion Activity (pH)	*Std. Units*	7.9	7.8	7.9		
Spec. Cond.	uS, (mS)	3.32	3.36	3.36		
~~Dissolved Oxygen (DO)~~	*mg/L, ppm*	sl turbid	d, sl yellow	d, sl yellow		
Turbidity	(NTU), JTU	54	15	11		
~~Field Headspace~~ Vol (GALS)	*ppm*	2 GALS	6 GALS	6.5 GALS		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Pump w/ Peristaltic

Eqpmnt ID #	Peristaltic w/ dedicated Teflon tubing	Therm	digital meter	ORION	X	Orbeco Hellige
	Development	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 9-2-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-MW7d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA MidRAT - Bldg 191 **Date:** 8-27-97 **Start Time:** 1350

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-MW07d			Initial Head (TOC) 9.43, 4'2" stick up
Total Depth of Well/ Depth to Water	/	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter	2"	*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: ½ of 55 GAL DRUM

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	(2)		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1405	1415	1435	1445	1450 1455 1507
Water Temperature	C F					
Hydrogen Ion Activity (pH)	*Std. Units*					
Spec. Cond.	*uS, mS*	709	502	583	585	589 586 587
~~Dissolved Oxygen (DO)~~ VOL (Gal)	*mg/L, ppm*	23	40	60	80	100 110 110
Turbidity	*NTU, JTU*	245	139	43	42	29 5 5
Field Headspace	*ppm*					

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Grundfos, Power from building Development	Temp:	pH-test #2 pH:	OAKTON Cond:	\ DO:	Orbeco Hellige Turb:

Comments (weather, etc.): PC, ~85°F, windy

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:** 8-27-97

Recorded by: **Date:**

Reviewed by: **Date:**

WELL DEVELOPMENT LOG

WELL: TC-MW08S

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NKUSTA Mayport - Bldg 191 Date: 9-2-97 Start Time: 1225

Project Number: End Time:

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	TC-MW08S		
Total Depth of Well/ Depth to Water	15.15 / 4.70	FEET	SI H_2S odor
Column of Water in Well	16.45	FEET	
Well Casing Diameter	2	INCH	
Volume of Water in Well	1.7	GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	(2)		0.163	X	10.45	-	1.7	X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		12:30	12:40	12:43		
Water Temperature	C (F)	78.0	78.0	78.0		
Hydrogen Ion Activity (pH)	Std. Units	7.6	7.4	7.5		
Spec. Cond.	(uS) mS	709	667	665		
~~Dissolved Oxygen (DO)~~	mg/L, ppm	SI yellow	SI yellow	SI yellow		
Turbidity	(NTU) JTU	30	6	6		
~~Field Headspace~~ Volume (GAL)	ppm	22	41	45		

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method: Pump

Eqpmnt ID #	Grundfos/Decon Poly tubing	Therm	digital meter	ORION	X	Orbeco Hellige
	Development	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller Date: 9-2-97

Recorded by: Date:

Reviewed by: Date:

ICON Environmental Services, Inc. — WELL DEVELOPMENT LOG

WELL: TC MW08

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Project/Site Name: NAVSTA Mayport - Bldg 191 **Date:** 9-2-97 **Start Time:** 1300

Project Number: **End Time:**

MONITORING WELL INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-MW08		
Total Depth of Well/ Depth to Water	/	*FEET*	
Column of Water in Well		*FEET*	
Well Casing Diameter		*INCH*	
Volume of Water in Well		*GAL*	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Vol.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
Calc.	4		0.653	X		-		X	3 5	-		X	3 5 10	-	
				X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5
Measurement Time		1310	1320	1325	1330	
Water Temperature	C (F)	75.0	75.5	75.5	75.5	
Hydrogen Ion Activity (pH)	*Std. Units*	7.8	7.9	7.9	7.9	
Spec. Cond.	(µS) mS	776	798	760	760	
Dissolved Oxygen (DO)	*mg/L, ppm*	sl cloudy	clear	clear	clear	
Turbidity	*NTU, JTU*	122	7.0	13	7.0	
~~Field Headspace~~ Vol (ppl)	*ppm*	35	65	75	80	

SAMPLING AND EQUIPMENT INFORMATION

Disposition of Purge Water:

Development Method:

Eqpmnt ID #	Development	Temp:	pH:	Cond:	DO:	Turb:
	Grundfos Pump w/ Poly Tubing					

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Miller **Date:**

Recorded by: **Date:**

Reviewed by: **Date:**

Appendix D

Well Sampling Field Data Sheets

ICON Environmental Services, Inc. — WELL SAMPLING LOG

WELL: TC-DPW1S

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: ~~0915~~ 1010

Project/Site Name: NAVSTA MAYPORT - ~~6M~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1018

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1020

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW1S		
Total Depth of Well/ Depth to Water	8.43 / 3.09 (5-7-97)	FEET	
Column of Water in Well	5.34	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	0.34	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

	Well ID (in)		Gallons per Foot		Water Col Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Well Purge Vol. Calc.	0.75		0.059	X	0.34	=	.02	X	3 5	=			Screen
	1.25		0.064	X	5	=	0.32	X	3 5	=			Riser
	2		0.163	X		=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1012	1015	1016	1018			
Water Temperature	(C) ~~F~~	25.0	25	25	25			
Hydrogen Ion Activity (pH)	Std. Units	7.8	7.8	7.8	7.8			
Spec. Cond.	(uS) mS	700	600	600	600			
Dissolved Oxygen (DO) Volume	mg/L, ppm	0.2	0.3	0.4	0.5			
Turbidity	NTU, JTU	2.1	2.7	2.1	2.1			
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 8.4-3.4

Submersible Pump / Intake Tubing Depth: 6.5 ~~Submersible Pump~~ / Intake Tubing Depth: 6.5

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TEF TU	~~Same~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPW1d

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 0945

Project/Site Name: NAVSTA MAYPORT - ~~Gate~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1000

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1000

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW1d		
Total Depth of Well/ Depth to Water	40.97 / 4.80 (5-7)	FEET	
Column of Water in Well	36.17	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	2.12	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Purge	0.75		0.059	X	31.17	=	1.8	X	3 5	=		Screen	
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser	
Calc.	2		0.163	X		=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7	
Measurement Time		0947	0950	0952	0954	0956	0957	0959	1000
Water Temperature	C (F)	25.0	24.5	24.5	24.5	24.5	24.5	24.5	24.5
Hydrogen Ion Activity (pH)	Std. Units	8.1	8.0	7.8	7.7	7.7	7.6	7.6	7.7
Spec. Cond.	uS, mS	1700	800	1000	1400	1500	1700	1800	1800
~~Dissolved Oxygen (DO)~~ YSI	mg/L, ppm	0.2	0.4	0.5	1.0	1.2	1.3	1.5	1.8
Turbidity	NTU, JTU	36.2	16.0	7.5	5.4	7.2	5.8	5.5	5.0
Field Headspace	ppm								

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 40.9 - 35.9

Submersible Pump / Intake Tubing Depth: ~~Submersible Pump~~ / Intake Tubing Depth: 37

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TEF TUBING	Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cole Palmer DIGITAL Cond:	/ DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] - SEAL Date: 5/9/97

Recorded by: Greg Thiller - ICON Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPW26

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 0915

Project/Site Name: NAVSTA MAYPORT - ~~Gate~~ BUILDING 191 Purge Date: 5-9-97 End Time: 0928

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 0930

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW26			
Total Depth of Well/ Depth to Water	7.25*/ 5.36 (6897)	FEET	*Note: cut 0.22 ft off riser
Column of Water in Well	1.89	FEET	After reading, but before survey.
Well Casing Diameter		INCH	Subtract 0.22 from reading for
Volume of Water in Well	0.12	GAL	Head elevation
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)	
Purge	0.75		0.059	X		=		X	3 5	=		Screen
Vol.	1.25		0.064	X	1.89	=	0.12	X	3 5	=		Riser
Calc.	2		0.163	X		=		X	3 5	=		

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		0917	0920	0921	0924	0926	0928	
Water Temperature	C (F)	24.0	24.0	24.0	24.0	24	24	
Hydrogen Ion Activity (pH)	Std. Units	7.2	7.2	7.2	7.2	7.1	7.2	
Spec. Cond.	(uS) mS	400	400	400	400	400	400	
Dissolved Oxygen (DO) Vol	mg/L, ppm	0.10	0.4	0.7	1.0	1.2	1.5	
Turbidity	NTU, JTU	4.2	7.3	5.2	4.0	3.7	4.2	
~~Field Headspace~~	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: | Sample Method: | Well Screened Interval: 7.2-2.2

Submersible Pump / Intake Tubing Depth: 6.5 | ~~Submersible Pump~~ / Intake Tubing Depth: 6.5

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic/ Dedicated Purging: TEF TU	~~Grab~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5/9/97

Recorded by: [signature] Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPN2;

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1695

Project/Site Name: NAVSTA MAYPORT - ~~GSA~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1657

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1700

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPN2;			
Total Depth of Well/ Depth to Water	21.65 / 5.37 (5-8-97)	FEET	
Column of Water in Well	16.28	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.0	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	11.28	=	~~10.67~~ 0.66	X	3 5	=	~~X~~	Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1650	1652	1654	1655	1657		
Water Temperature	°F	26.5	26.5	26.5	26.5	26.5		
Hydrogen Ion Activity (pH)	Std. Units	8.1	8.0	7.9	7.8	7.8		
Spec. Cond.	~~uS~~ mS	300	300	300	300	300		
~~Dissolved Oxygen (DO)~~ DO	mg/L, ppm	0.5	0.6	0.7	0.9	1.5		
Turbidity	NTU, JTU	27.7	16.7	13.0	11.1	10.1		
Field Headspace	ppm		Clear					

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 21.6 - 16.6

Submersible Pump / Intake Tubing Depth: Submersible Pump / Intake Tubing Depth: 19

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging: Peristaltic/ Dedicated TBE Tub	Sampling: ~~Bailer~~ TUBING	Temp: Therm.	pH: PHTESTR2 DIGITAL	Cond:	DO:	Turb: Orbeco Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPW2d

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 0853

Project/Site Name: NAVSTA MAYPORT - ~~GSA~~ BUILDING 191 Purge Date: 5-9-97 End Time: 0903

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 0905

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW2d			
Total Depth of Well/ Depth to Water	32.00 / 5.38 (5-8-97)	FEET	
Column of Water in Well	26.6	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.6	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	21.6	=	1.27	X	3 5	=	✓	Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=	✓	Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		0855	0858	0859	0900	0902	0903	
Water Temperature	(C) F	24.0	24.0	24.0	24.0	24.0	24.0	
Hydrogen Ion Activity (pH)	Std. Units	7.5	7.5	7.5	7.5	7.5	7.5	
Spec. Cond.	uS, mS	600	700	700	700	700	700	
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	0.7GAL	0.96AL	1.06AL	1.26AL	1.36AL	1.46AL	
Turbidity	NTU, JTU	11.9	5.0	4.0	3.3	3.0	3.0	
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 32-27

Submersible Pump / Intake Tubing Depth: Submersible Pump / Intake Tubing Depth: 30

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic/ Dedicated Purging: TEF Tub	~~Same~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date:

Reviewed by: Date:

ICON — WELL SAMPLING LOG

WELL: TC-DPW2d

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 11:10

Project/Site Name: NAVSTA Mayport - Bldg 141 — Purge Date: 9-3-97 — End Time: 11:45

Project Number: — Sample Date: 9-3-97 Time: 11:45

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW2d		
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	Drum 12A
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)	Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75	0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2	0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3	0.367	X		-		X	3 5	-		X	3 5 10	-	
	4	0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		11:30	11:35	11:45				
Water Temperature	(C) F	25.3	25.0	24.8				
Hydrogen Ion Activity (pH)	Std. Units	7.2	7.2	7.2				
Spec. Cond.	uS, mS	652	654	655				
~~Dissolved Oxygen (DO)~~	mg/L, ppm	clear	clear	clear				
Turbidity	NTU, JTU	14	8	5				
~~Field Headspace~~ Vol(gal)	ppm	1.8	2.3	3.6				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: 8" off — Sample Method: Teflon Bailer Disposable tubing — Well Screened Interval:

Submersible Pump / Intake Tubing Depth: bottom — Submersible Pump / Intake Tubing Depth: 8" from bottom

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Equipment ID #	Purging: Peristaltic w/ dedicated Teflon Tube	Sampling: Teflon Bailer Disposable Tubing	Temp: Therm/ CALTON	pH: DIGITAL	Cond: CALTON DIGITAL	DO: /	Turb: Oakton Hydrolab DIGITAL

Comments (weather, etc.): OBTAINED BLIND DUPLICATE!!
MPT-TC-BLIND-DUP

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT SDP9-1

ICON WELL SAMPLING LOG

WELL: TC-DPW35

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1420

Project/Site Name: NAVSTA MAYPORT - ~~GOA~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1435

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1435

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW35			Obtain Duplicate —
Total Depth of Well/ Depth to Water	7.90 / 3.37 (5-8-97)	FEET	
Column of Water in Well	4.53	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	0.29	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)	
Purge	0.75		0.059	X		=		X	3 5	=		Screen
Vol.	1.25		0.064	X	4.5	=	0.29	X	3 5	=		Riser
Calc.	2		0.163	X		=		X	3 5	=		

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1425	1430	1435				
Water Temperature	C F	27	27	27				
Hydrogen Ion Activity (pH)	Std. Units	7.3	7.2	7.2				
Spec. Cond.	uS, mS	500	600	600				
~~Dissolved Oxygen (DO)~~ (Quant)	mg/L, ppm	0.4	0.5	1.8				
Turbidity	NTU, JTU	3.1	2.3	1.9				
Field Headspace	ppm	clear	clear	clear				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 7.9-2.9

Submersible Pump / Intake Tubing Depth: 6.5 ~~Submersible Pump~~ / Intake Tubing Depth: 7.0

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic (w) Dedicated Purging: TEF TU	~~Bailer~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date: 5/9/97

Reviewed by: Date:

WELL SAMPLING LOG

WELL: TC-DPW3i

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1445

Project/Site Name: NAVSTA MAYPORT - ~~Golf Course~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1459

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1500

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW3i		
Total Depth of Well/ Depth to Water	26.47 / 4.35 (5.89)	FEET	
Column of Water in Well	22.12	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.33	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Purge	0.75		0.059	X	17.12	=	1.01	X	3 5	=		Screen	
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser	
Calc.	2		0.163	X		=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1455	1457	1459				
Water Temperature	C F	27	27	27				
Hydrogen Ion Activity (pH)	Std. Units	7.4	7.4	7.4				
Spec. Cond.	uS, mS	600	600	600				
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	1GAL	1.2GAL	1.5GAL				
Turbidity	NTU, JTU	4.7	2.9	2.9				
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: | Sample Method: | Well Screened Interval: 26.4 - 21.4

Submersible Pump / Intake Tubing Depth: | Submersible Pump / Intake Tubing Depth: 24

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic/ Dedicated Purging: TEF TU	Sampling: TUBING	Therm. Temp:	pH: PHMESTRZ DIGITAL	Cond:	DO: /	Turb: Orbeco Hellige DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5/9/97

Recorded by: Date:

Reviewed by: Date:

ICON Environmental Services, Inc. — WELL SAMPLING LOG

WELL: TC-DPW31

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1515

Project/Site Name: NAVSTA MAYPORT - ~~6th~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1535

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1540

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	40.75 / 4.65 (5-8-97)	FEET	
Column of Water in Well	36.1	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	2.15	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	31.1	=	1.83	X	3 5	=	X	Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7	7	
Measurement Time		1520	1522	1523	1525	1526	1530	1532	1534	1535
Water Temperature	C F	27	27	27	27	27	27	27	27	27
Hydrogen Ion Activity (pH)	Std. Units	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Spec. Cond.	uS, mS	6900	6900	6800	6800	6500	6900	7100	7100	7100
~~Dissolved Oxygen (DO)~~ Volume	mg/L, ppm	0.8	0.9	1.0	1.2	1.7	2.1	2.5	2.8	2.8
Turbidity	NTU, JTU	47.9	33	35	20.5	42	21.5	15.4	10.7	9.5
Field Headspace	ppm									

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 40.7-35.7

Submersible Pump / Intake Tubing Depth: Submersible Pump / Intake Tubing Depth: 38

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TBS TUBING	Sampling:	Therm. Temp:	PHTESTR 22 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPW3dd

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1545

Project/Site Name: NAVSTA MAYPORT - ~~Fuel~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1603

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1605

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW3dd			
Total Depth of Well/ Depth to Water	44.75 / 5.68 (5-8-97)	FEET	
Column of Water in Well	39	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	2.32	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	34	=	2	X	3 5	=		Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1550	1553	1555	1557	1600	1602	1603
Water Temperature	(C) F	27	27	27	27	27	27	27
Hydrogen Ion Activity (pH)	Std. Units	7.4	7.2	7.1	7.5	7.1	7.1	7.1
Spec. Cond.	uS, mS	10500	12,500	13,500	14,300	15,000	15,400	15,400
~~Dissolved Oxygen (DO)~~ Volume	mg/L, ppm	1.0	1.8	2.0	2.5	3.0	3.1	3.1
Turbidity	NTU, JTU	8.7	6.6	5.4	4.7	3.5	2.5	2.5
Field Headspace	ppm					clear		

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 44.7-39.7

Submersible Pump / Intake Tubing Depth: 41.5 ~~Submersible Pump~~ / Intake Tubing Depth: 41.5

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic/ Dedicated Purging: TEF TU	~~Same~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5/9/97

Recorded by: [signature] Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPW4S

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1120

Project/Site Name: NAVSTA MAYPORT - ~~SWMU~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1136

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1140

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW4S		
Total Depth of Well/ Depth to Water	7.94 / 4.21 (5-7-97)	FEET	
Column of Water in Well	3.73	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	0.24	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Purge	0.75		0.059	X		=		X	3 5	=	✓	Screen	
Vol.	1.25		0.064	X	3.73	=	0.24	X	3 5	=		Riser	
Calc.	2		0.163	X		=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1125	1127	1130	1133	1135	1136	
Water Temperature	(C) F	25	24.5	24	24	24	24	
Hydrogen Ion Activity (pH)	Std. Units	8.9	8.7	8.1	8.0	7.8	7.8	
Spec. Cond.	uS, mS	200	200	200	200	200	200	
~~Dissolved Oxygen (DO)~~ Volume	mg/L, ppm	0.5	0.7	1.2	1.8	2.0	2.2	
Turbidity	NTU, JTU	31.5	24.1	19.6	18.8	17.8	17.0	
Field Headspace	ppm			Water, Slight				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 7.9-2.9

Submersible Pump / Intake Tubing Depth: 7.0 ~~Submersible Pump~~ / Intake Tubing Depth: 7.0

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic/ Dedicated Purging: TEF TC	~~Bailer~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cole Palmer Cond:	DO: ✓	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5/9/97

Recorded by: [signature] - ICON Date: 5-9-97

Reviewed by: Date:

ICON Environmental Services, Inc. — WELL SAMPLING LOG

WELL: TC-DPW4;

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1146

Project/Site Name: NAVSTA MAYPORT - ~~Gym~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1156

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1158

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW4;		
Total Depth of Well/ Depth to Water	21.20 / 4.19 (5-7-97)	FEET	
Column of Water in Well	17.01	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.03	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	12	=	0.71	X	3 5	=		Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1150	1152	1154	1155	1156		
Water Temperature	(C) F	24	24	24	24	24		
Hydrogen Ion Activity (pH)	Std. Units	8.5	8.3	8.1	8.0	8.0		
Spec. Cond.	(uS) mS	600	600	600	600	600		
~~Dissolved Oxygen (DO)~~ Volume	mg/L, ppm	0.3	0.5	0.8	1.1	1.2		
Turbidity	NTU, JTU	6.2	4.4	4.4	4.1	4.1		
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 21.2 - 16.2

Submersible Pump / Intake Tubing Depth: 20 ~~Submersible Pump~~ / Intake Tubing Depth: 20

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TEF Tub	~~Bailer~~ TUBING Sampling:	Therm. Temp:	PHESTRZ DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Muller - ICON **Date:**

Recorded by: **Date:** 5-9-97

Reviewed by: **Date:**

ICON WELL SAMPLING LOG

WELL: TC-DPW4d

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1203

Project/Site Name: NAVSTA MAYPORT - [redacted] BUILDING 191 Purge Date: 5-9-97 End Time: 1217

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1220

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW 4d			
Total Depth of Well/ Depth to Water	32.40 / 4.20	(5-7-97) FEET	
Column of Water in Well	28.2	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.69	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Purge	0.75		0.059	X	23.2	=	1.37	X	3 5	=		Screen	
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser	
Calc.	2		0.163	X		=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1209	1211	1212	1214	1216	1217	
Water Temperature	© F	24	24	24	24	24	24	
Hydrogen Ion Activity (pH)	Std. Units	7.8	7.7	7.6	7.6	7.6	7.6	
Spec. Cond.	uS, mS	600	600	600	600	600	600	
~~Dissolved Oxygen (DO)~~ I/d	mg/L, ppm	0.5GAL	0.7GAL	1GAL	1.2GAL	1.4GAL	1.7GAL	
Turbidity	NTU, JTU	18.7	10.9	8.2	6.2	3.3	4.2	
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 32.4-27.4

Submersible Pump / Intake Tubing Depth: Submersible Pump / Intake Tubing Depth: 30

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic(TC-w) Dedicated Purging: TEF Tef	Sampling: TUBING	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date: 5-9-97

Reviewed by: Date:

ICON Environmental Services, Inc. — WELL SAMPLING LOG

WELL: TC-DPW5i

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1615

Project/Site Name: NAVSTA MAYPORT - ~~Gate~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1635

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1635

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW5i		
Total Depth of Well/ Depth to Water	30.95 / 4.37 (5-8-97)	FEET	
Column of Water in Well	26.58	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.6	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	21.58	=	1.27	X	3 5	=		Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1620	1625	1627	1628	1630	1632	1635
Water Temperature	(C) F	7.5	7.5	7.4	7.4	7.4	7.4	7.4
Hydrogen Ion Activity (pH)	Std. Units	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Spec. Cond.	uS/mS	500	700	700	700	700	700	700
~~Dissolved Oxygen (DO)~~ VOL	mg/L, ppm	0.8	1.0	1.3	1.4	1.7	2.2	2.7
Turbidity	NTU, JTU	96.5	73.3	37	36.5	32	23.5	22.0
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: ~~31~~ - 26

Submersible Pump / Intake Tubing Depth: ~~Submersible Pump~~ / Intake Tubing Depth: 30

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TEF TU	~~Grab~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: _____ Date: _____

Recorded by: _____ Date: _____

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: DPNG5 TC-MW065

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1055

Project/Site Name: NAVSTA MAYPORT - ~~Gate~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1110

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1115

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-~~MW065~~ DPNG5			
Total Depth of Well/ Depth to Water	8.23 / 3.53 (5-8-97)	FEET	
Column of Water in Well	4.7	FEET	
Well Casing Diameter	X	INCH	
Volume of Water in Well	0.3	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Purge	0.75		0.059	X		=		X	3 5	=		Screen	
Vol.	1.25		0.064	X		=		X	3 5	=		Riser	
Calc.	2		0.163	X		=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1058	1100	1102	1107	1110		
Water Temperature	(C) F	25°	25	25	25	25		
Hydrogen Ion Activity (pH)	Std. Units	7.7	7.5	7.7	7.5	7.5		
Spec. Cond.	uS, mS	600	600	700	700	700		
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	0.3	0.5	0.7	1.5	2.5		
Turbidity	NTU, JTU	6.4	4.6	3.3	2.6	3.2		
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method:	Sample Method:	Well Screened Interval:
Submersible Pump / Intake Tubing Depth:	Submersible Pump / Intake Tubing Depth:	

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TBS TU	Sampling: same	Therm. Temp:	pH: DIGITAL	Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5/9/97

Recorded by: [signature] - ICON Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-DPW6

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1030

Project/Site Name: NAVSTA MAYPORT - ~~Fuel Farm~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1044

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1045

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW6			
Total Depth of Well/ Depth to Water	26.40 / 5.08 (5.84)	FEET	
Column of Water in Well	21.32	FEET	
Well Casing Diameter		INCH	
Volume of Water in Well	1.28	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)				
Purge	0.75		0.059	X	16.3	=	0.96	X	3 5	=	~~X~~	Screen			
Vol.	1.25		0.064	X	5	=	0.32	X	3 5	=		Riser			
Calc.	2		0.163	X		=		X	3 5	=					

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1036	1038	1040	1044			
Water Temperature	C F	25	25	25	25			
Hydrogen Ion Activity (pH)	Std. Units	8.2	7.8	8.1	7.6			
Spec. Cond.	uS, mS	600	600	600	600			
~~Dissolved Oxygen (DO)~~ Vol	mg/L, ppm	0.7	1.0	1.5	2.0			
Turbidity	NTU, JTU	3.9	3.3	2.2	2.6			
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval: 26.4-21.4

Submersible Pump / Intake Tubing Depth: 25 ~~Submersible Pump~~ / Intake Tubing Depth: 25

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic w/ Dedicated Purging: TEF TU	~~Bailer~~ TUBING Sampling:	Therm. Temp:	PHTESTR2 DIGITAL pH:	Cole Palmer Cond:	DO:	Orbeco Hellige Turb: DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 5/9/97

Recorded by: Date: 5-9-97

Reviewed by: Date:

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

WELL SAMPLING LOG

WELL: TC DPW8S

Purge Start Time: 1300

Project/Site Name: NKWSTA Mayport Bldg 191 Purge Date: 9-3-97 End Time: 1315

Project Number: Sample Date: 9-3-97 Time: 1315

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW8S			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: bucket /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1305	1310	1315				
Water Temperature	(C) F	27.3	27.0	27.0				
Hydrogen Ion Activity (pH)	Std. Units	7.2	7.2	7.2				
Spec. Cond.	uS, mS	533	512	501				
Dissolved Oxygen (DO)	mg/L, ppm	clear	clear	clear				
Turbidity	(NTU) JTU	3	6	2				
Field Headspace	ppm	1.0	2.0	2.8				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Teflon tubing Sample Method: Gloved Finger Well Screened Interval:

Submersible Pump / Intake Tubing Depth: Bottom Submersible Pump / Intake Tubing Depth: Bottom

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT SDG-1

WELL SAMPLING LOG

WELL: TC DPW8i

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1325

Project/Site Name: Navy Mayport Bldg 191 **Purge Date:** 9-3-97 **End Time:** 1345

Project Number: **Sample Date:** 9-3-97 **Time:** 1345

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW8i			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1333	1337	1343	1345			
Water Temperature	(C) F	26.5	25.2	24.9	24.9			
Hydrogen Ion Activity (pH)	Std. Units	7.3	7.2	7.1	7.1			
Spec. Cond.	(us) mS	600	601	593	595			
~~Dissolved Oxygen (DO)~~	mg/L, ppm		clear					
Turbidity	NTU, JTU	32	18	5	5			
Field Headspace Vol (gal)	ppm	1.5	2.0	3.0	3.3			

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Bladder Pump w/ Dedicated Teflon Tube | Sample Method: Gloved Finger | Well Screened Interval:

Submersible Pump / Intake Tubing Depth: Bottom | Submersible Pump / Intake Tubing Depth: Bottom

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.): Clear, but rain last night

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Mutz **Date:** 9-3-97

Recorded by: **Date:**

Reviewed by: **Date:**

EXHIBIT SOP9-1

ICON — WELL SAMPLING LOG

WELL: TC DPW8d

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1355

Project/Site Name: NASA Mayport-Bldg 191 **Purge Date:** 9-3-97 **End Time:** 1415

Project Number: **Sample Date:** 9-3-97 **Time:** 1415

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW8d			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)	Gallons per Foot	Water Col. Ht. (ft)	Well Vol. (gallons)	# of Vol. (circle)	Purge Vol. (gallons)	Bails/Gal. (circle)	# of Bails
Purge Vol. Calc.	0.75	0.059	X	-	X 3 5 -		X 3 5 10 -	
	2	0.163	X	-	X 3 5 -		X 3 5 10 -	
	3	0.367	X	-	X 3 5 -		X 3 5 10 -	
	4	0.653	X	-	X 3 5 -		X 3 5 10 -	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1400	1408	1413	1415			
Water Temperature	(C) F	26.1	24.7	29.8	24.8			
Hydrogen Ion Activity (pH)	Std. Units	7.1	7.2	7.2	7.2			
Spec. Cond.	uS/mS	5.10	5.35	5.52	5.55			
~~Dissolved Oxygen (DO)~~	mg/L, ppm	stirred	clear	clear	clear			
Turbidity	NTU, JTU	42	17	12	10			
Field Headspace (Vol)	ppm	1.7	2.3	3.1	3.3			

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Teflon Tubing Sample Method: Gloved Finger w/ Tubing Well Screened Interval:

Submersible Pump / Intake Tubing Depth: Bottom Submersible Pump / Intake Tubing Depth: Bottom

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Tubbs **Date:** 9-3-97

Recorded by: **Date:**

Reviewed by: **Date:**

EXHIBIT SOP9-1

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

WELL SAMPLING LOG

WELL: TC DPW9S

Purge Start Time: 1535

Project/Site Name: NAVSTA Mayport Bldg 191 Purge Date: 9-3-97 End Time: 1610

Project Number: Sample Date: 9-3-97 Time: 1615

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW9S			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	Dam 11A
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1555	1600	1605	1610			
Water Temperature	(C) F	25.0	25.0	25.0	25.0			
Hydrogen Ion Activity (pH)	Std. Units	8.1	7.4	7.5	7.5			
Spec. Cond.	(mS), mS	686	665	663	659			
~~Dissolved Oxygen (DO)~~	mg/L, ppm	3 milky	milky	2 milky	3 milky			
Turbidity	NTU, JTU	101	59	52	41			
Field Headspace Vol (GM)	ppm	3.5	4.2	4.5	5.0			

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Teflon Tubing Sample Method: Gloved Finger over tubing Well Screened Interval:

Submersible Pump / Intake Tubing Depth: by Horn Submersible Pump / Intake Tubing Depth: BOTTOM

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp: OAKTON DIGITAL	pH: DIGITAL Meter	Cond: OAKTON DIGIT.	DO:	Turb: Orbeco Hellige

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date:

Recorded by: Date:

Reviewed by: Date:

EXHIBIT SCM-1

WELL SAMPLING LOG

WELL: TC DPW9i

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1625

Project/Site Name: MAUSTA Newport- Bldg 191 Purge Date: 9-3-97 End Time: 1700

Project Number: Sample Date: 9-3-97 Time:

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW9i		
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	Drum ID A
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1640	1645	1651	1658			
Water Temperature	°F	25.0	25.0	25.0	25.0			
Hydrogen Ion Activity (pH)	Std. Units	7.3	7.3	7.2	7.3			
Spec. Cond. MS	uS, (mS)	5.07	4.99	4.99	4.99			
Dissolved Oxygen (DO)	mg/L, ppm	slcloudy	s. turbid	yellow	yellow			
Turbidity	NTU, JTU	66	44	26	25			
Field Headspace VOC (gal)	ppm	2.0	2.9	3.6	4.0			

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Teflon Tube Sample Method: Gloved Finger over tubing Well Screened Interval:

Submersible Pump / Intake Tubing Depth: bottom Submersible Pump / Intake Tubing Depth: bottom

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Peristaltic Purging:	Gloved Finger Ded. Tubing Sampling:	OAKTON DIGITAL Temp:	DIGITAL pH:	OAKTON DIGITAL Cond:	DO:	ORBECO Hellige Turb:

Comments (weather, etc.): Hot, clear

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9/3/97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT SOIL-1

WELL SAMPLING LOG

WELL: TC DPW 9d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1505

Project/Site Name: NAVSTA Mayport - Bldg 191 Purge Date: 9-3-97 End Time: 1530

Project Number: Sample Date: 9-3-97 Time: 1530

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-DPW9d		
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	Drum ID#
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1520	1525	1530				
Water Temperature	(C) F	25.0	25.0	25.0				
Hydrogen Ion Activity (pH)	Std. Units	7.6	7.5	7.6				
Spec. Cond.	uS/(mS)	3.59	3.73	3.61				
~~Dissolved Oxygen (DO)~~	mg/L, ppm	milky	clear	clear				
Turbidity	NTU, JTU	47	14	7.0				
~~Field Headspace~~ VOC (GAS)	ppm	2.0	2.7	3.2				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Teflon Sample Method: Glove First over tubing Well Screened Interval:

Submersible Pump / Intake Tubing Depth: Tubing Submersible Pump / Intake Tubing Depth:

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.): Hot, clear

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT SOP4-1

WELL SAMPLING LOG

WELL: TC DPW75

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1800

Project/Site Name: NAVSTA Meyport - Bldg 191 Purge Date: 9-3-97 End Time: 1815

Project Number: Sample Date: 9-3-97 Time: 1815

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1807	1813	1815				
Water Temperature	C (F)	82	80	80				
Hydrogen Ion Activity (pH)	Std. Units	7.7	7.6	7.5				
Spec. Cond.	(uS) mS	436	433	420				
~~Dissolved Oxygen (DO)~~	mg/L, ppm	Syglass		Syglass				
Turbidity	NTU, JTU	10	9	9				
~~Field Headspace~~ Vol (GC)	ppm	1.8	2.6	3.1				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Sample Method: Well Screened Interval:

Submersible Pump / Intake Tubing Depth: Submersible Pump / Intake Tubing Depth:

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Greg Tillo Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT 6-P1-1

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

WELL SAMPLING LOG

WELL: TC DPW7i

Purge Start Time: 1735

Project/Site Name: NAVSTA Mayport - Bldg 191 Purge Date: 9-3-97 End Time: 1757

Project Number: Sample Date: 9-3-97 Time: 1800

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MDT-TC-DPW7i			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1747	1753	1757				
Water Temperature	(C) F	25.0	25.0	25.0				
Hydrogen Ion Activity (pH)	Std. Units	8.7	8.7	8.7				
Spec. Cond.	(uS) mS	357	350	350				
Dissolved Oxygen (DO)	mg/L, ppm	5 gallons	5 gallons	5 gal				
Turbidity	NTU, JTU	48	29	18				
Field Headspace VOA Gal	ppm	1.8	2.1	3.3				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/Dedicated Teflon Tubing Sample Method: Gloved Fingergrown Teflon Tube Well Screened Interval:

Submersible Pump / Intake Tubing Depth: BOTTOM Submersible Pump / Intake Tubing Depth: BOTTOM

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT 5-94-1

WELL SAMPLING LOG

WELL: TC DPW7d

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1715

Project/Site Name: Louisiana Maypark - bldg 191 Purge Date: 9-3-97 End Time: 1735

Project Number: Sample Date: 9-3-97 Time: 1735

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC-DPW7d			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1725	1730	1735				
Water Temperature	(C) F	25.0	25.0	25.0				
Hydrogen Ion Activity (pH)	Std. Units	8.2	8.0	7.9				
Spec. Cond.	(µS) mS	707	656	671				
~~Dissolved Oxygen (DO)~~	mg/L, ppm	Swell	clear	clear				
Turbidity	NTU, JTU	27	15	15				
Field Headspace Vol (gas)	ppm	2.0	2.3	3.1				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Teflon Tubing Sample Method: Grab First over tubing Well Screened Interval:

Submersible Pump / Intake Tubing Depth: BOTTOM Submersible Pump / Intake Tubing Depth: BOTTOM

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT 5099-1

ICON Environmental Services, Inc. — WELL SAMPLING LOG

WELL: TC-MW045

5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1250

Project/Site Name: NAVSTA MAYPORT - ~~GSA~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1310

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1315

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-MW045		Ran BLANK #1 thru tubing
Total Depth of Well/ Depth to Water	12.80 / 4.12	FEET	prior to purging;
Column of Water in Well	8.68	FEET	MPT-TC-~~EQ~~BLK1-0597
Well Casing Diameter	4	INCH	
Volume of Water in Well	5.66	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Purge	0.75		0.059	X		=		X	3 5	=		Screen	
Vol.	1.25		0.064	X		=		X	3 5	=		Riser	
Calc.	2		0.163	X		=		X	3 5	=			
	4		0.653		8.68								

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1305	1318	1310				
Water Temperature	(C) F	24	24	24				
Hydrogen Ion Activity (pH)	Std. Units	7.1	7.0	7.0				
Spec. Cond.	uS, mS	300	300	300				
~~Dissolved Oxygen (DO)~~ Volume	mg/L, ppm	3.2GAL	4GAL	4.2GAL				
Turbidity	NTU, JTU	12.5	12.8	11.7				
Field Headspace	ppm	floating meter						

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: | Sample Method: | Well Screened Interval: 24-13.4

Submersible Pump / Intake Tubing Depth: | ~~Submersible Pump~~ / Intake Tubing Depth:

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging: ~~Peristaltic~~ TEF TUBING	Sampling: TEF TUBING	Temp: Therm.	pH: PHTESTR2 DIGITAL	Cond:	DO:	Turb: Orbeco Hellige DIGITAL
Decon	~~Peristaltic~~						

Comments (weather, etc.): Datum 11

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 5-9-97

Recorded by: [signature] Date: 5-9-97

Reviewed by: Date:

ICON WELL SAMPLING LOG

WELL: TC-MW06S

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1345

Project/Site Name: NAVSTA MAYPORT - ~~Gulf~~ BUILDING 191 Purge Date: 5-9-97 End Time: 1400

Project Number: 9052-001-0300 Sample Date: 5-9-97 Time: 1400

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #	MPT-TC-MW06S		Obtain eq blnk 2 prior to purging: MPT-TC-EQBLK2-0597 - Much bacteria & biosolids(mat)
Total Depth of Well/ Depth to Water	~15 / 3.97	FEET	
Column of Water in Well	11.03	FEET	
Well Casing Diameter	2	INCH	
Volume of Water in Well	1.8	GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		
Well Purge Vol. Calc.	0.75		0.059	X		=		X	3 5	=		Screen	
	1.25		0.064	X		=		X	3 5	=		Riser	
	2		0.163	X	11.03	=		X	3 5	=			

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1355	1357	1358	1359	1400		
Water Temperature	C F	26	26	26	26	26		
Hydrogen Ion Activity (pH)	Std. Units	7.6	7.6	7.6	7.3	7.3		
Spec. Cond.	uS, mS	500	500	500	500	500		
~~Dissolved Oxygen (DO)~~	mg/L, ppm	2.56AL	2.66AL	3CAL	3.26AL	3.36AL		
Turbidity	NTU, JTU	5.8	3.5	2.7	2.2	2.5		
Field Headspace	ppm							

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated

Submersible Pump / Intake Tubing Depth: TOT TC

Sample Method: same

~~Submersible Pump~~ / Intake Tubing Depth: on bottom

Well Screened Interval:

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:
			Therm.	PHTESTR2 DIGITAL		✓	Oyster Hydrolab DIGITAL

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date:

Recorded by: Greg Miller Date: 5-9-97

Reviewed by: Date:

ICON Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

WELL SAMPLING LOG

WELL: TC- ~~[illegible]~~ MPT-TC-MW07D

Project/Site Name: NAVSTA Mayport - Bldg 191

Project Number:

Purge Start Time: 845

Purge Date: 9-3-97 End Time: 9:08

Sample Date: 9-3-97 Time: 9:10

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC- ~~[illegible]~~ MW7D			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	Drum 12A
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		9:00	9:05	9:08				
Water Temperature	C F	(26.0) 18.5	25.6	26.3				
Hydrogen Ion Activity (pH)	Std. Units	7.1	7.1	7.1				
Spec. Cond.	(uS) mS	618	619	618				
Dissolved Oxygen (DO)	mg/L, ppm	clear	clear	clear				
Turbidity	NTU, JTU	2	2	2				
~~Field Headspace~~ Vol (gals)	ppm	2.3	2.6	2.7				

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: (Submersible Pump) Intake Tubing Depth: bottom

Sample Method: good fingerown tubing — Submersible Pump / Intake Tubing Depth: bottom

Well Screened Interval:

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging: Peristaltic ~~[illegible]~~ T-Tube	Sampling: same - good finger tubing	Temp: Horm	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT 5094-1

ICON WELL SAMPLING LOG

WELL: TC-MW08S

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 1430

Project/Site Name: NAVSTA Mayport Bldg 191 Purge Date: 9-3-97 End Time: 1450

Project Number: Sample Date: Time:

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well # MPT-TC MW08S			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1440	1443	1447	1450			
Water Temperature	(C) F	30.5	28.9	29.0	29.0			
Hydrogen Ion Activity (pH)	Std. Units	7.3	7.1	7.0	7.0			
Spec. Cond.	(uS) mS	578	542	538	536			
Dissolved Oxygen (DO)	mg/L, ppm	Syellow	Syellow	Syellow	Syellow			
Turbidity	NTU, JTU	14	7.0	6.0	6.0			
~~Field Headspace~~ Vol (gal)	ppm	2.0	2.6	2.8	2.9			

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs, (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Dedicated Tygon Tubing Sample Method: Glove Fingrove tubing Well Screened Interval:

Submersible Pump / Intake Tubing Depth: bottom Submersible Pump / Intake Tubing Depth: Bottom

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.):

SIGNATURES (Signed Initials)

Purged/Sampled by: Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT 5099-1

ICON — WELL SAMPLING LOG

WELL: TC-MW8i

Environmental Services, Inc. 5637 Superior Drive Suite B-1 Baton Rouge, LA 70816 (504) 291-9499

Purge Start Time: 12:30

Project/Site Name: NRASTA Meyport - Bldg 191 Purge Date: 9-3-97 End Time: 13:00

Project Number: Sample Date: 9-3-97 Time: 13:00

MONITOR WELL & PURGING INFORMATION

Parameter	Value	Units	Comments
Monitor Well #			
Total Depth of Well/ Depth to Water	/	FEET	
Column of Water in Well		FEET	
Well Casing Diameter		INCH	
Volume of Water in Well		GAL	
Volume of Water to be Purged		GAL	
Actual Volume Removed/Time Comp.	/		Checked with: /

Well	Well ID (in)		Gallons per Foot		Water Col. Ht. (ft)		Well Vol. (gallons)		# of Vol. (circle)		Purge Vol. (gallons)		Bails/Gal. (circle)		# of Bails
Purge	0.75		0.059	X		-		X	3 5	-		X	3 5 10	-	
Vol.	2		0.163	X		-		X	3 5	-		X	3 5 10	-	
Calc.	3		0.367	X		-		X	3 5	-		X	3 5 10	-	
	4		0.653	X		-		X	3 5	-		X	3 5 10	-	

FIELD PARAMETERS

Parameter	Units	1	2	3	4	5	6	7
Measurement Time		1240	1250	1255	1300			
Water Temperature	(C) F	26.8	27.9	26.1	26.0			
Hydrogen Ion Activity (pH)	Std. Units	7.5	7.4	7.6	7.4			
Spec. Cond.	uS, mS	632	613	627	629			
~~Dissolved Oxygen (DO)~~	mg/L, ppm	clear	clear	clear	clear			
Turbidity	NTU, JTU	9	6	5	5			
Field Headspace (gal)	ppm	2	2.8	3.2	3.5			

SAMPLING AND EQUIPMENT INFORMATION

Sample collection sequence followed: (1) VOCs (2) extr. organics, (3) total metals, (4) diss. metals, (5) microbiology, (6) inorganics, (7) radionuclides?

Y or N (circle), if no, why?

Purge Method: Peristaltic w/ Decon Teflon tube | Sample Method: gloved finger dipped | Well Screened Interval:

Submersible Pump / Intake Tubing Depth: 2 ft from | Submersible Pump / Intake Tubing Depth:

Fuel-powered equipment used for purging/sampling? Y or N ; if yes, where?

Eqpmnt ID #	Purging:	Sampling:	Temp:	pH:	Cond:	DO:	Turb:

Comments (weather, etc.): Acquired equipment blank prior to sampling; pumped DI water (Cat# 2073, Lot# H227, Aug 2297, Lang's Solutions) through decontd Teflon tubing, sampled w/ gloved finger over end.

SIGNATURES (Signed Initials)

Purged/Sampled by: [signature] Date: 9-3-97

Recorded by: Date:

Reviewed by: Date:

EXHIBIT SDG-1

Appendix E

Elevation Survey

HOLLAND BASSETT
H&B
SURVEYORS, INC.

TELECOPIER COVER SHEET

Date: 9-17-97
Time: 10:30 a.m.
To: ICON
Fax No. (504) 291-4563
Attn: PAT BROUSSARD
From: ANDY PEARSON

Project Name: MAYPORT NAS WELL LOCATIONS
Project Location:
H&B Project No. 22697
H&B Work Order No. 378.97
Priority

Remarks: PAT:
PAGE 2 IS A TABULATION OF 48 WELL LOCATIONS ON THE TWO SITES AT MAYPORT NAS. IF THIS IS SATISFACTORY, FINAL DELIVERABLES WILL FOLLOW. IF YOU HAVE ANY QUESTIONS OR COMMENTS, PLEASE GIVE US A CALL -

THANKS,

Andy Pearson

This information is transmitted:

____ per your request	____ as requested by client
____ for your approval	✓ for review and comment
____ for your use	____ per our conversation

There are 2 pages being transmitted, including this page.
Hard copy to follow: ____ yes ✓ no

If you do not receive all pages, or have difficulty reading this transmission, please notify the sender immediately at the phone number below.

7801 Alton Avenue
Jacksonville, Florida 32211
(904) 805-9896
(904) 805-9897 FAX

MONITORING WELL LOCATION TABLE - BUILDING 191 AREA			
WELL NO.	NORTHING	EASTING	WELL ELEV.
MPT-TC-DPW-1D	2200975.6191	371732.1966	9.65
MPT-TC-DPW-1S	2200975.7789	371729.5709	9.64
MPT-TC-DPW-2D	2200877.8230	371560.1062	9.95
MPT-TC-DPW-2S	2200879.4793	371558.8622	9.75
MPT-TC-DPW-2I	2200878.3064	371558.5398	9.92
MPT-TC-DPW-3D	2200930.8694	371685.2990	9.10
MPT-TC-DPW-3S	2200930.9852	371680.9435	9.09
MPT-TC-DPW-3I	2200930.9608	371683.0927	9.03
MPT-TC-DPW-3DI	2200930.8849	371687.3941	9.10
MPT-TC-DPW-4D	2200979.4736	371525.5518	8.65
MPT-TC-DPW-4S	2200978.1881	371524.0706	8.78
MPT-TC-DPW-4I	2200977.4613	371525.0895	8.75
MPT-TC-DPW-5I	2200896.6070	371337.7531	8.65
MPT-TC-DPW-6S	2200860.0086	371739.0884	9.72
MPT-TC-DPW-6I	2200858.1954	371739.3814	9.84
MPT-TC-DPW-7D	2200599.3097	371317.7985	9.74
MPT-TC-DPW-7S	2200600.2759	371316.9977	9.68
MPT-TC-DPW-7I	2200599.4164	371316.4235	9.82
MPT-TC-MW-7D	2200676.8269	371562.3401	10.06
MPT-TC-DPW-8D	2200743.5695	371187.2556	8.70
MPT-TC-DPW-8S	2200744.4059	371188.2525	8.72
MPT-TC-DPW-8I	2200744.8281	371186.8863	8.70
MPT-TC-MW-8S	2200743.9452	371185.3496	8.60
MPT-TC-MW-8I	2200744.3637	371190.7512	8.65
MPT-TC-DPW-9D	2200880.8225	371417.3868	8.32
MPT-TC-DPW-9S	2200879.0036	371419.2466	8.26
MPT-TC-DPW-9I	2200877.0006	371421.2650	8.27

NOTE: ALL WELL ELEVATIONS WERE TAKEN ON NORTH RIM OF 1" PVC AND ARE REFERENCED TO NGVD 1929.

MONITORING WELL LOCATION TABLE - HISTORIC LIGHTHOUSE AREA			
WELL NO.	NORTHING	EASTING	WELL ELEV.
MPT-15-DPW-1D	2203076.3036	365824.7181	12.16
MPT-15-DPW-1S	2203077.3454	365827.5181	12.13
MPT-15-DPW-1I	2203079.1998	365825.9253	12.11
MPT-15-DPW-2D	2203163.6147	365555.1498	10.81
MPT-15-DPW-2S	2203163.9378	365552.7157	10.83
MPT-15-DPW-3D	2203181.8782	365725.4153	12.32
MPT-15-DPW-3S	2203181.6964	365728.2166	12.37
MPT-15-DPW-3I	2203183.4708	365726.6039	12.33
MPT-15-DPW-4D	2203328.8127	365741.6423	12.27
MPT-15-DPW-4S	2203326.6963	365741.3199	12.23
MPT-15-DPW-4I	2203328.0581	365739.5738	12.23
MPT-15-DPW-5D	2203127.8026	365671.1095	11.85
MPT-15-DPW-5S	2203126.3005	365672.7260	11.86
MPT-15-DPW-5I	2203128.6605	365672.9357	11.89
MPT-15-DPW-6D	2203249.8830	365826.9912	12.70
MPT-15-DPW-6S	2203252.2231	365827.0689	12.73
MPT-15-DPW-6I	2203251.7428	365824.7119	12.75
MPT-15-MW-6S	2203217.9927	365785.9162	12.83
MPT-15-DPW-7D	2203168.4279	365783.1653	12.27
MPT-15-MW-7D	2203169.9804	365777.7315	12.45
MPT-15-MW-8S	2203181.5344	365688.8513	11.88

NOTE: ALL WELL ELEVATIONS WERE TAKEN ON NORTH RIM OF 1" PVC AND ARE REFERENCED TO NGVD 1929.

Sep-17-97 12:43P P.02

Appendix F

Laboratory Analyses

CH2M HILL
Analytical Services
2567 Fairlane Drive
Montgomery, AL
36116-1622
P.O. Box 231148
Montgomery, AL
36123-1148
Tel 334.271.2440
Fax 334.271.3428

CH2MHILL

May 19, 1997

Mr. Greg Miller
ICON Environmental Services, Inc.
5637 Superior Drive
Suite B-1
Baton Rouge, LA 70816

Reference#: **MD578**

Subject: **ICON Environmental/Mayport**

Dear Mr. Greg Miller,

CH2M HILL Analytical Services received samples on May 10, 1997 for analysis in conjunction with this project. Enclosed please find your completed analytical results and the associated quality control data.

Your samples will be stored for 30 days, prior to disposal.

We appreciate the opportunity to work with you on this project. Should you have any questions regarding your samples, or if you need additional information, please call me at **(334) 271-2440**.

Sincerely,

Spencer Hamil
Project Manager/Client Services

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Level 1N

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Organic Data Qualifiers

A -- This qualifier indicates that a TIC is a suspected aldol-condensation product.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests that the data user evaluate these compounds and their amounts carefully.

C -- The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

D -- This qualifier is used for all compounds identified in an analysis at a secondary dilution factor. "D" qualifiers are used only for the samples reported at more than one dilution factor.

E -- This flag indicates that the value reported exceeds the linear calibration range for that compound. Therefore, the sample should be reanalyzed at an appropriate dilution. The "E" qualified amount is an estimated concentration, and the results of the dilution will be reported on a separate Form I.

I -- This qualifier indicates that the reporting limit adjacent to the "I" qualifier has been raised. It is used when chromatographic interference prohibits detection of a compound at a level below the concentration expressed on the Form I.

J -- Indicates an estimated value. It is used when the data indicates the presence of a target compound below the reporting limit or the presence of a Tentatively Identified Compound (TIC).

N -- This qualifier indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.

P -- This qualifier is used for pesticide/Aroclor target analytes when there is a greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a "P".

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for that compound. The reporting limit can vary from sample to sample depending on dilution factors or percent moisture adjustments when indicated.

Organic Sample ID Qualifiers

The qualifiers that may be appended to the Lab Sample ID and/or the Client Sample ID for organic analyses are defined below:

DL -- Diluted reanalysis. Indicates that the results were determined in an analysis of a secondary dilution of a sample or extract. The "DL" suffix may be followed by a digit to indicate multiple dilutions of the sample or extract. The results of more than one diluted reanalyses may be reported.

MS -- Matrix spike (may be followed by a digit to indicate multiple matrix spikes within a sample set).

MSD - Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spikes within a sample set).

R -- Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalyses of the sample at the same dilution.

RE -- Re-extraction analysis. The sample was re-extracted and reanalyzed. May be followed by a digit to indicate multiple re-extracted analyses of the sample at the same dilution.

Sample ID Cross-reference Table

CH2M Hill Lab Sample ID		Client Sample ID	Collect Date	Sample Matrix	Additional Description
EB = Equipment Blank; FD = Field Duplicate; FS = Field Sample; TB = Trip Blank					
MD578000	FS	ADM	05/12/97	Administration	
MD578001	FS	DPW1S	05/09/97	Water	MPT-TC-0597
MD578002	FS	DPW1D	05/09/97	Water	MPT-TC-0597
MD578003	FS	DPW2S	05/09/97	Water	MPT-TC-0597
MD578004	FS	DPW2I	05/09/97	Water	MPT-TC-0597
MD578005	FS	DPW2D	05/09/97	Water	MPT-TC-0597
MD578006	FS	DPW3S	05/09/97	Water	MPT-TC-0597
MD578007	FS	DPW3I	05/09/97	Water	MPT-TC-0597
MD578008	FS	DPW3D	05/09/97	Water	MPT-TC-0597
MD578009	FS	DPW3DD	05/09/97	Water	MPT-TC-0597
MD578010	FS	DPW4S	05/09/97	Water	MPT-TC-0597
MD578011	FS	DPW4I	05/09/97	Water	MPT-TC-0597
MD578012	FS	DPW4D	05/09/97	Water	MPT-TC-0597
MD578013	FS	DPW5I	05/09/97	Water	MPT-TC-0597
MD578014	FS	DPW6S	05/09/97	Water	MPT-TC-0597
MD578015	FS	DPW6I	05/09/97	Water	MPT-TC-0597
MD578016	FS	MW04S	05/09/97	Water	MPT-TC-0597
MD578017	FS	MW06S	05/09/97	Water	MPT-TC-0597
MD578018	EB	EQBLNK1	05/09/97	Water	MPT-TC-0597
MD578019	EB	EQBLNK2	05/09/97	Water	MPT-TC-0597
MD578020	FD	DPW3S	05/09/97	Water	MPT-TC-0597-D
MD578021	FD	DPW3I	05/09/97	Water	MPT-TC-0597-D
MD578022	TB	TRIPBLANK	05/09/97	Water	

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

GC PURGEABLE HALOCARBONS

CASE NARRATIVE
GC PURGEABLE HALOCARBONS

QAL Lab Reference No./SDG: MD578

Project: ICON Environmental/Mayport

I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody included with this data package.

II. HOLDING TIMES

A. Sample Preparation: All holding times were met

B. Sample Analysis: All holding times were met.

III. METHOD

Preparation: SW-846 5030

Cleanup: N/A

Analysis: SW-846 8010 (Mod)

IV. PREPARATION

Not applicable.

V. ANALYSIS

A. Calibration : All acceptance criteria were met.

B. Blanks: All acceptance criteria were met.

C. Surrogates: All acceptance criteria were met.

D. Spikes: 1,3-Dichlorobenzene was outside MS/MSD recovery limits for precision (RPD) in the MS/MSD analyzed on 5/12/97. However analysis of a Laboratory Control Sample immediately after the MS/MSD indicated the system was in control for all target compounds in the associated samples. Recoveries were within advisory limits for all other target compounds in all MS/MSDs analyzed with samples.

E. Samples: Sample analysis proceeded normally. Samples MD578005 (DPW2D), MD578007 (DPW3I) and MD578008 (DPW3D) contained one non-target compound. Sample MD578005 (DPW2D) was diluted to prevent target compounds from exceeding the calibration range of the instrument.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and QAL, Inc., both technically and for completeness except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

SIGNED: Tammy Carey for Herb Kelly
Organic Division Manager

DATE: 05/19/97

CASE NARRATIVE
Addendum

Sample Information

LAB SAMPLE ID	CLIENT SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	SAMPLE pH[1]
MD578001	DPW1S	WATER	05/09/97	N/A	05/12/97	<2
MD578002	DPW1D	WATER	05/09/97	N/A	05/12/97	<2
MD578003	DPW2S	WATER	05/09/97	N/A	05/12/97	<2
MD578004	DPW2I	WATER	05/09/97	N/A	05/12/97	<2
MD578005	DPW2D	WATER	05/09/97	N/A	05/15/97	<2
MD578006	DPW3S	WATER	05/09/97	N/A	05/13/97	<2
MD578007	DPW3I	WATER	05/09/97	N/A	05/13/97	<2
MD578008	DPW3D	WATER	05/09/97	N/A	05/14/97	<2
MD578009	DPW3DD	WATER	05/09/97	N/A	05/14/97	<2
MD578010	DPW4S	WATER	05/09/97	N/A	05/14/97	<2
MD578011	DPW4I	WATER	05/09/97	N/A	05/14/97	<2
MD578012	DPW4D	WATER	05/09/97	N/A	05/14/97	<2
MD578013	DPW5I	WATER	05/09/97	N/A	05/14/97	<2
MD578014	DPW6S	WATER	05/09/97	N/A	05/14/97	<2
MD578015	DPW6I	WATER	05/09/97	N/A	05/14/97	<2
MD578016	MWO4S	WATER	05/09/97	N/A	05/14/97	<2
MD578017	MWO6S	WATER	05/09/97	N/A	05/14/97	<2
MD578018	EQBLNK1	WATER	05/09/97	N/A	05/14/97	<2
MD578019	EQBLNK2	WATER	05/09/97	N/A	05/14/97	<2
MD578020	DPW3S	WATER	05/09/97	N/A	05/14/97	<2
MD578021	DPW3I	WATER	05/09/97	N/A	05/14/97	<2
MD578022	TRIPBLANK	WATER	05/09/97	N/A	05/14/97	<2
X05127B1	VBLK001	WATER	N/A	N/A	05/12/97	N/A
X05137B1	VBLK002	WATER	N/A	N/A	05/13/97	N/A
X05147B4	VBLK003	WATER	N/A	N/A	05/14/97	N/A
X05157B1	VBLK004	WATER	N/A	N/A	05/15/97	N/A

[1] Applies to samples designated for purgeable VOA analysis only.

CLIENT SAMPLE ID:
DPW1S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578001
Date Analyzed:	05/12/97	Lab File 1 ID:	E12V024
Matrix:	Water	Lab File 2 ID:	E12W024
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		116 % Rec.

CLIENT SAMPLE ID:
DPW1D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578002
Date Analyzed:	05/12/97	Lab File 1 ID:	E12V025
Matrix:	Water	Lab File 2 ID:	E12W025
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		118 % Rec.

CLIENT SAMPLE ID:
DPW2S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578003
Date Analyzed:	05/12/97	Lab File 1 ID:	E12V026
Matrix:	Water	Lab File 2 ID:	E12W026
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	124 % Rec.

CLIENT SAMPLE ID:
DPW2I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578004
Date Analyzed:	05/12/97	Lab File 1 ID:	E12V027
Matrix:	Water	Lab File 2 ID:	E12W027
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		111 % Rec.

CLIENT SAMPLE ID:
DPW2D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578005
Date Analyzed:	05/15/97	Lab File 1 ID:	E15V003
Matrix:	Water	Lab File 2 ID:	E15W003
Method:	SW-846 8010 (Mod)	Dilution Factor:	12.5
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	13	U
75-25-2	Bromoform	13	U
74-83-9	Bromomethane	13	U
56-23-5	Carbon tetrachloride	13	U
108-90-7	Chlorobenzene	13	U
75-00-3	Chloroethane	13	U
67-66-3	Chloroform	13	U
74-87-3	Chloromethane	13	U
124-48-1	Dibromochloromethane	13	U
95-50-1	1,2-Dichlorobenzene	13	U
541-73-1	1,3-Dichlorobenzene	13	U
106-46-7	1,4-Dichlorobenzene	13	U
75-34-3	1,1-Dichloroethane	13	U
107-06-2	1,2-Dichloroethane	13	U
75-35-4	1,1-Dichloroethene	13	U
156-60-5	trans-1,2-Dichloroethene	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-09-2	Methylene chloride	63	U
79-34-5	1,1,2,2-Tetrachlorethane	13	U
127-18-4	Tetrachloroethene	13	240
71-55-6	1,1,1-Trichloroethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
79-01-6	Trichloroethene	13	470
75-69-4	Trichlorofluoromethane	13	U
75-01-4	Vinyl chloride	13	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	105 % Rec.

CLIENT SAMPLE ID:
DPW3S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578006
Date Analyzed:	05/13/97	Lab File 1 ID:	E13V011
Matrix:	Water	Lab File 2 ID:	E13W011
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		107 % Rec.

CLIENT SAMPLE ID:
DPW3I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578007
Date Analyzed:	05/13/97	Lab File 1 ID:	E13V012
Matrix:	Water	Lab File 2 ID:	E13W012
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		102 % Rec.

CLIENT SAMPLE ID:
DPW3D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 05/09/97
Date Extracted: N/A
Date Analyzed: 05/14/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: MD578
Lab Sample ID: MD578008
Lab File 1 ID: E14V007
Lab File 2 ID: E14W007
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		104 % Rec.

CLIENT SAMPLE ID:
DPW3DD

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 05/09/97
Date Extracted: N/A
Date Analyzed: 05/14/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: MD578
Lab Sample ID: MD578009
Lab File 1 ID: E14V008
Lab File 2 ID: E14W008
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	103 % Rec.

CLIENT SAMPLE ID:
DPW4S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578010
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V009
Matrix:	Water	Lab File 2 ID:	E14W009
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	3.1
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		107 % Rec.

CLIENT SAMPLE ID:
DPW4I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578011
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V010
Matrix:	Water	Lab File 2 ID:	E14W010
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	1.4
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		108 % Rec.

CLIENT SAMPLE ID:
DPW4D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578012
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V015
Matrix:	Water	Lab File 2 ID:	E14W015
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		110 % Rec.

000015

CLIENT SAMPLE ID:
DPW5I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578013
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V011
Matrix:	Water	Lab File 2 ID:	E14W011
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	7.7
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	1.4
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		113 % Rec.

CLIENT SAMPLE ID:
DPW6S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578014
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V016
Matrix:	Water	Lab File 2 ID:	E14W016
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		108 % Rec.

CLIENT SAMPLE ID:
DPW6I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578015
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V017
Matrix:	Water	Lab File 2 ID:	E14W017
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		118 % Rec.

CLIENT SAMPLE ID:
MW04S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578016
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V018
Matrix:	Water	Lab File 2 ID:	E14W018
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	3.8
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		109 % Rec.

CLIENT SAMPLE ID:
MW06S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578017
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V019
Matrix:	Water	Lab File 2 ID:	E14W019
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		108 % Rec.

CLIENT SAMPLE ID:
EQBLNK1

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 05/09/97
Date Extracted: N/A
Date Analyzed: 05/14/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: MD578
Lab Sample ID: MD578018
Lab File 1 ID: E14V020
Lab File 2 ID: E14W020
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	108 % Rec.

CLIENT SAMPLE ID:
EQBLNK2

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578019
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V022
Matrix:	Water	Lab File 2 ID:	E14W022
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		114 % Rec.

CLIENT SAMPLE ID:
DPW3S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 05/09/97
Date Extracted: N/A
Date Analyzed: 05/14/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: MD578
Lab Sample ID: MD578020
Lab File 1 ID: E14V023
Lab File 2 ID: E14W023
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	111 % Rec.

CLIENT SAMPLE ID:
DPW3I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578021
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V024
Matrix:	Water	Lab File 2 ID:	E14W024
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		119 % Rec.

CLIENT SAMPLE ID:
TRIPBLANK

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	05/09/97	Sample Group:	MD578
Date Extracted:	N/A	Lab Sample ID:	MD578022
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V025
Matrix:	Water	Lab File 2 ID:	E14W025
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		111 % Rec.

CLIENT SAMPLE ID:
VBLK001

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: N/A
Date Extracted: N/A
Date Analyzed: 05/12/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: Lab QC
Lab Sample ID: X05127B1
Lab File 1 ID: E12V002
Lab File 2 ID: E12W002
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	104 % Rec.

CLIENT SAMPLE ID:
VBLK002

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: N/A
Date Extracted: N/A
Date Analyzed: 05/13/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: Lab QC
Lab Sample ID: X05137B1
Lab File 1 ID: E13V004
Lab File 2 ID: E13W004
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	102 % Rec.

CLIENT SAMPLE ID:
VBLK003

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	N/A	Sample Group:	Lab QC
Date Extracted:	N/A	Lab Sample ID:	X05147B4
Date Analyzed:	05/14/97	Lab File 1 ID:	E14V005
Matrix:	Water	Lab File 2 ID:	E14W005
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		113 % Rec.

CLIENT SAMPLE ID:
VBLK004

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: N/A
Date Extracted: N/A
Date Analyzed: 05/15/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: Lab QC
Lab Sample ID: X05157B1
Lab File 1 ID: E15V002
Lab File 2 ID: E15W002
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	107 % Rec.

Control charts

CH2M HILL

Method	Compound	Instrument
SOP - GCVOA	Fluorobenzene	GC 10

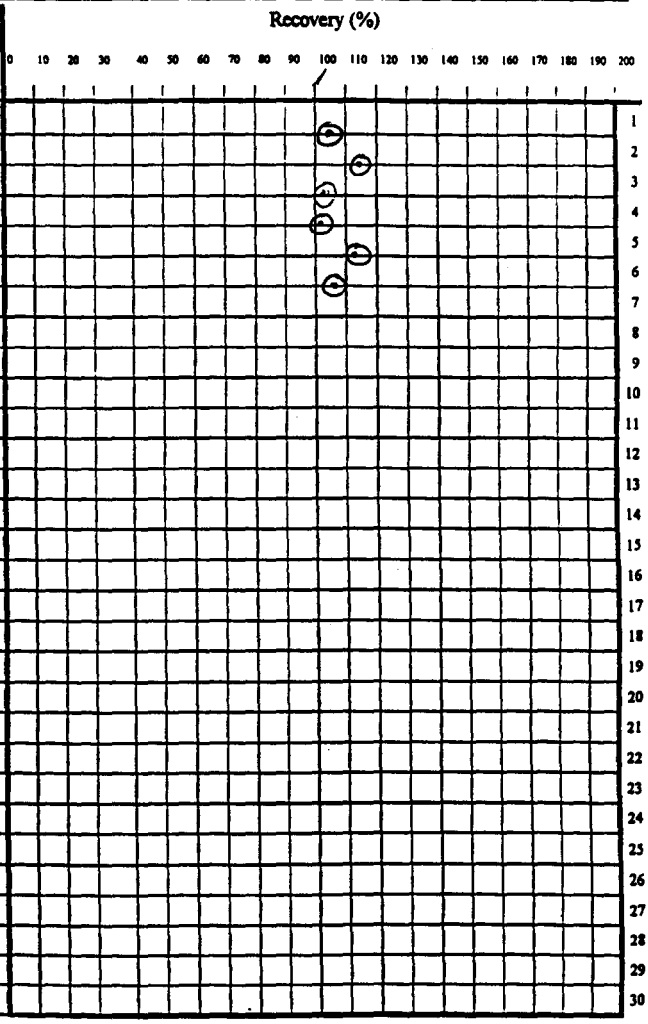
Month: MAY
Year: 1997
Control No.: GC10050897

Updated Control Limits

Reference Control No.: GC10031997

Mean:	-2s:	-3s:
104	95	90
Std. Dev.:	**+2s:**	**+3s:**
4.8	114	119

Date	Analyst	Filename	Value	Pass?
5-8-97	MARK W JACOBS	E08V002	105	Y
5-9-97	MW Jacobs	E09V013	114%	Y
5-12	M Jacobs	E12V002	104%	Y
5-13	M Jacobs	E13V004	102%	Y
5-14	M W Jacobs	E14V005	113%	Y
5-15	M W Jacobs	E15V002	107%	Y



Average:
Standard Deviation:

Chain of custody documentation

CHAIN-OF-CUSTODY FORM

MD578

ICON Environmental Services, Inc.
5637 Superior Drive Suite B-1
Baton Rouge, LA 70816
(504) 291-8499 fax (504) 291-4663

Project Name/Number: Mayport
Sampler: [illegible] Transporter: Fed Ex
Bottles: QAL

ANALYTICAL REQUESTS

	Sample Description	Matrix (See Code)	Date	Time (24:00)	Type (Comp.,Grab)	Containers (Number)	Turnaround (See code)	Cl Halocarbons (8010)	Comments/ Field Results
01	MPT-TC-DPW1S-0597	W	5-9-97	1020	G	3	10D	X	
02	MPT-TC-DPW1d-0597	W	5-9-97	1000	G	3	10D	X	
03	MPT-TC-DPW2S-0597	W	5-9-97	930	G	3	10 days	X	
04	MPT-TC-DPW2i-0597	W	5-9-97	1700					
05	MPT-TC-DPW2d-0597	W	5-9-97	905	G	3	10 days	X	
06	MPT-TC-DPW3S-0597	W	5-9-97	1435	G	3	10 days	X	
07	MPT-TC-DPW3i-0597	W	5-9-97	1500	G	3	10 days	X	
08	MPT-TC-DPW3d-0597	W	5-9-97	1540	G	3	10 days	X	
09	MPT-TC-DPW3dd-0597	W	5-9-97	1605	G	3	10 days	X	
10	MPT-TC-DPW4S-0597	W	5-9-97	1190	G	3	10days	X	
11	MPT-TC-DPW4i-0597	W	5-9-97	1158	G	3	10days	X	
12	MPT-TC-DPW4d-0597	W	5-9-97	1220	G	3	10 days	X	
13	MPT-TC-DPW5i-0597	W	5-9-97	1635	G	3	10 days	X	
14	MPT-TC-DPW6S-0597	W	5-9-97	1115	G	3	10 days	X	
15	MPT-TC-DPW6i-0597	W	5-9-97	1045	G	3	10 days	X	

Relinquished by:	Company:	Received by:	Company:	Date:	Time:	
Eric Fuller	S.E.A.I.	Paul Hunsaker		5/9/97	1715	Fax results to ICON
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	
		Paul Hunsaker	CHAIN HILL/OHM	5/10/97	0900	PO # 9052-001-0300
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	

Matrix: W = water, S = solid, SL = sludge, L = liquid, CT = charcoal tube, CN = canister, A = airbag
Turnaround: 24 = 24 hr, 48 = 48 hr, 3D = 3 days, 1 wk = 1 week, 2 wk = 2 weeks, STD = standard

EXHIBIT SAMPLE-1

0000033

CHAIN-OF-CUSTODY FORM

MD578

ICON
Environmental Services, Inc.
6637 Superior Drive Suite B-1
Baton Rouge, LA 70816
(504) 291-8499 fax (504) 291-4563

Project Name/Number:

Sampler: Transporter:

Bottles:

ANALYTICAL REQUESTS

	Sample Description	Matrix (See Code)	Date	Time (24:00)	Type (Comp.,Grab)	Containers (Number)	Turnaround (See code)	Cl Halocarbons (6010)	Comments/ Field Results
16	MPT-TC-MW045-0597	W	5-9-97	1315	G	3	10 days	X	3 dia
17	MPT-TC-MW065-0597	W	5-9-97	1400	G	3	10 days	X	2 dia
18	MPT-TC-EQBLNK1-0597	W	5-9-97	1245	G	3	10 days	X	
19	MPT-TC-EQBLNK2-0597	W	5-9-97		G	3	10 days	X	
20	MPT-TC-DPW35-0597-D	W	5-9-97	1435	G	3	10 days	X	
21	MPT-TC-DPW31-0597-D	W	5-9-97	1500	G	3	10 days	X	
22	TRIP Blank	W	5-7-97	1705	/	3	10 days	X	

Relinquished by:	Company:	Received by:	Company:	Date:	Time:	
ERC Fuller	SEAL			5/9/97	1715	FAX results to ICON
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	PH 9052-001-0300
		[signature]	CHAIN HILL/OAK	5/10/97	0900	
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	

Matrix: W = water, S = solid, SL = sludge, L = liquid, CT = charcoal tube, CN = canister, A = airbag
Turnaround: 24 = 24 hr, 48 = 48 hr, 3D = 3 days, 1 wk = 1 week, 2 wk = 2 weeks, STD = standard

Sample Receipt Record

Batch Number: MD578 Date received: 5/10/97

Client/Project: ICON - Mayport

VERIFICATION OF SAMPLE CONDITIONS (verify all items)

Observation	YES	NO
Were custody seals intact and on the outside of the cooler?	✓	
Was the Chain of Custody inside the cooler?	✓	
Was the Chain of Custody properly filled out?	✓	
Were the sample containers in good condition?	✓	
Was there ice in the cooler? Enter temperature of temperature blank or icewater: 4 °C	✓	

If the answer to any of the questions above is NO, a Sample Receipt Exceptions Report must be writen.

VERIFICATION OF SAMPLE PRESERVATION (verify all preserved samples)

Sample No	Nutrients pH < 2	Metals pH < 2	Volatiles pH < 2	Cyanide pH > 12	Other (specify)	Other (specify)
01			<2			
02			↑			
03			↑			
04			↑			
05			↑			
06			↑			
07			↑			
08			↑			
09			↑			
10			↑			
11			↑			
12			↑			
13			↑			
14			↑			
15			↑			
16			↑			
17			↑			
18			↑			
19			↑			
20			↑			
21			↓			
22			<2			
23						
24						
25						

LOGIN AND pH VERIFICATIONS PERFORMED BY

Paul Gunsallus 5/10/97

Date

Date

000035

QAL Montgomery

SPLERECT.DOC (3/20/96)

CH2M HILL
Analytical Services
2567 Fairlane Drive
Montgomery, AL
36116-1622
P.O. Box 231148
Montgomery, AL
36123-1148
Tel 334.271.2440
Fax 334.271.3428

CH2MHILL

May 12, 1997

Mr. Greg Miller
ICON Environmental Services, Inc.
5637 Superior Drive
Suite B-1
Baton Rouge, LA 70816

Reference#: **MD578**

Subject: **ICON Environmental/Mayport**

Dear Mr. Greg Miller,

CH2M HILL Analytical Services received samples on May 10, 1997 for analysis in conjunction with this project. An executed copy of your chain-of-custody and a sample identification cross-reference table are enclosed. All samples were received in good condition unless otherwise noted on an enclosed Sample Receipt Exceptions report.

We will mail your report on or before **May 19, 1997**.

We appreciate the opportunity to work with you on this project. Should you have any questions regarding your samples, or if you need additional information, please call me at **(334) 271-2440**.

Sincerely,

Spencer Hamil/ACR

Spencer Hamil
Client Services

Sample ID Cross-reference Table

CH2M Hill Lab Sample ID		Client Sample ID	Collect Date	Sample Matrix	Additional Description
EB = Equipment Blank; FD = Field Duplicate; FS = Field Sample; TB = Trip Blank					
MD578000	FS	ADM	05/12/97	Administration	
MD578001	FS	DPW1S	05/09/97	Water	MPT-TC-0597
MD578002	FS	DPW1D	05/09/97	Water	MPT-TC-0597
MD578003	FS	DPW2S	05/09/97	Water	MPT-TC-0597
MD578004	FS	DPW2I	05/09/97	Water	MPT-TC-0597
MD578005	FS	DPW2D	05/09/97	Water	MPT-TC-0597
MD578006	FS	DPW3S	05/09/97	Water	MPT-TC-0597
MD578007	FS	DPW3I	05/09/97	Water	MPT-TC-0597
MD578008	FS	DPW3D	05/09/97	Water	MPT-TC-0597
MD578009	FS	DPW3DD	05/09/97	Water	MPT-TC-0597
MD578010	FS	DPW4S	05/09/97	Water	MPT-TC-0597
MD578011	FS	DPW4I	05/09/97	Water	MPT-TC-0597
MD578012	FS	DPW4D	05/09/97	Water	MPT-TC-0597
MD578013	FS	DPW5I	05/09/97	Water	MPT-TC-0597
MD578014	FS	DPW6S	05/09/97	Water	MPT-TC-0597
MD578015	FS	DPW6I	05/09/97	Water	MPT-TC-0597
MD578016	FS	MW04S	05/09/97	Water	MPT-TC-0597
MD578017	FS	MW06S	05/09/97	Water	MPT-TC-0597
MD578018	EB	EQBLNK1	05/09/97	Water	MPT-TC-0597
MD578019	EB	EQBLNK2	05/09/97	Water	MPT-TC-0597
MD578020	FD	DPW3S	05/09/97	Water	MPT-TC-0597-D
MD578021	FD	DPW3I	05/09/97	Water	MPT-TC-0597-D
MD578022	TB	TRIPBLANK	05/09/97	Water	

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

CHAIN-OF-CUSTODY FORM

MD578

ICON Environmental Services, Inc.

5637 Superior Drive Suite B-1

Baton Rouge, LA 70816

(504) 291-0499 fax (504) 291-4563

Project Name/Number: NAVSTA Mayport

Sampler: Self Transporter: Fed Ex

Bottles: QAL

ANALYTICAL REQUESTS

	Sample Description	Matrix (See Code)	Date	Time (24:00)	Type (Comp.,Grab)	Containers (Number)	Turnaround (See code)	Cl Halocarbons (8010)	Comments/ Field Results
01	MPT-TC-DPW1s-0597	W	5-9-97	1020	G	3	10D	X	
02	MPT-TC-DPW1d-0597	W	5-9-97	1000	G	3	10D	X	
03	MPT-TC-DPW2s-0597	W	5-9-97	930	G	3	10 days	X	
04	MPT-TC-DPW2i-0597	W	5-9-97	1705					
05	MPT-TC-DPW2d-0597	W	5-9-97	905	G	3	10 days	X	
06	MPT-TC-DPW3s-0597	W	5-9-97	1435	G	3	10 days	X	
07	MPT-TC-DPW3i-0597	W	5-9-97	1500	G	3	10 days	X	
08	MPT-TC-DPW3d-0597	W	5-9-97	1540	G	3	10 days	X	
09	MPT-TC-DPW3dd-0597	W	5-9-97	1605	G	3	10 days	X	
10	MPT-TC-DPW4s-0597	W	5-9-97	1140	G	3	10days	X	X
11	MPT-TC-DPW4i-0597	W	5-9-97	1158	G	3	10days	X	
12	MPT-TC-DPW4d-0597	W	5-9-97	1220	G	3	10 days	X	
13	MPT-TC-DPW5i-0597	W	5-9-97	1635	G	3	10 days	X	
14	MPT-TC-DPW6s-0597	W	5-9-97	1115	G	3	10 days	X	
15	MPT-TC-DPW6i-0597	W	5-9-97	1045	G	3	10 days	X	

Relinquished by:	Company:	Received by:	Company:	Date:	Time:	
DVC Fuller	S.E.A.I.	Paul Hernandez		5/9/97	1715	Fax results to ICON
Relinquished by:	Company:	Received by: Paul Hernandez	Company: Chain of Custody	Date: 5/10/97	Time: 0900	PO # 9052-001-0300
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	

Matrix: W = water, S = solid, SL = sludge, L = liquid, CT = charcoal tube, CN = canister, A = airbag

Turnaround: 24 = 24 hr, 48 = 48 hr, 3D = 3 days, 1 wk = 1 week, 2 wk = 2 weeks, STD = standard

CHAIN-OF-CUSTODY FORM

MD578

ICON Environmental Services, Inc.

5637 Superior Drive Suite B-1

Baton Rouge, LA 70816

(504) 291-0499 fax (504) 291-4583

Project Name/Number:

Sampler: *Transporter:*

Bottles:

ANALYTICAL REQUESTS

	Sample Description	Matrix (See Code)	Date	Time (24:00)	Type Comp.,Grab	Containers (Number)	Turnaround (See code)	Cl Hydrocarbons (8010)	Comments/ Field Results
16	MPT-TC-MW045-0597	W	5-9-97	1315	G	3	10 days	X	4" dia
17	MPT-TC-MW065-0597	W	5-9-97	1400	G	3	10 days	X	2" dia
18	MPT-TC-EQBLNK1-0597	W	5-9-97	1245	G	3	10 days	X	
19	MPT-TC-EQBLNK2-0597	W	5-9-97		G	3	10 days	X	
20	MPT-TC-DPW35-0597-D	W	5-9-97	1435	G	3	10 days	X	
21	MPT-TC-DPW31-0597-D	W	5-9-97	1500	G	3	10 days	X	
22	TRIP Blank	W	5-9-97	1705	/	3	10 days	X	

Relinquished by:	Company:	Received by:	Company:	Date:	Time:	
BVC Fuller	SEAI			5/9/97	1715	FAX results to ICON
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	PO # 9052-001-0300
		Paul Hancock	CH2M Hill/OAK	5/10/97	0900	
Relinquished by:	Company:	Received by:	Company:	Date:	Time:	

Matrix: W = water, S = solid, SL = sludge, L = liquid, CT = charcoal tube, CN = canister, A = airbag

Turnaround: 24 = 24 hr, 48 = 48 hr, 3D = 3 days, 1 wk = 1 week, 2 wk = 2 weeks, STD = standard

Sample Receipt Record

Batch Number: MD578 Date received: 5/10/97

Client/Project: ICON – Mayport

VERIFICATION OF SAMPLE CONDITIONS (verify all items)

Observation	YES	NO
Were custody seals intact and on the outside of the cooler?	✓	
Was the Chain of Custody inside the cooler?	✓	
Was the Chain of Custody properly filled out?	✓	
Were the sample containers in good condition?	✓	
Was there ice in the cooler? Enter temperature of temperature blank or icewater: 4 °C	✓	

If the answer to any of the questions above is NO, a Sample Receipt Exceptions Report must be writen.

VERIFICATION OF SAMPLE PRESERVATION (verify all preserved samples)

Sample No	Nutrients pH < 2	Metals pH < 2	Volatiles pH < 2	Cyanide pH > 12	Other (specify)	Other (specify)
01			<2			
02			↑			
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21			↓			
22			<2			
23						
24						
25						

LOGIN AND pH VERIFICATIONS PERFORMED BY

Paul Hunsaker 5/10/97

Date

Date

CH2M HILL
Analytical Services
2567 Fairlane Drive
Montgomery, AL
36116-1622
P.O. Box 231148
Montgomery, AL
36123-1148
Tel 334.271.2440
Fax 334.271.3428

CH2MHILL

September 24, 1997

Mr. Greg Miller
ICON Environmental Services, Inc.
5637 Superior Drive
Suite B-1
Baton Rouge, LA 70816

Reference#: **ME651**

Subject: **ICON Environmental/Mayport**

Dear Mr. Greg Miller,

CH2M HILL Analytical Services received samples on September 5, 1997 for analysis in conjunction with this project. Enclosed please find your completed analytical results and the associated quality control data.

Your samples will be stored for 30 days, prior to disposal.

We appreciate the opportunity to work with you on this project. Should you have any questions regarding your samples, or if you need additional information, please call me at **(334) 271-2440**.

Sincerely,

Spencer Hamil
Project Manager/Client Services

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Level 1N

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Organic Data Qualifiers

A -- This qualifier indicates that a TIC is a suspected aldol-condensation product.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests that the data user evaluate these compounds and their amounts carefully.

C -- The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

D -- This qualifier is used for all compounds identified in an analysis at a secondary dilution factor. "D" qualifiers are used only for the samples reported at more than one dilution factor.

E -- This flag indicates that the value reported exceeds the linear calibration range for that compound. Therefore, the sample should be reanalyzed at an appropriate dilution. The "E" qualified amount is an estimated concentration, and the results of the dilution will be reported on a separate Form I.

I -- This qualifier indicates that the reporting limit adjacent to the "I" qualifier has been raised. It is used when chromatographic interference prohibits detection of a compound at a level below the concentration expressed on the Form I.

J -- Indicates an estimated value. It is used when the data indicates the presence of a target compound below the reporting limit or the presence of a Tentatively Identified Compound (TIC).

N -- This qualifier indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds, where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the "N" qualifier is not used.

P -- This qualifier is used for pesticide/Aroclor target analytes when there is a greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form I and flagged with a "P".

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the reporting limit for that compound. The reporting limit can vary from sample to sample depending on dilution factors or percent moisture adjustments when indicated.

Organic Sample ID Qualifiers

The qualifiers that may be appended to the Lab Sample ID and/or the Client Sample ID for organic analyses are defined below:

DL -- Diluted reanalysis. Indicates that the results were determined in an analysis of a secondary dilution of a sample or extract. The "DL" suffix may be followed by a digit to indicate multiple dilutions of the sample or extract. The results of more than one diluted reanalyses may be reported.

MS -- Matrix spike (may be followed by a digit to indicate multiple matrix spikes within a sample set).

MSD - Matrix spike duplicate (may be followed by a digit to indicate multiple matrix spikes within a sample set).

R -- Reanalysis. The extract was reanalyzed without re-extraction. The "R" is not used if the sample was also re-extracted. May be followed by a digit to indicate multiple reanalyses of the sample at the same dilution.

RE -- Re-extraction analysis. The sample was re-extracted and reanalyzed. May be followed by a digit to indicate multiple re-extracted analyses of the sample at the same dilution.

Sample ID Cross-reference Table

CH2M Hill Lab Sample ID		Client Sample ID	Collect Date	Sample Matrix	Additional Description
EB = Equipment Blank; FD = Field Duplicate; FS = Field Sample; TB = Trip Blank					
ME651000	FS	ADM	09/05/97	Administration	
ME651001	FS	TC-MW07D	09/03/97	Water	GRAB
ME651002	FS	TC-DPW2D	09/03/97	Water	GRAB
ME651003	EB	TC-EQUIPBLNK	09/03/97	Water	GRAB
ME651004	FS	TC-MW8I	09/03/97	Water	GRAB
ME651005	FS	TC-DPW8S	09/03/97	Water	GRAB
ME651006	FS	TC-DPW8I	09/03/97	Water	GRAB
ME651007	FS	TC-DPW8D	09/03/97	Water	GRAB
ME651008	FS	TC-MW08S	09/03/97	Water	GRAB
ME651009	FS	TC-DPW9D	09/03/97	Water	GRAB
ME651010	FD	TC-BLINDDUP	09/03/97	Water	GRAB
ME651011	FS	TC-DPW9S	09/03/97	Water	GRAB
ME651012	FS	TC-DPW9I	09/03/97	Water	GRAB
ME651013	FS	TC-DPW7D	09/03/97	Water	GRAB
ME651014	FS	TC-DPW7I	09/03/97	Water	GRAB
ME651015	FS	TC-DPW7S	09/03/97	Water	GRAB
ME651016	FS	15-DPW7D	09/03/97	Water	GRAB
ME651017	FS	15-MW07D	09/04/97	Water	GRAB
ME651018	FS	15-MW04S	09/04/97	Water	GRAB
ME651019	FS	15-MW06S	09/04/97	Water	GRAB
ME651020	FD	15-BLINDDUP	09/04/97	Water	GRAB
ME651021	FS	15-MW08S	09/04/97	Water	GRAB
ME651022	TB	TRIPBLANK	09/04/97	Water	GRAB
ME651023	EB	MPT-15-EB	09/04/97	Water	GRAB

The above lab sample ID's and cross reference information apply to samples as received by the laboratory. Modifiers to the lab sample ID may be added for internal tracking purposes. Any modified sample ID will be reflected in the appropriate case narrative only.

GC PURGEABLE HALOCARBONS

CASE NARRATIVE
GC PURGEABLE HALOCARBONS

QAL Lab Reference No./SDG: ME651

Project: ICON Environmental/Mayport

I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody included with this data package.

II. HOLDING TIMES

A. Sample Preparation: All holding times were met

B. Sample Analysis: All holding times were met.

III. METHOD

Preparation: SW-846 5030

Cleanup: N/A

Analysis: SW-846 8010 (Mod)

IV. PREPARATION

Not applicable.

V. ANALYSIS

A. Calibration: Dichlorodifluoromethane exceeded QAL Montgomery Laboratory criteria of 30% Difference with a value of -37% Difference for the second Continuing Calibration Standard analyzed on 9/14/97. However, since this compound was not detected in any of the associated samples, there was no impact on the quality of the data. All other acceptance criteria were met.

B. Blanks: All acceptance criteria were met.

C. Surrogates: All acceptance criteria were met.

D. Spikes: Several compounds were outside MS/MSD recovery limits for accuracy (% Recovery) and precision (RPD). However analysis of a Laboratory Control Sample immediately after the MS/MSD indicated the system was in control for all target compounds in the associated samples, except where noted above.

E. Samples: Sample analyses proceeded normally.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and QAL, Inc., both technically and for completeness except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

SIGNED: Tammy Carey DATE: 09/19/97

Tammy Carey
Chemist

CASE NARRATIVE
Addendum

Sample Information

LAB SAMPLE ID	CLIENT SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	SAMPLE pH[1]
ME651001	TC-MW07D	WATER	09/03/97	N/A	09/14/97	<2
ME651002	TC-DPW2D	WATER	09/03/97	N/A	09/14/97	<2
ME651003	TC-EQUIPBLK	WATER	09/03/97	N/A	09/11/97	<2
ME651004	TC-MW8I	WATER	09/03/97	N/A	09/11/97	<2
ME651005	TC-DPW8S	WATER	09/03/97	N/A	09/11/97	<2
ME651006	TC-DPW8I	WATER	09/03/97	N/A	09/10/97	<2
ME651007	TC-DPW8D	WATER	09/03/97	N/A	09/11/97	<2
ME651008	TC-MW08S	WATER	09/03/97	N/A	09/11/97	<2
ME651009	TC-DPW9D	WATER	09/03/97	N/A	09/11/97	<2
ME651010	TC-BLINDDUP	WATER	09/03/97	N/A	09/14/97	<2
ME651011	TC-DPW9S	WATER	09/03/97	N/A	09/12/97	<2
ME651012	TC-DPW9I	WATER	09/03/97	N/A	09/12/97	<2
ME651013	TC-DPW7D	WATER	09/03/97	N/A	09/12/97	<2
ME651014	TC-DPW7I	WATER	09/03/97	N/A	09/12/97	<2
ME651015	TC-DPW7S	WATER	09/03/97	N/A	09/12/97	<2
ME651022	TRIPBLANK	WATER	09/04/97	N/A	09/11/97	<2
X09107B1	VBLK001	WATER	N/A	N/A	09/10/97	N/A
X09117B2	VBLK002	WATER	N/A	N/A	09/11/97	N/A
X09127B2	VBLK003	WATER	N/A	N/A	09/12/97	N/A
X09147B1	VBLK004	WATER	N/A	N/A	09/14/97	N/A

[1] Applies to samples designated for purgeable VOA analysis only.

CLIENT SAMPLE ID:
TC-MW07D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651001
Date Analyzed:	09/14/97	Lab File 1 ID:	J14V005
Matrix:	Water	Lab File 2 ID:	J14W005
Method:	SW-846 8010 (Mod)	Dilution Factor:	25
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	25	U
75-25-2	Bromoform	25	U
74-83-9	Bromomethane	25	U
56-23-5	Carbon tetrachloride	25	U
108-90-7	Chlorobenzene	25	U
75-00-3	Chloroethane	25	U
110-75-8	2-Chloroethyl vinyl ether	25	U
67-66-3	Chloroform	25	U
74-87-3	Chloromethane	25	U
124-48-1	Dibromochloromethane	25	U
95-50-1	1,2-Dichlorobenzene	25	U
541-73-1	1,3-Dichlorobenzene	25	U
106-46-7	1,4-Dichlorobenzene	25	U
75-71-8	Dichlorodifluoromethane	25	U
75-34-3	1,1-Dichloroethane	25	U
107-06-2	1,2-Dichloroethane	25	U
75-35-4	1,1-Dichloroethene	25	U
156-59-2	cis-1,2-Dichloroethene	25	75
156-60-5	trans-1,2-Dichloroethene	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
75-09-2	Methylene chloride	125	U
79-34-5	1,1,2,2-Tetrachlorethane	25	U
127-18-4	Tetrachloroethene	25	160
71-55-6	1,1,1-Trichloroethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
79-01-6	Trichloroethene	25	610
75-69-4	Trichlorofluoromethane	25	U
75-01-4	Vinyl chloride	25	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		106 % Rec.

CLIENT SAMPLE ID:
TC-DPW2D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651002
Date Analyzed:	09/14/97	Lab File 1 ID:	J14V006
Matrix:	Water	Lab File 2 ID:	J14W006
Method:	SW-846 8010 (Mod)	Dilution Factor:	40
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	40	U
75-25-2	Bromoform	40	U
74-83-9	Bromomethane	40	U
56-23-5	Carbon tetrachloride	40	U
108-90-7	Chlorobenzene	40	U
75-00-3	Chloroethane	40	U
110-75-8	2-Chloroethyl vinyl ether	40	U
67-66-3	Chloroform	40	U
74-87-3	Chloromethane	40	U
124-48-1	Dibromochloromethane	40	U
95-50-1	1,2-Dichlorobenzene	40	U
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
75-71-8	Dichlorodifluoromethane	40	U
75-34-3	1,1-Dichloroethane	40	U
107-06-2	1,2-Dichloroethane	40	U
75-35-4	1,1-Dichloroethene	40	U
156-59-2	cis-1,2-Dichloroethene	40	150
156-60-5	trans-1,2-Dichloroethene	40	U
78-87-5	1,2-Dichloropropane	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
75-09-2	Methylene chloride	200	U
79-34-5	1,1,2,2-Tetrachlorethane	40	U
127-18-4	Tetrachloroethene	40	270
71-55-6	1,1,1-Trichloroethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
79-01-6	Trichloroethene	40	950
75-69-4	Trichlorofluoromethane	40	U
75-01-4	Vinyl chloride	40	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	108 % Rec.

CLIENT SAMPLE ID:
TC-EQUIPBLNK

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651003
Date Analyzed:	09/11/97	Lab File 1 ID:	J11V009
Matrix:	Water	Lab File 2 ID:	J11W009
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		109 % Rec.

TC

CLIENT SAMPLE ID:
TC-MW8I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651004
Date Analyzed:	09/11/97	Lab File 1 ID:	J11V010
Matrix:	Water	Lab File 2 ID:	J11W010
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	2.0
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	1.4
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	1.0
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		113 % Rec.

CLIENT SAMPLE ID:
TC-DPW8S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 09/03/97
Date Extracted: N/A
Date Analyzed: 09/11/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: ME651
Lab Sample ID: ME651005
Lab File 1 ID: J11V011
Lab File 2 ID: J11W011
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	1.2
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		114 % Rec.

TLC

CLIENT SAMPLE ID:
TC-DPW8I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651006
Date Analyzed:	09/10/97	Lab File 1 ID:	J10V007
Matrix:	Water	Lab File 2 ID:	J10W007
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U

SURROGATE-Fluorobenzene (QC Limits - 61-133%)	105 % Rec.

CLIENT SAMPLE ID:
TC-DPW8D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 09/03/97
Date Extracted: N/A
Date Analyzed: 09/11/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: ME651
Lab Sample ID: ME651007
Lab File 1 ID: J11V012
Lab File 2 ID: J11W012
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	14
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		116 % Rec.

TLC

CLIENT SAMPLE ID:
TC-MW08S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651008
Date Analyzed:	09/11/97	Lab File 1 ID:	J11V013
Matrix:	Water	Lab File 2 ID:	J11W013
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		121 % Rec.

TLC
000011

CLIENT SAMPLE ID:
TC-DPW9D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651009
Date Analyzed:	09/11/97	Lab File 1 ID:	J11V014
Matrix:	Water	Lab File 2 ID:	J11W014
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	18
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	1.2
156-59-2	cis-1,2-Dichloroethene	1.0	1.7
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		108 % Rec.

CLIENT SAMPLE ID:
TC-BLINDDUP

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651010
Date Analyzed:	09/14/97	Lab File 1 ID:	J14V007
Matrix:	Water	Lab File 2 ID:	J14W007
Method:	SW-846 8010 (Mod)	Dilution Factor:	40
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	40	U
75-25-2	Bromoform	40	U
74-83-9	Bromomethane	40	U
56-23-5	Carbon tetrachloride	40	U
108-90-7	Chlorobenzene	40	U
75-00-3	Chloroethane	40	U
110-75-8	2-Chloroethyl vinyl ether	40	U
67-66-3	Chloroform	40	U
74-87-3	Chloromethane	40	U
124-48-1	Dibromochloromethane	40	U
95-50-1	1,2-Dichlorobenzene	40	U
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
75-71-8	Dichlorodifluoromethane	40	U
75-34-3	1,1-Dichloroethane	40	U
107-06-2	1,2-Dichloroethane	40	U
75-35-4	1,1-Dichloroethene	40	U
156-59-2	cis-1,2-Dichloroethene	40	150
156-60-5	trans-1,2-Dichloroethene	40	U
78-87-5	1,2-Dichloropropane	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
75-09-2	Methylene chloride	200	U
79-34-5	1,1,2,2-Tetrachlorethane	40	U
127-18-4	Tetrachloroethene	40	280
71-55-6	1,1,1-Trichloroethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
79-01-6	Trichloroethene	40	980
75-69-4	Trichlorofluoromethane	40	U
75-01-4	Vinyl chloride	40	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		106 % Rec.

TC 000013

CLIENT SAMPLE ID:
TC-DPW9S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651011
Date Analyzed:	09/12/97	Lab File 1 ID:	J12V019
Matrix:	Water	Lab File 2 ID:	J12W019
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	4.1
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	5.4
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		109 % Rec.

TC
000014

CLIENT SAMPLE ID:
TC-DPW9I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651012
Date Analyzed:	09/12/97	Lab File 1 ID:	J12V020
Matrix:	Water	Lab File 2 ID:	J12W020
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	3.4
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	1.8
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	1.2
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		108 % Rec.

TLC
000015

CLIENT SAMPLE ID:
TC-DPW7D

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 09/03/97
Date Extracted: N/A
Date Analyzed: 09/12/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: ME651
Lab Sample ID: ME651013
Lab File 1 ID: J12V016
Lab File 2 ID: J12W016
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	23
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	9.3
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		103 % Rec.

CLIENT SAMPLE ID:
TC-DPW7I

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: 09/03/97	Sample Group: ME651
Date Extracted: N/A	Lab Sample ID: ME651014
Date Analyzed: 09/12/97	Lab File 1 ID: J12V017
Matrix: Water	Lab File 2 ID: J12W017
Method: SW-846 8010 (Mod)	Dilution Factor: 1.0
% Moisture: 100	Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		106 % Rec.

CLIENT SAMPLE ID:
TC-DPW7S

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/03/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651015
Date Analyzed:	09/12/97	Lab File 1 ID:	J12V018
Matrix:	Water	Lab File 2 ID:	J12W018
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		107 % Rec.

CLIENT SAMPLE ID:
TRIPBLANK

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	09/04/97	Sample Group:	ME651
Date Extracted:	N/A	Lab Sample ID:	ME651022
Date Analyzed:	09/11/97	Lab File 1 ID:	J11V008
Matrix:	Water	Lab File 2 ID:	J11W008
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		112 % Rec.

TLC

CLIENT SAMPLE ID:
VBLK001

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	N/A	Sample Group:	Lab QC
Date Extracted:	N/A	Lab Sample ID:	X09107B1
Date Analyzed:	09/10/97	Lab File 1 ID:	J10V002
Matrix:	Water	Lab File 2 ID:	J10W002
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		120 % Rec.

CLIENT SAMPLE ID:
VBLK002

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	N/A	Sample Group:	Lab QC
Date Extracted:	N/A	Lab Sample ID:	X09117B2
Date Analyzed:	09/11/97	Lab File 1 ID:	J11V007
Matrix:	Water	Lab File 2 ID:	J11W007
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		119 % Rec.

TLC
000021

CLIENT SAMPLE ID:
VBLK003

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected:	N/A	Sample Group:	Lab QC
Date Extracted:	N/A	Lab Sample ID:	X09127B2
Date Analyzed:	09/12/97	Lab File 1 ID:	J12V003
Matrix:	Water	Lab File 2 ID:	J12W003
Method:	SW-846 8010 (Mod)	Dilution Factor:	1.0
% Moisture:	100	Reporting Units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		108 % Rec.

TLC

CLIENT SAMPLE ID:
VBLK004

REPORT OF ANALYTICAL RESULTS
PURGEABLE HALOCARBONS

Date Collected: N/A
Date Extracted: N/A
Date Analyzed: 09/14/97
Matrix: Water
Method: SW-846 8010 (Mod)
% Moisture: 100

Sample Group: Lab QC
Lab Sample ID: X09147B1
Lab File 1 ID: J14V004
Lab File 2 ID: J14W004
Dilution Factor: 1.0
Reporting Units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
	SURROGATE-Fluorobenzene (QC Limits - 61-133%)		104 % Rec.

TC

Control charts

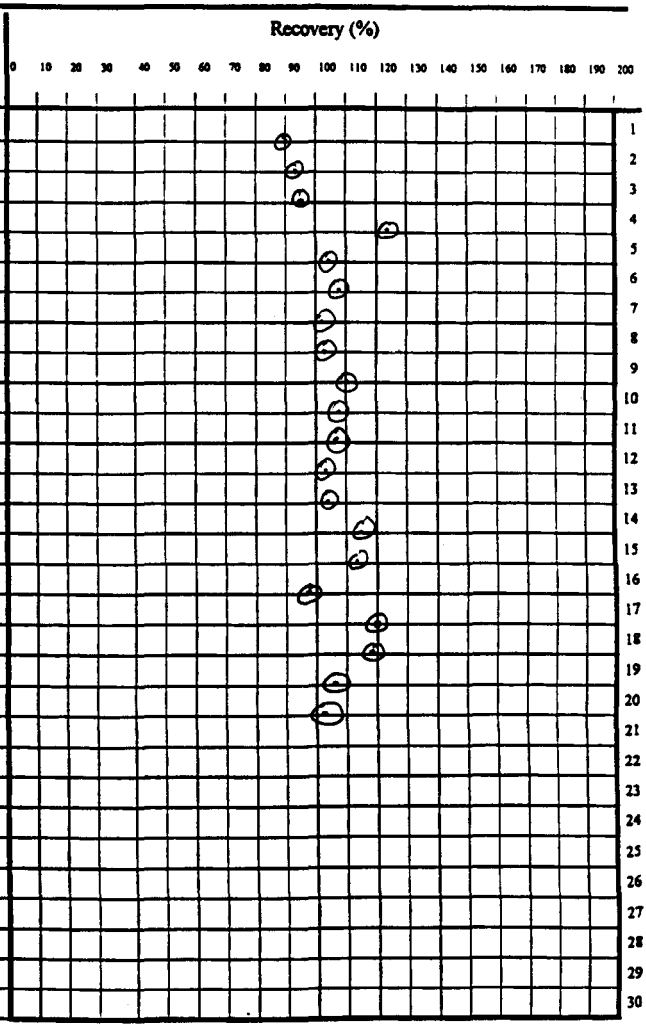
CH2MHILL

Method	Compound	Instrument
SOP-GC VOA	Fluorobenzene	GC10

Month: August
Year: 1997
Control No.: GC10080797

Updated Control Limits
Reference Control No.: GC10062697
Mean: 103 -2s: 88 -3s: 81
Std. Dev.: 7.4 +2s: 118 +3s: 125

Date	Analyst	Filename	Value	Pass?
8-7-97	M Jacobs	H07V004	90	Y
8-11	M Jacobs	H11V008	94	Y
8-12	M Jacobs	H12V002	95	Y
8-18	M Jacobs	H18V027	122	Y
8-19	M Jacobs	H19V002	104	Y
8-20	M Jacobs	H20V013	108	Y
8-21	M Jacobs	H21V003	103	Y
8-22	M Jacobs	H22V008	104	Y
8-26	M Jacobs	H26V003	110	Y
8-28	M Jacobs	H28V002	108	Y
8-29	M Jacobs	H29V002	109	Y
9-2	M Jacobs	J02V002	104	Y
9-3	M Jacobs	J03V002	105	Y
9-4	M Jacobs	J04V002	116	Y
9-8	RL Wehnert	J08V011	115	Y
9-9	RL Wehnert	J09V004	97	Y
9-10	RL Wehnert	J10V002	120	Y
9-11	RL Wehnert	J11V007	119	Y
9-12	RL Wehnert	J12V003	108	Y
9-14	S.L. Shirley	J14V004	104	Y



Average:
Standard Deviation:

Appendix G

Aquifer Test Data and Calculations

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW2S**
early data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
WELL NO.: *DPW2S test 1*

LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Micah Crochet*

SHEET: *1*
TEST DATE: *8/27/97*
CALC DATE: *12/10/97*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.25	Static Head (ft toc):	0	Datum (ft toc):	28
Hole Diameter (in):	8.25	Base of Screen (ft toc):	23.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.36	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	0.705	; radius of influence (L)

H =	3.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	2.5	; saturated screen length (L)

A=	2.8	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.5	; obtained from curve equation for graph from Figure 3
t =	0.07	; time - duration of desired test interval (T)
yo =	0.16	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.04	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.2076732 ln((D-H)/rw)= 6.1535834 L/rw= 48

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

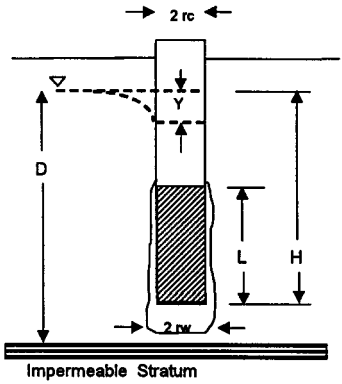
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 2.605114383

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.324665436

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0001761423	19.80420516

0.003488358 feet/minute
5.02 feet/day
0.0017732 cm/sec



(1.5 x L), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW2S**
late data

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/27/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2S test 1***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.5	Static Head (ft toc):	3	Datum (ft toc):	31
Hole Diameter (in):	12.5	Base of Screen (ft toc):	6.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.35	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	0.705	; radius of influence (L)
H =	3.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	2.5	; saturated screen length (L)
A=	2.3	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.5	; obtained from curve equation for graph from Figure 3
t =	0.16	; time - duration of desired test interval (T)
yo =	0.1	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.021	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.2076732 ln((D-H)/rw)= 6.1535834 L/rw= 48

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

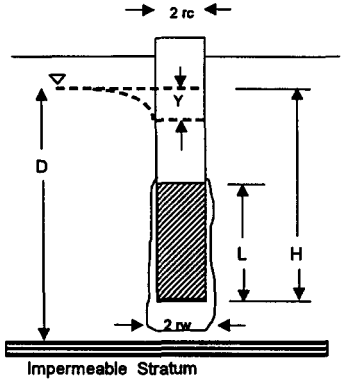
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 2.605114383

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.324665436

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0001761423	9.199766267

0.001620468 feet/minute
2.33 feet/day
0.00082372 cm/sec

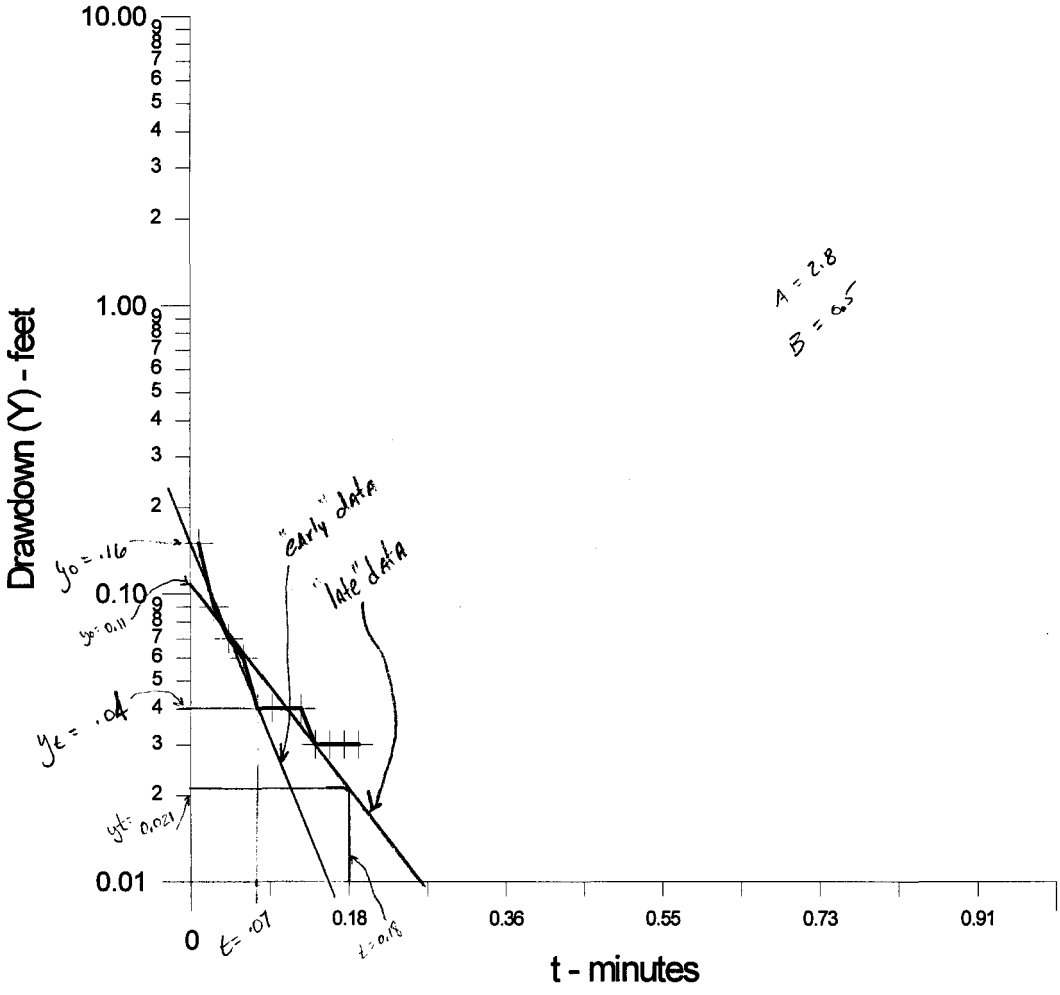


(1.5 x L), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 27, 1997

DPW2s Test #1



ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW2S**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/27/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2S test 2***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	6	Datum (ft toc):	33
Hole Diameter (in):	1.25	Base of Screen (ft toc):	8.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	0.705	; radius of influence (L)
H =	3.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	2.5	; saturated screen length (L)
A=	2.8	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.5	; obtained from curve equation for graph from Figure 3
t =	0.14	; time - duration of desired test interval (T)
yo =	0.17	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.06	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.2076732 ln((D-H)/rw)= 6.1535834 L/rw= 48

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetreting Well *(Lw < H)*

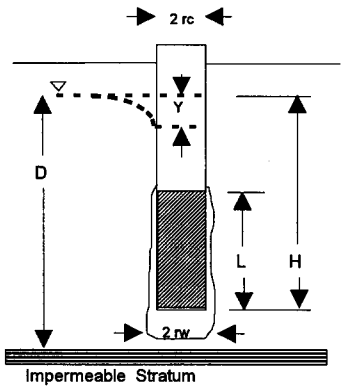
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})])/(L/rw)^-1
= 2.605114383

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.324665436

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0001761423	7.438956249

0.001310315 feet/minute
1.89 feet/day
0.00066606 cm/sec

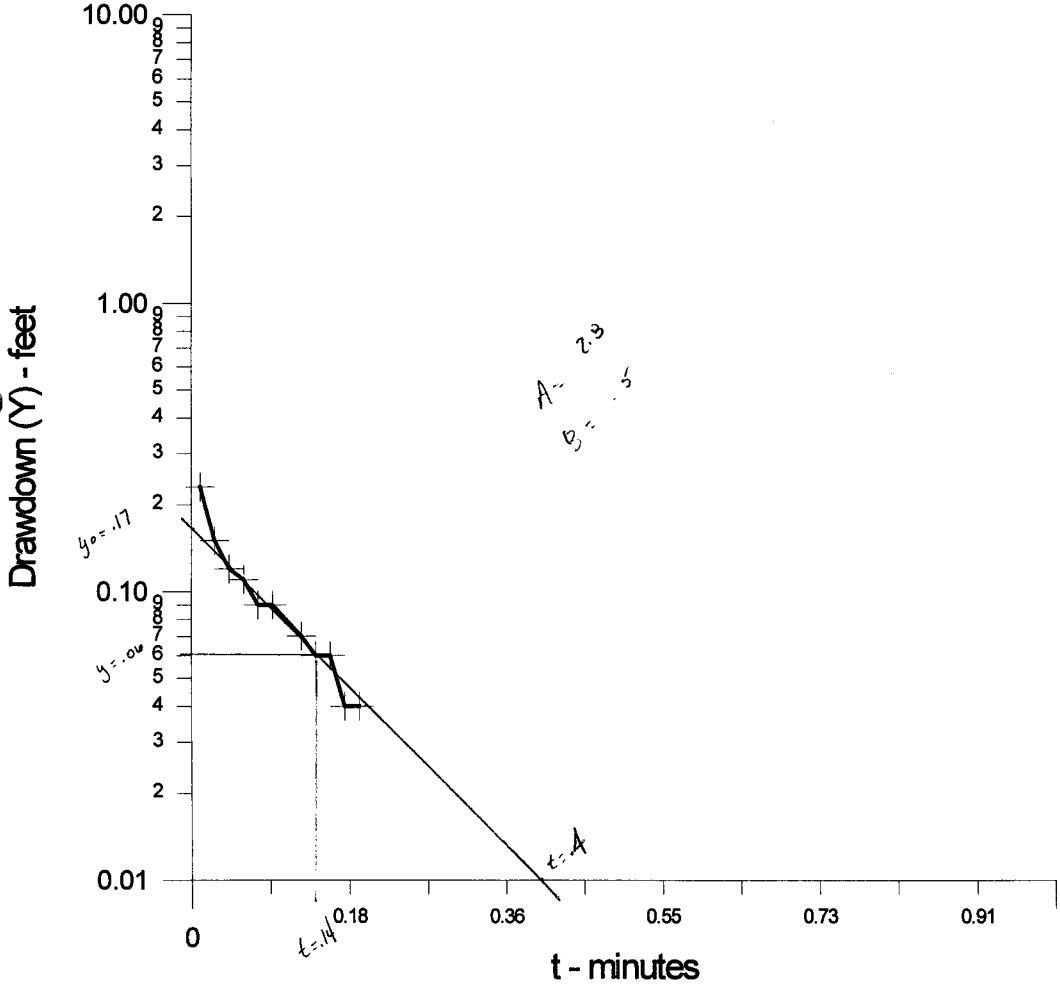


(1.5 x L), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 27, 1997

DPW2s Test #2



ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW2I**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/25/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2I test 1***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	5	Datum (ft toc):	33
Hole Diameter (in):	1.25	Base of Screen (ft toc):	22.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	1.941	; radius of influence (L)
H =	17.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.4	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.12	; time - duration of desired test interval (T)
yo =	0.95	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.09	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 5.8171112 ln((D-H)/rw)= 5.3062855 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

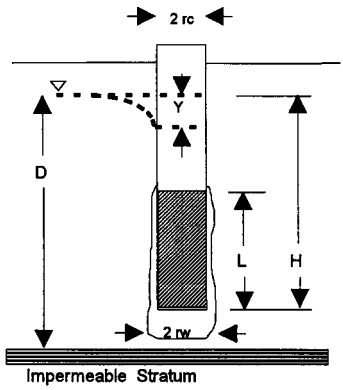
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})])/(L/rw)^-1
= 3.618128445

if ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217245028

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0009814802	19.63876929

0.019275062 feet/minute
27.76 feet/day
0.0097979 cm/sec

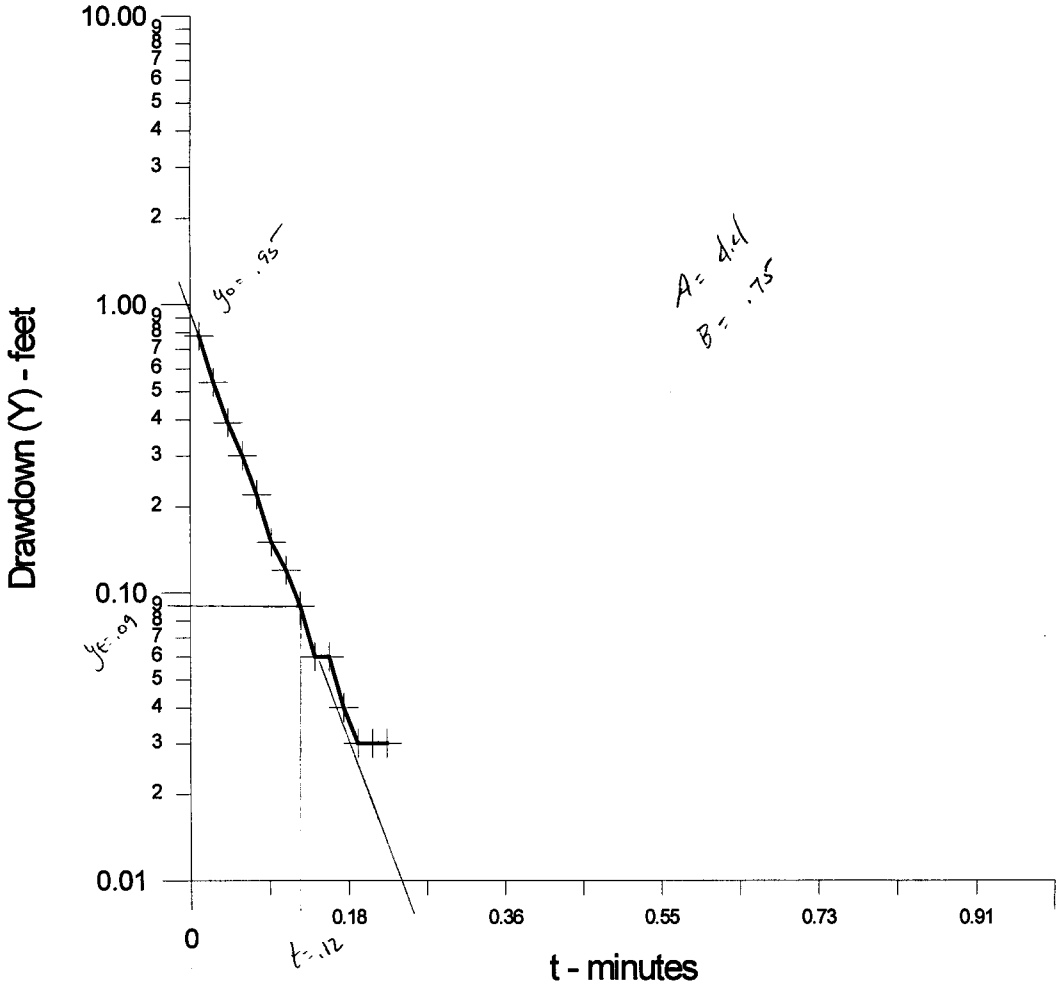


(1.5 x L), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 25, 1997

DPW2i Test #1



READY

SE1000B
Environmental Logger
08/25 16:57

Unit# 00256 Test# 1

INPUT 1: Level (F) TOC

Reference	5.18
Scale factor	50.55
Offset	0.22

Step# 0 08/25 16:51

Elapsed Time	Value
0.0000	5.56
0.0033	5.83
0.0066	6.02
0.0099	5.97
0.0133	6.44
0.0166	6.07
0.0200	5.81
0.0233	6.09
0.0266	6.02
0.0300	6.18
0.0333	6.26
0.0500	5.96
0.0666	5.72
0.0833	5.57
0.1000	5.48
0.1166	5.40
0.1333	5.33
0.1500	5.30
0.1666	5.27
0.1833	5.24
0.2000	5.24
0.2166	5.22
0.2333	5.21
0.2500	5.21
0.2666	5.21
0.2833	5.19
0.3000	5.19
0.3166	5.19
0.3333	5.19
0.4167	5.18
0.5000	5.18
0.5833	5.18
0.6667	5.18
0.7500	5.18
0.8333	5.16
0.9167	5.16
1.0000	5.16
1.0833	5.16
1.1667	5.16
1.2500	5.16
1.3333	5.16
1.4166	5.16
1.5000	5.16
1.5833	5.16
1.6667	5.16
1.7500	5.16
1.8333	5.18
1.9167	5.18
2.0000	5.18
2.5000	5.16

END

DATA ENTERED 1912Z 25 AUG
DPW 21
MAYPORT

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW2I**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/25/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2I test 2***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	5	Datum (ft toc):	33
Hole Diameter (in):	1.25	Base of Screen (ft toc):	22.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	1.941	; radius of influence (L)
H =	17.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.4	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.13	; time - duration of desired test interval (T)
yo =	1.1	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.09	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 5.8171112 ln((D-H)/rw)= 5.3062855 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

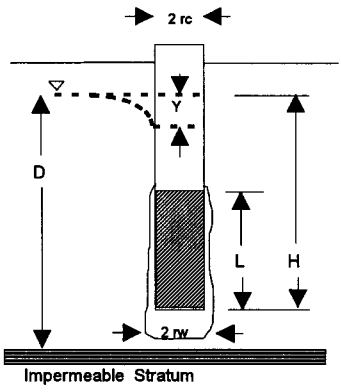
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 3.618128445

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217245028

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0009814802	19.25581376

0.018899199 feet/minute
27.21 feet/day
0.00960684 cm/sec

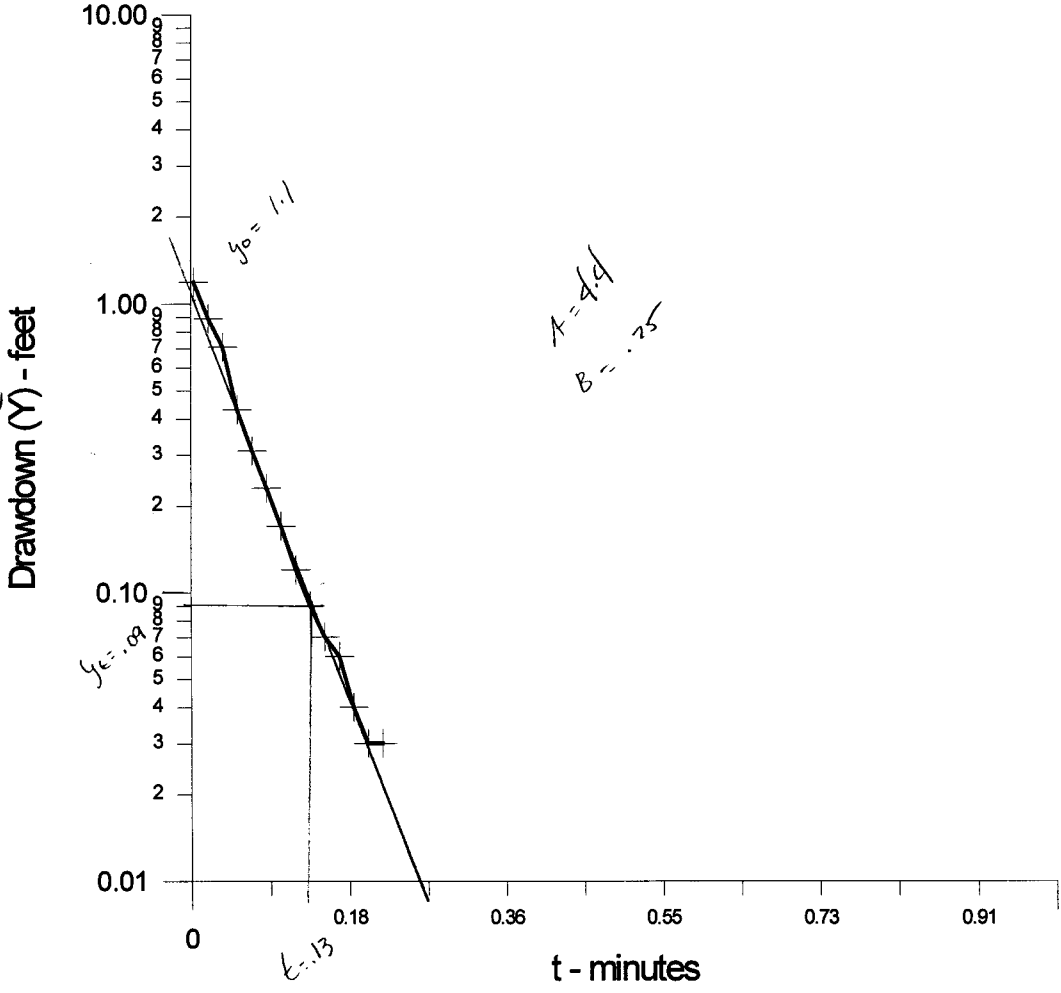


(1.5 x L), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 25, 1997

DPW2i Test #2



DI W2T TEST 2

SE1000B
Environmental Logger
08/25 17:06

Unit# 00256 Test# 1

INPUT 1: Level (F) TOC

Reference	5.18
Scale factor	50.55
Offset	0.22

Step# 0 08/25 17:03

DATA collected 1912 2552

Elapsed Time	Value
0.0000	5.43
0.0033	5.97
0.0066	6.01
0.0099	5.91
0.0133	5.69
0.0166	6.39
0.0200	5.93
0.0233	6.33
0.0266	6.41
0.0300	6.33
0.0333	6.37
0.0500	6.07
0.0666	5.89
0.0833	5.61
0.1000	5.49
0.1166	5.41
0.1333	5.35
0.1500	5.30
0.1666	5.27
0.1833	5.25
0.2000	5.24
0.2166	5.22
0.2333	5.21
0.2500	5.21
0.2666	5.19
0.2833	5.19
0.3000	5.19
0.3166	5.19
0.3333	5.18
0.4167	5.18
0.5000	5.18
0.5833	5.18
0.6667	5.18
0.7500	5.18
0.8333	5.18
0.9167	5.18
1.0000	5.18
1.0833	5.18
1.1667	5.18
1.2500	5.18
1.3333	5.16
1.4166	5.18
1.5000	5.16
1.5833	5.16
1.6667	5.16
1.7500	5.18
1.8333	5.16
1.9167	5.16
2.0000	5.16
2.5000	5.10

END

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW2D**
Test #2
early data

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/28/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2D test 2***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.25	Static Head (ft toc):	4	Datum (ft toc):	55
Hole Diameter (in):	4.25	Base of Screen (ft toc):	32.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.420	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.09	; time - duration of desired test interval (T)
yo =	3.5	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.25	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.2690963 ln((D-H)/rw)= 2.2617631 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well ***(Lw < H)***

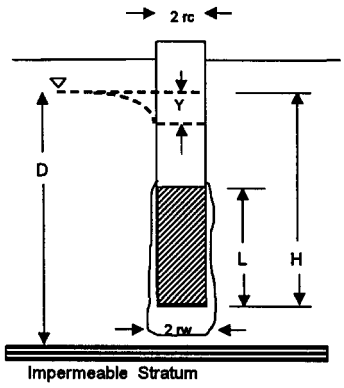
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 4.184673942

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217890373

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0011351656	28.23329018

0.032049456 feet/minute
46.15 feet/day
0.01629138 cm/sec



(1.5 x H), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW2D**
Test #2
late data

PROJECT: ***NAVSTA***
PROJ. NO.: ***9052-001-0400***
WELL NO.: ***DPW2D test 2***

LOCATION: ***Mayport, Fl. Bldg 191***
TESTED BY: ***Greg Miller***
CALCS BY: ***Micah Crochet***

SHEET: ***1***
TEST DATE: ***8/28/97***
CALC DATE: ***12/10/97***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.05	Static Head (ft toc):	8	Datum (ft toc):	55
Hole Diameter (in):	8.25	Base of Screen (ft toc):	40.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.420	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.5	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.84	; time - duration of desired test interval (T)
yo =	0.42	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.25	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.2690963 ln((D-H)/rw)= 2.2617631 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

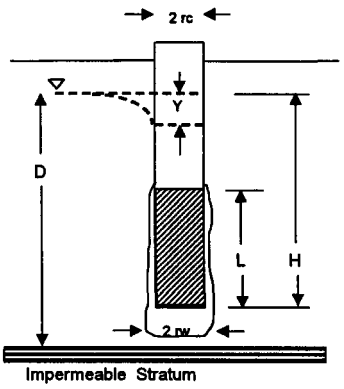
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 4.184673942

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217890373

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0011351655	12.96984484

0.01472292 feet/minute
21.20 feet/day
0.00748395 cm/sec



(1.5 x H), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW2D**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/28/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2D test 2***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	5	Datum (ft toc):	33
Hole Diameter (in):	1.25	Base of Screen (ft toc):	32.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.420	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.4	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.09	; time - duration of desired test interval (T)
yo =	3.3	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.26	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.2690963 ln((D-H)/rw)= 2.2617631 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

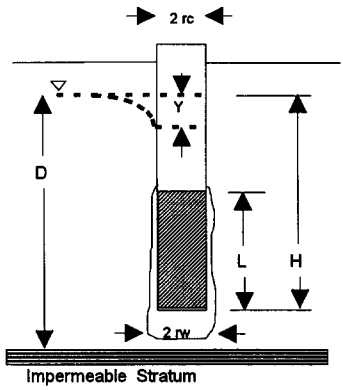
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})])/(L/rw)^-1
= 4.184673942

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217890373

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0011351655	28.23329018

0.032049456 feet/minute
46.15 feet/day
0.01629138 cm/sec

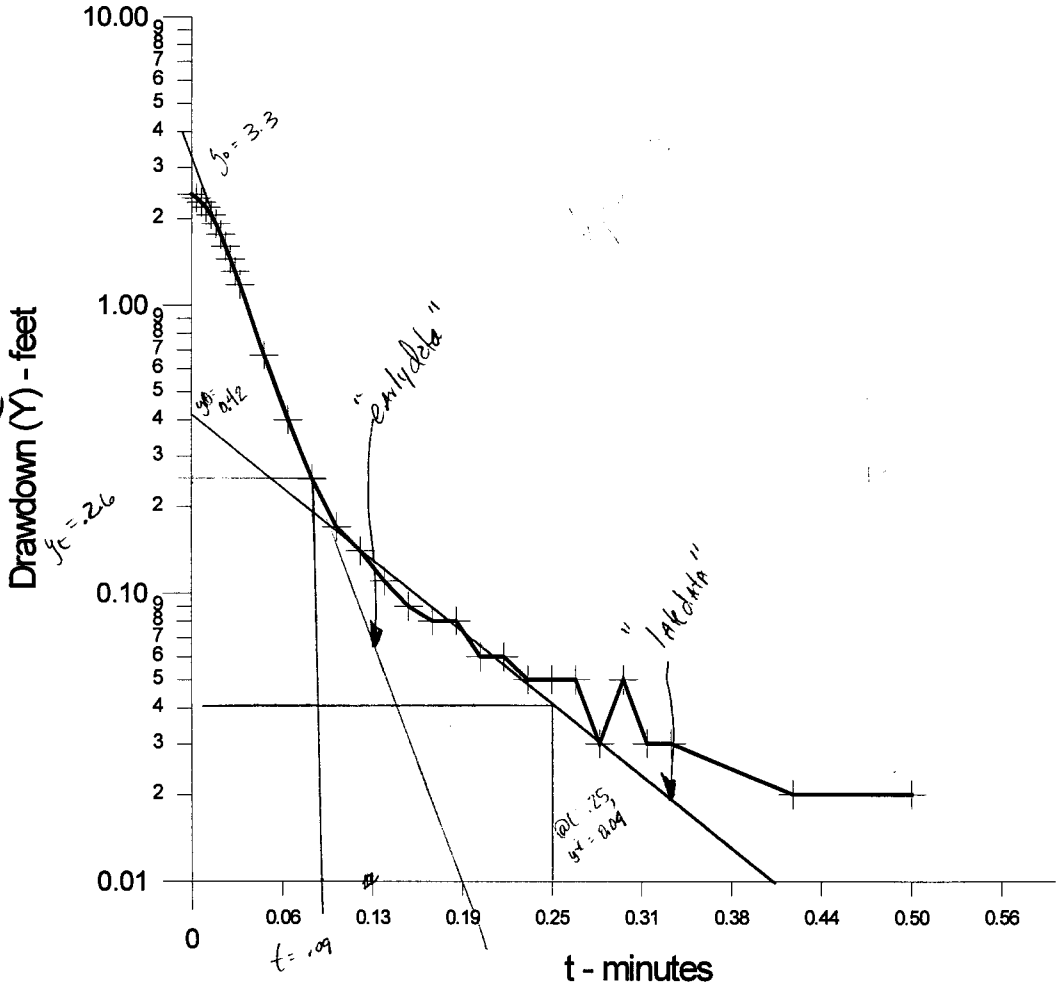


(1.5 x H), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 28, 1997

DPW2d Test 2



SE1000B DW2d
Environmental Logger
08/28 10:50

Unit# 00256 Test# 0

INPUT 1: Level (F) TOC

Reference 5.36
Scale factor 50.55
Offset 0.22

Step# 0 08/28 10:45

Elapsed Time	Value
0.0000	3.02
0.0033	3.09
0.0066	3.17
0.0099	3.26
0.0133	3.39
0.0166	3.53
0.0200	3.69
0.0233	3.85
0.0266	4.00
0.0300	4.14
0.0333	4.27
0.0500	4.78
0.0666	5.05
0.0833	5.20
0.1000	5.28
0.1166	5.31
0.1333	5.34
0.1500	5.36
0.1666	5.37
0.1833	5.37
0.2000	5.39
0.2166	5.39
0.2333	5.40
0.2500	5.40
0.2666	5.40
0.2833	5.40
0.3000	5.40
0.3166	5.42
0.3333	5.42
0.4167	5.43
0.5000	5.43
0.5833	5.43
0.6667	5.43
0.7500	5.43
0.8333	5.42
0.9167	5.43
1.0000	5.43
1.0833	5.45
1.1667	5.45
1.2500	5.45
1.3333	5.45
1.4166	5.45
1.5000	5.45
1.5833	5.45
1.6667	5.45
1.7500	5.45
1.8333	5.45
1.9167	5.45
2.0000	5.45
2.5000	5.47
3.0000	5.4
3.5000	5
4.0000	

END

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW2D**
early data
test #1

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Micah Crochet*
SHEET: *1*
TEST DATE: *8/28/97*
CALC DATE: *12/10/97*

WELL NO.: *DPW2D test 1*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.5	Static Head (ft toc):	3	Datum (ft toc):	28
Hole Diameter (in):	12.25	Base of Screen (ft toc):	32.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.36	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.420	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	1.4	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.76	; obtained from curve equation for graph from Figure 3
t =	0.085	; time - duration of desired test interval (T)
yo =	3	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.27	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.2690963 ln((D-H)/rw)= 2.2617631 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

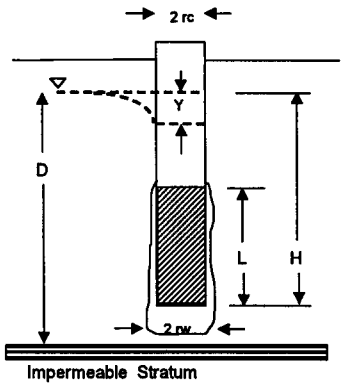
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 4.184673942

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217890373

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0011351655	28.32877187

0.032157843 feet/minute
46.31 feet/day
0.01634647 cm/sec



(1.5 x L), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW2D**
late data
test #1

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/28/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***DPW2D test 1***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.25	Static Head (ft toc):	0.5	Datum (ft toc):	28
Hole Diameter (in):	8.25	Base of Screen (ft toc):	32.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.420	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.4	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.24	; time - duration of desired test interval (T)
yo =	0.51	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.04	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.2690963 ln((D-H)/rw)= 2.2617631 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

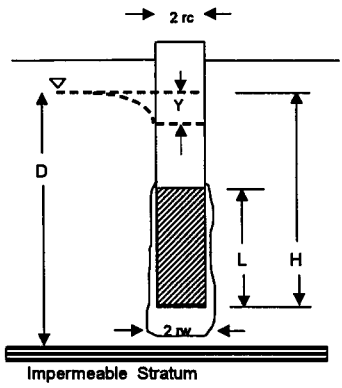
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln((D-H)/rw))]/(L/rw)^-1
= 4.184673942

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.217890373

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0011351655	10.6063803

0.012039997 feet/minute
17.34 feet/day
0.00612017 cm/sec



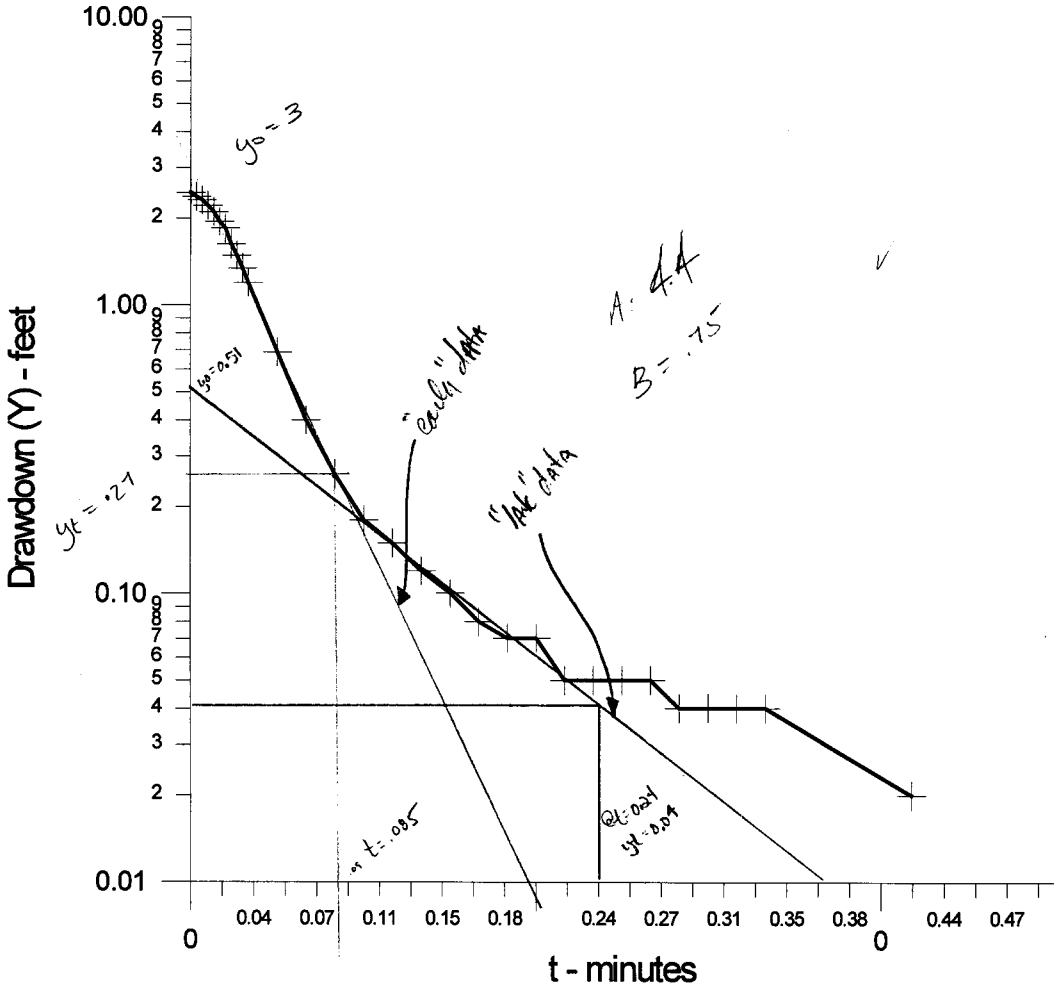
(1.5 x L), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 28, 1997

DPW2d

test #1



DW28

READY

SE1000B
Environmental Logger
08/28 10:42

Unit# 00256 Test# 0

INPUT 1: Level (F) TDC

Reference 5.
Scale factor 50.
Offset 0.2

Step# 0 08/28 10:38

DATA WIPED 4/9/20 DAT

Elapsed Time	Value
0.0000	3.09
0.0033	3.17
0.0066	3.23
0.0099	3.33
0.0133	3.44
0.0166	3.60
0.0200	3.76
0.0233	3.92
0.0266	4.06
0.0300	4.20
0.0333	4.35
0.0500	4.86
0.0666	5.15
0.0833	5.29
0.1000	5.37
0.1166	5.40
0.1333	5.43
0.1500	5.45
0.1666	5.47
0.1833	5.48
0.2000	5.48
0.2166	5.50
0.2333	5.50
0.2500	5.50
0.2666	5.50
0.2833	5.51
0.3000	5.51
0.3166	5.51
0.3333	5.51
0.4167	5.53
0.5000	5.53
0.5833	5.53
0.6667	5.55
0.7500	5.55
0.8333	5.55
0.9167	5.53
1.0000	5.53
1.0833	5.53
1.1667	5.53
1.2500	5.53
1.3333	5.53
1.4166	5.53
1.5000	5.53
1.5833	5.53
1.6667	5.53
1.7500	5.51
1.8333	5.51
1.9167	5.51
2.0000	5.5
2.5000	5.48
3.0000	5.47

END

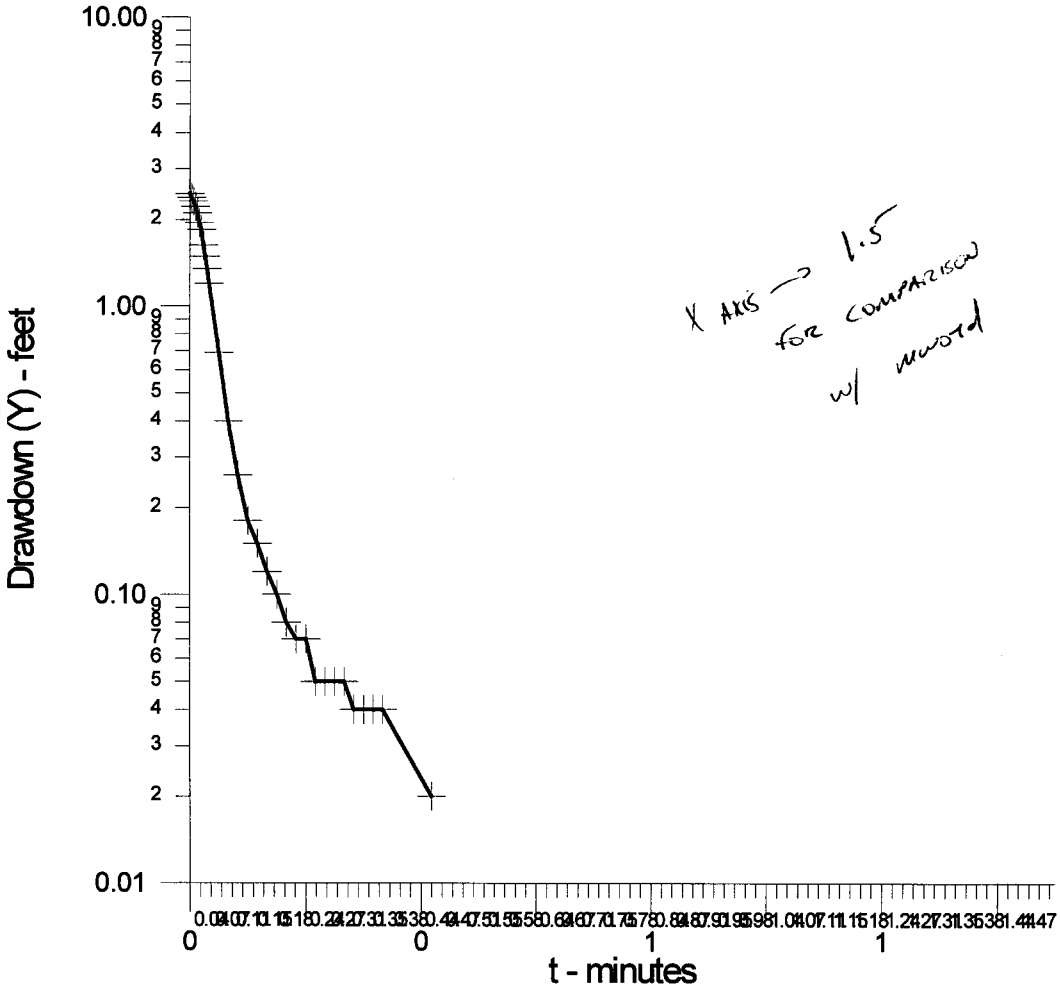
Transducer dropped - edit by 5.55 - 5.36 (0.19)

Falling

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 28, 1997

DPW2d



ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW7I**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY ***Greg Miller*** TEST DATE: ***9/2/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/11/97***

WELL NO.: ***DPW7I***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	4.5	Datum (ft toc):	30.5
Hole Diameter (in):	1.25	Base of Screen (ft toc):	30.5		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.936	; radius of influence (L)
H =	26	; height of water table above bottom of well (L)
D =	26	; height of water table above assigned datum (L)
L =	2.5	; saturated screen length (L)
C =	2.60	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
t =	0.15	; time - duration of desired test interval (T)
yo =	1.3	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.05	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.213007 ln((D-H)/rw)= #NUM! L/rw= 48

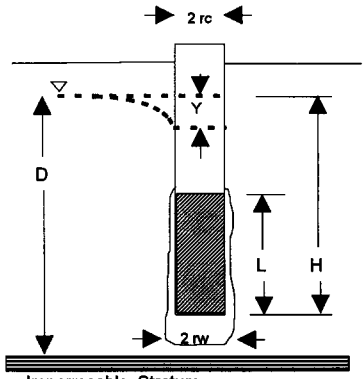
EQUATIONS AND CALCULATIONS

Fully Penetrating Well *(Lw=H)*

ln(Re/rw) = [1.1/ln(H/rw) + (C/(L/rw))]^-1
= 4.325

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0023464553	21.72064359

0.05096852 feet/minute
73.39 feet/day
0.0259073 cm/sec



Assigned Datum is the depth of the Confining Layer or the Well Depth plus (1.5 x L), whichever is shallower

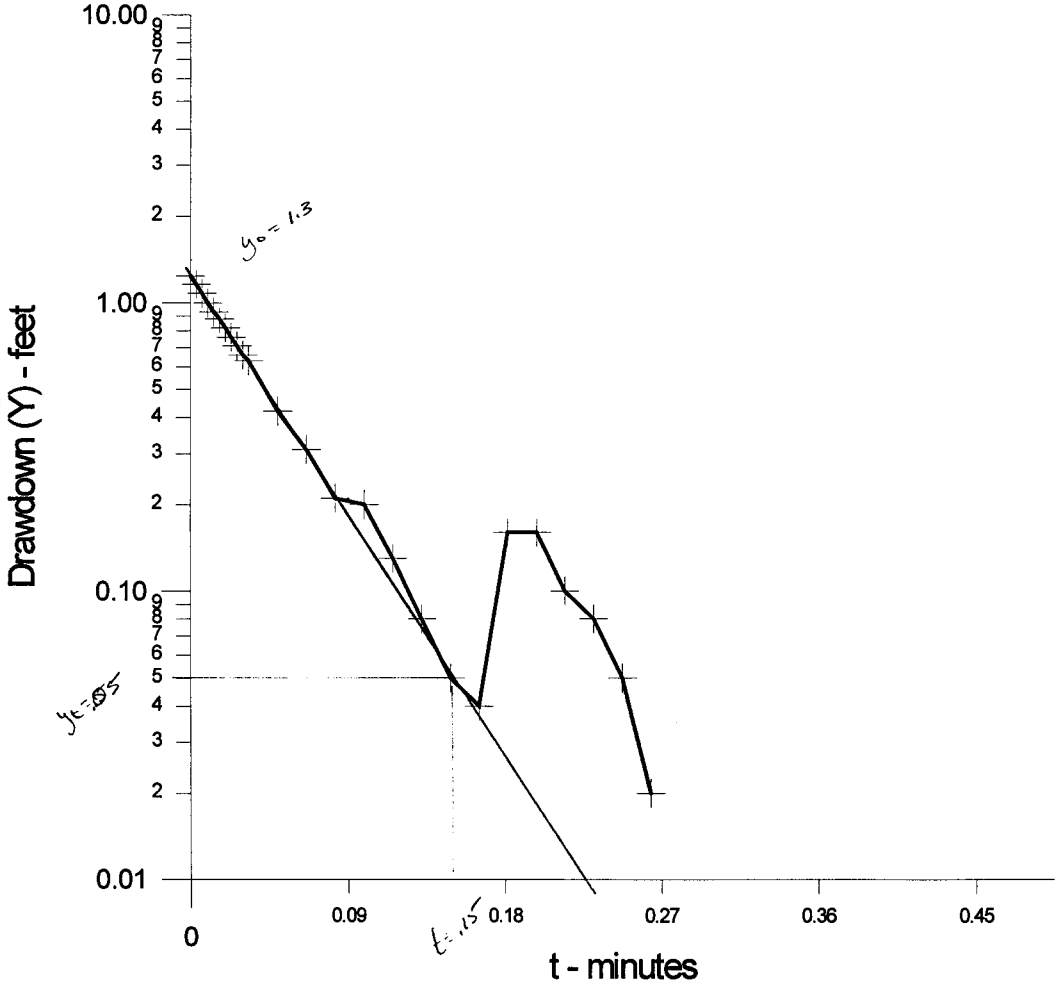
NAVSTA MAYPORT, FLORIDA

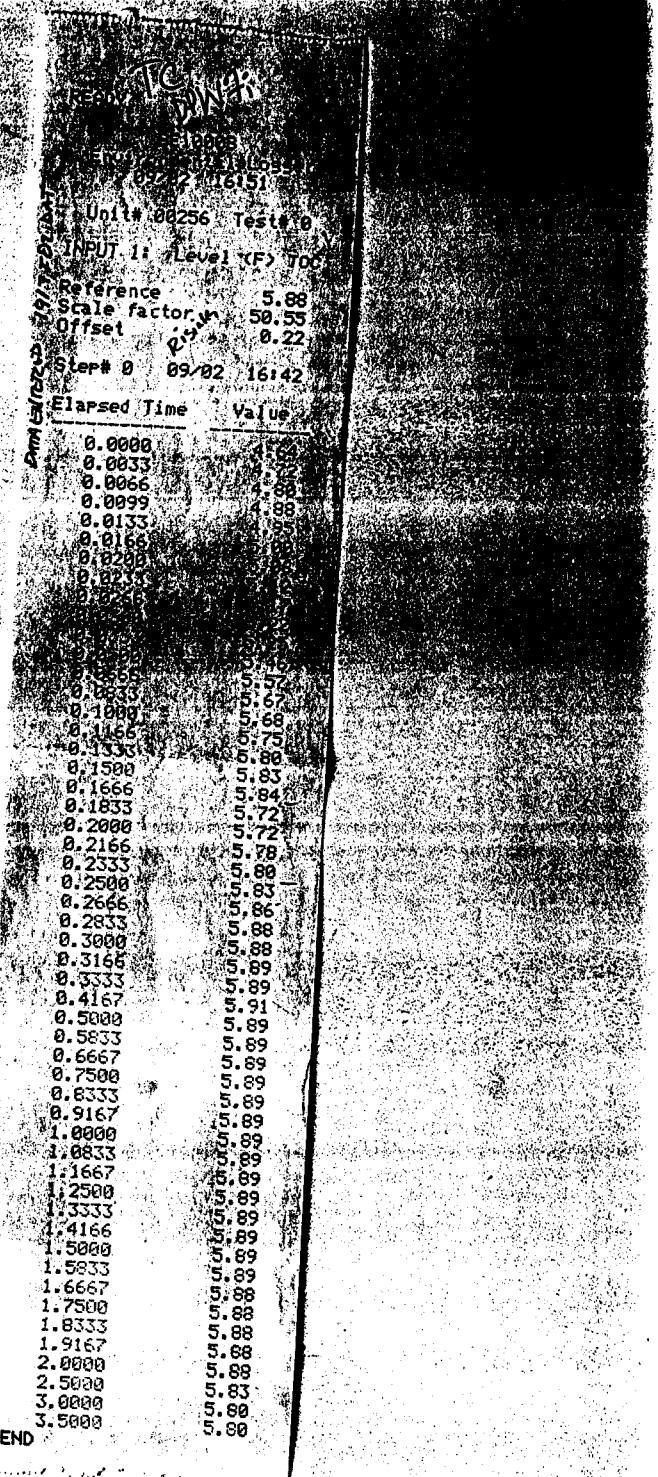
SLUG TEST DATA (y versus t) - SEPTEMBER 2, 1997

DPW7I TEST 1

F

C = 2.6





Ready
Unit# 00256 Test# 0
INPUT 1: Level (F) Toc
Reference 5.88
Scale factor 50.55
Offset 0.22
Step# 0 09/02 16:42

Elapsed Time	Value
0.0000	4.66
0.0033	4.66
0.0066	4.66
0.0099	4.88
0.0133	4.88
0.0166	4.88
0.0200	4.88
0.0233	4.88
0.0266	4.88
0.0300	4.88
0.0333	4.88
0.0366	4.88
0.0400	4.88
0.0433	4.88
0.0466	4.88
0.0500	4.88
0.0533	4.88
0.0566	4.88
0.0600	4.88
0.0633	4.88
0.0666	5.46
0.0833	5.57
0.1000	5.67
0.1166	5.68
0.1333	5.75
0.1500	5.80
0.1666	5.83
0.1833	5.84
0.2000	5.72
0.2166	5.72
0.2333	5.78
0.2500	5.80
0.2666	5.83
0.2833	5.86
0.3000	5.88
0.3166	5.88
0.3333	5.89
0.4167	5.89
0.5000	5.91
0.5833	5.89
0.6667	5.89
0.7500	5.89
0.8333	5.89
0.9167	5.89
1.0000	5.89
1.0833	5.89
1.1667	5.89
1.2500	5.89
1.3333	5.89
1.4166	5.89
1.5000	5.89
1.5833	5.89
1.6667	5.88
1.7500	5.88
1.8333	5.88
1.9167	5.88
2.0000	5.88
2.5000	5.83
3.0000	5.80
3.5000	5.80

END

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW7D**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***9/2/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/11/97***
WELL NO.: ***DPW7D***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	4.6	Datum (ft toc):	48.5
Hole Diameter (in):	1.25	Base of Screen (ft toc):	48.4		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	5.808	; radius of influence (L)
H =	43.9	; height of water table above bottom of well (L)
D =	44	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.3	; time - duration of desired test interval (T)
yo =	3.9	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.4	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.7368246 ln((D-H)/rw)= 0.6523252 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

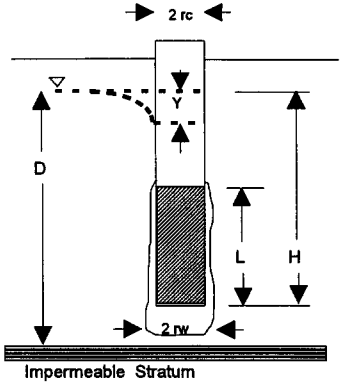
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})])/(L/rw)^-1
= 4.714135644

If ln(D-H)/rw >6, use following formula:

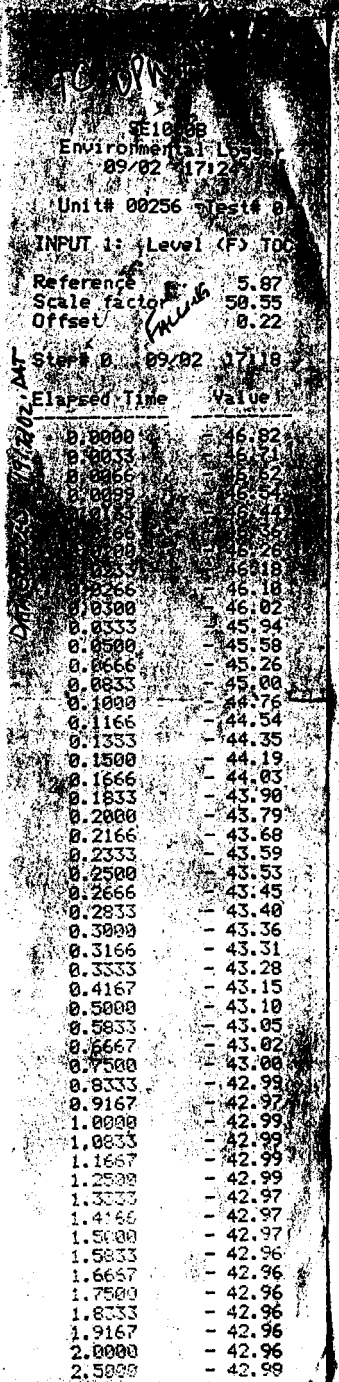
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)}/(L/rw)^-1
= 0.228452285

	sys. geometry	time/drawdown
K= [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0012787911	7.59089095

0.009707164 feet/minute
13.98 feet/day
0.00493435 cm/sec



(1.5 x H), whichever is shallower



COPY

SE10-08
Environmental Logger
09/02 17:20

Unit# 00256 Test# 0

INPUT 1: Level (F) TOC

Reference: 5.87
Scale factor: 50.55
Offset: 0.22

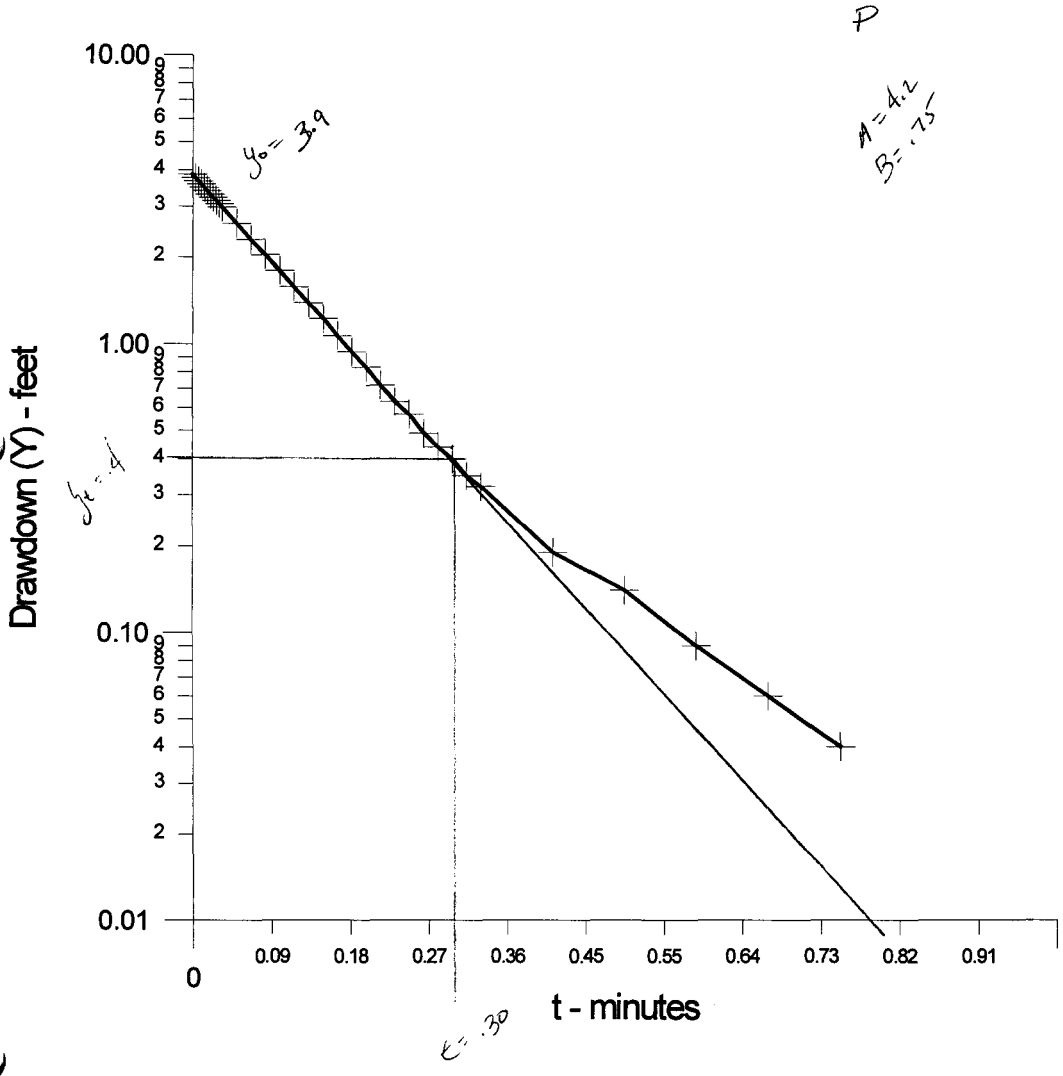
Start 0 09/02 17:18

Elapsed Time	Value
0.0000	- 46.82
0.0033	- 46.71
0.0066	- 46.62
0.0099	- 46.54
0.0133	- 46.47
0.0166	- 46.41
0.0200	- 46.36
0.0233	- 46.28
0.0266	- 46.18
0.0300	- 46.10
0.0333	- 46.02
0.0500	- 45.94
0.0666	- 45.58
0.0833	- 45.26
0.1000	- 45.00
0.1166	- 44.76
0.1333	- 44.54
0.1500	- 44.35
0.1666	- 44.19
0.1833	- 44.03
0.2000	- 43.90
0.2166	- 43.79
0.2333	- 43.68
0.2500	- 43.59
0.2666	- 43.53
0.2833	- 43.45
0.3000	- 43.40
0.3166	- 43.36
0.3333	- 43.31
0.4167	- 43.28
0.5000	- 43.15
0.5833	- 43.10
0.6667	- 43.05
0.7500	- 43.02
0.8333	- 43.00
0.9167	- 42.99
1.0000	- 42.97
1.0833	- 42.99
1.1667	- 42.99
1.2500	- 42.99
1.3333	- 42.97
1.4166	- 42.97
1.5000	- 42.97
1.5833	- 42.96
1.6667	- 42.96
1.7500	- 42.96
1.8333	- 42.96
1.9167	- 42.96
2.0000	- 42.96
2.5000	- 42.99

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - SEPTEMBER 2, 1997

DPW7d TEST 1



ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW8S**
Test #1
Early Data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Greg Miller*
SHEET: *1*
TEST DATE: *9/2/97*
CALC DATE: *9/28/98*
WELL NO.: *DPW8S*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2.25	Static Head (ft toc):	8	Datum (ft toc):	36
Hole Diameter (in):	11.25	Base of Screen (ft toc):	16		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	1.554	; radius of influence (L)

H =	11	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	8	; saturated screen length (L)

A=	2.2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.76	; obtained from curve equation for graph from Figure 3
t =	5.00	; time - duration of desired test interval (T)
yo =	2.1	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.067	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 5.3528056 ln((D-H)/rw)= 5.7881236 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

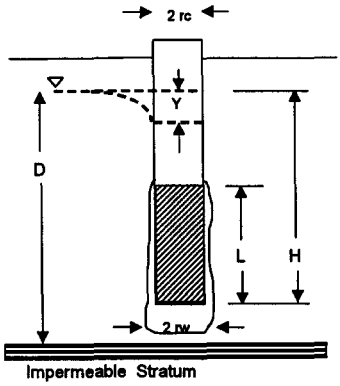
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln((D-H)/rw)])/(L/rw)^-1
= 3.395938271

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.226269955

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0009212072	30.03402955

0.027667565 feet/minute
39.84 feet/day
0.01406398 cm/sec



(1.5 x H), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **DPW8S**
Test #1
Late Data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
WELL NO.: *DPW8S*

LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Greg Miller*

SHEET: *1*
TEST DATE: *9/2/97*
CALC DATE: *9/28/98*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	4.5	Static Head (ft toc):	8	Datum (ft toc):	39
Hole Diameter (in):	12	Base of Screen (ft toc):	18		

Where:

rc = 0.052 ; radius of well casing (L)
n = 0.30 ; sandpack porosity (decimal-fraction)
rw = 0.052 ; radius of borehole (L)
re = 0.052 ; corrected radius of borehole with sandpack (L)
Re = 1.554 ; radius of influence (L)

H = 11 ; height of water table above bottom of well (L)
D = 28 ; height of water table above assigned datum (L)
L = 5 ; saturated screen length (L)

A= 1.2 ; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B= 0.75 ; obtained from curve equation for graph from Figure 3
t = 0.10 ; time - duration of desired test interval (T)
yo = 0.5 ; maximum change in head obtained graphically from plot of change in head versus time (L)
yt = 0.04 ; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 5.3528056 ln((D-H)/rw)= 5.7881236 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

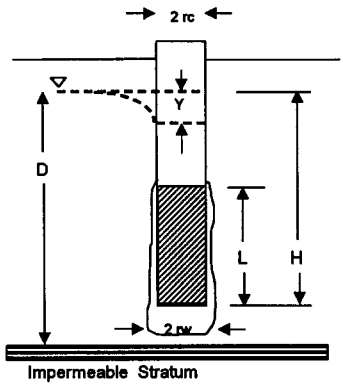
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln[(D-H)/rw])]/(L/rw)^-1
= 3.395938271

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.226269955

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0009212072	10.13638496

0.009337711 feet/minute
13.45 feet/day
0.00474655 cm/sec

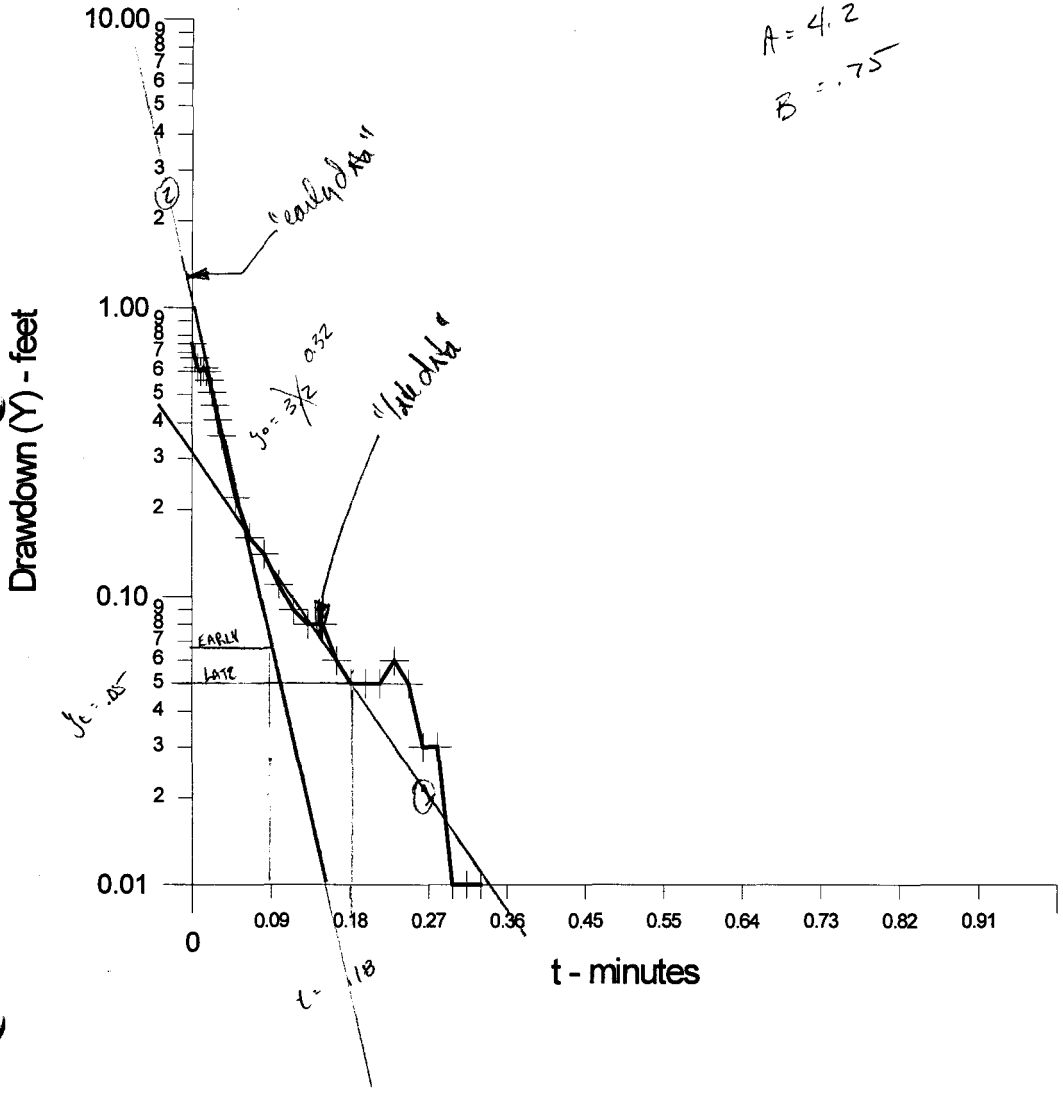


(1.5 x H), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - SEPTEMBER 2, 1997

DPW8s TEST 1



TC-DPW8S

SE1000B
Environmental Logger
09/02 14:39

Unit# 00256 Test# 0

DATA ENTERED 1918SO2.DAT

INPUT 1: Level (F) TOC

Reference 4.81
Scale factor 50.55
Offset 0.22

Step# 0 09/02 14:32

Elapsed Time	Value
0.0000	4.18
0.0033	4.26
0.0066	4.31
0.0099	4.33
0.0133	4.31
0.0166	4.33
0.0200	4.37
0.0233	4.42
0.0266	4.47
0.0300	4.52
0.0333	4.57
0.0500	4.71
0.0666	4.77
0.0833	4.79
0.1000	4.82
0.1166	4.84
0.1333	4.85
0.1500	4.85
0.1666	4.87
0.1833	4.88
0.2000	4.88
0.2166	4.88
0.2333	4.87
0.2500	4.88
0.2666	4.90
0.2833	4.90
0.3000	4.92
0.3166	4.92
0.3333	4.92
0.4167	4.93
0.5000	4.93
0.5833	4.93
0.6667	4.93
0.7500	4.92
0.8333	4.92
0.9167	4.92
1.0000	4.92
1.0833	4.92
1.1667	4.92
1.2500	4.92
1.3333	4.90
1.4166	4.90
1.5000	4.90
1.5833	4.90
1.6667	4.90
1.7500	4.88
1.8333	4.88
1.9167	4.88
2.0000	4.83
2.5000	4.84
3.0000	4.82
3.5000	4.82
4.0000	4.82
4.5000	4.82
5.0000	4.81
5.5000	4.81

Falling

ref 4.93

END

Lwle 1

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW07D**

EARLY DATA

PROJECT: ***NAVSTA***
PROJ. NO.: ***9052-001-0400***
WELL NO.: ***MW07D***

LOCATION: ***Mayport, Fl. Bldg 191***
TESTED BY: ***Greg Miller***
CALCS BY: ***Micah Crochet***

SHEET: ***1***
TEST DATE: ***8/28/97***
CALC DATE: ***12/10/97***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2	Static Head (ft toc):	5	Datum (ft toc):	33
Hole Diameter (in):	8	Base of Screen (ft toc):	32.5		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	4.348	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.25	; obtained from curve equation for graph from Figure 3
t =	0.16	; time - duration of desired test interval (T)
yo =	2.5	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.5	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.4127983 ln((D-H)/rw)= 0.4054651 L/rw= 15

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

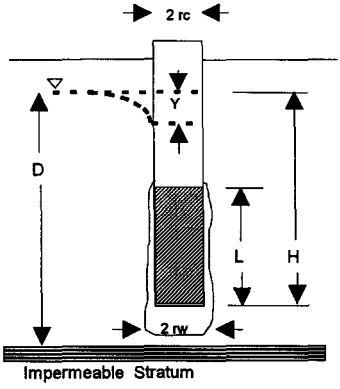
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 2.56827754

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.438761681

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0119496247	8.941321736

0.106845439 feet/minute
153.86 feet/day
0.05431167 cm/sec



(1.5 x H), whichever is shallower

ICON

LATE 2

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW07D**

LATE DATA

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***8/28/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/10/97***

WELL NO.: ***MW07D***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2	Static Head (ft toc):	5	Datum (ft toc):	33
Hole Diameter (in):	8	Base of Screen (ft toc):	32.5		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.36	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	4.348	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.26	; obtained from curve equation for graph from Figure 3
t =	0.16	; time - duration of desired test interval (T)
yo =	0.5	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.26	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.4127983 ln((D-H)/rw)= 0.4054651 L/rw= 15

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

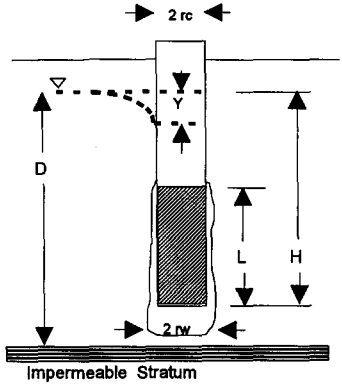
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln((D-H)/rw))]/(L/rw)^-1
= 2.56827754

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.438761681

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0119496247	4.087040421

0.048838599 feet/minute
70.33 feet/day
0.02482564 cm/sec

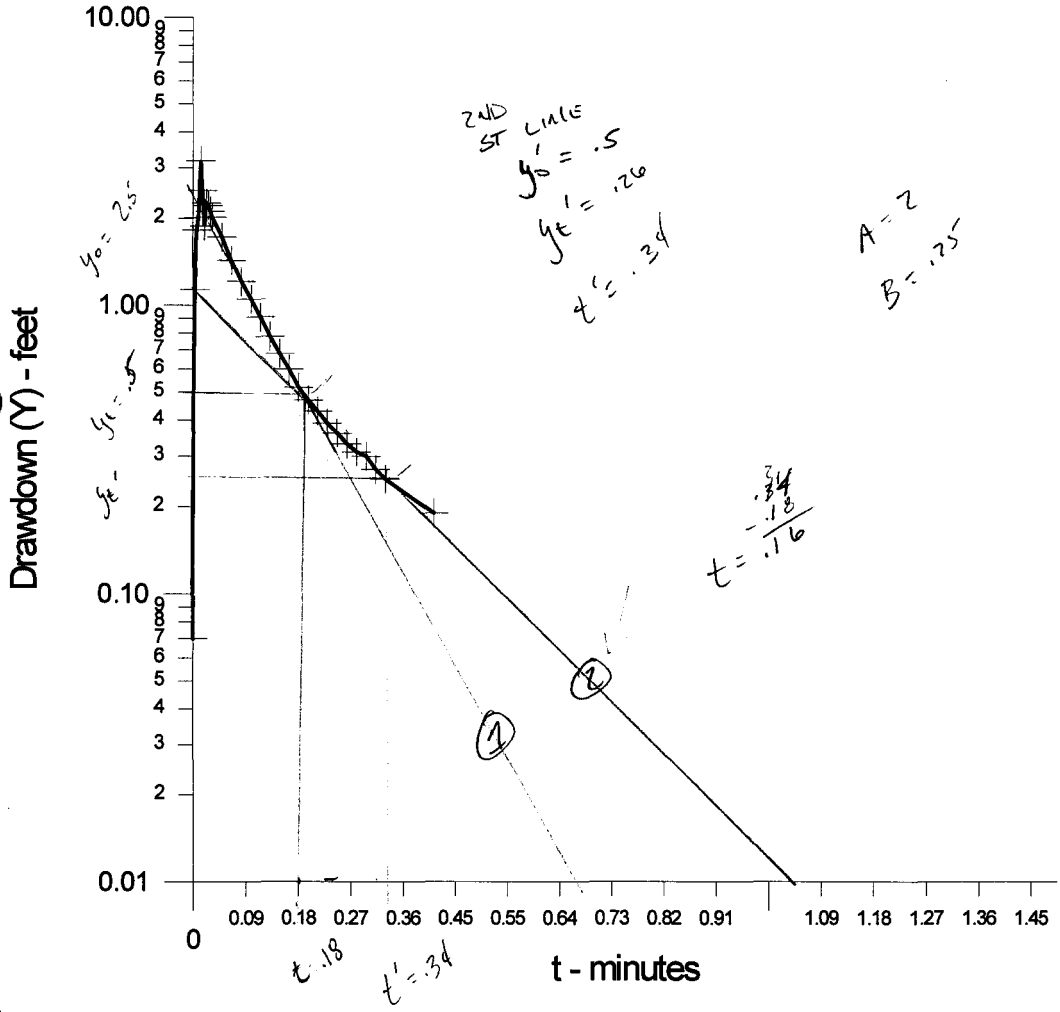


(1.5 x H), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 28, 1997

MW07d



MW07d - rising head/bailer

SE1000B
Environmental Logger
08/28 09:52

Unit# 00256 Test# 0

INPUT 1: Level (F) TOC

Reference 5.47
Scale factor 50.55
Offset 0.22

Step# 0 08/28 09:49

DATA OUTPUT A:\F\7D.DAT

Elapsed Time	Value
0.0000	5.54
0.0033	6.60
0.0066	7.29
0.0099	7.48
0.0133	8.65
0.0166	7.97
0.0200	7.35
0.0233	7.73
0.0266	7.69
0.0300	7.59
0.0333	7.49
0.0500	7.18
0.0666	6.90
0.0833	6.68
0.1000	6.52
0.1166	6.38
0.1333	6.25
0.1500	6.15
0.1666	6.07
0.1833	5.99
0.2000	5.94
0.2166	5.90
0.2333	5.86
0.2500	5.83
0.2666	5.80
0.2833	5.78
0.3000	5.77
0.3166	5.74
0.3333	5.72
0.4167	5.66
0.5000	5.62
0.5833	5.62
0.6667	5.61
0.7500	5.61
0.8333	5.59
0.9167	5.61
1.0000	5.61
1.0833	5.61
1.1667	5.61
1.2500	5.59
1.3333	5.59
1.4166	5.59
1.5000	5.59
1.5833	5.59
1.6667	5.58
1.7500	5.58
1.8333	5.58
1.9167	5.58
2.0000	5.56

END

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW07D**
Test #2
Early Data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
WELL NO.: *MW07D*

LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Greg Miller*

SHEET: *1*
TEST DATE: *8/28/97*
CALC DATE: *9/28/98*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2	Static Head (ft toc):	0	Datum (ft toc):	55
Hole Diameter (in):	6	Base of Screen (ft toc):	-23		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	4.348	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.25	; obtained from curve equation for graph from Figure 3
t =	0.10	; time - duration of desired test interval (T)
yo =	1.0	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.37	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.4127983 ln((D-H)/rw)= 0.4054651 L/rw= 15

EQUATIONS AND CALCULATIONS

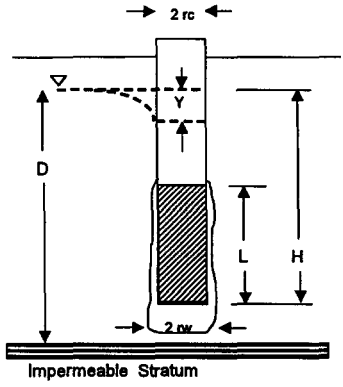
WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 2.56827754

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.438761681



(1.5 x H), whichever is shallower

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0119496247	10.337513

0.1235294 feet/minute
177.88 feet/day
0.06279246 cm/sec

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW07D**
Test #2
Late Data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Micah Crochet*
SHEET: *1*
TEST DATE: *8/28/97*
CALC DATE: *12/10/97*

WELL NO.: *MW07D*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	[redacted]	Static Head (ft toc):	[redacted]	Datum (ft toc):	[redacted]
Hole Diameter (in):	[redacted]	Base of Screen (ft toc):	[redacted]		

Where:

rc =	0.083	; radius of well casing (L)
n =	[redacted]	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	4.348	; radius of influence (L)
H =	27.5	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	[redacted]	; saturated screen length (L)
A=	[redacted]	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	[redacted]	; obtained from curve equation for graph from Figure 3
t =	[redacted]	; time - duration of desired test interval (T)
yo =	[redacted]	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	[redacted]	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 4.4127983 ln((D-H)/rw)= 0.4054651 L/rw= 15

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

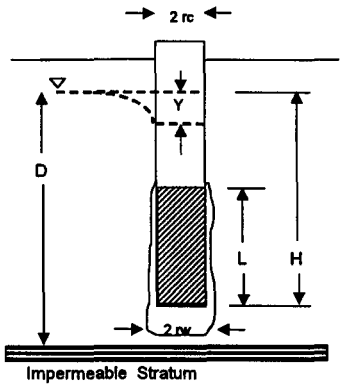
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 2.56827754

if ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.438761681

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0119496247	6.675032101

0.079764128 feet/minute
114.86 feet/day
0.0405457 cm/sec

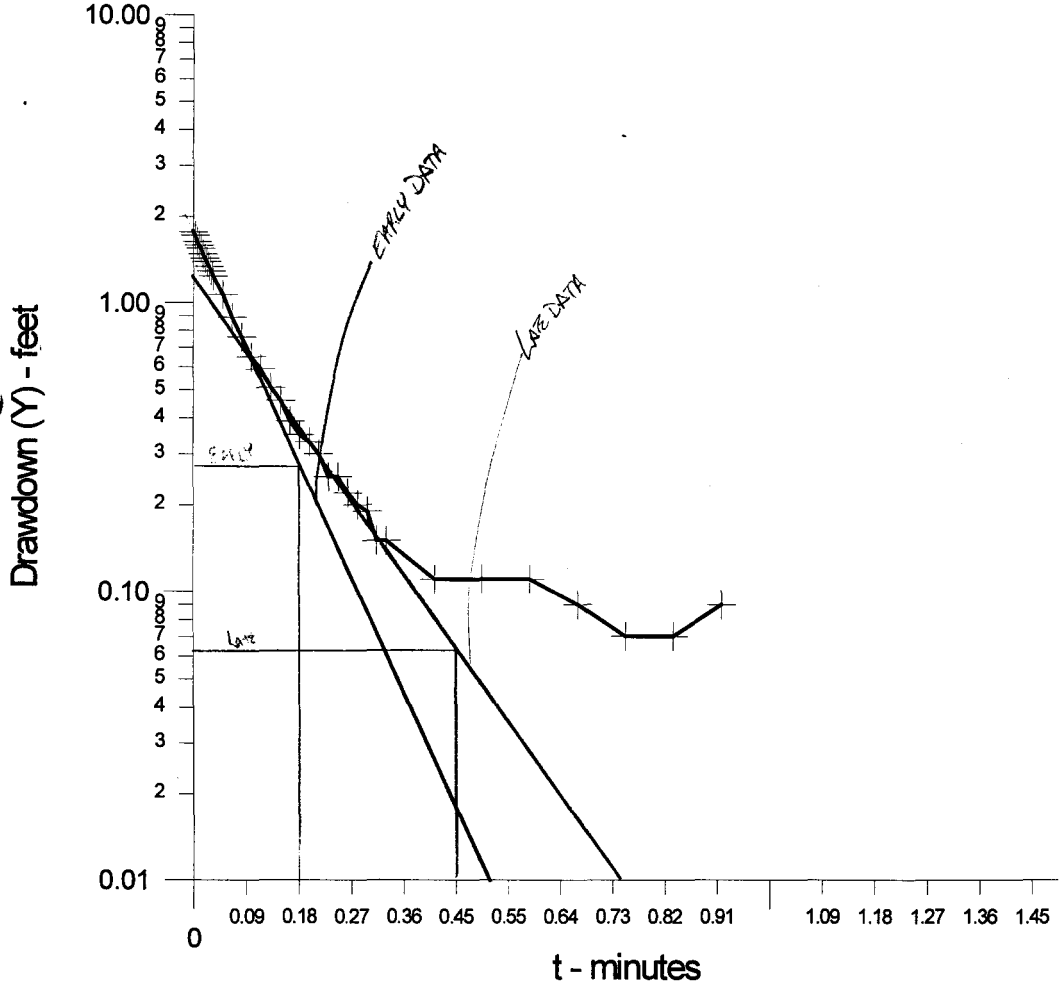


(1.5 x H), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - AUGUST 28, 1997

MW07d TEST 2



ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **MW08S**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***9/2/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/11/97***

WELL NO.: ***MW08S***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2	Static Head (ft toc):	5	Datum (ft toc):	33
Hole Diameter (in):	8	Base of Screen (ft toc):	16		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	2.337	; radius of influence (L)
H =	11	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.25	; obtained from curve equation for graph from Figure 3
t =	0.31	; time - duration of desired test interval (T)
yo =	1	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.21	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 3.4965076 ln((D-H)/rw)= 3.9318256 L/rw= 15

EQUATIONS AND CALCULATIONS

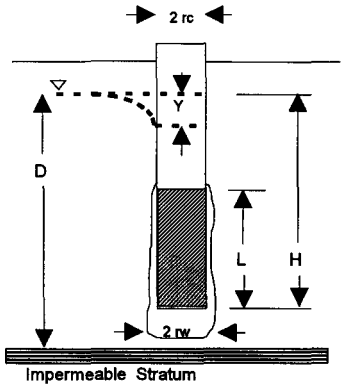
WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 1.947558502

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.426536308



	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0090615569	5.034347575

0.045619027 feet/minute
65.69 feet/day
0.02318906 cm/sec

(1.5 x H), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW08S**
Test #1
Early Data

PROJECT: ***NAVSTA***
PROJ. NO.: ***9052-001-0400***
LOCATION: ***Mayport, Fl. Bldg 191***
TESTED BY: ***Greg Miller***
CALCS BY: ***Greg Miller***
SHEET: ***1***
TEST DATE: ***9/2/97***
CALC DATE: ***9/28/98***
WELL NO.: ***MW08S***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	8	Static Head (ft toc):	17	Datum (ft toc):	39
Hole Diameter (in):	8	Base of Screen (ft toc):	10		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	2.337	; radius of influence (L)
H =	11	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	7	; saturated screen length (L)
A=	0	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.2	; obtained from curve equation for graph from Figure 3
t =	0.4	; time - duration of desired test interval (T)
yo =	1.0	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.63	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 3.4965076 ln((D-H)/rw)= 3.9318256 L/rw= 15

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

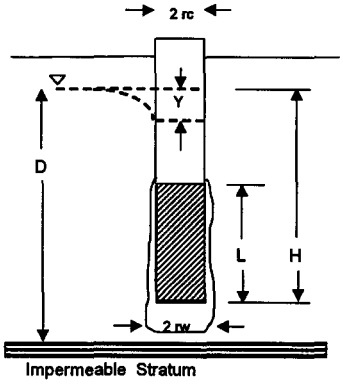
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln((D-H)/rw)])/(L/rw)^-1
= 1.947558502

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.426536308

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0090615569	7.489330684

0.067864996 feet/minute
97.73 feet/day
0.03449713 cm/sec



(1.5 x H), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW08S**
Test #1
Middle Data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
WELL NO.: *MW08S*

LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Greg Miller*

SHEET: *1*
TEST DATE: *9/2/97*
CALC DATE: *9/28/98*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2	Static Head (ft toc):	3	Datum (ft toc):	35
Hole Diameter (in):	8	Base of Screen (ft toc):	10		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	2.337	; radius of influence (L)
H =	11	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.25	; obtained from curve equation for graph from Figure 3
t =	0.5	; time - duration of desired test interval (T)
yo =	0.50	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.062	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 3.4965076 ln((D-H)/rw)= 3.9318256 L/rw= 15

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

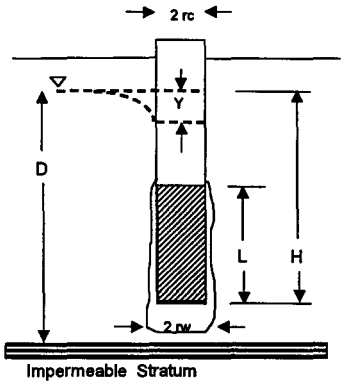
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})])/(L/rw)^-1
= 1.947558502

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.426536308

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0090615569	3.014730481

0.027318152 feet/minute
39.34 feet/day
0.01388636 cm/sec



(1.5 x H), whichever is shallower

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

Well: **MW08S**
Test #1
Late Data

PROJECT: *NAVSTA*
PROJ. NO.: *9052-001-0400*
WELL NO.: *MW08S*

LOCATION: *Mayport, Fl. Bldg 191*
TESTED BY: *Greg Miller*
CALCS BY: *Greg Miller*

SHEET: *1*
TEST DATE: *9/2/97*
CALC DATE: *9/28/98*

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	2	Static Head (ft toc):	8	Datum (ft toc):	33
Hole Diameter (in):	6	Base of Screen (ft toc):	16		

Where:

rc =	0.083	; radius of well casing (L)
n =	0.30	; sandpack porosity (decimal-fraction)
rw =	0.333	; radius of borehole (L)
re =	0.216	; corrected radius of borehole with sandpack (L)
Re =	2.337	; radius of influence (L)
H =	11	; height of water table above bottom of well (L)
D =	28	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.25	; obtained from curve equation for graph from Figure 3
t =	2	; time - duration of desired test interval (T)
yo =	0.17	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.05	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 3.4965076 ln((D-H)/rw)= 3.9318256 L/rw= 15

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

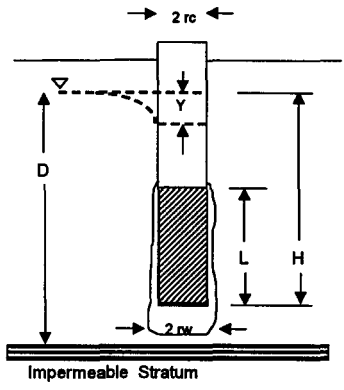
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 1.947558502

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln 6)]/(L/rw)^-1
= 0.426536308

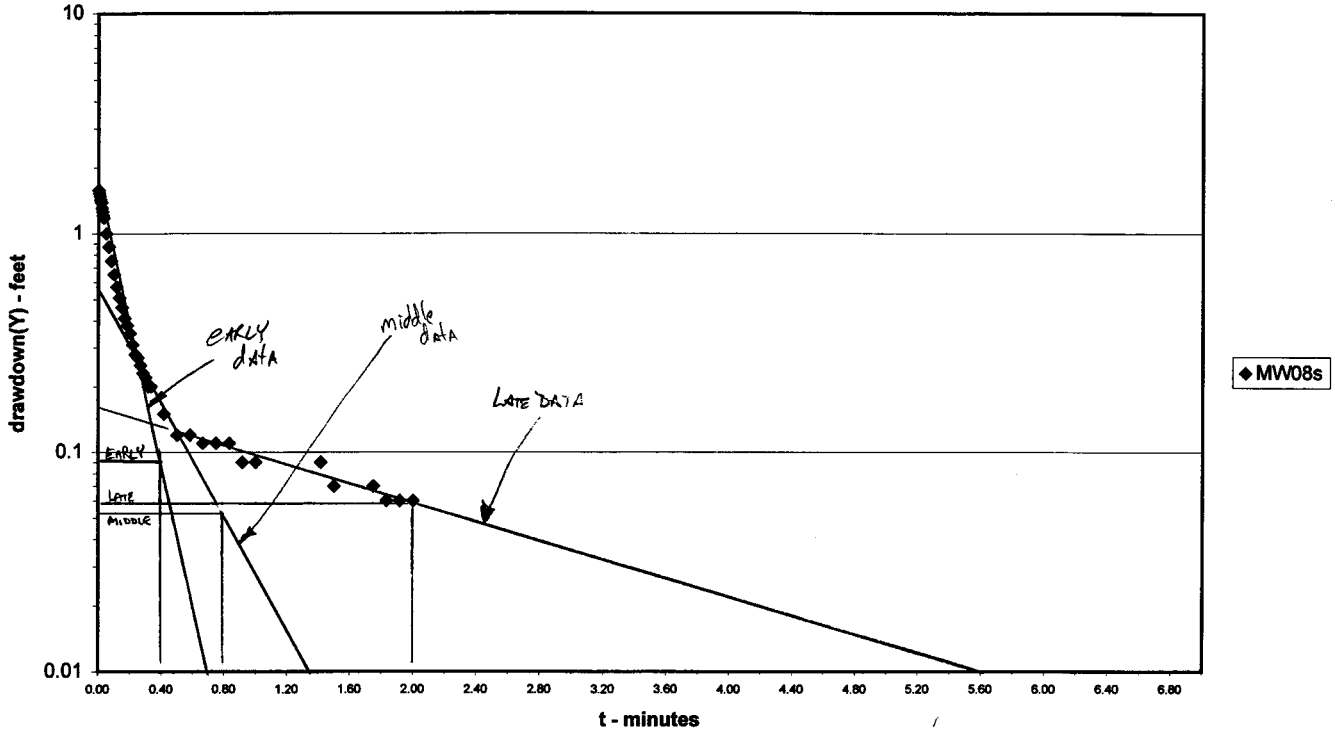
	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0090615569	0.520726937

0.004718597 feet/minute
6.79 feet/day
0.00239856 cm/sec



(1.5 x H), whichever is shallower

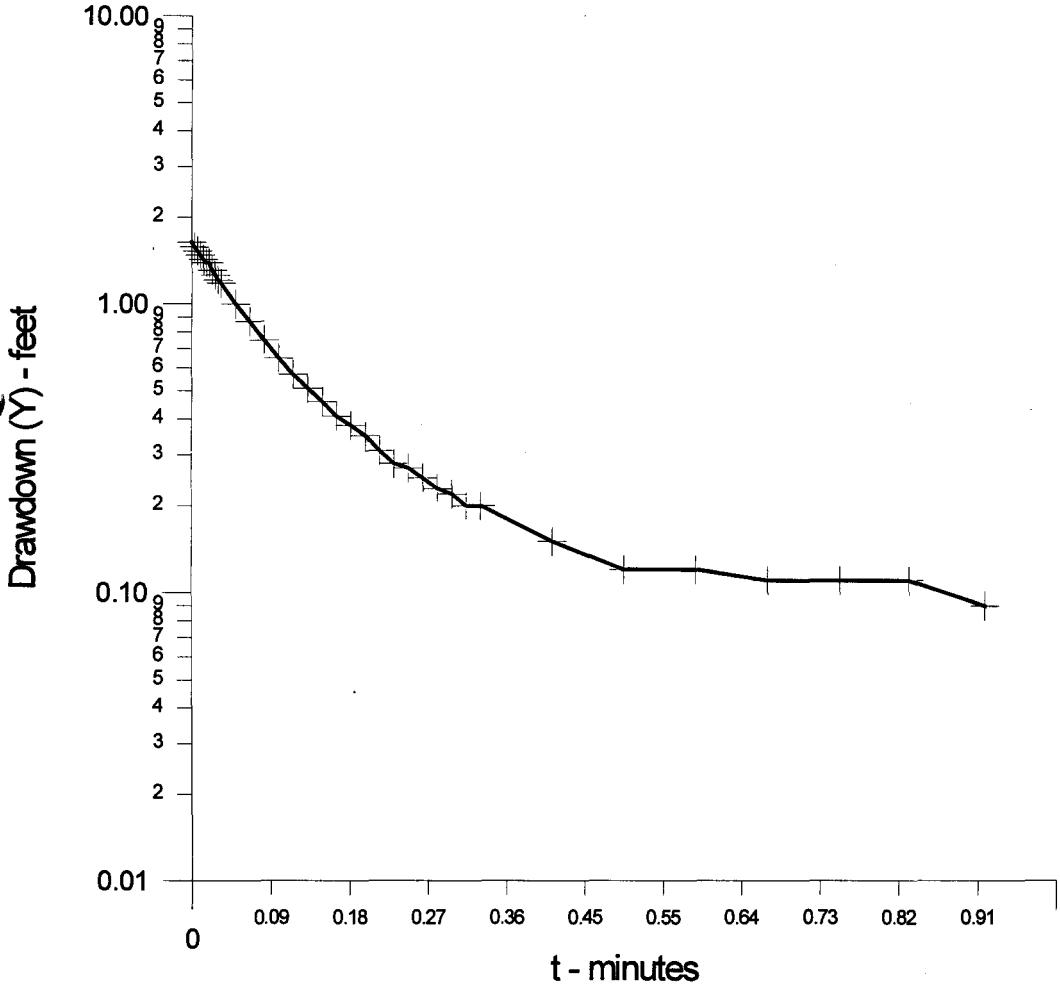
NAVSTA MAYPORT SLUG TEST DATA
MW08S Sept 8, 1997 (Building 191)

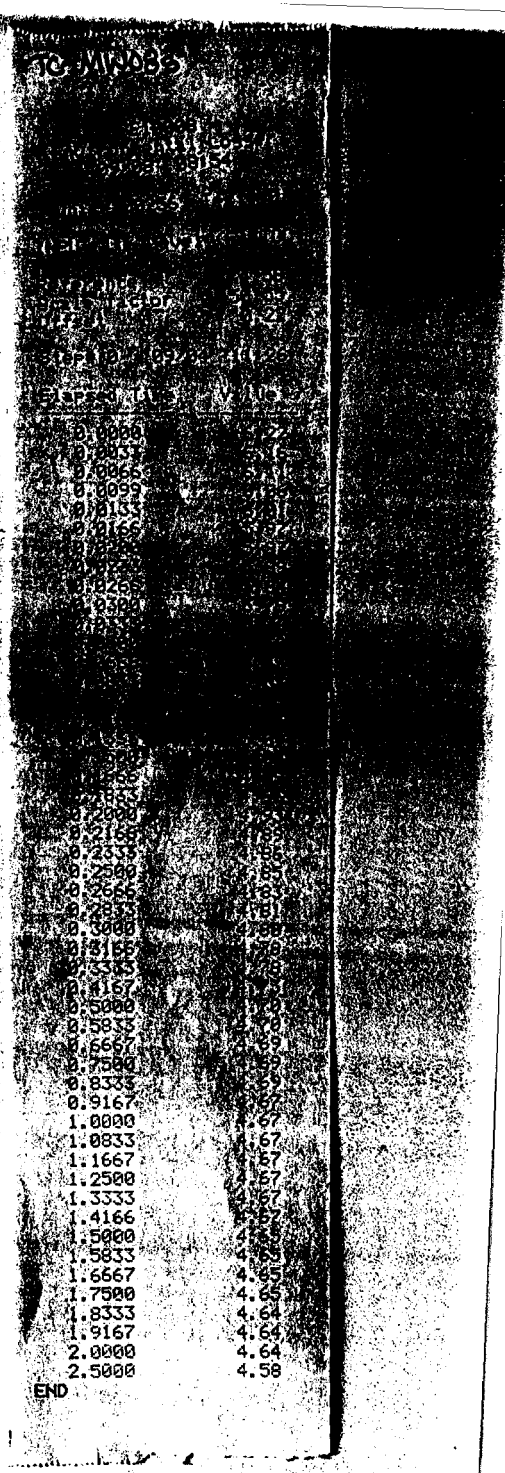


NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - SEPTEMBER 8, 1997

MW08s TEST 1





0.0000	
0.0833	
0.0666	
0.0999	
0.0153	
0.0166	
0.0250	
0.0333	
0.0500	
0.0666	
0.0833	
0.1000	
0.1166	
0.1333	
0.1500	
0.1666	
0.1833	
0.2000	
0.2166	
0.2333	
0.2500	
0.2666	
0.2833	
0.3000	
0.3166	
0.3333	
0.4167	
0.5000	
0.5833	
0.6667	
0.7500	
0.8333	
0.9167	
1.0000	
1.0833	
1.1667	
1.2500	
1.3333	
1.4166	
1.5000	
1.5833	
1.6667	
1.7500	
1.8333	
1.9167	
2.0000	
2.5000	

END

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW9S**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport, Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY: ***Greg Miller*** TEST DATE: ***9/2/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/11/97***
WELL NO.: ***DPW9S***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	4.5	Datum (ft toc):	28.5
Hole Diameter (in):	1.25	Base of Screen (ft toc):	29		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.279	; radius of influence (L)
H =	23.5	; height of water table above bottom of well (L)
D =	24	; height of water table above assigned datum (L)
L =	5	; saturated screen length (L)
A=	4.2	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
B=	0.75	; obtained from curve equation for graph from Figure 3
t =	0.26	; time - duration of desired test interval (T)
yo =	2.3	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.4	; change in head at time "t" obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.1119107 ln((D-H)/rw)= 2.2617631 L/rw= 96

EQUATIONS AND CALCULATIONS

WATER RISING ABOVE THE TOP OF THE SCREENED INTERVAL

Partially Penetrating Well *(Lw < H)*

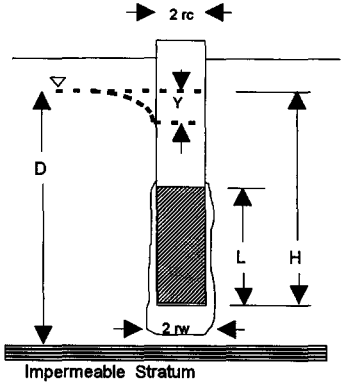
ln(Re/rw) = [1.1/ln(H/rw) + (A + [B*(ln{(D-H)/rw})]/(L/rw)^-1
= 4.142562549

If ln(D-H)/rw >6, use following formula:

ln(Re/rw) = [1.1/ln(H/rw) + (A + [B *(ln 6)]/(L/rw)^-1
= 0.227584287

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0011237420	6.727691749

0.00756019 feet/minute
10.89 feet/day
0.003843 cm/sec

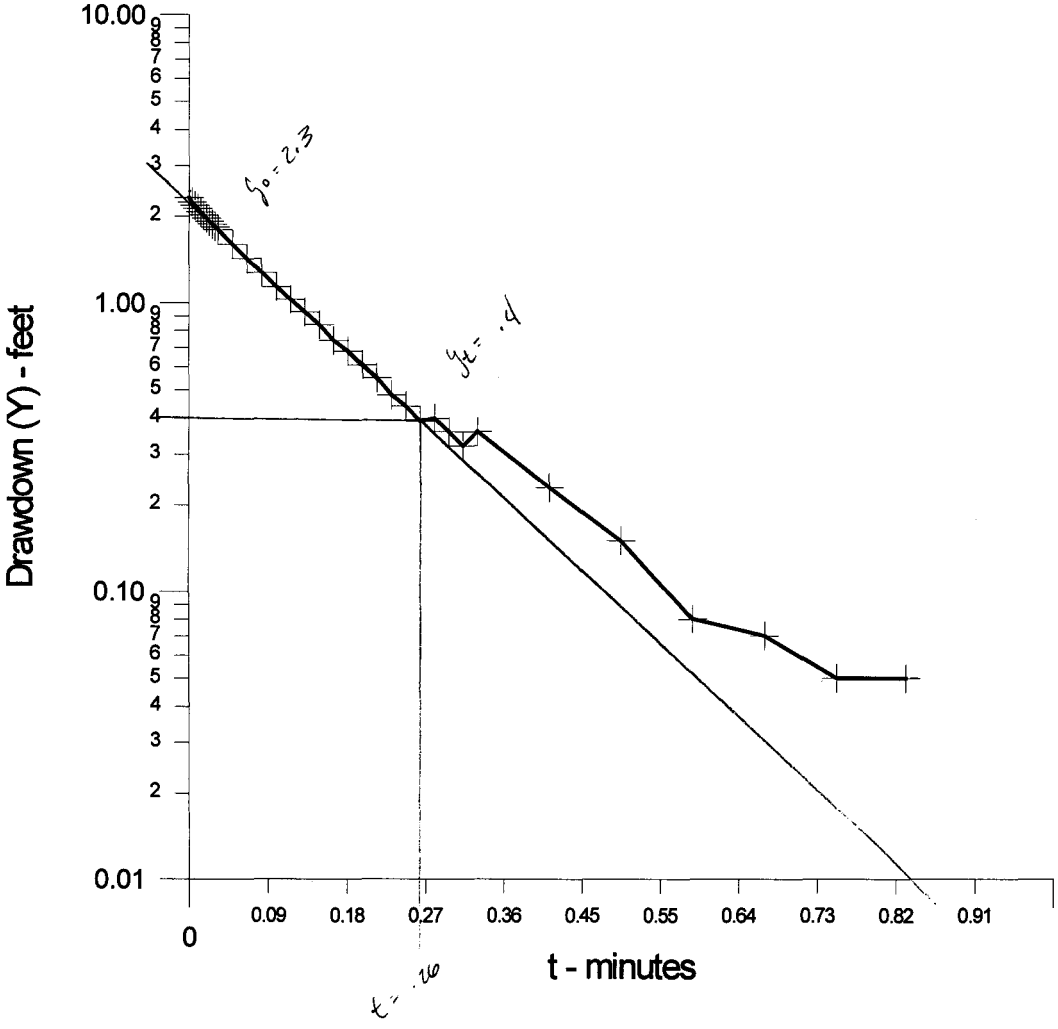


(1.5 x H), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - SEPTEMBER 2, 1997

DPW9s TEST 1



READY

READY TC-DPW95

SE1000B
Environmental Logger
09/02 09:59

Unit# 00256 Test# 0

INPUT 1: Level (F) TOC

Reference 4.09
Scale factor 50.55
Offset 0.22

Step# 0 09/02 09:51

Elapsed Time	Value
0.0000	1.77
0.0033	1.85
0.0066	1.91
0.0099	1.96
0.0133	2.02
0.0166	2.07
0.0200	2.12
0.0233	2.17
0.0266	2.21
0.0300	2.25
0.0333	2.29
0.0500	2.49
0.0666	2.66
0.0833	2.81
0.1000	2.95
0.1166	3.06
0.1333	3.16
0.1500	3.25
0.1666	3.35
0.1833	3.41
0.2000	3.48
0.2166	3.54
0.2333	3.61
0.2500	3.65
0.2666	3.70
0.2833	3.69
0.3000	3.73
0.3166	3.77
0.3333	3.73
0.4167	3.86
0.5000	3.94
0.5833	4.01
0.6667	4.02
0.7500	4.04
0.8333	4.04
0.9167	4.09
1.0000	4.12
1.0833	4.12
1.1667	4.12
1.2500	4.12
1.3333	4.12
1.4166	4.12
1.5000	4.10
1.5833	4.10
1.6667	4.10
1.7500	4.10
1.8333	4.10
1.9167	4.10
2.0000	4.09
2.5000	4.05

DATA LOGGER 1910 Q502.DAT

ICON

BOUWER AND RICE SLUG/BAIL TEST CALCULATIONS

Well: **DPW9I**

(Bouwer and Rice, WRR, June 1976; Bouwer, Groundwater V27, No.3, June 1989)

PROJECT: ***NAVSTA*** LOCATION: ***Mayport Fl. Bldg 191*** SHEET: ***1***
PROJ. NO.: ***9052-001-0400*** TESTED BY ***Greg Miller*** TEST DATE: ***9/2/97***
CALCS BY: ***Micah Crochet*** CALC DATE: ***12/11/97***

WELL NO.: ***DPW9I***

INPUT DATA UNITS: L= feet T= minutes

Well Diameter (in):	1.25	Static Head (ft toc):	4.5	Datum (ft toc):	38.5
Hole Diameter (in):	1.25	Base of Screen (ft toc):	36		

Where:

rc =	0.052	; radius of well casing (L)
n =	0.38	; sandpack porosity (decimal-fraction)
rw =	0.052	; radius of borehole (L)
re =	0.052	; corrected radius of borehole with sandpack (L)
Re =	3.490	; radius of influence (L)
H =	33.5	; height of water table above bottom of well (L)
D =	34	; height of water table above assigned datum (L)
L =	2	; saturated screen length (L)
C =	2.60	; obtained from curve equation for graph from Figure 3 , Bouwer & Rice (dimensionles
t =	7.5	; time - duration of desired test interval (T)
yo =	4.5	; maximum change in head obtained graphically from plot of change in head versus time (L)
yt =	0.33	; change in head at time "t' obtained graphically from plot of change in head versus time (L)

ln(H/rw)= 6.466456 ln((D-H)/rw)= 2.261763 L/rw= 38.4

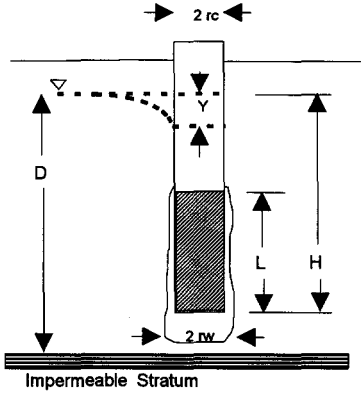
EQUATIONS AND CALCULATIONS

Fully Penetrating Well *(Lw=H)*

ln(Re/rw) = [1.1/ln(H/rw) + (C/(L/rw))]^-1
= 4.205

	sys. geometry	time/drawdown
K = [re^2 x ln(Re/rw)] /2L x 1/t x ln(yo/yt)) =	0.0026516400	0.348365336

0.000993413 feet/minute
1.43 feet/day
0.000505 cm/sec



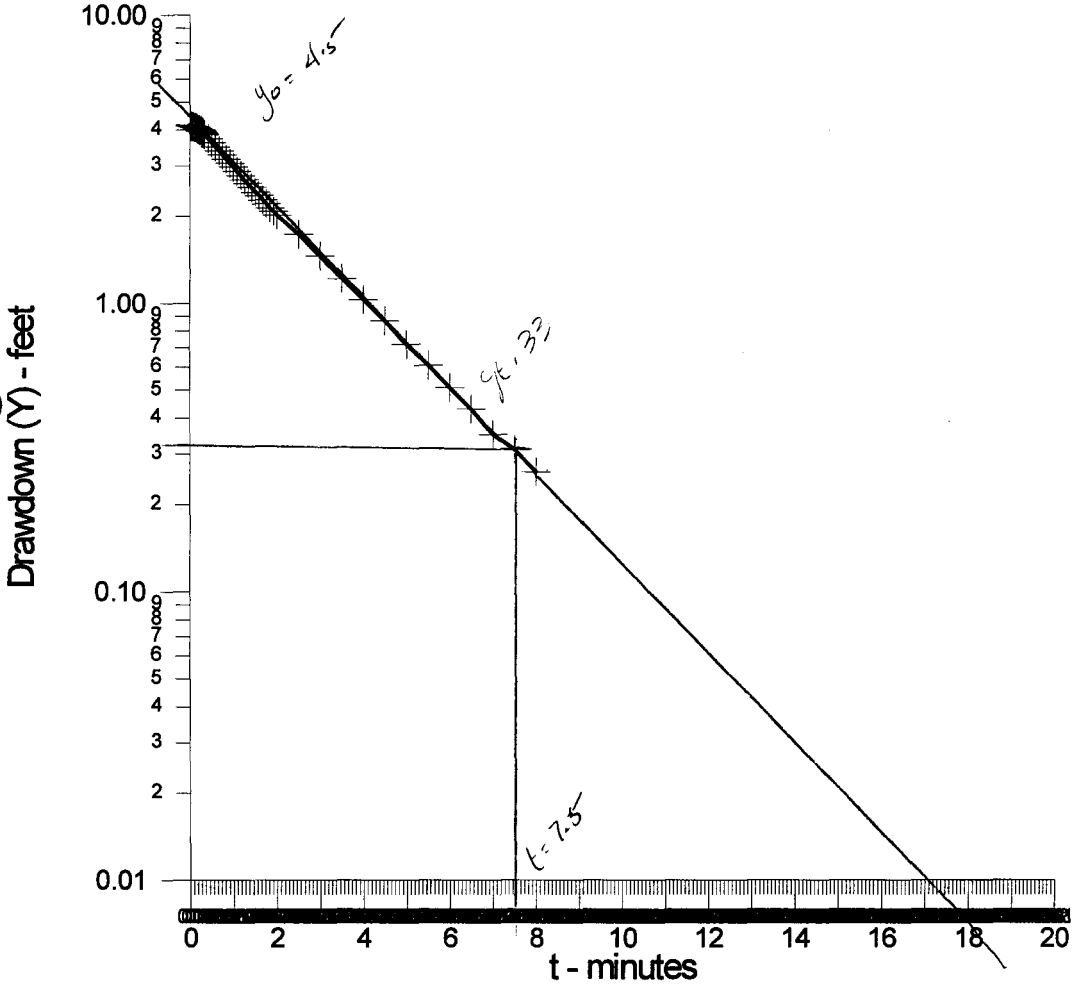
Impermeable Stratum

Assigned Datum is the depth of the Confining Layer or the Well Depth plus (1.5 x L), whichever is shallower

NAVSTA MAYPORT, FLORIDA

SLUG TEST DATA (y versus t) - SEPTEMBER 2, 1997

~~SWMU 15~~ DPW9i test1



Appendix H

Laboratory Data Validation Worksheets

Sample Delivery Group: ME651 **Fraction: Halocarbon**

Narrative

On September 5, 1997 CH2MHILL Analytical Services received sixteen(16) groundwater samples for Halocarbon analysis. The analysis were to be performed according to SW-846 Method 8010A-modified. The data in this sample delivery group was evaluated using SW-846 methodologies and National Functional Guidelines for Organic Data Review, June 1991. The results of the evaluation are summarized below.

Field Samples:

- 13 field sample(s) – groundwater
- 1 equipment rinsate blank(s) - water
- 1 trip blank(s)
- 1 blind duplicate(s) - groundwater

Laboratory Samples:

- 4 method blank(s)

Chain of Custody

Chain of Custody information and laboratory information were in agreement. There were no notable discrepacies in this sample delivery group.

Holding Time

All samples were analyzed within required holding times.

Blank Contamination

Blank contamination was not present in this sample delivery group.

Initial Calibration/continuing Calibration

The documentation necessary to verify initial and continuing calibrations was not available. The laboratory did address the calibrations in the case narrative of the data package. It was stated that all calibration acceptance criteria have been met.

Surrogate Recovery

Surrogate recoveries were within required quality control limits.

Matrix Spike/Laboratory Control Sample

Laboratory control sample recoveries were within required quality control limits.

Sample Delivery Group: MD578 **Fraction: Halocarbon**

Narrative

On May 10, 1997 CH2MHILL Analytical Services received twenty-two(22) samples for Halocarbon analysis. The analysis were to be performed according to SW-846 Method 8010A-modified. The data in this sample delivery group was evaluated using SW-846 methodologies and National Functional Guidelines for Organic Data Review, June 1991. The results of the evaluation are summarized below.

Field Samples:

- 17 field sample(s) – groundwater
- 2 equipment rinsate blank(s) - water
- 1 trip blank(s)
- 2 field duplicate(s) - groundwater

Laboratory Samples:

- 4 method blank(s)

Chain of Custody

Chain of Custody information and laboratory information were in agreement. There were no notable discrepacies in this sample delivery group.

Holding Time

All samples were analyzed within required holding times.

Blank Contamination

Blank contamination was not present in this sample delivery group.

Initial Calibration/continuing Calibration

The documentation necessary to verify initial and continuing calibrations was not available. The laboratory did address the calibrations in the case narrative of the data package. It was stated that all calibration acceptance criteria have been met.

Surrogate Recovery

Surrogate recoveries were within required quality control limits.

Matrix Spike/Laboratory Control Sample

Laboratory control sample recoveries were within required quality control limits.

APPENDIX B

TECHNICAL MEMORANDUM, GEOLOGIC CROSS-SECTION AND BORING LOGS, GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE NEAR BUILDING 191, NAVAL STATION MAYPORT

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

March 25, 1999

Ms. Adrienne Wilson
Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC 29419-9010

file: 191gw_1.doc

RE: Draft Technical Memorandum: Ground Water Assessment of Tetrachloroethene Release
Near Building 191, U.S. Naval Station, Mayport, Florida

Dear Ms. Wilson:

I have reviewed the above document dated January 1999 (received January 25, 1999). We also reviewed the document in detail at our Partnering meeting in February and I have discussed the project area with Terry Hansen of Tetra Tech NUS. During the meeting and our other discussions, we discussed the inclusion of additional wells as needed as we developed additional information, including possible deep wells. We also named the area as AOC "C." I suggest that we remain open to including appropriate portions of Shore Intermediate Maintenance Facility within Area "C" should we need to. Accordingly, the document is adequate for its intent.

If you need further clarification or any additional information, please feel free to contact me at 850-921-4230.

Sincerely,

James H. Cason, P.G.
Remedial Project Manager

CC: Randy Bishop, NAVSTA Mayport
Martha Berry, U.S. EPA Region IV, Atlanta
Frank Lesesne, HLA, Tallahassee

TJB_____JJC_____ESN_____

DRAFT

TECHNICAL MEMORANDUM

GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE NEAR BUILDING 191

U.S. NAVAL STATION MAYPORT, FLORIDA

UNIT IDENTIFICATION CODE: N60201
CONTRACT NO.: N62467-89-D-0317/028

JANUARY 1999

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29418

DRAFT
NOT FOR PUBLIC RELEASE

PRINTED ON RECYCLED PAPER

DRAFT

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF
TETRACHLOROETHENE RELEASE NEAR BUILDING 191

U.S. NAVAL STATION
MAYPORT, FLORIDA

Unit Identification Code: N60201

Contract No.: N62467-89-D-0317/028

Prepared by:

Harding Lawson Associates
2590 Executive Center Circle, East
Tallahassee, Florida 32301

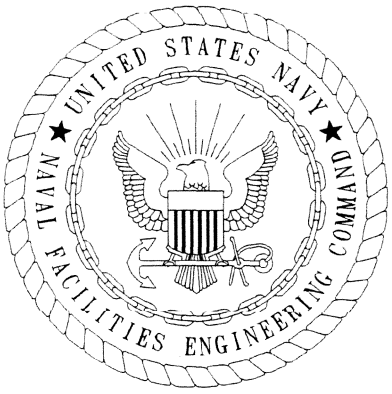
Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Adrienne Wilson, Code 1852, Engineer-in-Charge

January 1999

DRAFT



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/028 are complete and accurate and comply with all requirements of this contract.

DATE: January 18, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: Lisa Routhier
Task Order Manager

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Project Technical Lead

(DFAR 252.227-7036)

This document, *Technical Memorandum, Groundwater Assessment of Tetrachloroethene Release Near Building 191, U.S. Naval Station, Mayport, Florida*, has been prepared under the direction of a Florida-registered Professional Geologist. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted protocols and procedures.

If conditions are discovered or determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment, opinions, and recommendations in this document. This document was prepared to provide information regarding additional assessment of the tetrachloroethene release near Building 191 at U.S. Naval Station in Mayport, Florida, and should not be construed to apply for any other purpose or to any other site.

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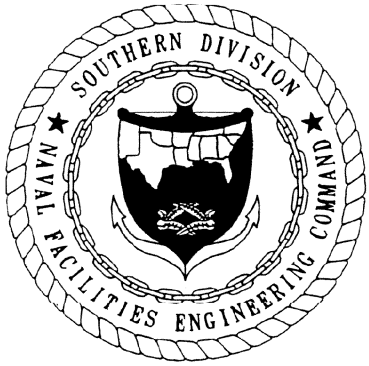

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, and/or disposal of hazardous materials. Through accidental spills or leaks, or as a result of conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by current standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Installation Restoration (IR) program. This program complies with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act. The acts, passed by Congress in 1980 and 1986, respectively, establish the means to assess and clean up hazardous waste sites for both private-sector and Federal facilities. These acts are the basis for what is commonly known as the Superfund Program.

Originally, the Navy's part of this program was called the Naval Assessment and Control of Installation Pollutants (NACIP) program. Early reports reflect the NACIP process and terminology. The Navy eventually adopted the program structure and terminology of the standard IR program.

The IR program is conducted in the following several stages:

- The preliminary assessment (PA) identifies potential sites through record searches and interviews.
- A site inspection (SI) then confirms which areas contain contamination, constituting actual "sites." (Together, the PA and SI steps were called the Initial Assessment Study under the NACIP program.)
- Next, the remedial investigation and the feasibility study (RI/FS) together determine the type and extent of contamination, establish criteria for cleanup, and identify and evaluate any necessary remedial action alternatives and their costs. As part of the RI/FS,

a risk assessment identifies potential effects on human health or the environment in order to help evaluate remedial action alternatives.

- The selected alternative is planned and conducted in the remedial design and remedial action stages. Monitoring then ensures the effectiveness of the effort.

A second program to address present hazardous material management is the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. This program is designed to identify and clean up releases of hazardous substances at RCRA-permitted facilities. The RCRA ensures that solid and hazardous wastes are managed in an environmentally sound manner. The law applies to facilities generating or handling hazardous waste.

This program is conducted in three stages.

- The RCRA facility assessment identifies solid waste management units, evaluates the potential for releases of contaminants, and determines the need for future investigations.

- The RCRA facility investigation then determines the nature, extent, and fate of contaminant releases.

- The Corrective Measures Study identifies and recommends measures to correct the release.

The hazardous waste investigations at the U.S. Naval Station (NAVSTA) in Mayport, Florida, are presently being conducted under the RCRA Corrective Action Program. Earlier preliminary investigations had been conducted at NAVSTA Mayport under the NACIP program and IR program following Superfund guidelines. In 1988, in coordination with the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Regulation (FDER), the hazardous waste investigations were formalized under the RCRA program.

NAVSTA Mayport is conducting the cleanup at their facility by working though the Southern Division, Naval Facilities Engineering Command. The USEPA and the Florida Department of Environmental Protection (formerly FDER) oversee the Navy environmental program at NAVSTA Mayport. All aspects of the program are conducted in compliance with State and Federal regulations, as ensured by the participation of these regulatory agencies.

Questions regarding the RCRA program at NAVSTA Mayport should be addressed to Ms. Adrienne Wilson, Code 1852, at (803) 820-5582.

EXECUTIVE SUMMARY

Harding Lawson Associates has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command to conduct a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) for solid waste management units (SWMUs) at U.S. Naval Station in Mayport, Florida. The RFI is being conducted in accordance with the Hazardous and Solid Waste Amendment, permit No. FL9 170 024 260, issued by the U.S. Environmental Protection Agency (USEPA) on March 25, 1988, and revised and reissued on June 15, 1993.

This Technical Memorandum presents findings and conclusions of existing and additional groundwater sampling field activities conducted in the vicinity of Building 191 and Echo Pier (Figure 1-2). The additional activities consisted of the installation of direct-push and conventional monitoring wells, and the collection of groundwater samples under the Navy Environmental Leadership Program (NELP). The purpose of the NELP was to demonstrate the use of direct-push monitoring wells to delineate the horizontal and vertical extent of volatile organic compounds detected during the RFI (ABB Environmental Services, Inc. [ABB-ES], 1996a).

Below is a summary of the findings of the additional groundwater assessment activities and recommendations for Building 191.

Interpretation of the results of the lithologic sampling and borehole geophysical survey by ICON Environmental Services, Inc. (ICON), of Baton Rouge, Louisiana, suggests that the surficial aquifer beneath Building 191 has three distinct aquifer zones underlain by other permeable zones and discontinuous clay layers. Direct-push or conventional monitoring wells have been installed in the three upper zones but not in the other underlying permeable zones (ICON, 1998a).

Eleven volatile organic target analytes (1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene (total), cis-1,2-dichloroethene, bromodichloromethane, dibromochloromethane, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride) have been detected in the groundwater samples collected in 1995, 1997, and 1998 in the vicinity of Building 191 and Echo Pier.

Chloroform, dibromochloromethane, tetrachloroethene, trichloroethene and vinyl chloride were detected at concentrations that exceed their respective Florida groundwater guidance concentrations in groundwater samples collected from monitoring wells installed in the water table aquifer zone. Arsenic, iron, and manganese were detected in groundwater samples from the water table zone at concentrations that exceed their respective Florida groundwater guidance concentrations.

Methylene chloride, 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride were detected in groundwater samples collected from the intermediate zone at concentrations that are at or slightly below their respective Florida groundwater guidance concentrations.

Methylene chloride, tetrachloroethene, and trichloroethene were detected at concentrations exceeding their respective Florida groundwater guidance

concentrations in groundwater samples collected from monitoring wells installed in the deep aquifer zone.

Evaluation of natural attenuation parameters suggests that the water table (Echo Pier) and intermediate aquifer zones appear to support anaerobic biodegradation of chlorinated organics. The evaluation of the deep aquifer zone suggest that limited anaerobic biodegradation would occur. However, degradation products of tetrachloroethene and trichloroethene have been detected in groundwater samples from the deep zone.

Under current land use there is no exposure to the volatile organic compounds detected in the groundwater samples. However, the excess lifetime cancer risk associated with ingestion of groundwater as drinking water containing these chemicals is exceeded by a reasonable maximum exposure (RME) of 5×10^{-4} for the aggregate resident (hypothetical future adult and child resident). The RME exceeds the USEPA's acceptable risk range of 1×10^{-6} to 1×10^{-4} and the Florida Department of Environmental Protection target of 1×10^{-6}. The hazard indices (HIs) calculated for groundwater ingestion exceed the USEPA and FDEP target HI of 1.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CSF	cancer slope factor
CT	central tendency
DNAPL	dense nonaqueous-phase liquids
ELCR	excess lifetime cancer risk
ENCO	Environmental Conservation Laboratories, Inc.
ERA	ecological risk assessment
ESE	Environmental Science and Engineering, Inc.
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft/day	feet per day
ft/year	feet per year
GIR	general information report
HHRA	human health risk assessment
HI	hazard index
HLA	Harding Lawson Associates
ICON	ICON Environmental Services, Inc.
IRIS	Integrated Risk Information System
msl	mean sea level
$\mu g/\ell$	micrograms per liter
μmhos/cm	micromhos per centimeter
NAVSTA	Naval Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NELP	Navy Environmental Leadership Program
NTU	nephelometric turbidity unit
PCB	polychlorinated biphenyl
PVC	polyvinyl chloride
RBC	risk-based concentration
RFI	Resource Conservation and Recovery Act facility investigation
®	registered trademark
RME	reasonable maximum exposure
SM	service mark
SVOC	semivolatile organic compound
SIMA	Shore Intermediate Maintenance Activity
SWMU	solid waste management unit

GLOSSARY (Continued)

™	trademark
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

Harding Lawson Associates (HLA) has been contracted under the Comprehensive Long-Term Environmental Action, Navy Contract No. N62467-89-D-0317 by the Department of the Navy, Southern Division, Naval Facilities Engineering Command to conduct a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) for solid waste management units (SWMUs) at the U.S. Naval Station (NAVSTA) in Mayport, Florida (Figure 1-1). The RFI is being conducted in accordance with the Hazardous and Solid Waste Amendment, permit No. FL9 170 024 260, issued by the U.S. Environmental Protection Agency (USEPA) on March 25, 1988, and revised and reissued on June 15, 1993.

This Technical Memorandum presents findings and conclusions of groundwater assessment activities conducted by HLA and ICON Environmental Services, Inc. (ICON) in the vicinity of Building 191 and Echo Pier. Assessment activities at these sites included installing direct-push monitoring wells and conventional monitoring wells, and collecting groundwater samples under the Navy Environmental Leadership Program (NELP). The purpose of the NELP was to demonstrate the use of an innovative technology (direct-push monitoring wells) to delineate the horizontal and vertical extent of volatile organic compounds (VOCs) detected in groundwater samples during the RFI (ABB Environmental Services, Inc. [ABB-ES], 1996a). ICON of Baton Rouge, Louisiana, was contracted by the Navy to conduct the NELP technology demonstration. Additional direct-push monitoring wells were subsequently installed using the HLA TerraProbe℠ and sampled to complete the delineation of VOCs detected in groundwater samples at the site.

This Technical Memorandum also presents a preliminary human health risk assessment (HHRA) to characterize risk(s) to human receptors, if any, posed by the detected chemicals.

Testing for exposure by ecological receptors to hypothetical concentrations of VOCs in groundwater that may discharge to surface water was not conducted during this evaluation. The rationale for not conducting the ecological risk assessment (ERA) is discussed in Chapter 2.0 of this report.

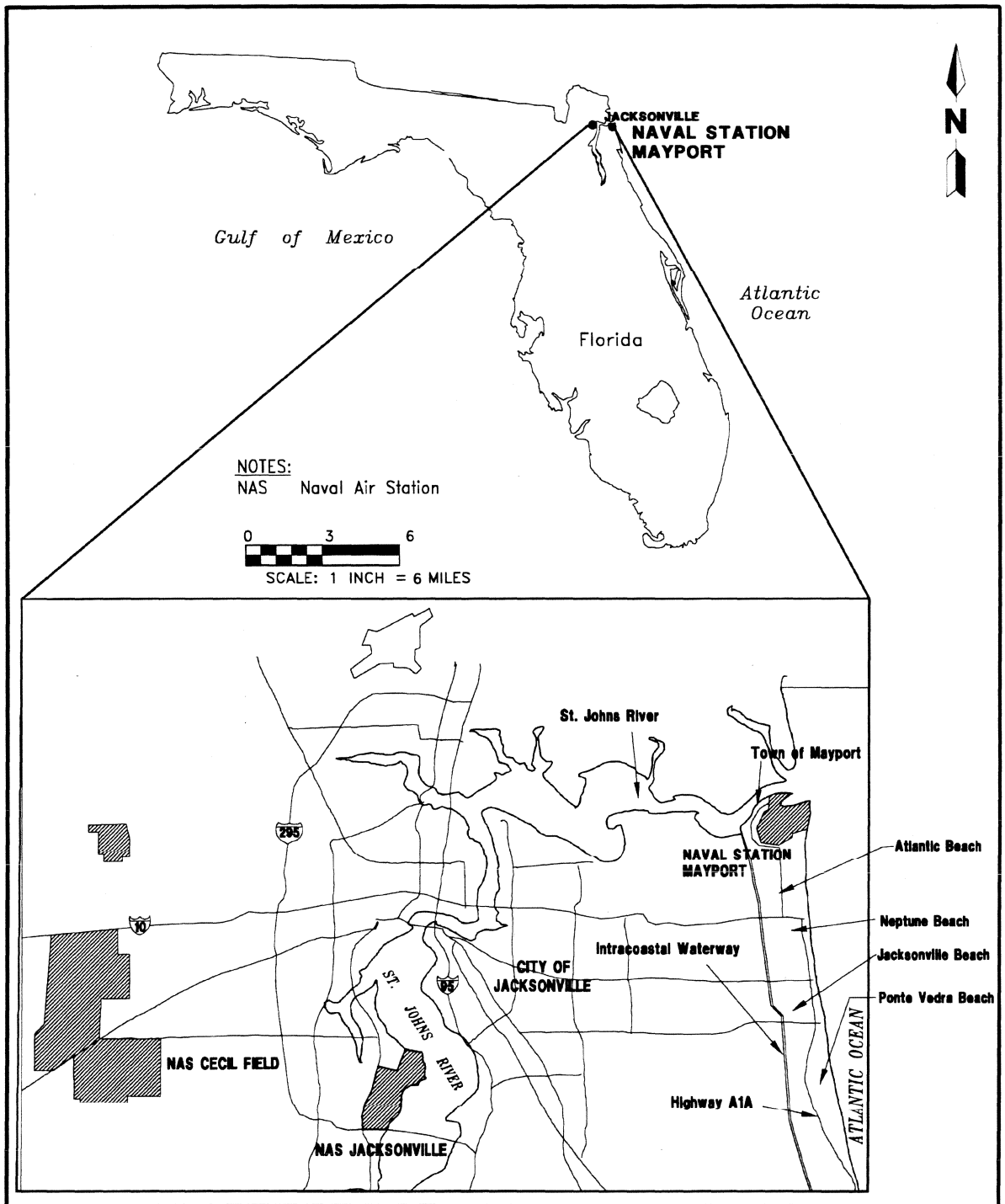

FIGURE 1-1
FACILITY LOCATION MAP

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TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF
TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
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1.1 SITE DESCRIPTION. Storage areas at Building 191 are used to support ship and shore services at NAVSTA Mayport by providing areas to receive, temporarily store, and distribute supplies. Outlying building are used to warehouse hazardous materials such as solvents and compressed gasses. These buildings or structures include two quonset buildings (Buildings 264 and 281), an open-sided covered structure with concrete floor (Building 191-A), and an aluminum constructed structure (Building 191-C).

The topography of the land surface in the vicinity of Building 191 slopes gently toward the southwest. Three SWMUs are located in the vicinity of Building 191: SWMU 46, the Shore Intermediate Maintenance Activity (SIMA) and SWMUs 20 and 21, the Hobby Shop Drain and Scrap Storage Areas (Figure 1-2). SIMA is located to the north, across from Building 191 on Massey Avenue. The Hobby Shop (Building 414) is located approximately 270 feet to the east of Building 191. South of Building 191 is part of the NAVSTA Mayport's golf course.

1.2 BACKGROUND. An accident report dated May 4, 1993, indicates that approximately 25 to 30 gallons of tetrachloroethene (a solvent used for dry cleaning) were released from a punctured 55-gallon drum onto asphalt pavement. The release was reported to have been contained before it could enter a nearby storm water inlet located approximately 130 feet from the release. A copy of the release report is included in Appendix A. The release was located north of Building 191 between Buildings 281 and 191-A. The approximate areal extent of the of the release near Building 191-A is shown on Figure 1-2.

In correspondence dated August 10, 1994, from Lieutenant Commander Douglas P. Tomlinson, Staff Civil Engineer, Department of the Navy to Mr. Erney Frey, Northeast District, Florida Department of Environmental Protection (FDEP), Lt. Tomlinson reports that analytical results from samples consisting of asphalt, limerock, and soil collected from within the release area "show that the area is clean of contamination and requires no further action" (Department of the Navy, 1994).

Subsequently, a Contamination Assessment Report was prepared by Environmental Science and Engineering, Inc. (ESE) (ESE, 1994), for the assessment of a potential release(s) of diesel fuel from leaking underground lines that extend

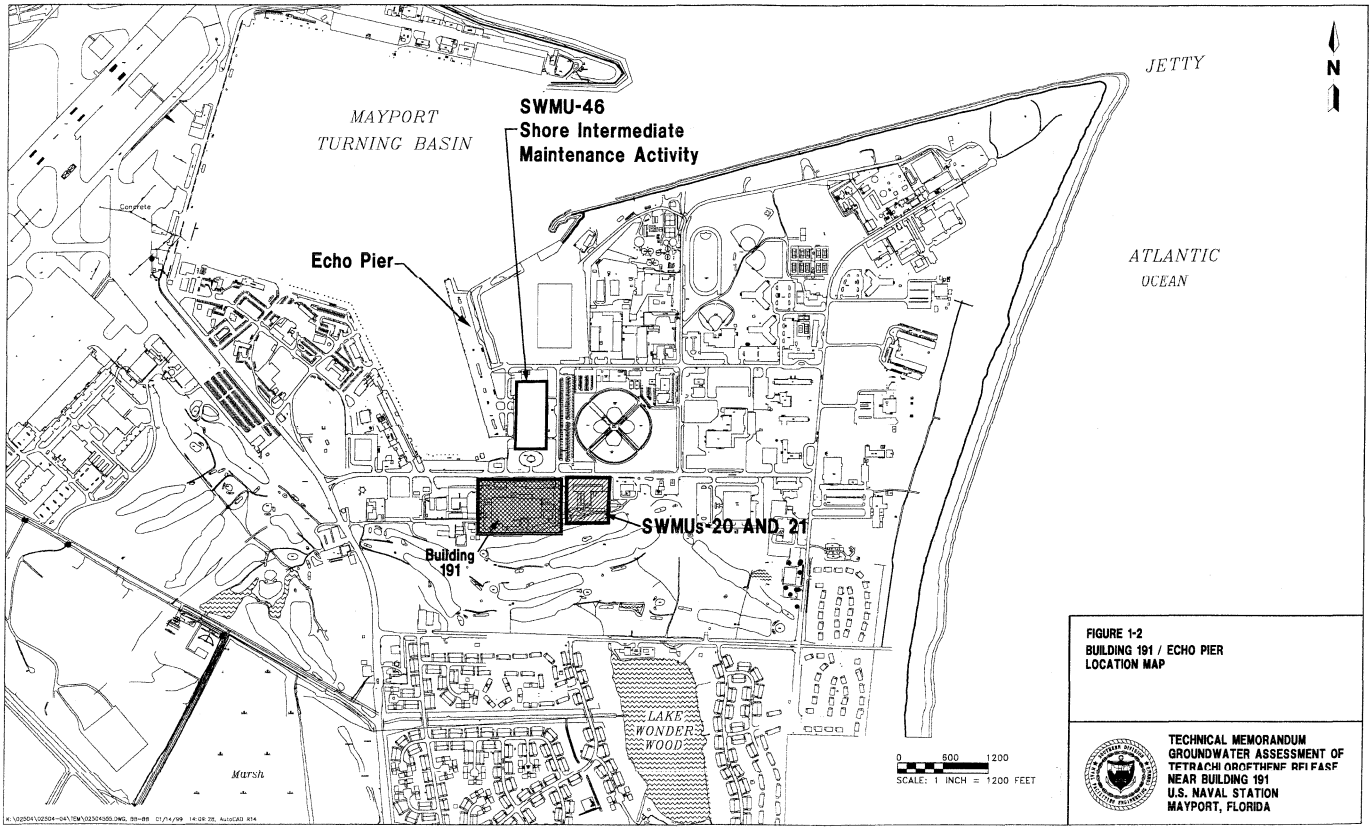

FIGURE 1-2
BUILDING 191 / ECHO PIER
LOCATION MAP

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NEAR BUILDING 191
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from an aboveground storage tank (300-gallon capacity) located on the southern side Building 191. The assessment by ESE consisted of installing three piezometers and four monitoring wells, collecting information on water levels in the vicinity of Building 191, determining groundwater flow directions, and collecting groundwater samples for chemical analysis from the monitoring wells.

Tetrachloroethene (22 micrograms per liter [$\mu g/\ell$]) and trichloroethene (5 $\mu g/\ell$) were detected in a groundwater sample collected by ESE from monitoring well MW-4 (HLA designation MPT-TC-MW04S), located on the northern side of Building 191 (Figure 1-2) (ESE, 1994). Monitoring wells MW-1, MW-2, and MW-3 (HLA designations MPT-TC-MW01S, MPT-TC-MW02S, and MPT-TC-MW03S, respectively), located south and southwest of Building 191, did not contain detectable concentrations of tetrachloroethene or trichloroethene (ESE, 1994). Groundwater flow direction, as determined by ESE, was to the southwest. ESE has abandoned the wells they installed by plugging them with cement grout.

Subsequent to the ESE report, HLA was requested to prepare a work plan to assess whether or not hazardous materials have been released to the environment. A site visit was made by HLA personnel in March 1995 to verify existing sampling locations and select additional sampling locations. The piezometers and monitoring wells installed by ESE at Building 191 were assumed to be functional based on their appearance. A sampling and analysis work plan was developed by HLA (then ABB-ES) based upon the site visit and the results of the assessment conducted by ESE (ABB-ES, 1995a).

Soil and groundwater samples were collected to assess whether or not hazardous constituents have been released at the site and to obtain a sufficient number of samples to evaluate potential exposure pathways and conduct a preliminary risk screening. Because of the industrial setting and pavement at the site, it was assumed that there are no ecological receptor pathways; therefore, risks to ecological receptors were not considered.

Based on the data collected, it was determined that a release of tetrachloroethene and/or trichloroethene to the environment had occurred in the vicinity of Building 191 (ABB-ES, 1996a). Below are the rationale used to derive and support the recommendations.

- No VOCs were detected in surface soil samples at concentrations that exceed benchmark values.

- Estimated human health risk was based on exposure to benzo(a)pyrene, Aroclor-1260 and arsenic in surface soil. The estimated risk for residential exposure is within the range (1×10^{-4} to 1×10^{-6}) considered acceptable by USEPA but exceeds the FDEP risk target goal of 1×10^{-6}. The estimated risk for industrial exposure complies with the FDEP target risk.

- None of the VOCs, pesticides, or inorganic chemicals detected in the subsurface soil samples exceed either their respective residential or industrial benchmark values. Semivolatile organic compounds (SVOCs) and polychlorinated biphenyls (PCBs) detected in surface soil samples were not detected in the subsurface soil samples.

- Three trihalomethane compounds were detected in groundwater samples collected from monitoring wells located hydraulically sidegradient from the tetrachloroethene release site. The State of Florida's primary standard under Chapter 62-550.310, Florida Administrative Code (FAC) for trihalomethanes (total concentration per sample) of 100 $\mu g/\ell$ was not exceeded.

- Chemical analytical results of groundwater samples suggests that tetrachloroethene, trichloroethene, and 1,2-dichloroethene (total) are likely present in the groundwater in the vicinity of Building 191. It is possible that the trichloroethene and 1,2-dichloroethene are by-products from sequential reductive dehalogenation of tetrachloroethene.

- This assessment suggests that a hypothetical exposure to groundwater used as drinking water is likely to be above both USEPA's risk range and FDEP's target risk goal. The estimated hazard index also suggests that there is a potential noncancer risk.

- Tetrachloroethene, trichloroethene, and 1,2-dichloroethene (total) have higher densities relative to water and generally migrate downward in an

aquifer. Where these two solvents are present as dense nonaqueous-phase liquids (DNAPLs), their downward migration may also be controlled and limited by the lithology and capillary pressure of the aquifer. The concentrations detected in the groundwater samples were less than their solubilities, suggesting that DNAPL is not likely present.

- The highest detected concentrations of inorganic chemicals were in a groundwater sample from a monitoring well located hydraulically side-gradient from the tetrachloroethene release site. This suggests that the concentration of the inorganic analytes is not related to the tetrachloroethene release. It is likely that inorganic chemicals detected in groundwater samples may be related to the deposition and natural leaching of inorganics from dredge material used to construct the land mass at NAVSTA Mayport (ABB-ES, 1996b).

Based on these findings, additional assessment activities at these sites were conducted under the NELP program. The NELP activities included installing direct-push monitoring wells and conventional monitoring wells, and collecting groundwater samples under the NELP (ICON, 1998a and 1998b).

Based on the findings of assessment activities conducted by ICON, direct-push monitoring wells were subsequently installed by HLA using a TerraProbe℠. Groundwater samples were collected to further characterize the nature and extent of tetrachloroethene and other VOCs detected in groundwater samples at the site. This Technical Memorandum presents a summary of the findings by ICON and the results of the direct-push wells installed by HLA.

1.3 REPORT CONTENTS. Chapter 2.0 contains a description of the NELP technology demonstration and oversight activities at Building 191. Chapter 3.0 presents findings from the NELP technology demonstration sampling activities and findings from previous RFI activities and the technology demonstrations oversight sampling results. Chapter 4.0 presents a preliminary HHRA, an evaluation of the potential for natural attenuation, and the potential fate of the chemicals in groundwater that exceed regulatory criteria. Chapter 6.0 presents a summary of the findings and recommendations.

2.0 SAMPLING AND ANALYTICAL PROGRAMS

The NELP technology demonstration was performed in May, August, and September 1997 by ICON personnel and included characterization of site hydrogeologic conditions, direct-push and conventional monitoring well installation, and groundwater sample collection for laboratory analysis. The purpose of the NELP technology demonstration was to characterize the horizontal and vertical extent of tetrachloroethene and other target analytes detected at the site during the RFI (ABB-ES, 1996a). HLA conducted oversight of the technology demonstration and collected groundwater samples. In June and July 1998, HLA installed 12 additional direct-push monitoring wells and collected groundwater samples to complete the horizontal and vertical delineation of tetrachloroethene and other target analytes in the Building 191/Echo Pier area.

2.1 NELP TECHNOLOGY DEMONSTRATION SAMPLING BY ICON. The following reports describe the methods utilized by ICON personnel to conduct the technology demonstration:

- *Draft Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida* (ICON, 1998a), and

- *Direct-Push Well (DPW) Innovative Technology Evaluation Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida* (ICON, 1998b).

Below is a brief description of the downhole geophysical survey techniques, monitoring well installation, groundwater sampling activities, and analytical methodologies that were conducted by ICON personnel at Building 191 for the NELP technology demonstration program.

2.1.1 Borehole Advancement and Downhole Geophysical Survey Two 4.25-inch-diameter borings, MPT-TC-SB1 and MPT-TC-SB2, were advanced to depths of 68 feet

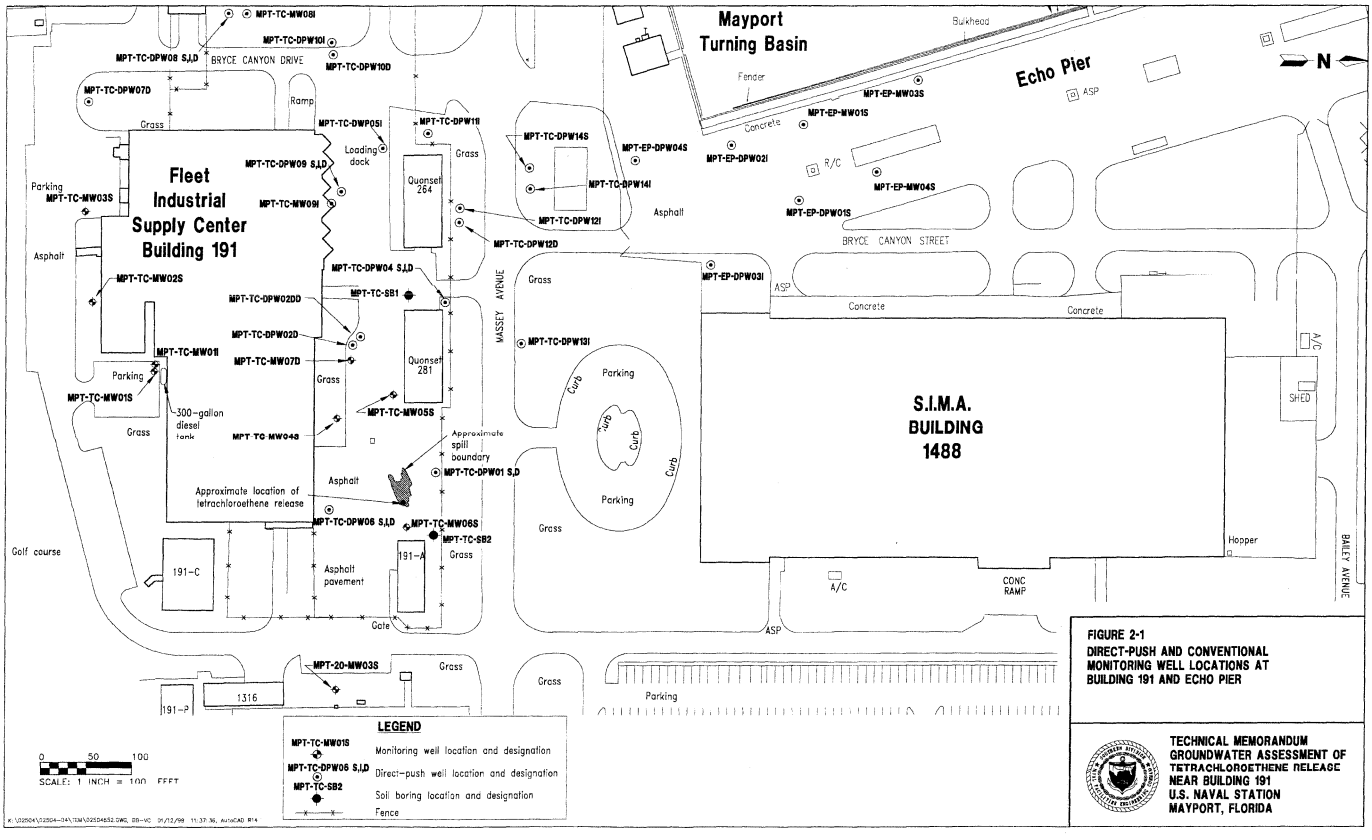

FIGURE 2-1
DIRECT-PUSH AND CONVENTIONAL MONITORING WELL LOCATIONS AT BUILDING 191 AND ECHO PIER

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below land surface (bls) at Building 191 using the rotary wash method (Figure 2-1). Split-spoon soil samples were collected at boring MPT-TC-SB1 to obtain lithologic descriptions of the subsurface materials. The split-spoon soil samples consisted of a 2-foot-long discrete sample collected continuously at 2-foot intervals to a depth of 20 feet and at 5-foot intervals thereafter to the termination depth of 68 feet. Split-spoon sampling was not conducted at boring MPT-TC-SB2.

A downhole geophysical survey was conducted at each boring. The downhole geophysical survey methods consisted of natural gamma, single-point resistance, six-inch normal resistivity, spontaneous potential, and caliper. Natural gamma is a measure of the radioactivity of the materials encountered. Clayey materials exhibit higher gamma measurements than sandy materials.

Single-point resistance measures the electrical resistance of the fluid and sediment. Sandy aquifer materials exhibit a higher resistance than similar materials containing brackish water, and clay materials exhibit a lower resistance than sandy material. The drilling fluid (e.g., bentonite slurry) may cause some interference with the measurements.

Six-inch normal resistivity measures the electrical resistance at a distance of approximately 6 inches beyond the borehole wall. Interference from the drilling fluid is minimized by this tool, unless a highly permeable sand or gravel zone is encountered and invaded by the drilling fluid.

Spontaneous potential measures small changes in electrical voltages generated at the boundary of two different lithologic materials, such as zones where sand becomes finer or coarser with depth, or zones where highly permeable zones have been invaded by drilling mud.

The caliper is used to measure the borehole diameter. Sandy zones typically are larger (washed out because of the lack of cohesive materials such as silt and clay) than clayey zones.

2.1.2 Direct-Push Monitoring Well Installation The results from the borehole split-spoon sampling and downhole geophysical survey were used by ICON and HLA

personnel to select the well screen intervals. Clusters of direct-push monitoring wells (Figure 2-1) were installed to assess the horizontal and vertical extent of tetrachloroethene and other target analytes detected in groundwater samples during the RFI (ABB-ES, 1996a). The direct-push monitoring wells installed by ICON used the drill rig hydraulic system to push the well point to the desired sampling depth. The direct-push monitoring wells installed by HLA used the TerraProbe℠ system.

The direct-push monitoring wells installed by ICON consist of an outer and inner well screen surrounded by natural formation materials (Figure 2-2). The outer well screen (2.25-inch-diameter, five-foot-long polyvinyl chloride [PVC] pipe with 0.008-inch slots attached to a two-foot-long blank [unslotted] PVC riser pipe) was placed in a carbon steel sleeve that was pushed to within approximately 6 to 8 feet of the desired sampling zone. The outer well screen was then pushed out of the carbon steel sleeve (6.5 feet beyond the tip of the carbon steel sleeve) to the desired sampling zone. The inner screen (0.75-inch-diameter, 5-foot-long PVC pipe with 0.01-inch slots attached to blank riser pipe) was then inserted through the carbon steel sleeve to the bottom of the outer well screen. A Teflon™ packer was placed approximately 1 foot above the top of the slotted portion of the 0.75-inch-diameter well screen. The Teflon™ packer prevented the introduction of the grout (Volclay™ and bentonite-cement grout) that was placed in the annular space above the packer.

The direct-push wells were developed by pumping using a peristaltic pump. Development continued until values for pH, specific conductance, and temperature stabilized within 5 percent and a target turbidity of 10 nephelometric turbidity units (NTUs) or less was achieved.

2.1.3 Conventional Monitoring Well Installation Three conventional monitoring wells (MPT-15-MW06S through MPT-15-MW08S, Figure 2-1) were installed to confirm the results of the direct-push monitoring wells. The conventional monitoring wells were installed in borings drilled using hollow stem auguring techniques (augers with 4.25-inch inner diameter). The monitoring wells consisted of 2-inch-diameter, 5-foot-long PVC screens with 0.01-inch slots attached (threaded) to 2-inch-diameter blank riser pipes. A sand filter pack was placed in the annular space between the well screen and borehole from the bottom of the

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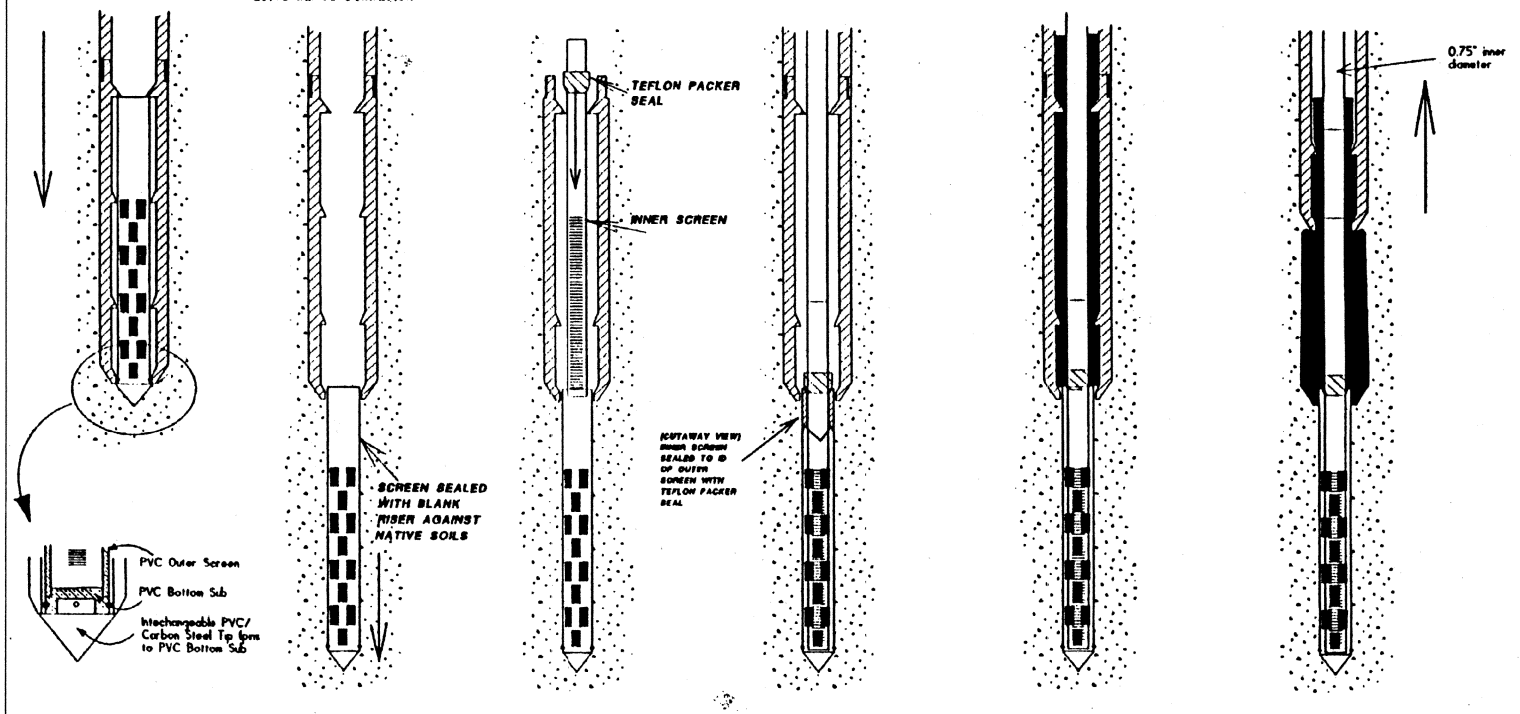

SOURCES:

Direct-Push Well (DPW) Innovative Technology Evaluation Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida. (ICON, 1998a)

Draft Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida. (ICON, 1998b)

FIGURE 2-2
DIRECT-PUSH WELL INSTALLATION AND DRIVE ASSEMBLY SCHEMATIC

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borehole to 1 foot above the well screen. A 1-foot-thick bentonite seal was placed in the annular space above the sand filter pack. A bentonite-cement grout was placed in the annular space above the bentonite seal.

The wells were developed by pumping using a 2-inch-diameter Grundfos® submersible pump. Development continued until values for pH, specific conductance, and temperature stabilized within 5 percent and a target turbidity of 10 NTUs or less was achieved.

2.1.4 **Characterization of Aquifer Hydraulic Properties** *In situ* hydraulic conductivity testing was conducted in direct-push monitoring wells MPT-TC-DPW02D and MPT-TC-DPW08S, and their adjacent conventional monitoring wells MPT-TC-MW07D and MPT-TC-MW08S to characterize the difference, if any, between the radial hydraulic conductivity results. The hydraulic conductivity data were evaluated by ICON personnel using the methods by Bouwer and Rice (1976), and Bouwer (1989).

2.1.5 **Groundwater Sampling** The direct-push monitoring wells and conventional monitoring wells were sampled by ICON personnel using the low-flow purging and sampling protocol. Stagnant water inside the well casing was purged with a peristaltic pump before collecting the groundwater samples for chemical analysis. Specific conductance, pH, temperature, and turbidity were measured during the purging to determine if water purged from the monitoring well was representative of the aquifer zone in which the well was screened.

Groundwater samples were collected by ICON personnel in a decontaminated glass drop-out vessel that was located on the suction side of the pump. The first fill of the drop-out vessel was disposed of, then the vessel was refilled and the contents were transferred to the precleaned sample containers supplied by the analytical laboratory (Environmental Conservation Laboratories, Inc. [ENCO], Jacksonville, Florida). The sample containers were placed in coolers filled with ice and transported overnight under chain-of-custody protocol to the analytical laboratory. The samples were analyzed for VOCs by USEPA Method 8010 (USEPA, 1986).

2.2 NELP OVERSIGHT AND GROUNDWATER SAMPLING PROGRAM. Below is a description of the NELP oversight and groundwater sampling activities conducted by HLA.

2.2.1 Oversight HLA was on site during the technology demonstration to observe the following contractor activities:

- downhole geophysical survey
- direct-push monitoring well installation
- conventional monitoring well installation
- groundwater sampling

2.2.2 TerraProbe℠ Monitoring Well Installation HLA used a TerraProbe℠ to install direct-push monitoring wells. The direct-push monitoring wells installed with the TerraProbe℠ consisted of 0.5-inch-diameter PVC slotted screen and riser pipe. The screen interval consisted of two 3-foot sections of prefabricated 0.5-inch-diameter slotted (0.010-inch slot size) PVC well screen surrounded by 1.25-inch-diameter prepacked stainless steel well screen containing 20/30-grade silica sand.

The wells were developed by pumping using a peristaltic pump. Development continued until values for pH, specific conductance, and temperature stabilized within 5 percent and a target turbidity of 10 NTUs or less was achieved.

No monitoring wells, direct-push or conventional, were installed inside Building 191. The building floor is constructed of 1-foot-thick steel-reinforced concrete that has been stabilized with an additional 6 feet of concrete because of settlement from an underlying landfill. These materials could not be penetrated with the available equipment.

2.2.3 Groundwater Sampling Based on the results of the NELP technology demonstration, groundwater samples were collected by HLA personnel from selected direct-push and conventional monitoring wells to confirm the results of the technology demonstration and provide recent data for conducting an HHRA. The elevation of the monitoring wells was not surveyed. Groundwater samples were collected from the monitoring wells installed with the TerraProbe℠. The

groundwater sampling was accomplished as described in Paragraph 2.1.4.2 of the NAVSTA Mayport General Information Report (GIR) (ABB-ES, 1995b).

Groundwater samples were collected using the low-flow sampling method. Prior to groundwater sample collection, the monitoring well was purged using a peristaltic pump to remove stagnant water from the top of the water column without causing the suspension of silt and clay. Purging was considered complete when a minimum of three well volumes of water were removed, and groundwater characterization parameters (temperature, pH, specific conductance, dissolved oxygen, oxidation potential, and turbidity) were considered stable (that is, within 10 percent of the three previous measurements). This process ensured that the groundwater in the monitoring well was representative of the aquifer groundwater. Purging continued until a turbidity of 10 NTUs or less was achieved.

The groundwater samples were collected using a peristaltic pump and disposable Teflon™ tubing. The samples were collected by removing the Teflon™ tubing from the well and siphoning the groundwater into the sample container. The sample containers were placed in a cooler, refrigerated with ice, and sent overnight under chain-of-custody protocol to a laboratory for analysis. The samples collected as part of the NELP technology demonstration were submitted to CH2MHill of Montgomery, Alabama, and the samples collected from the TerraProbe℠-installed wells were submitted to ENCO Laboratories, Jacksonville, Florida.

2.2.4 **Analytical Program and Data Management** Below is a description of the analytical program and data management for the sampling event.

Analytical Program. The analysis was limited to VOCs because six VOCs including 1,2-dichloroethene, chloroform, bromodichloromethane, dibromochloromethane, tetrachloroethene, and trichloroethene were detected in the groundwater samples collected from the monitoring wells in the vicinity of Building 191 (ABB-ES, 1996a). No SVOCs, pesticides, or PCBs were detected in the groundwater samples collected during the RFI.

Groundwater samples were analyzed using the methods described in *Test Methods for Evaluation of Solid Waste, USEPA, SW 846* (USEPA, 1986). The laboratory

analytical program for the RFI at NAVSTA Mayport is described in more detail in Section 2.2 of the NAVSTA Mayport GIR (ABB-ES, 1995b).

Analytical results obtained for the environmental samples were submitted as Naval Energy and Environmental Support Activity (NEESA) Level E (USEPA Level II) analytical packages for VOCs (NEESA, 1988). A summary of the analytical results is provided in Appendix B.

Individual analytical results in the analytical packages were reviewed relative to the following criteria:

- Data quality objectives (DQOs) and the Quality Assurance Project Plan described in the NAVSTA Mayport RFI Workplan (ABB-ES, 1991)

- NEESA guidance document 20.2-047B, *Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program* (NEESA, 1988)

Data Management. Subsets of the complete analytical data set were used to evaluate analytes detected at the site. The following process was used to develop the final data sets:

1. The data were compiled in electronic form.

2. Any detection, including estimated concentrations ("J" and "I" qualifiers) below the contract-required quantitation limits for organics, contract-required detection limits for inorganics, and the method detection limits (MDLs) were included in the data set.

3. Quality control samples were not included in the final data set.

4. In cases where samples were diluted to quantify specific compounds (DL suffix on sample ID), the dilution was used in the final data set.

Minimum concentrations, maximum concentrations, average concentrations, frequencies of detection, and 95 percent upper confidence intervals were

calculated for detected analytes using standard statistical methods. However, because environmental and associated duplicate samples represent only a single sampling location, duplicate results were averaged before these statistics were calculated. The following guidelines were used to calculate average values for the environmental and duplicate sample pairs:

- For target analytes detected in both the environmental and associated duplicate sample (i.e., "nonqualified positive detection" or "J" and "I" qualifier), the detected values were used to calculate the average value.

- For target analytes detected only in either the environmental or duplicate sample (i.e., one sample with nonqualified positive detection or a "J" and "I" qualifier and the other a nondetection with a "U" or "UJ" qualifier), the average was calculated by using the detected value, and one-half the value of the "U" or "UJ" qualified sample.

Groundwater analytical results were compared to background screening concentrations, Federal Maximum Contaminant Levels (National Primary Drinking Water Regulations 40, Code of Federal Regulations Part 141), Florida Groundwater Guidance Concentrations (FDEP, 1994), Florida Brownfield groundwater cleanup criteria (Chapter 62-785, Florida Administrative Code [FAC]) (Tonner-Navarro, et al., 1998), and USEPA Region III Risk-Based Concentrations (RBCs) (USEPA, 1997a).

The State of Florida groundwater guidance criteria (FDEP, 1994) and the Brownfield groundwater criteria (Chapter 62-785, FAC) (Tonner-Navarro, et al., 1998) are in general equal to, or more stringent, than the Federal criteria. Florida promulgated specific criteria for chemicals that may be in groundwater supplies under Chapter 62-520.420 (1), FAC. This rule designates the primary and secondary drinking water standards under Chapter 62-550.310, FAC and .320, FAC, respectively, as enforceable standards to ensure and protect the water quality of Class I and II aquifers.

The State of Florida has also developed guidance criteria for chemicals that are not regulated under Chapter 62-550, FAC. The guidance criteria are based on human health criteria (carcinogenic, noncarcinogenic systemic effects), and

organoleptic properties (FDEP, 1994; and Tonner-Navarro, et al., 1998). The guidance concentrations can be implemented as site-specific standards under Chapter 62-520.400 (1)(b), FAC. This rule states that all groundwater shall at all places and at all times be free from domestic, industrial, agricultural, or other man-induced nonthermal components of discharges in concentrations that, alone or in combination with other substances or components or discharges (thermal or nonthermal), are carcinogenic, mutagenic, teratogenic, or toxic to human beings.

Currently the shallow aquifer is not used as a potable water supply; therefore, there is no human receptor exposure. Also, the Navy has no plans to use the surficial aquifer as a water supply in the future.

Groundwater analytical results obtained for the Group III RFI (ABB-ES, 1996b) and this evaluation suggest that it is not likely for a current or future exposure by ecological receptors to groundwater discharging to surface water. Hypothetically, a future ecological exposure(s) by this pathway as groundwater discharges to the Mayport Turning Basin or St. Johns River is possible but unlikely to occur. Therefore, comparison of groundwater analytical results to surface water quality standards and evaluation of exposure by ecological receptors to groundwater was not conducted.

3.0 FINDINGS

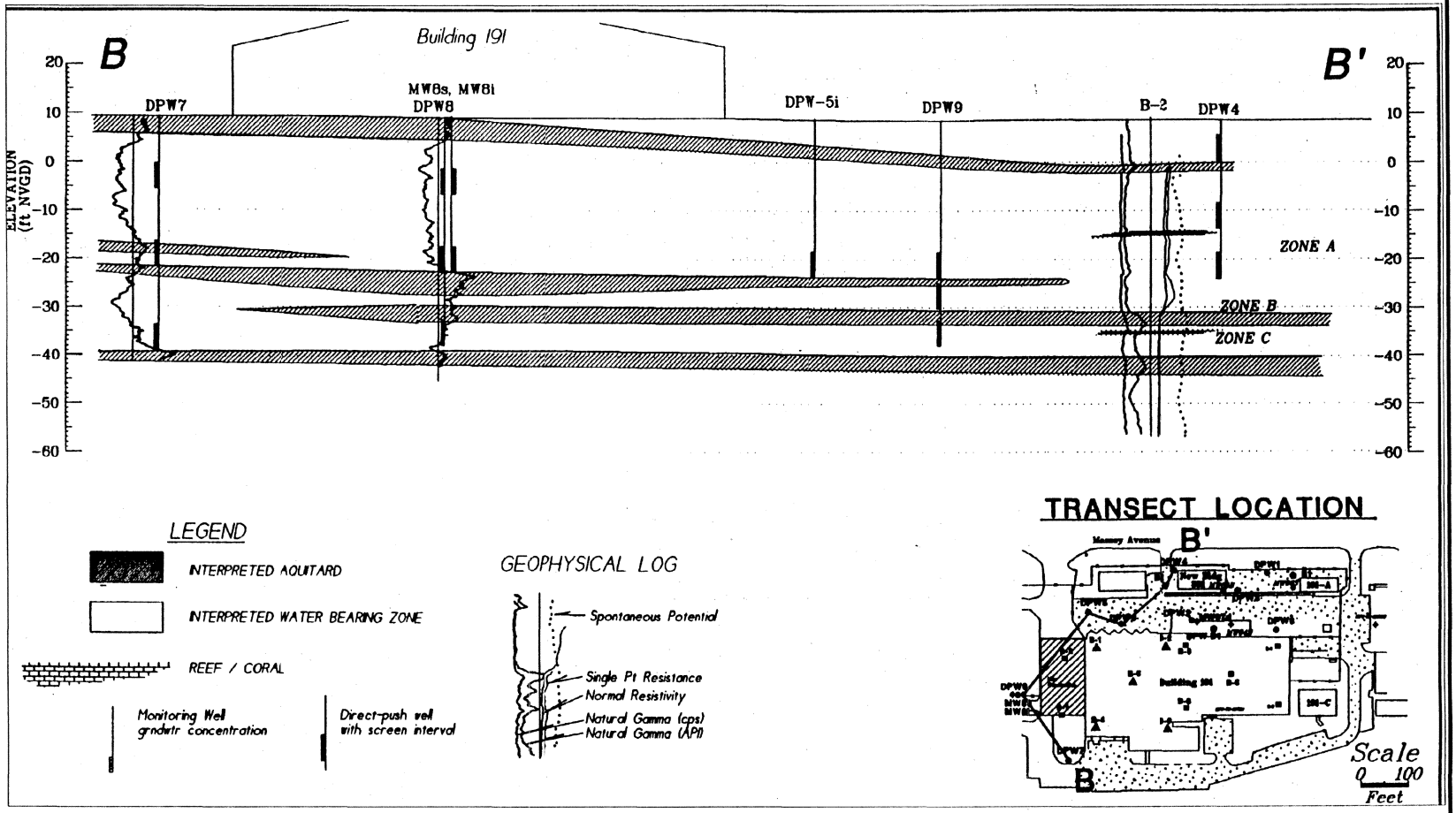
This chapter presents a summary of the results from the technology demonstration conducted by ICON and the results of the oversight activities and groundwater sampling event conducted by HLA.

3.1 SUMMARY OF THE NELP FINDINGS. Below are the results of ICON's field activities conducted during the direct-push monitoring well technology demonstration at Building 191.

3.1.1 Lithologic Sampling and Downhole Geophysical Survey Results Based on the results of the lithologic sampling and borehole geophysical survey, three distinct aquifer zones were described by ICON. The direct-push monitoring well clusters were installed in these three zones (Figure 3-1).

- The shallow or water table zone (Zone A), consists of the interval from the water table, which occurred from approximately 3 to 5 feet bls, to a depth of approximately 33 feet bls where a 3-foot-thick gray silty clay layer (the clay layer also contained thin seams of sand and shell fragments) was encountered. The clay layer appears to be absent in the northern part of the site in the vicinity of Massey Avenue. The shallow aquifer zone consisted of a poorly sorted quartz sand that also contained shell layers and fragments. The shallow aquifer is in direct hydraulic connection with the intermediate aquifer zone (Zone B) where the 3-foot-thick clay layer is absent. Additionally, at a depth of approximately 24 feet, a 3-inch-thick indurated limestone seam was sporadically encountered.

- The intermediate zone (Zone B) consists of a permeable zone between 36 to 39 feet bls. A greenish-gray sandy clay layer approximately 4 feet thick (the clay layer also contained sand seams) encountered at approximately 39 feet bls formed the base of Zone B. The clay layer appears to be absent in the southwest part of the site (southwest corner of Building 191). The intermediate aquifer zone consisted of a gray silty sand. The intermediate aquifer may be in direct hydraulic



SOURCES:

Direct-Push Well (DPW) Innovative Technology Evaluation Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida. (ICON, 1998a)

Draft Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida. (ICON, 1998b)

FIGURE 3-1
NORTH-SOUTH CROSS-SECTION DIAGRAM DEPICTING SUBSURFACE GEOLOGY

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connection with the deep aquifer zone (Zone C) where the 4-foot-thick clay layer is absent.

- The deep zone (Zone C) consists of a permeable zone that extends from approximately 43 to 47 feet bls where a 2-foot-thick dark gray silty clay was encountered (the silty clay also contained shell fragments). The deep aquifer zone consisted of a dark gray silty sand that contained shell fragments.

Beneath the three aquifer zones, interpretation of the lithologic and geophysical survey data suggest the presence of other permeable zones and discontinuous clay seams and layers. This zone appear to consist predominantly of a dark gray poorly sorted sand. Direct-push or conventional monitoring wells were not installed in this zone.

3.1.2 Hydrogeologic Characterization Below is a summary of water-level measurements and hydraulic conductivity testing conducted by ICON personnel.

Water-Level Measurements. Water-level measurements were made by ICON personnel at the Building 191 direct-push and conventional monitoring wells on May 9, 1997, and September 3, 1997 (Table 3-1) (ICON, 1998a; 1998b). The suffix "S" on a well location identifier designates a shallow well in a cluster. The suffix "I" on a well location identifier designates an intermediate well in a cluster. The suffix "D" on a well location identifier designates the deep well in a cluster. Potentiometric surface maps of the three aquifer zones of the surficial aquifer in which the direct-push and conventional monitoring wells are screened was constructed by ICON for the September 3, 1997, water-level measurements (Figure 3-2).

The potentiometric surface maps were made by converting the water-level measurements to altitudes that are referenced to the National Geodetic Vertical Datum of 1929 (also known as mean sea level [msl]). The depth to the water level was converted to altitude by subtracting the water-level measurement from the altitude of the reference mark on each direct-push or conventional monitoring well casing.

Table 3-1
Water-Level Measurements[1]

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Direct-Push or Conventional Monitoring Well Number[2]	Top-of-Casing Elevation (NGVD)	Aquifer Zone of the Well Screen[3]	May 5, 1997		September 3, 1997	
			Depth to Water[4] (feet)	Elevation (NGVD)	Depth to Water[5] (feet)	Elevation (NGVD)
MPT-TC-DPW1S	9.64	Top - A	3.18	6.46	3.35	6.29
MPT-TC-DPW1D	9.65	A/B	4.96	4.69	5.04	4.61
MPT-TC-DPW2S	9.75	Top - A	5.15	4.6	5.36	4.39
MPT-TCDPW2I	9.92	Middle - A	5.35	4.57	5.53	4.39
MPT-TC-DPW2D	9.95	Base - A	5.43	4.53	5.57	4.38
MPT-TC-DPW3S	9.09	Top - A	3.59	5.5	4.74	4.35
MPT-TC-DPW3I	9.03	Middle - A	4.39	4.64	4.38	4.65
MPT-TC-DPW3D	9.1	A/B	4.57	4.53	4.52	4.58
MPT-TC-DPW3DD	9.1	C	4.97	4.13	3.64	5.46
MPT-TC-DPW4S	8.78	Top - A	4.27	4.51	4.45	4.33
MPT-TC-DPW4I	8.75	Middle - A	4.25	4.5	4.4	4.35
MPT-TC-DPW4D	8.65	Base - A	4.18	4.47	4.36	4.29
MPT-TC-DPW5I	8.65	Base - A	4.37	4.28	4.5	4.15
MPT-TC-DPW6S	9.72	Top - A	3.55	6.17	3.65	6.07
MPT-TC-DPW6I	9.84	Middle - A	5.13	4.71	5.25	4.59
MPT-TC-DPW7S	9.68	Middle - A	ni	ni	5.66	4.02
MPT-TC-DPW7I	9.82	Base - A	ni	ni	5.82	4.0
MPT-TC-DPW7D	9.74	C	ni	ni	5.78	3.96
MPT-TC-DPW8S	8.72	Middle - A	ni	ni	4.54	4.18
MPT-TC-DPW8I	8.7	Base - A	ni	ni	4.5	4.2
MPT-TC-DPW8D	8.7	C	ni	ni	4.98	3.72
MPT-TC-DPW9S	8.26	Base - A	ni	ni	4.08	4.18
MPT-TC-DPW9I	8.27	B	ni	ni	4.08	4.19
MPT-TC-DPW9D	8.32	C	ni	ni	4.38	3.94
MPT-20-MW3S	12.01	Top - A	3.63	8.38	nm	nm
MPT-TC-MW04S	8.68	Top - A	4.12	4.56	4.3	4.38

See notes at end of table.

Table 3-1 (Continued)
Water-Level Measurements[1]

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
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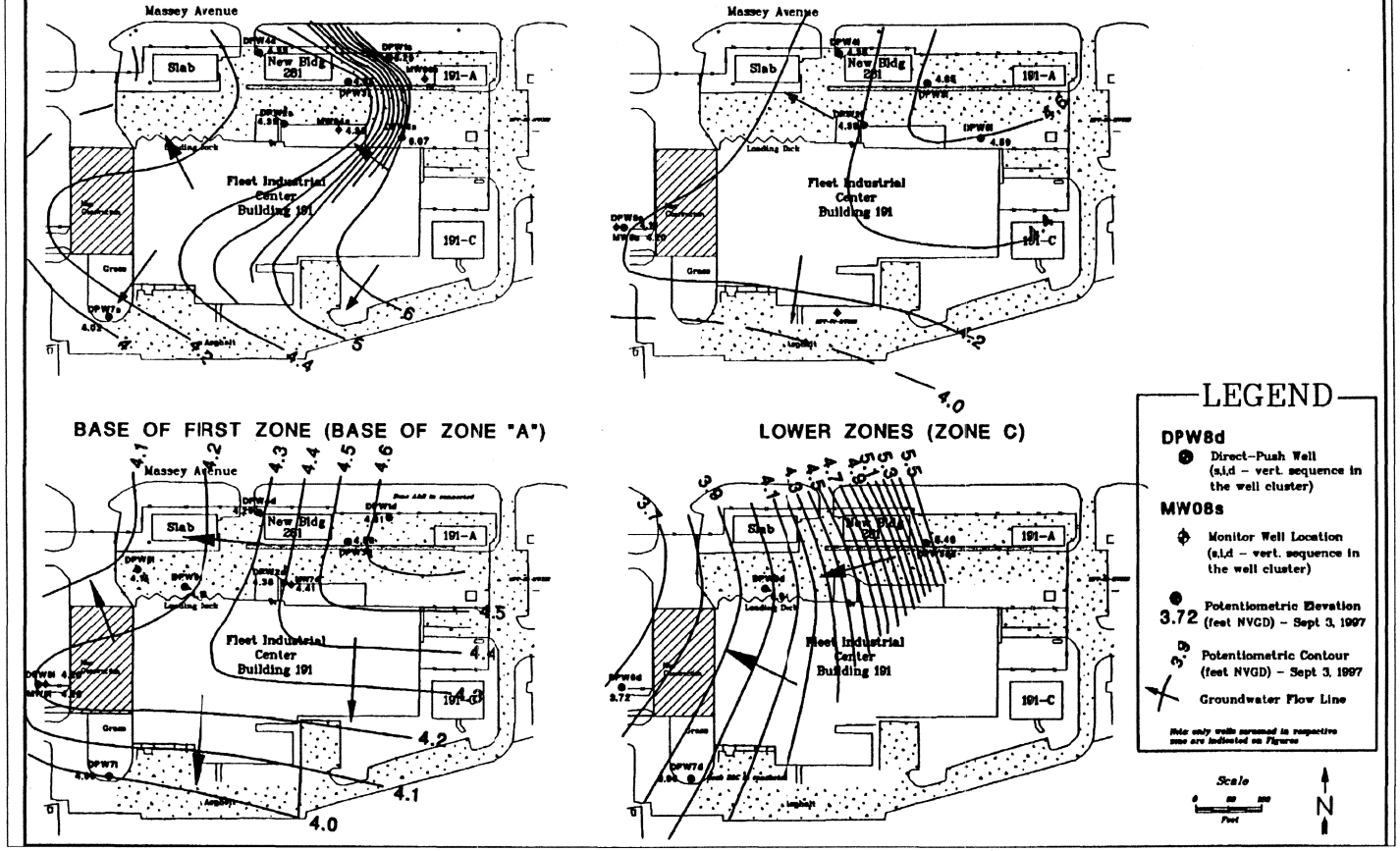
Mayport, Florida

Direct-Push or Conventional Monitoring Well Number[2]	Top-of-Casing Elevation (NGVD)	Aquifer Zone of the Well Screen[3]	May 5, 1997		September 3, 1997	
			Depth to Water[4] (feet)	Elevation (NGVD)	Depth to Water[4] (feet)	Elevation (NGVD)
MPT-TC-MW6S	9.84	Top - A	3.98	5.86	nm	nm
MPT-TC-MW7D[5]	10.06	Base - A	ni	ni	5.65	4.41
MPT-TC-MW8S[6]	8.6	Base - A	ni	ni	4.4	4.2
MPT-TC-MW8I[7]	8.65	Base - A	ni	ni	4.45	4.2

[1] Water-level measurements made during the technology demonstration by ICON Environmental Services, Inc., (ICON) (ICON, 1998a and 1998b).
[2] The suffix "S" on a well location identifier designates a shallow well in a cluster. The suffix "I" on a well location identifier designates an intermediate well in a cluster. The suffix "D" on a well location identifier designates the deep well in a cluster.
[3] Aquifer Zones A, B, and C are described in Paragraph 3.1.1.
[4] Depth to groundwater measured from the survey point at the top of the monitoring well riser pipe.
[5] The monitoring well is paired with MPT-TC-DPW2D and has a similar screen elevation.
[6] The monitoring well is paired with MPT-TC-DPW8S and has a similar screen elevation.
[7] The monitoring well is paired with MPT-TC-DPW8I and has a similar screen elevation.

Notes: NGVD = National Geodetic Vertical Datum of 1929.
ni = direct-push or conventional monitoring well not installed on the date of the water-level survey.
nm = water level not measured on the date of the water-level survey.



SOURCES:

Direct-Push Well (DPW) Innovative Technology Evaluation Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida. (ICON, 1998a)

Draft Contamination Assessment Report, Additional Assessment Using Innovative Technology/Methodology at the SWMU 15 and Building 191 Area, NAVSTA, Mayport, Florida. (ICON, 1998b)

FIGURE 3-2
POTENTIOMETRIC CONTOURS, SEPTEMBER 3, 1997

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Interpretation of the shallow and intermediate zone potentiometric surface flow lines suggest that the apparent groundwater flow direction is generally toward the northwest on the north side of Building 191 and towards the southwest on the southside of Building 191 (ICON, 1998a; 1998b). Interpretation of the deep aquifer zone potentiometric surface flow lines suggest that a groundwater flow in general western direction (ICON, 1998a; 1998b).

Hydraulic Conductivity Testing Results. Hydraulic conductivity testing was conducted to characterize the linear seepage velocity for groundwater in the three aquifer zones, and to compare the hydraulic conductivity test results for two of the direct-push and conventional monitoring well pairs (Table 3-2) (ICON, 1998a; 1998b).

Seepage velocities calculated for direct-push monitoring wells installed in Zone A of the shallow aquifer were as follows:

- 3.9 feet per day (ft/day) for the top of Zone A,
- 19.2 and 51.6 ft/day for the middle of the Zone A, and
- 12.5 to 153.1 ft/day for the base of Zone A (Table 3-2).

Seepage velocities of 2.2 and 23.2 ft/day were calculated for direct-push monitoring wells MPT-TC-DPW9I and MPT-TC-DPW7D that were installed in Zones B and C of the surficial aquifer, respectively.

Monitoring well MPT-TC-MW08s was installed near direct-push monitoring well MPT-TC-DPW8S and has similar well screen elevations to allow comparison of aquifer properties and analytical results. A hydraulic conductivity of 66.8 ft/day was calculated for conventional monitoring well MPT-TC-MW08s, and 19.2 ft/day was calculated for direct-push monitoring well MPT-TC-DPW08s.

Monitoring well MPT-TC-MW07d was installed near direct-push monitoring well MPT-TC-DPW2D and has similar well screen elevations to allow comparison of aquifer properties and analytical results. A hydraulic conductivity of 109.6 ft/day was calculated for conventional monitoring well MPT-TC-MW07d, and 77.1 ft/day was calculated for direct-push monitoring well MPT-TC-DPW02d.

Table 3-2
Seepage Velocity Calculations[1]

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
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Mayport, Florida

Direct-Push Monitoring Well Number	Aquifer Zone of the Well Screen[2]	Hydraulic Conductivity (feet per day)	Hydraulic Gradient	Seepage Velocity (feet per year)
MPT-TC-DPW2S	Top - A	3.46	0.0011	3.9
MPT-TC-DPS2I	Middle - A	27.49	0.0018	51.6
MPT-TC-DPW8S	Middle - A	30.65	0.0006	19.2
MPT-TC-MW08S[3]	Middle - A	106.7	0.0006	66.8
MPT-TC-DPW2D	Base - A	46.23	0.0016	77.1
MPT-TC-MW07D[4]	Base - A	65.7	0.0016	109.6
MPT-TC-DPW7I	Base - A	73.39	0.002	153.1
MPT-TC-DPW9S	Base - A	10.89	0.0011	12.5
MPT-TC-DPW9I	B	1.43	0.0015	2.2
MPT-TC-DPW7D	C	13.98	0.0016	23.3

[1] Seepage velocity measurements and calculations made during the technology demonstration by ICON Environmental Services, Inc., (ICON) (ICON, 1998a; and 1998b).
[2] Aquifer Zones A, B, and C are described in Paragraph 3.1.1
[3] The monitoring well is paired with MPT-TC-DPW8S and has a similar screen elevation.
[4] The monitoring well is paired with MPT-TC-DPW2D and has a similar screen elevation.

Differences between the two values could result from the difference in the well construction and installation methods, plugging of the direct-push and conventional monitoring well screen(s) or filter pack material, differences in the aquifer material hydraulic properties, or the aquifer test method.

3.1.3 NELP Technology Demonstration Groundwater Laboratory Analytical Results

Below is a summary of the results from the NELP technology demonstration groundwater sampling event.

Field Measurements. During the purging of the conventional and direct-push monitoring wells, ICON made measurements of turbidity, pH, and specific conductance (Table 3-3). Turbidity measurements ranged from approximately 2.5 to 18 NTUs for groundwater samples collected from conventional monitoring wells and from approximately 1.9 to 41 NTUs for the samples collected from direct-push monitoring wells (ICON, 1998a; 1998b). The turbidity results suggest that use of low-flow purging would result in the groundwater samples that are representative of the aquifer zone being monitored (Puls and Powell, 1992; Kearl et al., 1994; Barcelona et al., 1994). It should be noted that natural turbidity levels in groundwater may exceed 10 NTUs (Puls and Barcelona, 1996).

Measurements of pH during the purging of the conventional monitoring wells ranged from approximately 7 to 8.7 standard units and for the direct-push monitoring wells from approximately 7 to 8 standard units (ICON, 1998a; 1998b).

Measurements of specific conductivity during the purging of the conventional monitoring wells were 300 to 536 micromhos per centimeter (μmhos/cm) for the wells screened in the shallow aquifer zone, 350 to 62s9 μmhos/cm for the wells screened in the intermediate zone, and 6558 μmhos/cm for the well screened in deep aquifer zone (ICON, 1998a; 1998b).

Measurements of specific conductivity for the direct-push monitoring wells ranged from 30 to 4,990 μmhos/cm for the shallow aquifer zone, 700 to 4,400 μmhos/cm for the intermediate aquifer zone, and 618 to 7,100 μmhos/cm for the deep aquifer zone (ICON, 1998a; 1998b).

Table 3-3
Field and Laboratory Groundwater Analytical Results[1]

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Well Number	MPT-TC-MW04S	MPT-TC-MW06S	MPT-TC-DPW01S	MPT-TC-DPW1D	MPT-TC-DPW2S	MPT-TC-DPW2I	Florida Groundwater Guidance Criteria[2]
Sample Date	9-May-97	9-May-97	9-May-97	9-May-97	9-May-1997	9-May-97	
Field Measurements							
Turbidity (NTU)	11.7	2.5	2.1	5	4.2	10.1	5
pH (SUs)	7	7.3	7.8	7.7	7.2	7.8	6.5 to 8.5
Specific Conductance (μmhos/cm)	300	500	600	1,800	400	30	nsc
Laboratory Analytical Results ($\mu g/\ell$)							
Tetrachloroethene	3.8	--	--	--	--	--	3
Trichloroethene	--	--	--	--	--	--	3
Chloroform	--	--	--	--	--	--	6
1,1-Dichloroethane	--	--	--	--	--	--	700
1,1-Dichloroethene	--	--	--	--	--	--	7
cis-1,2-Dichloroethene				--	--	--	70

Well Number	MPT-TC-DPW2D	MPT-TC-MW2D	MPT-TC-DPW7D	MPT-TC-DPW3S	MPT-TC-DPW3I	MPT-TC-DPW3D	Florida Groundwater Guidance Criteria[2]
Sample Date	9-May-97	3-Sept-97	3-Sept-97	9-May-97	9-May-1997	9-May-97	
Field Measurements							
Turbidity (NTU)	3	5	2	1.9	2.9	9.5	5
pH (SUs)	7.5	7.2	7.1	7.2	7.4	7.5	6.5 to 8.5
Specific Conductance (μmhos/cm)	700	655	618	600	600	7,100	nsc
Laboratory Analytical Results ($\mu g/\ell$)							
Tetrachloroethene	240	[3]200/280	160	--	--	--	3
Trichloroethene	470	[3]950/980	610	--	--	--	3
Chloroform	--	--	--	--	--	--	6
1,1-Dichloroethane	--	--	--	--	--	--	700
1,1-Dichloroethene	--	--	--	--	--	--	7
cis-1,2-Dichloroethene	--	[3]150/150	75	--	--	--	70

See notes at end of table

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Table 3-3 (Continued)
Field and Laboratory Groundwater Analytical Results[1]

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Well Number	MPT-TC-DPW3DD	MPT-TC-DPW4S	MPT-TC-DPW4I	MPT-TC-DPW4D	MPT-TC-DPW5I	MPT-TC-DPW6S	Florida Groundwater Guidance Criteria[2]
Sample Date	9-May-97	9-May-97	9-May-97	9-May-97	9-May-97	9-May-97	
Field Measurements							
Turbidity (NTU)	2.5	17	4.1	4.2	22	2.2	5
pH (SUs)	7.1	7.8	8	7.6	7.4	7.5	6.5 to 8.5
Specific Conductance (µmhos/cm)	15,400	200	600	600	700	700	nsc
Laboratory Analytical Results (µg/ℓ)							
Tetrachloroethene	--	--	--	--	--	--	3
Trichloroethene	--	--	--	--	--	--	3
Chloroform	--	3.1	1.4	--	--	--	6
1,1-Dichloroethane	--	--	--	--	7.7	--	700
1,1-Dichloroethene	--	--	--	--	1.4	--	7
cis-1,2-Dichloroethene	--	--	--	--	--	--	70

Well Number	MPT-TC-DPW6I	MPT-TC-DPW7S	MPT-TC-MW7I	MPT-TC-DPW7D	MPT-TC-DPW8S	MPT-TC-MW8S	Florida Groundwater Guidance Criteria[2]
Sample Date	9-May-97	9-May-97	9-May-97	9-May-97	9-May-97	9-May-97	
Field Measurements							
Turbidity (NTU)	2.6	9	18	5	2	2.9	5
pH (SUs)	7.6	7.5	8.7	7	7.2	7	6.5 to 8.5
Specific Conductance (µmhos/cm)	600	420	350	1,151	501	536	nsc
Laboratory Analytical Results (µg/ℓ)							
Tetrachloroethene	--	--	--	--	--	--	3
Trichloroethene	--	--	--	--	1.2	--	3
Chloroform	--	--	--	--	--	--	6
1,1-Dichloroethane	--	--	--	23	--	--	700
1,1-Dichloroethene	--	--	--	9.3	--	--	7
cis-1,2-Dichloroethene	--	--	--	--	--	--	70

See notes at end of table.

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Table 3-3 (Continued)
Field and Laboratory Groundwater Analytical Results[1]

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Well Number	MPT-TC-DPW8I	MPT-TC-MW8I	MPT-TC-DPW8D	MPT-TC-DPW9S	MPT-TC-DPW9I	MPT-TC-DPW9D	Florida Groundwater Guidance Criteria[2]
Sample Date	9-May-97	9-May-97	9-May-97	9-May-97	9-May-97	5-May-97	
Field Measurements							
Turbidity (NTU)	5	5	10	41	25	7	5
pH (SUs)	7.1	7.4	7.2	7.5	7.3	7.6	6.5 to 8.5
Specific Conductance (μmhos/cm)	595	629	5,500	659	4,990	3,610	nsc
Laboratory Analytical Results ($\mu g/\ell$)							
Tetrachloroethene	--	1.4	--	--	--	--	3
Trichloroethene	--	1	--	--	1.2	--	3
Chloroform	--	2	--	--	--	--	6
1,1-Dichloroethane	--	--	14	4.1	3.4	18	700
1,1-Dichloroethene	--	--	--	--	--	1.2	7
cis-1,2-Dichloroethene	--	--	--	5.4	1.8	1.7	70

[1] Field and laboratory analytical results from the technology demonstration conducted by ICON Environmental Services, Inc (ICON) (ICON, 1998a and 1998b).
[2] Groundwater Guidance Concentrations, Florida Department of Environmental Protection, Division of Water Facilities, Bureau of Drinking Water and Groundwater Resources, June 1994.
[3] Analytical results from an environmental sample and duplicate.

Notes: NTU = nephelometric turbidity units.
SU = standard unit.
μmhos/cm = micromhos per centimeter.
nsc = currently no screening criteria established
$\mu g/\ell$ = micrograms per liter.
-- = analyte, if present, was less than the detection limit.

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Conductivity measurements indicate the amount of dissolved salts in water. The higher the conductivity measurement, the more dissolved salts are present in the water.

Groundwater Analytical Results. Below are analytical results for groundwater samples collected by ICON personnel from the conventional and direct-push monitoring wells.

Volatile Organic Compounds. The analytical results of groundwater samples collected by ICON from the direct-push and conventional monitoring wells installed in the surficial aquifer zone suggest the presence of the following six VOCs:

- tetrachloroethene
- trichloroethene
- chloroform
- 1,1-dichloroethane
- 1,1-dichloroethene
- cis-1,2-dichloroethene (ICON, 1998a; 1998b) (Table 3-3).

Tetrachloroethene, trichloroethene, 1,1-dichloroethane, and cis-1,2-dichloroethene were detected as single occurrences in groundwater samples collected from the shallow zone (Zone A) direct-push and conventional monitoring wells (Table 3-3). Only tetrachloroethene was detected in a groundwater sample from a shallow zone monitoring well at a concentration (3.8 $\mu g/\ell$) that exceeded its Florida groundwater guidance concentration (3 $\mu g/\ell$), which is a primary standard under Chapter 62-550.310, FAC.

Each of the six VOCs were detected in groundwater samples collected by ICON from the direct-push and conventional monitoring wells installed in the intermediate (Zone B) aquifer zone (Table 3-3). None of the groundwater samples contained the VOCs at concentrations that exceeded their respective Florida groundwater guidance concentrations.

Tetrachloroethene, trichloroethene, 1,1-dichloroethane, 1,1-dichloroethene, and cis-1,2-dichloroethene were detected in groundwater samples collected from the

deep zone (Zone C) direct-push and conventional monitoring wells (Table 3-3). Tetrachloroethene and cis-1,2-dichloroethene were detected at concentrations that exceed their respective Florida groundwater guidance concentrations, which are primary standards under Chapter 62-550.310, FAC.

Direct-push and conventional monitoring wells in the shallow (Zone A), intermediate (Zone B), and deep (Zone C) aquifer zones to compare the analytical results. The well screens for the shallow well pair MPT-TC-DPW8s and MPT-TC-MW8S, were placed approximately 10 to 15 feet bls (elevations of -1.28 to -6.28 feet msl and -1.4 to -6.4 feet msl, respectively). Trichloroethene was detected in the groundwater sample from the direct-push well but not in the sample from the conventional well.

The well screens for the intermediate well pair MPT-TC-DPW8I and MPT-TC-MW8I were placed approximately 26 to 31 feet bls (elevations of -17.3 to -22.3 feet msl and -17.35 to -22.35 feet msl, respectively). Tetrachloroethene, trichloroethene, and chloroform were detected in the groundwater sample from the direct-push well but not in the sample from the conventional well.

The well screens for the deep well pair MPT-TC-DPW2d and MPT-TC-MW7D were placed approximately 27 to 32 feet bls (elevations of -17.05 to -22.05 feet msl and -16.94 to -21.94 feet msl, respectively). Tetrachloroethene, trichloroethene, and cis-1,2-dichloroethene were detected in the groundwater samples from both wells. The groundwater sample from the conventional monitoring well contained higher concentrations of the three VOCs than those detected in the sample from the direct-push well.

The disparity of the analytical results could result from aquifer heterogeneity such as preferred flow paths, development and sampling, sample transport, and/or the laboratory analytical technique.

3.2 TECHNOLOGY DEMONSTRATION OVERSIGHT GROUNDWATER ANALYTICAL RESULTS. Below is a compilation of groundwater analytical results from the RFI conducted at Building 191 (ABB-ES, 1996a) and the technology demonstration oversight analytical results.

Water Quality and Natural Attenuation Parameters. Tables 3-4, 3-5, and 3-6 provide a summary of the stabilized water quality parameters that were measured in the field at the time the monitoring wells were purged during groundwater sampling events conducted in 1995, 1997,and 1998, respectively. Table 3-7 provides a summary of natural attenuation parameters that were measured for groundwater samples collected during the 1998 groundwater sampling event.

The 1995 sampling event was conducted to confirm the detection of tetrachloroethene and trichloroethene (ESE, 1994). During this sampling event only the water table zone monitoring wells installed by ESE were sampled. The purging parameters suggest that the water quality at the well locations was relatively similar (Table 3-4). Measurement of dissolved oxygen and oxidation reduction potential suggests that aerobic conditions were present at the well locations. Each of the turbidity measurements was less than 10 NTUs, suggesting that the groundwater samples are representative of colloidal and dissolved materials.

The 1997 sampling event was conducted to evaluate the NELP technology demonstration for direct-push monitoring wells. During this sampling event, monitoring wells installed in the water table (Zone A), intermediate (Zone B), and deep (Zone C) aquifer zones were sampled. The results measured during the purging of the wells suggest the groundwater samples from the water table and intermediate zones are similar in character, and differ from the deep zone in characteristics for specific conductance and salinity (Table 3-5). The salinity measurement for shallow monitoring well MPT-TC-MW04S during this event of 4.2 percent differed from the 1995 data when saline water was not indicated (Table 3-4).

With exception of direct-push monitoring wells MPT-TC-DPW4I and MPT-TC-DPW5I, the values for turbidity (Table 3-5) were less than 10 NTUs. Therefore, with exception of two samples, a significant amount of sediment was not present that may bias the analytical results. The groundwater sample results with turbidities less than 10 NTUs are considered to be representative of dissolved chemicals and/or colloids in the aquifer zone being monitored. It should be noted that the samples collected in 1997 were not analyzed for inorganic analytes.

The 1998 sampling event was conducted to assess whether or not the VOCs detected at Building 191 were the source of vinyl chloride detected at Echo Pier. During

Table 3-4
Purge Water Parameters Measured During the June 1995 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:		MPT-TC-MW01S	MPT-TC-MW02S	MPT-TC-MW03S	MPT-TC-MW04S	MPT-TC-MW05S	MPT-TC-MW06S
Date Sampled:		27-June-95	27-June-95	27-June-95	27-June-95	26-June-95	26-June-95
Temperature	°C	26	26	28	27	27	29
pH	Standard units	6.8	7.1	7	7	7	7.1
Specific conductivity	μmhos/cm	950	525	650	450	680	700
Salinity	Percent	0	0	0	0	0	0
Dissolved oxygen (meter)	mg/ℓ	2.7	3.4	2.4	2.1	3.8	2.2
Oxidation reduction potential	mV	514.3	510.6	668.7	426.9	470.2	528
Turbidity	NTU	1.7	1.3	1.29	1.3	1.5	1.6

Notes: °C = degrees Celsius.
μmhos/cm = micromhos per centimeter.
mg/ℓ = milligrams per liter.
mV = millivolts.
NTU = nephelometric turbidity units.

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Table 3-5
Purge Water Parameters Measured During the November 1997 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:		MPT-TC-MW04S	MPT-TC-MW07D	MPT-TC-MW08S	MPT-TC-MW08I	MPT-TC-DPW2D	MPT-TC-DPW4I
Date Sampled:		6-Nov-97	6-Nov-97	15-Nov-97	6-Nov-97	6-Nov-97	6-Nov-97
Temperature	°C	22.5	23	24	23	24	24
pH	Standard unit	6.53	8.38	6.51	6.63	6.81	7.17
Specific conductivity	µmhos/cm	390	600	580	510	610	550
Salinity	Percent	4.2	7	0.2	5.8	7	6
Turbidity	NTUs	1.55	0.93	1.29	0.71	2.1	20
Sample Location:		MPT-TC-DPW5I	MPT-TC-DPW7D	MPT-TC-DPW8S	MPT-TC-DPW8I	MPT-TC-DPW9I	MPT-TC-DPW9D
Date Sampled:		6-Nov-97	6-Nov-97	15-Nov-97	6-Nov-97	6-Nov-97	6-Nov-97
Temperature	°C	24.5	24	25	23	24	24
pH	Standard unit	7.05	6.83	6.6	6.63	7.2	7.17
Specific conductivity	µmhos/cm	700	620	500	510	5,000	2,900
Salinity	Percent	8	7.2	0.2	5.8	>40	36
Turbidity	NTUs	63.5	2.48	0.8	0.96	6.25	1.7

Notes: °C = degrees Celsius.
µmhos/cm = micromhos per centimeter.
NTU = nephelometric turbidity units.
> = greater than.

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Table 3-6
Purge Water Parameters Measured During the July 1998 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:		MPT-TC-MW04S	MPT-TC-DPW2DD	MPT-TC-DPW7D	MPT-TC-DPW8I	MPT-TC-DPW9I
Date Sampled:		15-July-98	16-July-98	23-July-98	15-July-98	17-July-98
Temperature	°C	28	26	24.5	24	25
pH	Standard units	7.16	7.26	7.48	7.69	7.49
Specific conductivity	µmhos/cm	380	18,700	600	305	4,000
Salinity	Percent	0	15.5	0	0	2.1
Dissolved oxygen (meter)	mg/ℓ	3.7	4.8	7	0.98	3.5
Oxidation reduction potential	mV	212.3	13.3	48.6	-8.2	32.2
Turbidity	NTUs	1.96	7.55	2.19	1.98	9.03
Sample Location:		MPT-TC-DPW10I	MPT-TC-DPW10D	MPT-TC-DPW11I	MPT-TC-DPW12I	MPT-TC-DPW12D
Date Sampled:		15-July-98	15-July-98	15-July-98	16-July-98	16-July-98
Temperature	°C	26	26	25.5	25	25
pH	Standard units	7.51	7.55	6.93	7.87	7.46
Specific conductivity	µmhos/cm	420	4,250	640	490	10,000
Salinity	Percent	0	1.9	0	0	6
Dissolved oxygen (meter)	mg/ℓ	0.7	1.26	6.2	2.8	4.9
Oxidation reduction potential	mV	-117.8	-104.2	100.7	31.3	21.8
Turbidity	NTUs	3.36	1.98	8.96	3.7	2.76

See notes at end of table.

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Table 3-6 (Continued)
Purge Water Parameters Measured During the July 1998 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:		MPT-TC-DPW13I	MPT-TC-DPW14S	MPT-TC-DPW14I	MPT-EP-MW01S	MPT-EP-MW03S
Date Sampled:		22-July-98	23-July-98	23-July-98	24-July-98	24-July-98
Temperature	°C	23.6	26.7	24.8	28.1	27.5
pH	Standard units	7.28	7.04	7.2	7.32	7.27
Specific conductivity	µmhos/cm	455	450	590	1,500	1,060
Salinity	Percent	0	0	0	0	0
Dissolved oxygen (meter)	mg/ℓ	2.3	1.8	0.9	0.9	1.3
Oxidation reduction potential	mV	18.6	-8.5	-5.8	-61.1	-23.3
Turbidity	NTUs	8.29	3.04	3.9	1.7	0.66
Sample Location:		MPT-EP-MW04S	MPT-EP-DPW1S	MPT-EP-DPW2I	MPT-EP-DPW3I	MPT-EP-DPW04S
Date Sampled:		23-July-98	23-July-98	22-July-98	22-July-98	22-July-98
Temperature	°C	28.6	27.4	24.7	24.3	29.2
pH	Standard units	7.26	7.44	7.53	7.27	6.93
Specific conductivity	µmhos/cm	710	460	690	710	850
Salinity	Percent	0	0	0	0	0
Dissolved oxygen (meter)	mg/ℓ	0.8	1.2	2.4	1.4	0
Oxidation reduction potential	mV	-101	-22.4	58.5	74	-53.3
Turbidity	NTUs	0.75	1.14	0.73	3.86	2.32

Notes: °C = degrees Celsius.
µmhos/cm = micromhos per centimeter.
mg/ℓ = milligrams per liter.
mV = millivolts.
NTU = nephelometric turbidity units.

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this sampling event, monitoring wells installed in the water table, intermediate, and deep aquifer zones were sampled. With the exception of direct-push monitoring well MPT-TC-DPW9I, the groundwater samples from the water table and intermediate aquifer zone conventional and direct-push wells are similar in character (Table 3-6). The groundwater sample from direct-push well MPT-TC-DPW9I was similar in character to the samples collected from the conventional and direct-push wells in the deep zone. The measurements for specific conductivity and salinity in deep zone groundwater samples were higher than those measured for the water table and intermediate zones (Table 3-6), which is similar to what was found in 1997 (Table 3-5).

Measurements of pH and specific conductivity (Tables 3-4, 3-5, and 3-6) for the conventional and direct-push monitoring wells were similar to those obtained by ICON personnel (Table 3-3).

Values for dissolved oxygen and oxidation reduction potential suggest that aerobic and anaerobic conditions are present in the shallow, intermediate, and deep aquifer zones (Table 3-6). The anaerobic zones are located at the west side of Building 191 in the intermediate and deep aquifer zones, and in the vicinity of Echo Pier (Figure 3-3).

Values for turbidity (Table 3-6) were less than 10 NTUs, which suggests that the groundwater sample did not contain a significant amount of sediment that may bias the analytical results. The groundwater sample results are considered to be representative of dissolved chemicals and/or colloids in the aquifer zone being monitored. The groundwater samples collected in 1998 were not analyzed for inorganic parameters.

The 1998 samples were also analyzed for natural attenuation parameters (Table 3-7). A summary of the minimum and maximum detected concentrations for the natural attenuation parameters that were measured in groundwater samples collected from the water table, intermediate, and deep aquifer zones is provided in Table 3-8. With the exception of nitrite, ferrous iron, and methane, the maximum concentrations measured for the natural attenuation parameters appear to increase with depth. The highest measured concentration for nitrite was in the

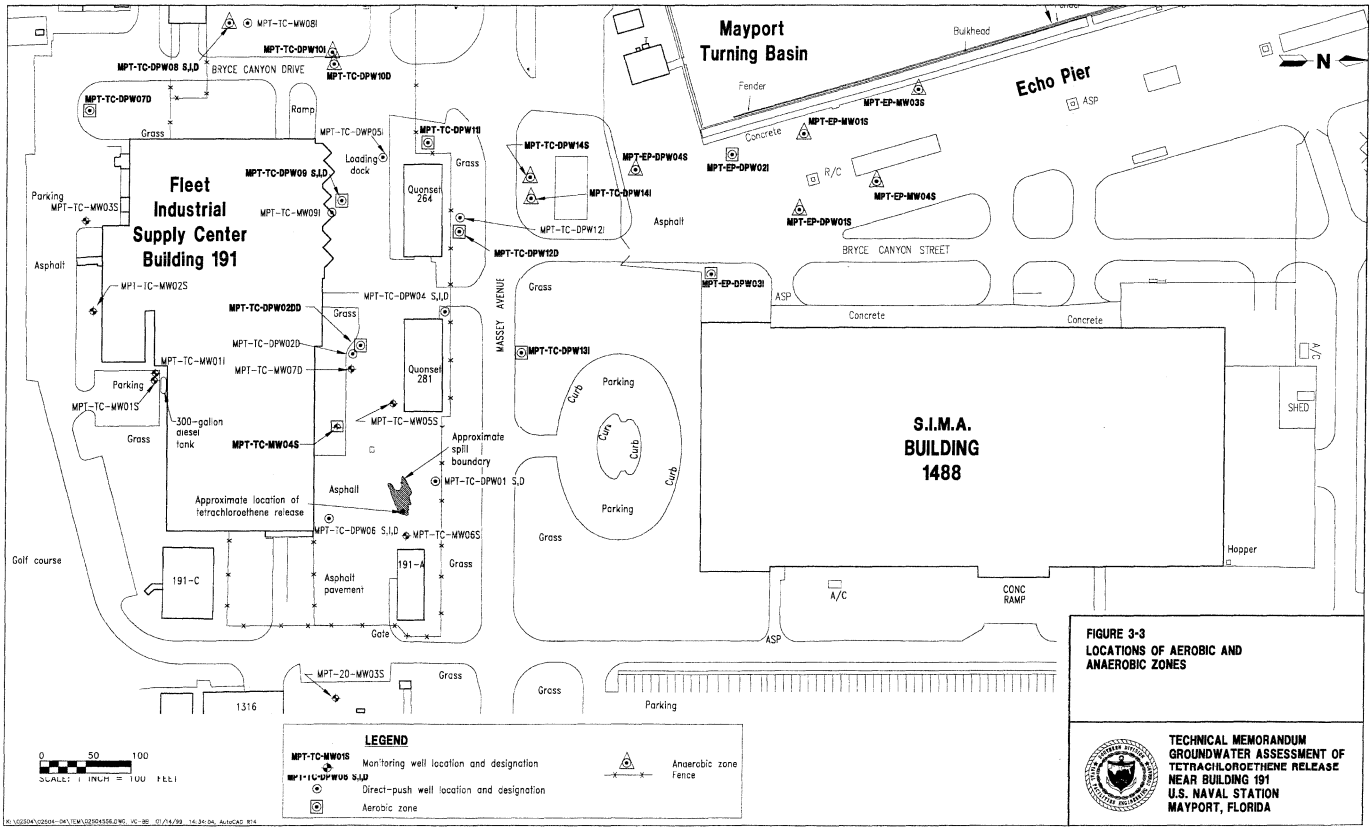

FIGURE 3-3
LOCATIONS OF AEROBIC AND ANAEROBIC ZONES

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

Table 3-7
Natural Attenuation Parameters Measured During the July 1998 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-MW04S	MPT-TC-DPW2DD	MPT-TC-DPW7D	MPT-TC-DPW8I	MPT-TC-DPW9I	MPT-TC-DPW10I	MPT-TC-DPW10D
Date Sampled:	16-July-98	16-July-98	23-July-98	15-July-98	17-July-98	15-July-98	15-July-98
Methane	0.0049	0.035	0.067	0.069	0.034	0.022	0.017
Ethene	--	--	--	--	--	--	--
Ethane	--	--	--	--	--	--	--
Total organic carbon	4	13	11	6	21	4	14
Dissolved oxygen (Colormetric)	4	3.25	nm	1.1	0.97	nm	1.5
Carbon dioxide	35	75	200	25	60	40	55
Chloride	15	>400	30	15	>400	35	>400
Alkalinity	47.6	156.4	2,045	54.4	156.4	74.8	122.4
Ferrous Iron	--	1.01	0.04	0.06	0.18	2.29	0.56
Sulfate (Hach)	23	>80	>80	18	>80	>80	>80
Sulfate	20	1,400	86	13	280	76	250
Sulfide	--	--	--	--	--	--	--
Nitrate-Nitrite-N	1.4	--	--	--	--	--	--
Nitrate	0.23	--	0.008	0.008	0.01	0.05	3.6
Nitrite	0.55	--	0.2	0.4	0.04	--	0.006

See notes at end of table.

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Table 3-7 (Continued)
Natural Attenuation Parameters Measured During the July 1998 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-DPW11I	MPT-TC-DPW12I	MPT-TC-DPW12D	MPT-TC-DPW13I	MPT-TC-DPW14S	MPT-TC-DPW14I	MPT-EP-MW01S
Date Sampled:	15-July-98	16-July-98	16-July-98	22-July-98	23-July-98	23-July-98	24-July-98
Methane	0.018	0.0074	0.011	0.019	0.031	0.064	0.22
Ethene	--	--	--	--	--	--	--
Ethane	--	--	--	--	--	--	--
Total organic carbon	8	4	12	3	8	5	11
Dissolved oxygen (Colormetric)	nm	nm	nm	nm	nm	nm	nm
Carbon dioxide	35	20	55	>100	>100	>100	>150
Chloride	55	45	>400	20	25	20	125
Alkalinity	108.8	54.4	142.8	170	204	306	272
Ferrous Iron	--	0.08	0.71	0.02	1.76	0.16	--
Sulfate (Hach)	>80	>80	>80	20	41	17	>80
Sulfate	66	70	370	27	37	13	190
Sulfide	--	--	--	--	--	--	--
Nitrate-Nitrite-N	--	--	--	--	--	--	--
Nitrate	--	--	--	--	--	--	--
Nitrite	0.002	0.2	0.003	0.01	--	0.01	0.05

See notes at end of table.

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Table 3-7 (Continued)
Natural Attenuation Parameters Measured During the July 1998 Groundwater Sampling Event at Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-EP-MW03S	MPT-EP-MW04S	MPT-EP-DPW1S	MPT-EP-DPW2I	MPT-EP-DPW3I	MPT-EP-DPW04S
Date Sampled:	24-July-98	23-July-98	23-July-98	22-July-98	22-July-98	22-July-98
Methane	0.17	0.16	0.31	2.3	1.5	2.2
Ethene	--	--	--	--	--	--
Ethane	--	--	--	--	--	0.0016
Total organic carbon	15	5	3	9	6	10
Dissolved oxygen (Colormetric)	nm	nm	nm	2	nm	nm
Carbon dioxide	>200	205	>100	>100	>100	>200
Chloride	70	40	30	110	60	60
Alkalinity	272	238	170	255	357	289
Ferrous Iron	0.57	0.1	0.13	--	0.04	0.05
Sulfate (Hach)	>80	75	63	2	32	39
Sulfate	62	62	43	--	23	27
Sulfide	--	--	--	--	--	--
Nitrate-Nitrite-N	--	--	--	--	--	--
Nitrate	--	0.051	0.15	--	0.001	--
Nitrite	0.04	0.05	0.05	0.011	0.05	--

Notes: Units are milligrams per liter, except for dissolved oxygen, which is in percent.

-- = analyte, if present, was at a concentration less than the detection limit.
nm = not measured.
> = greater than.

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Table 3-8
Summary of Natural Attenuation Parameters

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Parameter	Water Table Aquifer Zone		Intermediate Aquifer Zone		Deep Aquifer Zone	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Nitrate	0.051	0.23	0.001	0.05	0.008	3.6
Nitrite	0.04	0.55	0.002	0.4	0.006	0.2
Ferrous iron	0.005	1.76	0.04	2.29	0.04	1.01
Sulfate	20	190	13	280	86	1,400
Methane	0.0049	2.2	0.0074	2.3	0.011	0.067
Alkalinity	47.6	289	54.4	357	122.4	2,045
Chloride	15	125	15	>400	30	>400
Salinity	0	0	0	0	0	15.5

Notes: Concentrations are in milligrams per liter.

> = greater than.

water table aquifer zone. The highest measured concentration of ferrous iron was in the intermediate aquifer zone. The highest measured concentrations of methane were measured in the water table and intermediate aquifer zones. Figures 3-4 through 3-11 show the results of the natural attenuation analysis.

Groundwater Analytical Results. Twelve VOCs target analytes have been detected in the groundwater samples collected in 1995, 1997, and 1998 in the vicinity of Building 191 and Echo Pier (Table 3-9). These analytes include

- 1,1-dichloroethane,
- 1,1-dichloroethene,
- 1,2-dichloroethene (total),
- cis-1,2-dichloroethene,
- bromodichloromethane,
- dibromochloromethane,
- chloroform,
- methylene chloride,
- tetrachloroethene,
- trichloroethene, and
- vinyl chloride.

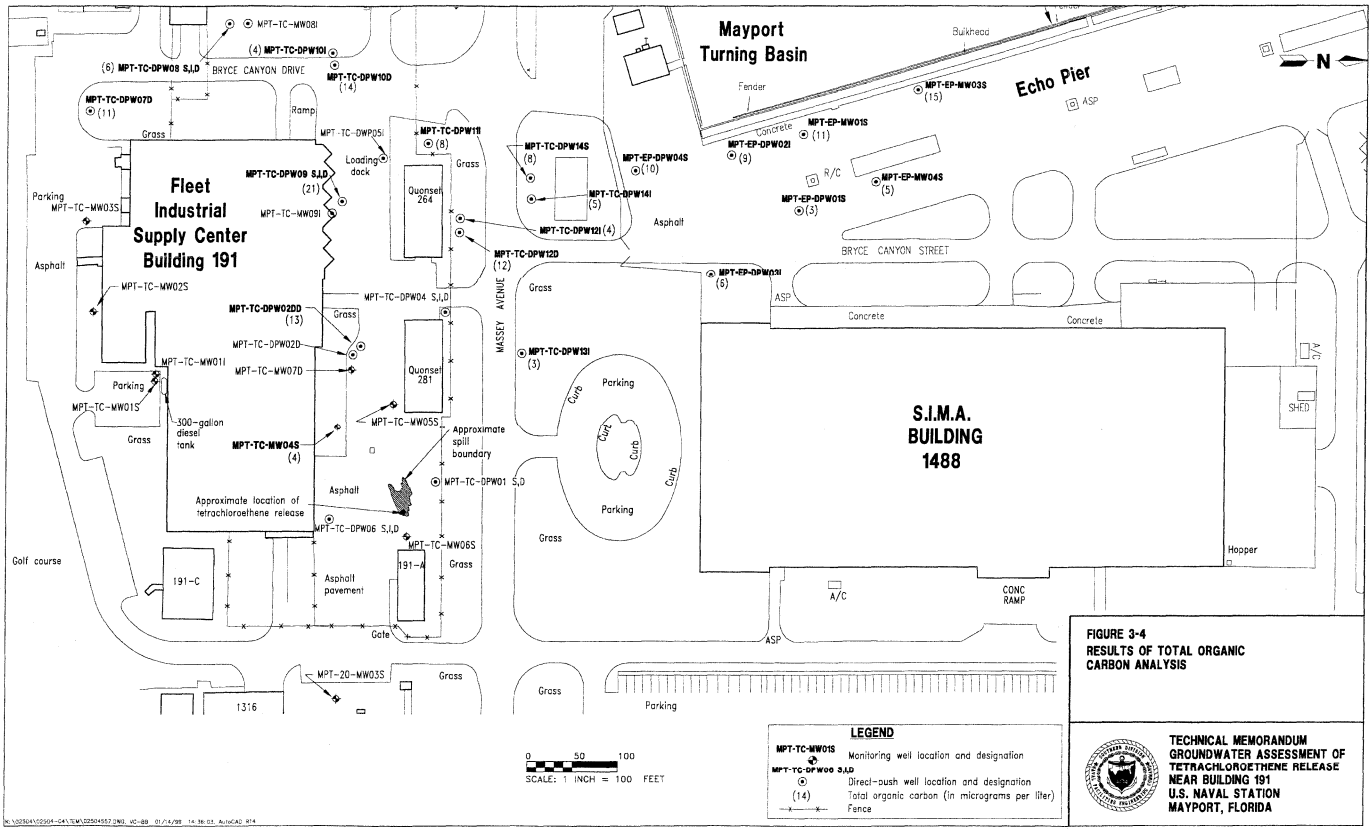

FIGURE 3-4
RESULTS OF TOTAL ORGANIC CARBON ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

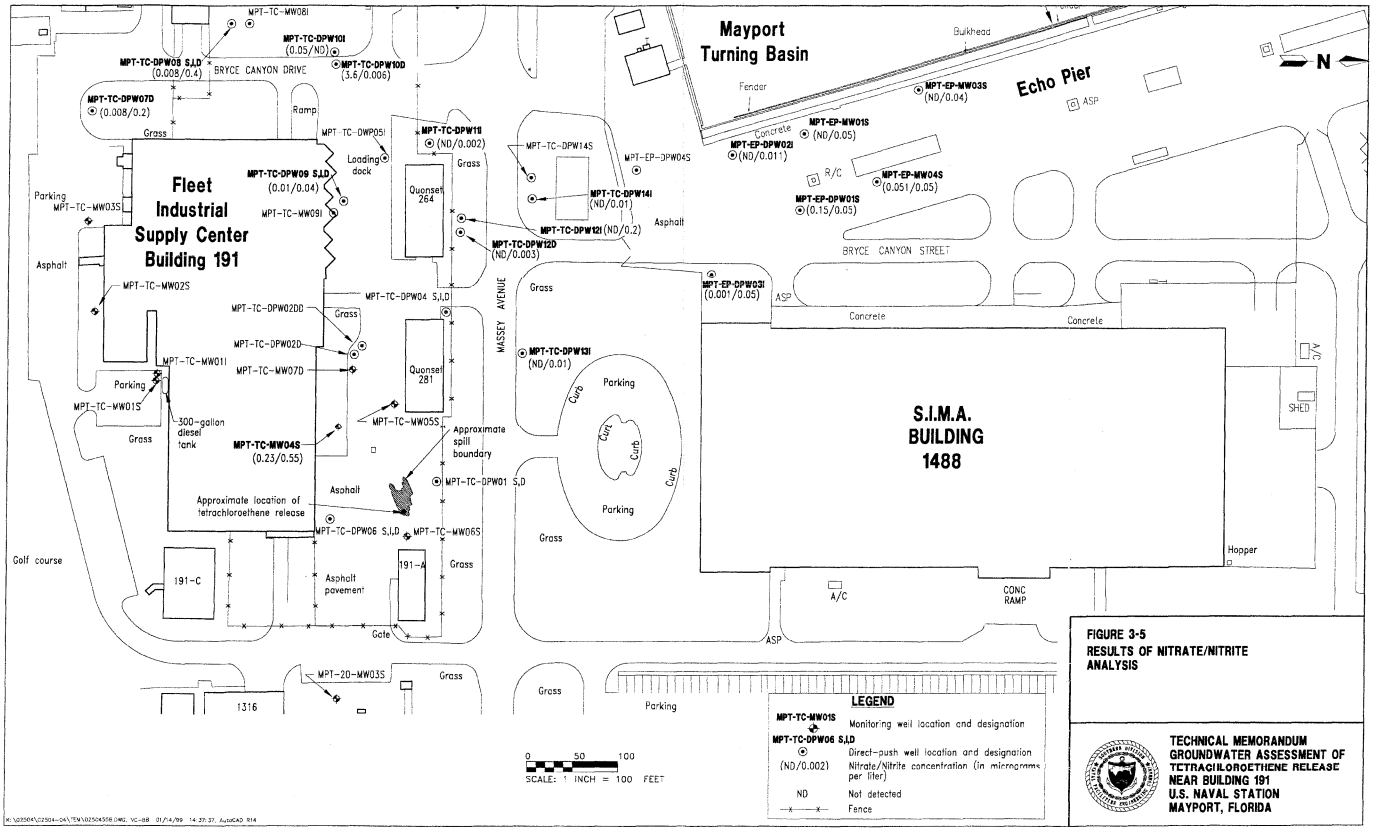

FIGURE 3-5
RESULTS OF NITRATE/NITRITE ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

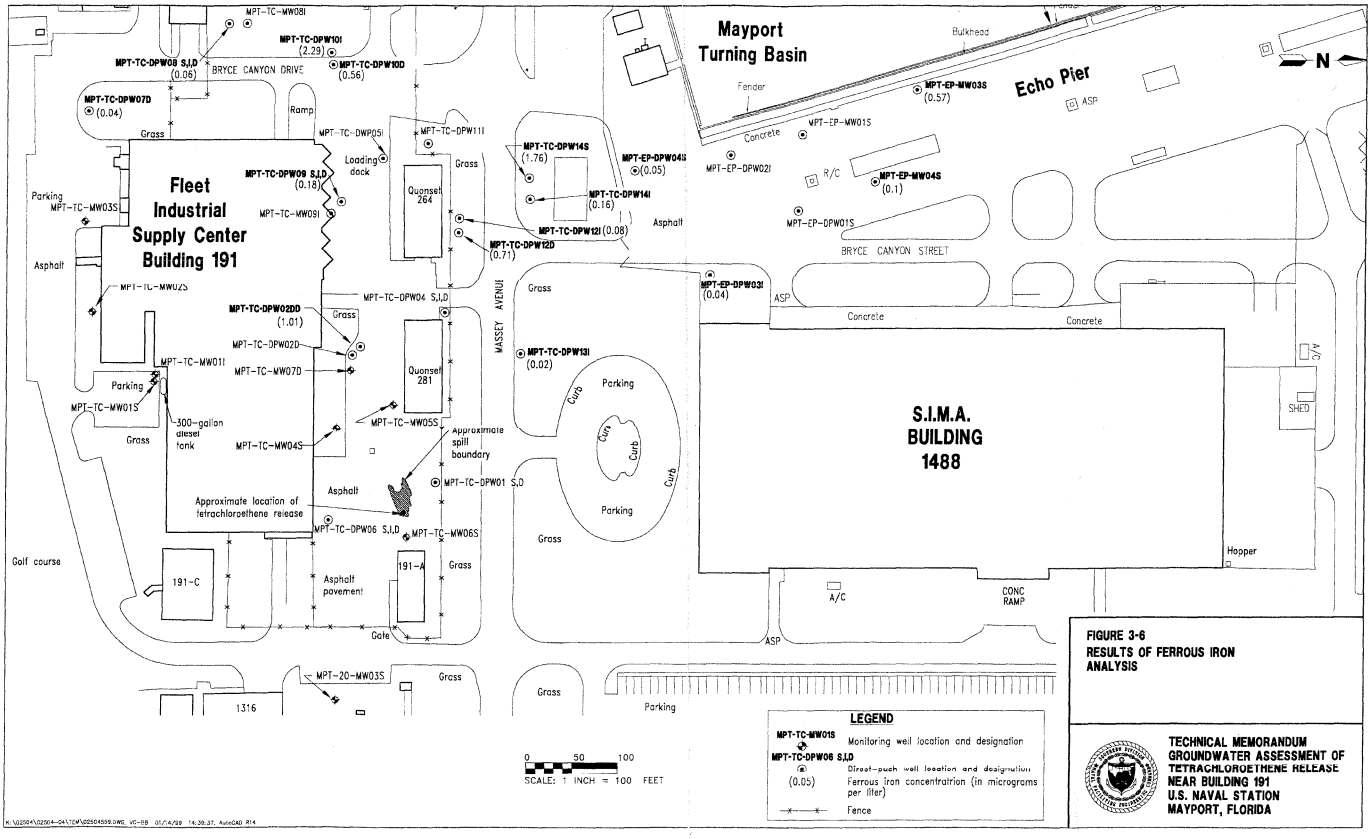

FIGURE 3-6
RESULTS OF FERROUS IRON ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

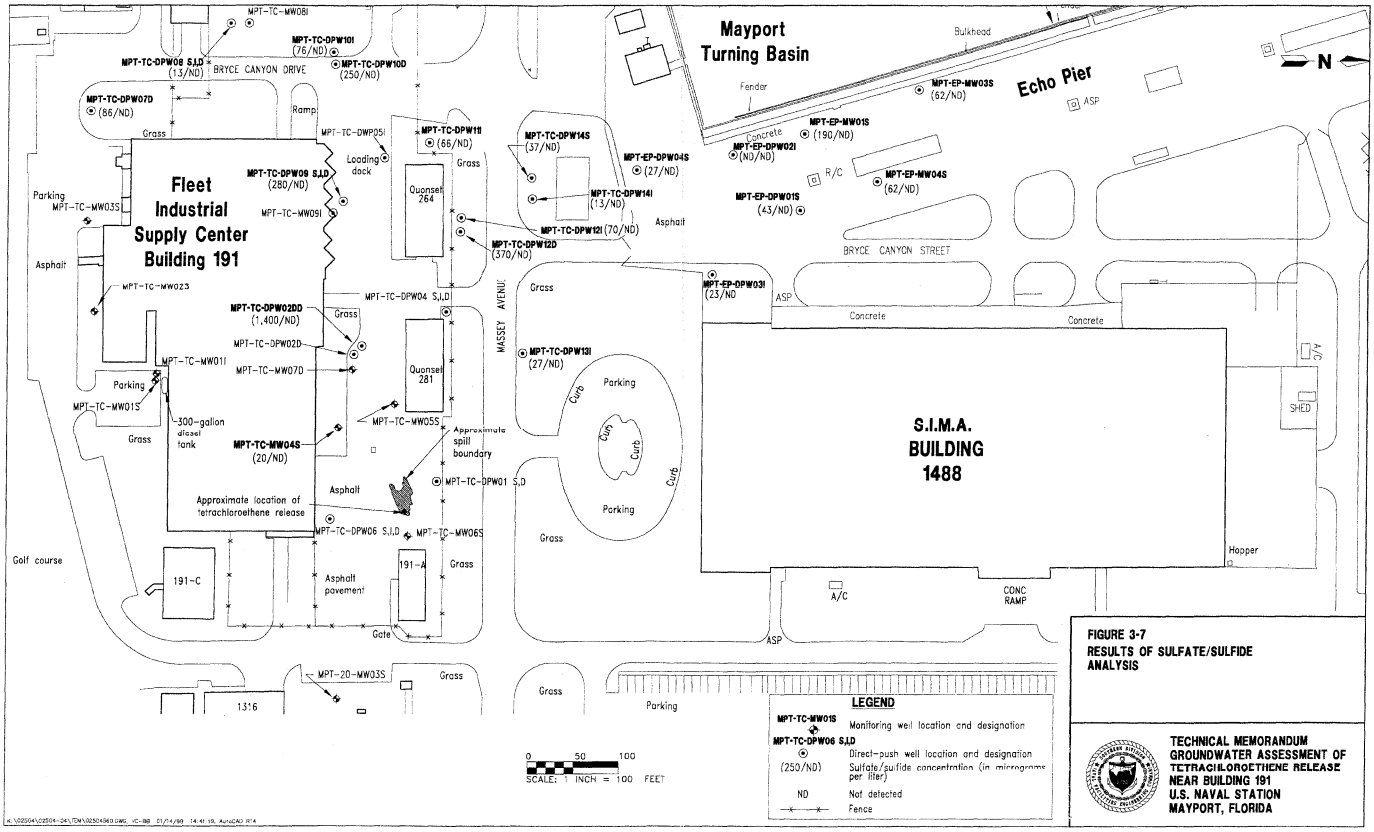

FIGURE 3-7
RESULTS OF SULFATE/SULFIDE ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

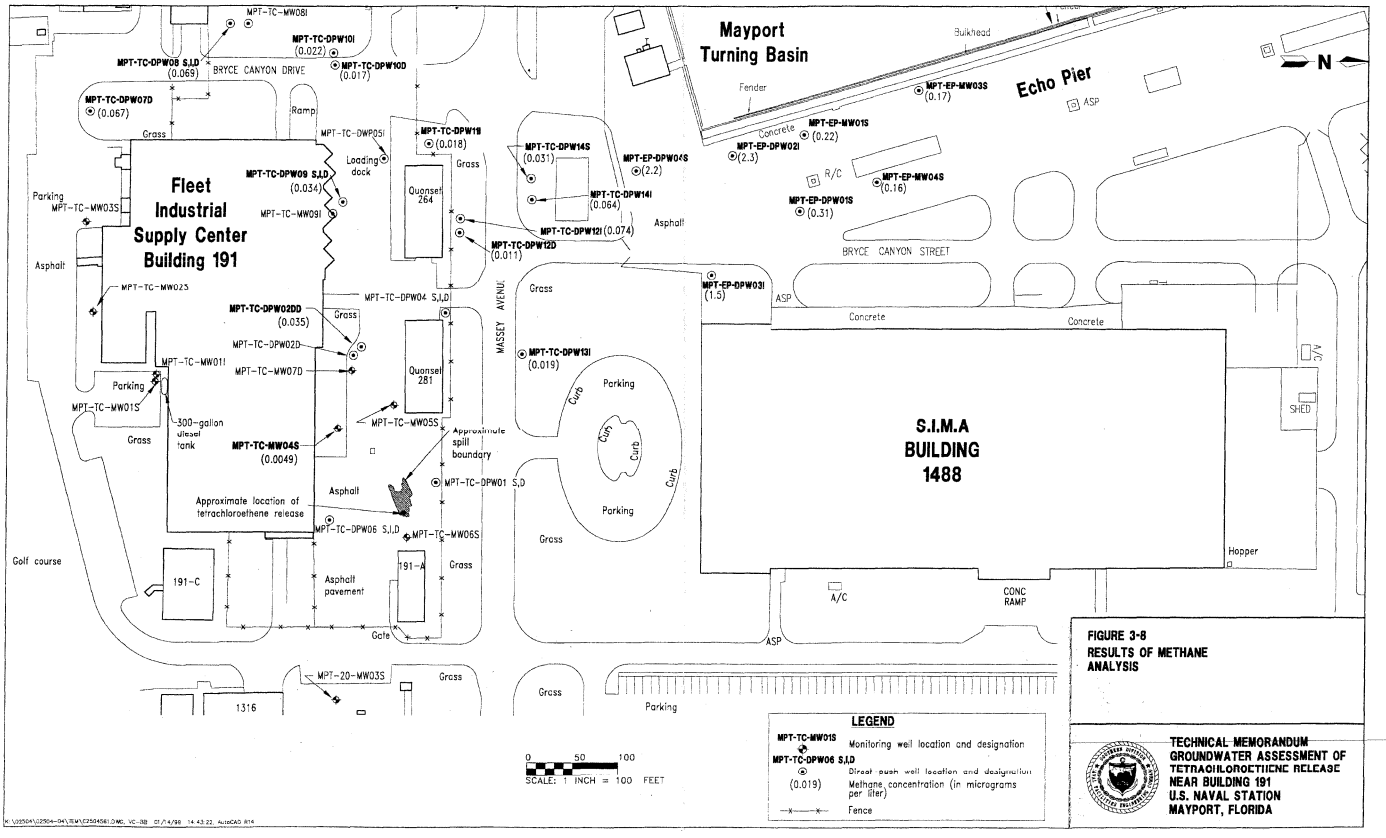

FIGURE 3-8
RESULTS OF METHANE ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

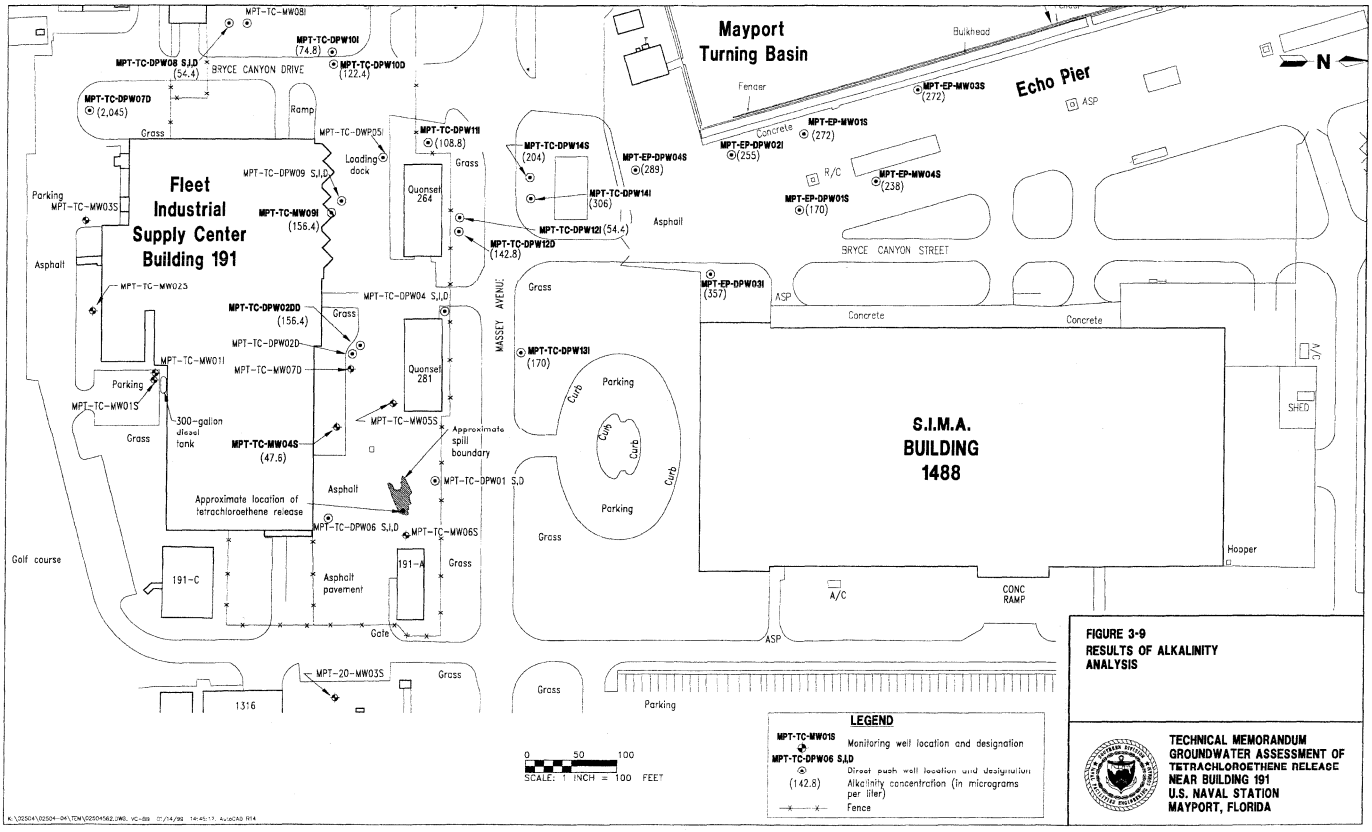

FIGURE 3-9
RESULTS OF ALKALINITY ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

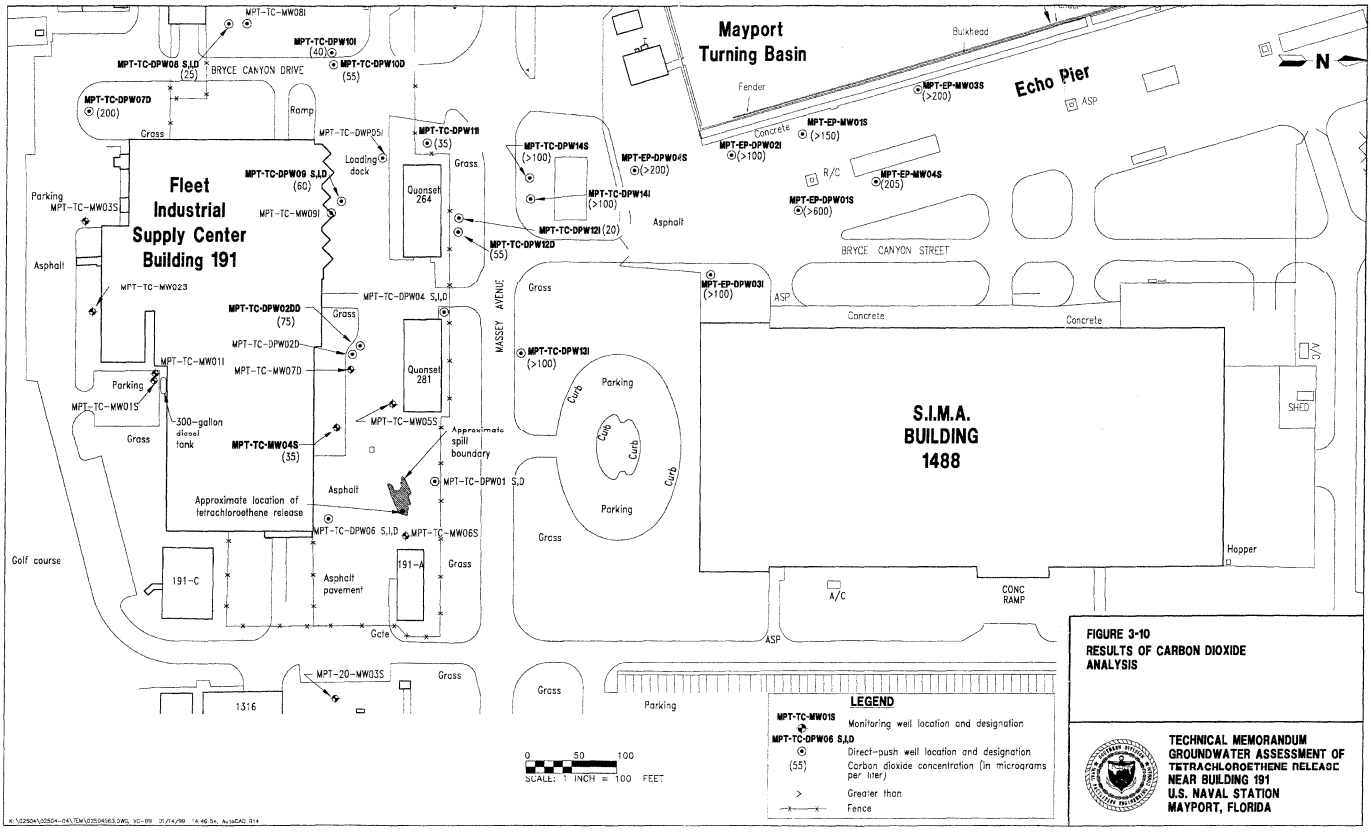

FIGURE 3-10
RESULTS OF CARBON DIOXIDE ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

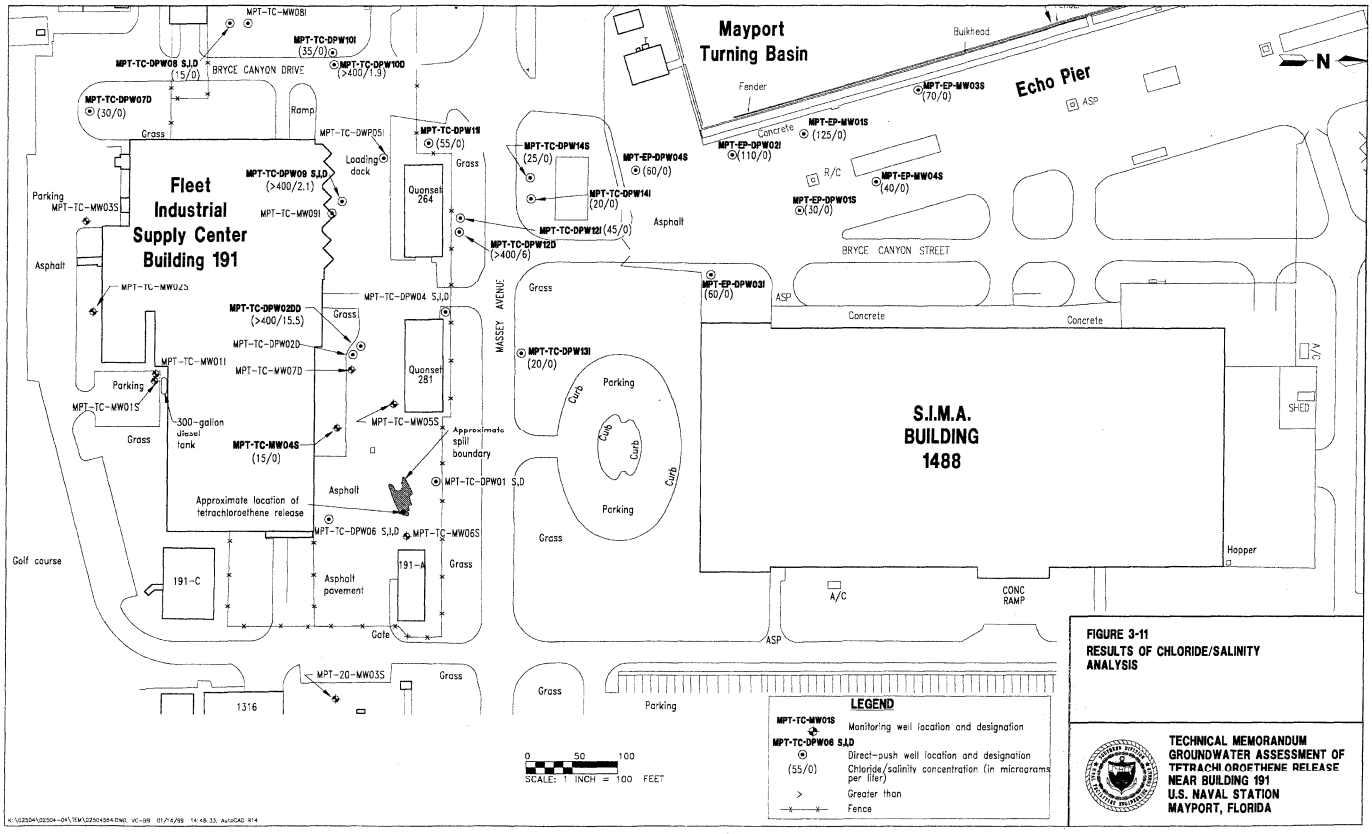

FIGURE 3-11
RESULTS OF CHLORIDE/SALINITY ANALYSIS

TECHNICAL MEMORANDUM
GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
NEAR BUILDING 191
U.S. NAVAL STATION
MAYPORT, FLORIDA

Table 3-9
Organic Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-MW02S	MPT-TC-MW04S	MPT-TC-MW4S	MPT-TC-MW4S	MPT-TC-MW4S	MPT-TC-MW05S	MPT-TC-MW05S
Sample Number:	TCG00201	TCG00401	TCG00401	TCG00401D	TCG00401	TCG00501	TCG00501DUP
Date Sampled:	27-JUN-95	27-JUN-95	6-Nov-97	6-Nov-97	16-July-98	26-JUN-95	26-JUN-95
Volatile Organic Compounds (µg/ℓ)							
Dichlorodifluoromethane	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	1 J	--	--	na	1 J	1 J
cis-1,2-Dichloroethene	na	na	na	na	--	na	na
Bromodichloromethane	5	--	--	--	--	--	--
Chloroform	11	--	--	--	--	--	--
Dibromochloromethane	1 J	--	--	--	--	--	--
Methylene chloride	--	--	--	--	--	--	--
Tetrachloroethene	--	26	2.1	2.1	1 I	100	73
Trichloroethene	--	9	1.9	1.7	--	10	8
Vinyl chloride	--	--	--	--	--	--	--

See notes at end of table.

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Table 3-9 (Continued)
Organic Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Techrical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-DPW05I	MPT-TC-MW7D	MPT-TC-DPW2D	MPT-TC-DPW2DD	MPT-TC-DPW7D	MPT-TC-DPW7D	MPT-TC-DPW8I
Sample Number:	TCG00502	TCP00703	TCP00203	TCP00204	TCP00703	TCP00703	TCP00802
Date Sampled:	6-Nov-97	6-Nov-97	6-Nov-97	16-July-98	6-Nov-97	23-July-98	6-Nov-97
Volatile Organic Compounds (µg/ℓ)							
Dichlorodifluoromethane	--	--	--	--	--	--	--
1,1-Dichloroethane	4	--	--	2	20	19	--
1,1-Dichloroethene	--	--	--	--	8	14	--
1,2-Dichloroethene (total)	--	na	--	na	--	na	--
cis-1,2-Dichloroethene	na	--	na	--	na	--	na
Bromodichloromethane	--	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--
Methylene chloride	--	--	--	2 I	--	--	--
Tetrachloroethene	--	78	120	--	--	--	--
Trichloroethene	--	730	810	--	--	--	--
Vinyl chloride	--	-	-	--	--	--	--

See notes at end of table.

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Table 3-9 (Continued)
Organic Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-DPW9I	MPT-TC-DPW9I	MPT-TC-DPW9I	MPT-TC-DPW9D	MPT-TC-DPW10I	MPT-TC-DPW10D	MPT-TC-DPW11I
Sample Number:	TCP00902	TCP00902	TCP00902D	TCP00903	TCP01002	TCP01003	TCP01102
Date Sampled:	6-Nov-97	17-July-98	17-July-98	6-Nov-97	15-July-98	15-July-98	15-July-98
Volatile Organic Compounds (µg/ℓ)							
Dichlorodifluoromethane	--	--	--	--	--	--	--
1,1-Dichloroethane	1.4	2	2	8.3	--	7	--
1,1-Dichloroethene	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	na	na	--	na	na	na
cis-1,2-Dichloroethene	na	2	3	na	--	--	1 I
Bromodichloromethane	--	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--
Methylene chloride	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--
Trichloroethene	--	3	4	--	--	--	--
Vinyl chloride	--	--	--	--	--	--	--

See notes at end of table.

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Table 3-9 (Continued)
Organic Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-DPW12I	MPT-TC-DPW12D	MPT-TC-DPW13I	MPT-TC-DPW14S	MPT-TC-DPW14I	MPT-TC-DPW14I	MPT-EP-MW01S
Sample Number:	TCP01202	TCP01203	TCP01302	TCP01401	TCP01402	TCP01402D	EPG00101
Date Sampled:	16-July-98	16-July-98	22-July-98	23-July-98	23-July-98	23-July-98	24-July-98
Volatile Organic Compounds (µg/ℓ)							
Dichlorodifluoromethane	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	na	na	na	na	na	na	na
cis-1,2-Dichloroethene	--	--	--	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--
Methylene chloride	--	--	5	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--
Vinyl chloride	--	--	--	--	--	--	--

See notes at end of table.

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Table 3-9 (Continued)
Organic Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-EP-MW03S	MPT-EP-MW04S	MPT-EP-DPW1S	MPT-EP-DPW2I	MPT-EP-DPW3I	MPT-EP-DPW4S
Sample Number:	EPG00301	EPG00401	EPP00101	EPP00202	EPP00302	EPP00401
Date Sampled:	24-July-98	23-July-98	23-July-98	22-July-98	22-July-98	22-July-98
Volatile Organic Compounds (µg/ℓ)						
Dichlorodifluoromethane	--	--	1.2 I	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--
1,2-Dichloroethene (total)	na	na	na	na	na	na
cis-1,2-Dichloroethene	23	1.9 I	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--
Methylene chloride	--	4	--	2 I	--	--
Tetrachloroethene	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--
Vinyl chloride	1.3 I	1.3 I	--	1 I	--	--

Notes: µg/ℓ = micrograms per liter.
-- = analyte, if present, was less than the detection limit.
na = not analyzed.
J = estimated value.
I = estimated value.

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SVOCs, pesticides, and PCBs have not been detected in Building 191 groundwater samples. A summary of the minimum and maximum detected concentrations for the VOCs that were detected in groundwater samples collected from the water table, intermediate, and deep aquifer zones is provided in Table 3-10.

Twelve inorganic target analytes were detected in the groundwater samples collected at Building 191. These analytes are provided in Table 3-11. A statistical summary of the organic and inorganic target analytes detected in groundwater samples collected from Building 191 monitoring wells is presented in Table 3-12. Comparison of the maximum detected concentrations of organic and inorganic target analytes to background and regulatory guidance concentrations is provided in Table 3-13. Below is a discussion of the VOCs and inorganic analytes detected in groundwater samples collected in the vicinity of Building 191.

VOCs. Nine of the twelve VOCs were detected in groundwater samples collected from monitoring wells screened in the water table zone (Zone A) (Table 3-10). Tetrachloroethene, trichloroethene, and 1,2-dichloroethene were detected in groundwater samples collected from monitoring wells MPT-TC-MW04S and MPT-TC-MW05S (Figure 3-12). Monitoring wells MPT-TC-MW04S and MPT-TC-MW05S are located on the north side of Building 191 in the vicinity of the tetrachloroethene spill. Bromodichloromethane, chloroform, and dibromochloromethane were detected in groundwater samples collected from monitoring well MPT-TC-MW02s, which is located on the south side of Building 191. Dichloroethene was detected in a groundwater sample collected from direct-push monitoring well MPT-EP-DPW1S, which is located at Echo Pier. Cis-1,2-dichloroethene and vinyl chloride were detected in groundwater samples collected at monitoring wells MPT-EP-MW03S and MPT-EP-MW04S, which are located at Echo Pier. Chloroform, dibromochloromethane, tetrachloroethene, trichloroethene, and vinyl chloride were detected at concentrations that exceed their respective Florida groundwater guidance concentrations (Table 3-11). The concentrations of tetrachloroethene and trichloroethene that were detected in groundwater samples collected from monitoring well MPT-TC-MW04S have decreased over time and currently are at concentrations that do not exceed their Florida groundwater guidance concentrations (Table 3-9).

Table 3-10
Summary of Organic Analytes Detected in the Shallow, Intermediate, and Deep Aquifer Zones

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Parameter	Water Table Aquifer Zone		Intermediate Aquifer Zone		Deep Aquifer Zone	
	Minimum Detected Concentration	Maximum Detected Concentration	Minimum Detected Concentration	Maximum Detected Concentration	Minimum Detected Concentration	Maximum Detected Concentration
Dichlorodifluoromethane	1.2	1.2	nd	nd	nd	nd
1,1-Dichloroethane	nd	nd	1.4	4	2	20
1,1-Dichloroethene	nd	nd	nd	nd	8	14
1,2-Dichloroethene (total)	1	1	nd	nd	nd	nd
cis-1,2-Dichloroethene	1.9	23	1	3	2	2
Bromodichloromethane	5	5	nd	nd	nd	nd
Chloroform	1	1	nd	nd	nd	nd
Dibromochloromethane	1	1	nd	nd	nd	nd
Methylene chloride	nd	nd	2	5	2	2
Tetrachloroethene	1	100	nd	nd	78	120
Trichloroethene	1.7	10	4	4	730	810
Vinyl chloride	1.3	1.3	1	1	nd	nd

Notes: Concentrations are in micrograms per liter.

nd = analyte, if present, was at concentrations less than the detection limit.

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Table 3-11
Inorganic Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Sample Location:	MPT-TC-MW01S	MPT-TC-MW02S	MPT-TC-MW03S	MPT-TC-MW04S	MPT-TC-MW05S	MPT-TC-MW05S	MPT-TC-MW06S
Sample Number:	TCG00101	TCG00201	TCG00301	TCG00401	TCG00501	TCG00501DUP	TCG00601
Date Sampled:	26-JUN-95	27-JUN-95	27-JUN-95	27-JUN-95	26-JUN-95	26-JUN-95	26-JUN-95
Inorganic Analytes (µg/ℓ)							
Arsenic	62.4	1.2 J	0.9 J	6 J	5.6 J	6.1 J	1.6 J
Barium	9.8 J	8.7 J	2.8 J	2.8 J	4.7 J	4.5 J	7.8 J
Beryllium	--	--	--	0.36 J	--	--	--
Calcium	167,000	61,200	79,100	77,000	106,000	105,000	100,000
Iron	4,950	--	--	299	98.2 J	99.5 J	280
Magnesium	11,300	22,700	23,500	6,530	13,500	13,300	13,500
Manganese	543	84 J	1.5 J	142	4 J	3.9 J	80.8
Selenium	--	--	--	--	0.79 J	--	--
Silver	1.7 J	--	--	--	--	--	--
Sodium	16,800	17,200	19,800	7,450	12,700	12,600	15,500
Vanadium	6.3 J	8.4 J	5.3 J	6.7 J	8.8 J	8.4 J	3.4 J
Cyanide	--	2 J	2.6 J	--	--	--	2 J

Notes: D = this suffix on the sample number designates a duplicate.
µg/ℓ = micrograms per liter.
J = estimated value.
-- = analyte, if present, was less than the detection limit.

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Table 3-12
Summary of Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Minimum Detected Concentration[2]	Maximum Detected Concentration[2]	Mean of Detected Concentrations[3]	Range of Reporting Limits for Nondetects	Sample with Maximum Detected Concentration
Volatile Organic Compounds (µg/ℓ)						
1,1-Dichloroethane	8/34	1.4	20	8	1 to 25	TCP00703
1,1-Dichloroethene	2/34	8.2	14	11.1	1 to 25	TCP00703
1,2-Dichloroethene (total)	2/14	1	1	1	5	TCG00401
cis-1,2-Dichloroethene	4/20	1	23	7.1	1	EPG00301
Bromodichloromethane	1/34	5	5	5	1 to 25	TCG00201
Chloroform	1/34	11	11	11	1 to 25	TCG00201
Dibromochloromethane	1/34	1	1	1	1 to 25	TCG00201
Dichlorodifluoromethane	1/34	1.2	1.2	1.2	1 to 25	EPP00101
Methylene chloride	4/34	2	5	3	5 to 125	TCP01302
Tetrachloroethene	6/34	1.55*	120	52.4	1 to 5	TCP00203
Trichloroethene	6/34	1.9	810	260	1 to 5	TCP00203
Vinyl chloride	3/34	1	1.3	1.2	1 to 25	EPG00301
Inorganic Analytes (µg/ℓ)						
Arsenic	6/6	0.9	62.4	13	N/A	TCG00101
Barium	6/6	2.8	9.8	6.1	N/A	TCG00101
Beryllium	1/6	0.36	0.36	0.36	0.3	TCG00401
Calcium	6/6	61,200	167,000	98,300	N/A	TCG00101
Iron	4/6	98.85*	4,950	1,407	14.8 to 27.2	TCG00101

See notes at end of table

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Table 3-12 (Continued)
Summary of Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Minimum Detected Concentration[2]	Maximum Detected Concentration[2]	Mean of Detected Concentrations[3]	Range of Reporting Limits for Nondetects	Sample with Maximum Detected Concentration
Inorganic Analytes (µg/ℓ) (Continued)						
Magnesium	6/6	6,530	23,500	15,155	N/A	TCG00301
Manganese	6/6	0.84	543	128.68	N/A	TCG00101
Selenium	1/6	0.52*	0.52*	0.52	0.5	TCG00501
Silver	1/6	1.7	1.7	1.7	1.4	TCG00101
Sodium	6/6	7,450	19,800	14,900	N/A	TCG00301
Vanadium	6/6	3.4	8.6*	6.5	N/A	TCG00501
Cyanide	3/6	2	2.6	2.2	1.5	TCG00301

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed.
[2] * = The value is the average of the detected concentrations in a sample and its duplicate. For nondetected values, one-half the method detection limit is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected.

Notes: µg/ℓ = micrograms per liter.
* = average of sample and duplicate.
N/A = the target analyte was detected in each sample.

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Table 3-13
Comparison of Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191 to Background Screening and Benchmark Concentrations

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Analyte	Maximum Detected Concentration[1]	Background Screening Concentration[2]	Frequency above the Background Screening Concentration	Florida Groundwater Guidance Concentration[3]	Frequency above the Florida Groundwater Guidance Concentration	Risk-Based Screening Concentration[4]	Frequency above the Risk-Based Screening Concentration
Volatile Organic Compounds (µg/ℓ)							
1,1-Dichloroethane	20	N/A	N/A	70	0/34	800	0/20
1,1-Dichloroethene	14	N/A	N/A	7	2/34	0.044	2/20
1,2-Dichloroethene (total)	1	N/A	N/A	63	0/14	55	0/14
cis-1,2-Dichloroethene	23	N/A	N/A	70	0/20	61	0/20
Bromodichloromethane	5	2	1/18	93	0/34	0.17	1/34
Chloroform	11	2	1/18	5.7	1/34	0.13	1/34
Dibromochloromethane	1	N/A	N/A	0.4	1/34	NSC	NSC
Dichlorodifluoromethane	1.2	N/A	N/A	1,400	0/34	NSC	NSC
Methylene chloride	5	N/A	N/A	5	0/34	4.1	1/34
Tetrachloroethene	120	N/A	N/A	3	4/34	1.1	6/34
Trichloroethene	810	N/A	N/A	3	5/34	1.6	6/34
Vinyl chloride	1.3	N/A	N/A	1	2/34	0.019	3/34
Inorganic Analytes (µg/ℓ)							
Arsenic	62.4	16.6	1/6	50	1/6	0.045	6/6
Barium	9.8	39.94	0/6	2,000	0/6	2,600	0/6
Beryllium	0.36	N/A	N/A	4	0/6	0.016	1/6
Calcium	167,000	208,656	0/6	1,055,398	0/6	NSC	NSC
Iron	4,950	1,389.4	1/6	300	1/6	11,000	0/6

See notes at end of table

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Table 3-13 (Continued)
Comparison of Analytes Detected in Groundwater Samples Collected in the Vicinity of Building 191 to Background Screening and Benchmark Concentrations

Technical Memorandum, Groundwater Assessment of
Tetrachloroethene Release at Building 191
U. S. Naval Station
Mayport, Florida

Analyte	Maximum Detected Concentration[1]	Background Screening Concentration[2]	Frequency above the Background Screening Concentration	Florida Groundwater Guidance Concentration[3]	Frequency above the Florida Groundwater Guidance Concentration	Risk-Based Screening Concentration[4]	Frequency above the Risk-Based Screening Concentration
Inorganic Analytes ($\mu g/\ell$) (Continued)							
Magnesium	23,500	178,204	0/6	118,807	0/6	NSC	NSC
Manganese	543	184.8	1/6	50	3/6	840	0/6
Selenium	0.52*	4.58	0/6	50	0/6	180	0/6
Silver	1.7	2.8	0/6	100	0/6	180	0/6
Sodium	19,800	1,512,898	0/6	160,000	0/6	NSC	NSC
Vanadium	8.6*	11	0/6	49	0/6	260	0/6
Cyanide	2.6	2.54	1/6	200	0/6	730	0/6

[1] The value is the average of the detected concentrations in a sample and its duplicate. For nondetected values, one-half the method detection limit is used as a surrogate.
[2] The background screening concentration is twice the mean of detected concentrations for inorganic analytes.
[3] Florida Groundwater Guidance Concentrations (Florida Department of Environmental Protection [FDEP], 1994), and Brownfield Groundwater Cleanup Criteria under Chapter 62-785, Florida Administrative Code (Tonner-Navarro, et al., 1998).
[4] U.S. Environmental Protection Agency (USEPA) Region III risk-based screening concentrations (USEPA, 1998a). Concentrations for carcinogens are at 1×10^{-6} and noncarcinogenic risks are a hazard index of 1.

Notes: $\mu g/\ell$ = micrograms per liter.
N/A = analyte not detected in background groundwater sample.
NSC - currently, no screening concentration established.
* = average of sample and duplicate.

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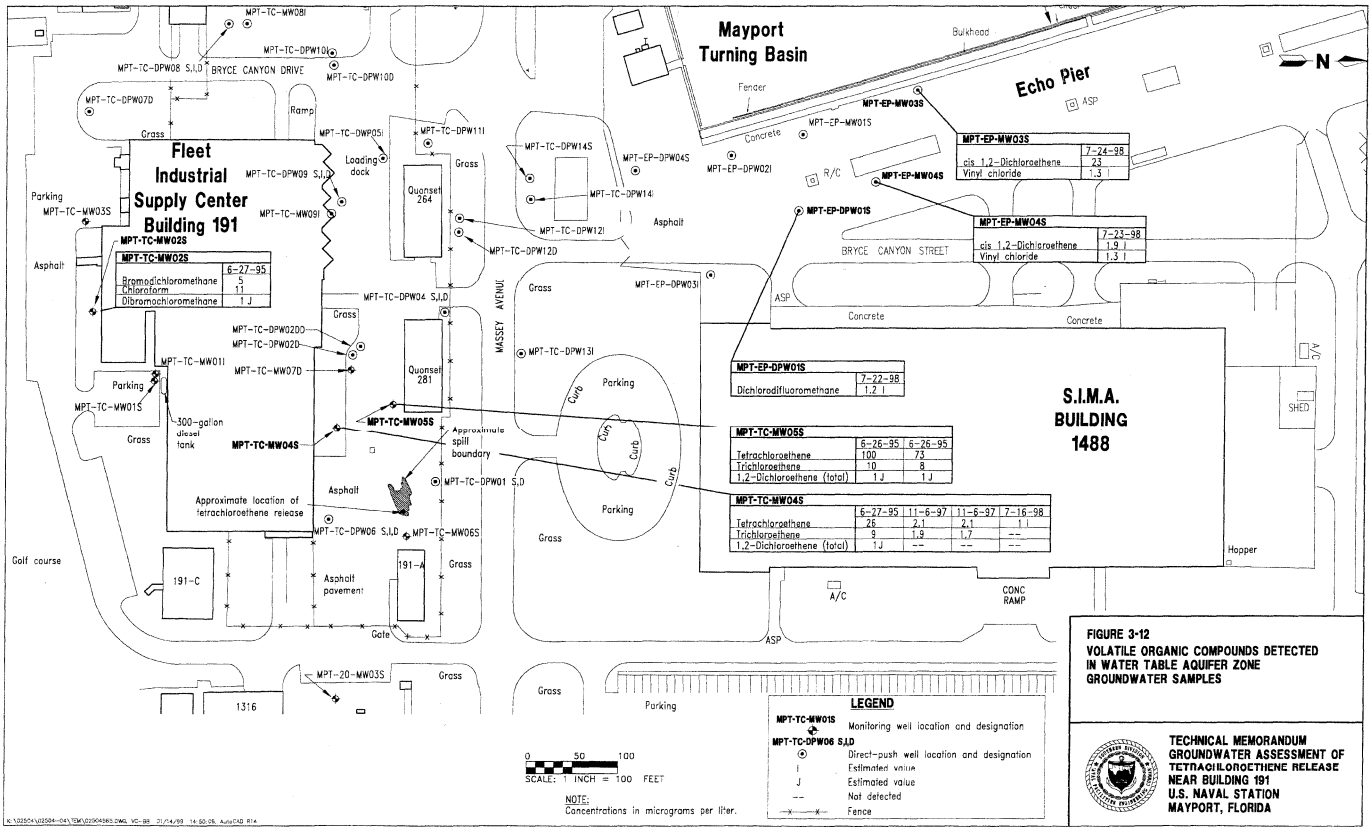

FIGURE 3-12
VOLATILE ORGANIC COMPOUNDS DETECTED IN WATER TABLE AQUIFER ZONE GROUNDWATER SAMPLES

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GROUNDWATER ASSESSMENT OF TETRACHLOROETHENE RELEASE
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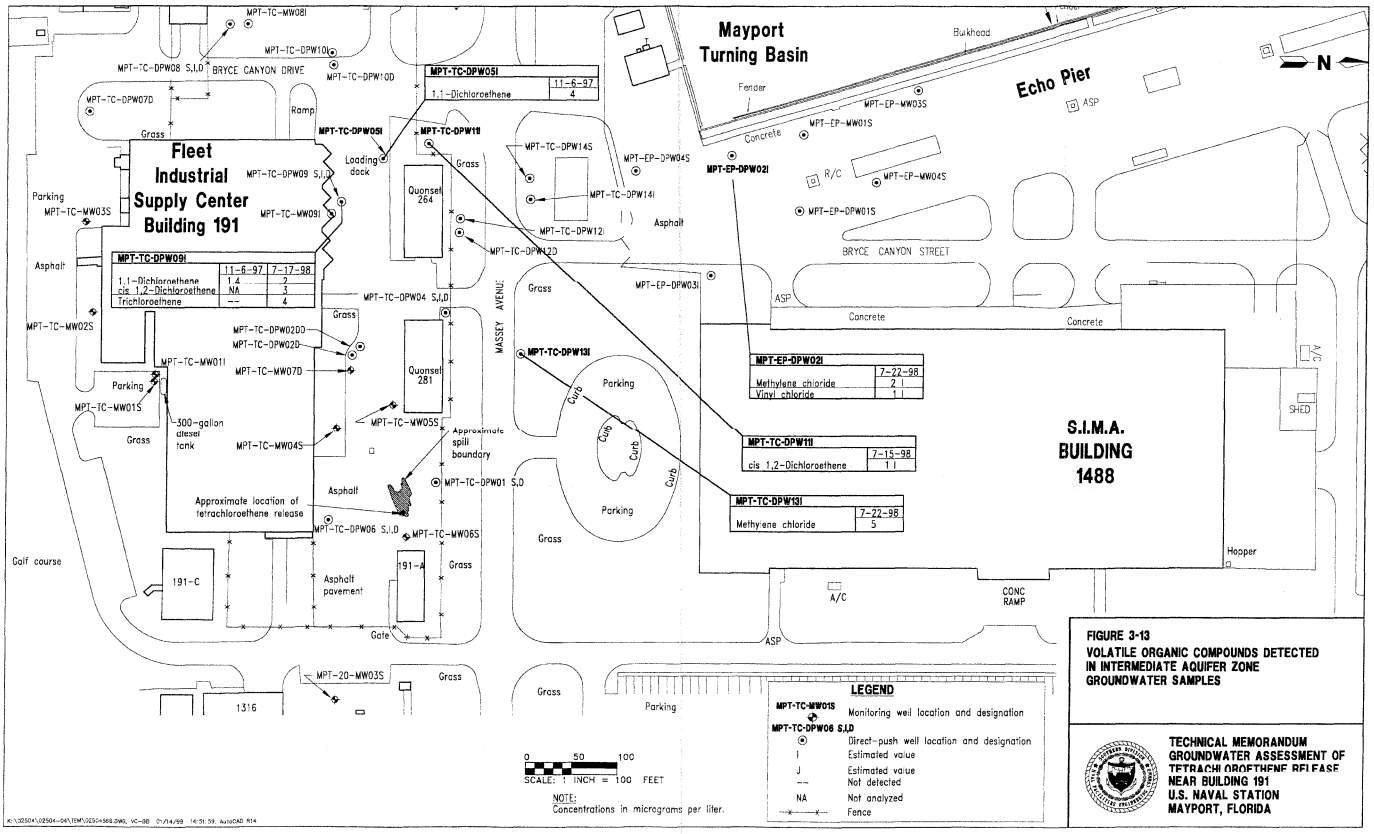
Methylene chloride, 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride were detected in groundwater samples collected from monitoring wells screened in the intermediate aquifer zone (Zone B) (Figure 3-13). 1,1-Dichloroethene, trichloroethene, and cis-1,2-dichloroethene were detected in groundwater samples collected from direct-push monitoring wells MPT-TC-DPW9I, and 1,1-dichloroethane was detected in direct-push monitoring well MPT-DPW-5I. Cis-1,2-dichloroethene was detected in the groundwater sample collected from direct-push monitoring well MPT-TC-DPW11I. MPT-TC-DPW9I and MPT-TC-DPQ5I and MPT-TC-DPW11I are located along the northwest side of Building 191.

Methylene chloride was detected in the groundwater sample collected from direct-push monitoring well MPT-TC-DPW13I, which is located along Massey Avenue, south of Building 1488. Methylene chloride is a common laboratory contaminant (USEPA, 1990). The laboratory also indicated that the detection of methylene chloride was possibly related to the laboratory (Appendix B). Methylene chloride and vinyl chloride were detected in the groundwater sample collected from direct-push monitoring well MPT-EP-DPW2I, which is located at Echo Pier. Methylene chloride, trichloroethene, and tetrachloroethene were detected at concentrations exceeding their respective Florida groundwater guidance concentrations.

Tetrachloroethene and trichloroethene were detected in groundwater samples collected from a direct-push and conventional monitoring well pair, MPT-TC-DPW2D and MPT-TC-MW07D, respectively (Table 3-9 and Figure 3-14). The two wells have similar elevations for the well screens. There appears to be a discrepancy between the results for the two groundwater samples. This discrepancy may be explained by one or more of the following:

- the sampling method
- preferential flow paths
- isolated zones that have a higher organic content where the VOCs are more likely to be adsorbed to aquifer sediments
- isolated remnants of a contaminant plume that has stabilized or is receding



MPT-TC-DPW05I	11-6-97
1,1-Dichloroethene	4

MPT-TC-DPW09I	11-6-97	7-17-98
1,1-Dichloroethene	1.4	2
cis 1,2-Dichloroethene	NA	3
Trichloroethene	--	4

MPT-EP-DPW02I	7-22-98
Methylene chloride	2 I
Vinyl chloride	1 I

MPT-TC-DPW11I	7-15-98
cis 1,2-Dichloroethene	1 I

MPT-TC-DPW13I	7-22-98
Methylene chloride	5

LEGEND

- MPT-TC-MW01S — Monitoring well location and designation
- MPT-TC-DPW06 S,I,D — Direct-push well location and designation
- I — Estimated value
- J — Estimated value
- -- — Not detected
- NA — Not analyzed
- Fence

NOTE: Concentrations in micrograms per liter.

FIGURE 3-13
VOLATILE ORGANIC COMPOUNDS DETECTED IN INTERMEDIATE AQUIFER ZONE GROUNDWATER SAMPLES

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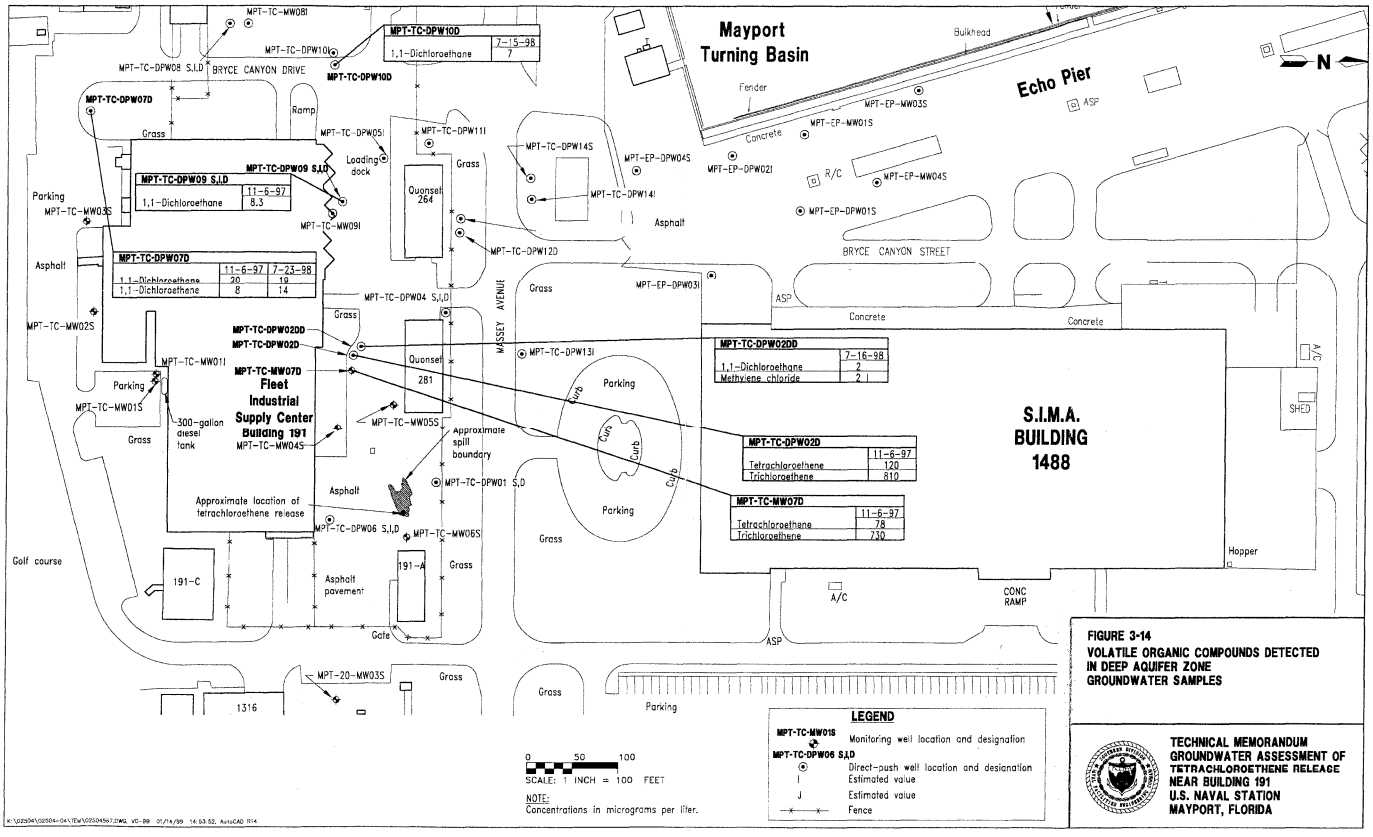

FIGURE 3-14
VOLATILE ORGANIC COMPOUNDS DETECTED IN DEEP AQUIFER ZONE GROUNDWATER SAMPLES

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1,1-Dichloroethane and methylene chloride (most likely a laboratory-derived contaminant) were detected in the groundwater sample collected from direct-push monitoring well MPT-TC-DPW2DD, which is located in the vicinity of monitoring wells MPT-TC-DPW2D and MPT-TC-MW7D (Figure 3-14). The screen for direct-push monitoring well MPT-TC-DPW2DD was installed to a depth of approximately 41 to 47 feet bls, which is approximately 10 feet below the depth of monitoring wells MPT-TC-DPW2D and MPT-TC-MW7D. 1,1-Dichloroethane was also detected in the groundwater samples from monitoring wells MPT-TC-DPW9D and MPT-TC-DPW10D, and 1,1-dichloroethane and 1,1-dichloroethene were detected in the groundwater sample collected from direct-push monitoring well MPT-TC-DPW7D (Table 3-9 and Figure 3-14).

Inorganics. Twelve inorganic analytes were detected in the groundwater samples collected in 1995. Inorganic analytes detected include arsenic, barium, beryllium, calcium, iron, magnesium, manganese, selenium, silver, sodium, vanadium, and cyanide. The highest detected concentrations of arsenic, calcium, iron, manganese, and silver were in the groundwater sample collected from monitoring well MPT-TC-MW01S. Arsenic, iron and manganese were detected at concentrations that exceed their respective Florida groundwater guidance concentrations.

4.0 EVALUATION OF THE GROUNDWATER ANALYTICAL RESULTS

Below is a preliminary evaluation of human health risk, natural attenuation and the fate and transport of analytes that were detected at concentrations that exceed regulatory and human health-based criteria.

4.1 PRELIMINARY RISK SCREENING. This section provides a brief preliminary evaluation of the human health risk for analytes that were determined to exceed regulatory and human health criteria (Table 3-13). The analytes evaluated that had maximum detected concentrations exceeding the screening criteria (Table 3-13) are 1,1-dichloroethene, bromodichloromethane, chloroform, dibromochloromethane, methylene chloride, tetrachloroethene, trichloroethene, vinyl chloride, arsenic, iron, and manganese in groundwater. The arithmetic mean for the above analytes was used to estimate an excess lifetime cancer risk (ELCR) and a hazard index (HI) for noncancer exposure by an adult and child, assuming a hypothetical future residential exposure through ingestion only (Appendix C).

Reasonable maximum exposure (RME) and central tendency (CT) were calculated. The RME for an adult assumes ingestion of 2 liters of water per day with a 24-year exposure duration. The RME for the child assumes ingestion of 1 liter of water per day over a 6-year exposure duration. The CT for an adult assumes ingestion of 1.4 liters of water per day with a 7-year exposure duration. The CT for the child assumes ingestion of 0.7 liter of water per day over a 2-year exposure duration. Inhalation of volatiles during showering by the adult resident was not evaluated.

Cancer slope factors (CSFs) for 1,1-dichloroethene, bromodichloromethane, chloroform, dibromochloromethane, methylene chloride, trichloroethene, and arsenic were obtained from the USEPA Integrated Risk Information System (IRIS) (USEPA, 1998a). The CSFs for tetrachloroethene and vinyl chloride were obtained from the USEPA Region III RBCs (USEPA, 1998a).

Noncancer slope factors for 1,1-dichloroethene, bromodichloromethane, chloroform, dibromochloromethane, methylene chloride, tetrachloroethene, trichloroethene, arsenic, and manganese were obtained from the USEPA IRIS (USEPA, 1998a) .

Currently a noncancer slope factor is not available for iron. Below are the results of the preliminary human health risk evaluation.

	RME		CT	
	HI	ELCR	HI	ELCR
Adult	3	3×10^{-4}	2	6×10^{-5}
Child	6	2×10^{-4}	4	5×10^{-5}
	Total	5×10^{-4}	Total	1.1×10^{-4}

The National Oil and Hazardous Substances Contingency Plan indicates that the total ELCR due to exposure to the human health chemicals of potential concern (HHCPCs) at a site should not exceed a range of 1 in 1,000,000 (1×10^{-6}) to 1 in 10,000 (1×10^{-4}). The State of Florida has adopted a more stringent target ELCR of 1×10^{-6}. The Federal and State target criterion for noncancer risk is an HI of 1.

4.2 NATURAL ATTENUATION. Many naturally occurring process combine to moderate the effects of chemicals that are released to the environment. The natural process for the vadose (unsaturated) and phreatic (saturated) zones fall into two major classes:

(1) physical and mechanical, and
(2) biochemical and biological.

These two classes of naturally occurring moderating processes are often combined under the term "natural attenuation", in the sense that these processes are driven by either the rigid rules of chemistry and physics, or the biological search for life energy. These processes are not a newly discovered innovative remediation method, but rather natural processes that have occurred, and will continue to occur, without human intervention. Below is a description of the two natural processes.

Physical and Mechanical Processes. The physical and mechanical processes are driven by the laws of physics and chemistry and usually are dependent on minimizing the total energy of the entire system.

Advection moves the dissolved chemicals in the same direction as the water in which they are dissolved. This is usually the predominant means of transport.

Dispersion occurs as water (and dissolved constituents) follows the tortuous channels between grains of sand in the aquifer. These paths are not straight lines and tend to wander to the right, left, up and down as they proceed forward. These wanderings spread the dissolved constituents further and further away from the main path during travel and dilute the concentrations within a contaminant plume. The increase in width is usually much less than the length traveled straight ahead.

Diffusion occurs any place where there is a difference in concentration of a constituent between two points. This difference tries to equalize itself, as does a drop of black ink in a clear glass of water. Diffusion usually transports material more slowly than dispersion.

Adsorption, like diffusion, is driven by concentrations. Unlike diffusion, adsorption is driven by how much a constituent "likes" to be dissolved in water compared to how much it "likes" to be bound to solid material in the unsaturated or saturated zones. Most organic and inorganic chemicals have a strong affinity for either soil or water. Examples are acetone, which prefers to be totally dissolved in water rather than be bound to solid material, and beryllium, which shuns water and prefers to be bound to or coat the solid material (soil and/or colloids). Adsorption exerts a strong control over transport of constituents that bind to solid materials in the unsaturated or saturated zones. Adsorption is particularly pronounced for organic compounds that have low water solubilities and inorganic chemicals that are strongly attracted to solid media. Through strong attractive forces, organic and inorganic chemicals can be almost totally removed from solution or immobilized from any further transport. However, after a plume reaches a steady state, adsorption may no longer be an important natural attenuation mechanism.

The above physical process occur everywhere to some extent with no intervention by a biological organism(s). These processes reduce chemical concentrations because physical, mechanical and chemical laws require them to do just that. However, because they are controlled by small scale variations in concentration,

soil adsorption capacity, aquifer tortuosity, and others, exactly quantifying them is difficult.

A good site-specific example of the above mechanical processes at the Building 191 site is the decrease in concentrations of tetrachloroethane and trichloroethene detected in groundwater samples from monitoring well MPT-TC-MW04S. Tetrachloroethene was detected at concentrations of 26, 2.1, and 1 $\mu g/\ell$ in 1995, 1997, and 1998, respectively (Table 3-9). Trichloroethene was detected at 9 and 1.9 $\mu g/\ell$ in 1995 and 1997, respectively, and was not detected in 1998.

Biochemical and Biological Processes. Just as nature minimizes the total energy of a system using physical and mechanical processes, biological processes tend to utilize any available energy source to survive. If there is biologically usable energy to be derived from a chemical reaction, then some biologically entity will use it. In fact, most organic chemicals can be broken down by biological systems. Many of the biological processes are well understood and have distinct chemical indications that they are occurring. These chemical indications can be measured and the progress of the degradation process estimated.

Organic chemicals predominantly contain covalently bound carbon and hydrogen atoms, which are linked together into frameworks, whereas inorganics (mostly metallic and semimetallic elements or complexes) do not contain a significant number of carbon-carbon or carbon-hydrogen (covalent) bonds.

Organic chemicals can be transformed into simpler inorganic compounds of carbon (such as carbon dioxide), hydrogen (such as water), and other elements that have been substituted onto the carbon-carbon framework. Such transformations reduce the total mass of the chemical(s). Many natural processes can cause these degradation and "mineralization" reactions including biologically induced dehalogenation, abiotic hydrolysis, and dehydrohalogenation.

Inorganics are discrete elements (such as arsenic, lead, and beryllium) or complexes of these elements that defy destruction by biological processes and "naturally attenuate" through physical and mechanical processes.

Tetrachloroethene and trichloroethene are naturally degraded under natural conditions through reductive dechlorination, a process that requires electron acceptors (the chlorinated aliphatic hydrocarbon), an adequate supply of electron donors (nitrate, iron, sulfate, methane), and an adequate supply of carbon (natural organic matter, landfill leachate, fuel hydrocarbons, etc.). However, depending on environmental conditions, the reductive degradation process may be interrupted and stop, or another natural processes may take over and continue the degradation.

Tetrachloroethene sequentially declorinates under anaerobic conditions to trichloroethene, dichloroethenes (1,1-dichloroethene, cis-1,2-dichloroethene, and trans 1,2-dichloroethene), vinyl chloride, and ethene or ethane. Reductive dechlorination has been demonstrated under nitrate- and iron-reducing conditions, but the most rapid degradation rates occur under sulfate reducing and methanogenic conditions (Bouwer, 1994). Mineralization of dichloroethenes and vinyl chloride has also been demonstrated under iron-reducing conditions so long as there is sufficient bioavailable ferric iron available (Bradley and Chapelle, 1996 and 1997).

Tetrachloroethene is a highly oxidized chemical form that does not degrade under most normal aerobic conditions because it has a higher oxidation state than the environment. However, the dechlorination process produces dehalogenated forms that are less oxidized and are susceptible to aerobic degradation. It has been documented through other investigations that chlorinated ethenes and vinyl chloride can be used as primary substrates under aerobic conditions (Mcarty and Semprini, 1994; and Murray and Richardson, 1993).

Cometabilism (the degradation is catalyzed by an enzyme or cofactor that is fortuitously produced by the organism for other purposes) is documented for chlorinated ethenes, with exception of tetrachloroethene, in aerobic environments (Murray and Richardson, 1993; Vogel, 1994; and MaCarty and Semprini, 1994). The rate of cometabolism appears to increase as the degree of dechlorination decreases. During cometabilism, the organic compound is indirectly transformed by bacteria as they use petroleum-related compounds (e.g., benzene, toluene, ethylbenzene, and xylene) or another substrate to meet their energy requirements.

Cometablism does not appear to interfere with the use of electron acceptors involved in the oxidation of carbon sources (Vogel, 1994).

Evidence for natural attenuation of chlorinated ethenes at the Building 191 and Echo Pier sites is the detection of trichloroethene along with tetrachloroethene in groundwater samples collected from the locations of monitoring wells MPT-TC-MW04S, MPT-TC-MW05S, MPT-TC-MW7D, and MPT-TC-DPW2D (Table 3-9). The sampling event by ICON (1998a and 1998b) also indicates the presence of cis-1,2-dichloroethene (Table 3-3) in samples collected from monitoring wells MPT-TC-MW7s and MPT-TC-DPW2D. During reductive dechlorination, cis-1,2-dichloroethene is a more common intermediate over 1,1-dichloroethene and trans-1,2-dichloroethene (Bouwer, 1994).

1,1-Dichloroethane was detected in several groundwater samples collected in the vicinity of Building 191. 1,1-Dichloroethane is a degradation product from reductive dechlorination of 1,1,1-trichloroethane (Vogel and McCarty, 1987). However, 1,1,1-trichloroethane was not detected in any of the groundwater samples.

The most complete degradation sequence was observed at Echo Pier where vinyl chloride and cis-1,2-dichloroethene were detected in groundwater samples collected from monitoring wells MPT-EP-MW03S and MPT-EP-MW04S (Table 3-9). Ethane was also detected in the groundwater sample from monitoring well MPT-EP-MW04S (Table 3-7).

Reductive dechlorination is most effective in the oxidation reduction range corresponding to sulfate reduction and methanogenisis, but dechlorination of tetrachloroethene and trichloroethene also may occur in the oxidation reduction range associated with denitrification and iron reduction (USEPA, 1998b). Nitrate is used and reduced to nitrite when nitrate is used as an electron acceptor for anaerobic biodegradation of organic carbon via denitrification. Ferric iron is also used and reduced to ferrous iron as ferric iron is used as an electron acceptor during anaerobic biodegradation of organic carbon. Native organic matter may also support reduction of ferric iron. The concentration of ferrous iron may also be biased low by reprecipitation as sulfides or carbonates.

Evidence for denitrification and ferric iron reduction is the detection of nitrite and ferrous iron in groundwater samples collected in the vicinity of Building 191 and Echo Pier. Sulfide, the reduced form of sulfate, was not detected, suggesting that the more reductive processes are not likely occurring at the locations sampled.

Purge water parameters and natural attenuation parameters were also used to characterize the potential for anaerobic biodegradation processes to occur according to USEPA protocol (USEPA, 1998b) (please refer to Appendix D for natural attenuation criteria and calculations). Based on this evaluation, the water table (Echo Pier) and intermediate aquifer zones would appear to support anaerobic biodegradation of chlorinated organics. The evaluation of the deep aquifer zone suggests that limited anaerobic biodegradation would occur.

4.3 **ENVIRONMENTAL FATE**. This section provides a brief evaluation of the environmental fate of the analytes that were determined to exceed regulatory criteria. Below is a brief discussion of the fate of 1,1-dichloroethene, chloroform, dibromochloromethane, tetrachloroethene, trichloroethene, vinyl chloride, arsenic, iron, and manganese in groundwater. Methylene chloride was not included because the detection is likely a laboratory artifact.

Chloroform. Chloroform was detected only in a groundwater sample collected from the water table zone. Chloroform (molecular weight 119.38) has a solubility of 8,200,000 $\mu g/\ell$, a log octanol/water patrician coefficient of approximately 1.9 to 1.97, and a soil/sediment patrician coefficient of approximately 1.69 to 1.94 (USEPA, 1979, and Montgomery, 1991). The half-life based on unacclimated aqueous aerobic biodegradation is approximately 1,344 to 43,200 hours (Howard, et al., 1991). Adsorption to solid particles in the saturated and unsaturated zones is not considered significant (USEPA, 1979). Based on the above physical properties for chloroform and the site hydraulic data collected by ICON (ICON, 1998a and 1998b), and assuming a plume that is 150 feet long, 50 feet wide, and 10 feet thick, the estimated seepage velocity in the water table zone is approximately 17 feet per year (ft/yr) and the retarded seepage velocity for chloroform is approximately 12 ft/yr (calculations are provided in Appendix E). Assuming an initial concentration of 11 $\mu g/\ell$ (maximum detected concentration), the

concentration after 150 feet of transport by mechanical dispersion would be approximately 5 $\mu g/\ell$, and assuming first order decay (soil sorption and half-life) chloroform would be approximately 1 $\mu g/\ell$.

Dibromochloromethane. Dibromochloromethane was detected in a groundwater sample collected from the water table zone. Dibromochloromethane (molecular weight 119.38) has a solubility of 16,500 $\mu g/\ell$, a log octanol/water patrician coefficient of approximately 2.08 to 2.3, and a soil/sediment patrician coefficient of approximately 1.92 (USEPA, 1979 and Montgomery, 1991). The half-life based on unacclimated aqueous aerobic biodegradation is approximately 336 to 4,320 hours (Howard, et al., 1991). Based on the above physical properties for dibromochloromethane and the site hydraulic data collected by ICON (ICON, 1998a; and 1998b), and assuming a plume that is 150 feet long, 50 feet wide, and 10 feet thick, the estimated seepage velocity in the water table zone is approximately 17 ft/yr and the retarded seepage velocity for dibromochloromethane is approximately 12 ft/yr. Assuming an initial concentration of 5 $\mu g/\ell$ (maximum detected concentration), the concentration after 150 feet of transport by mechanical dispersion would be approximately 2 $\mu g/\ell$, and assuming first order decay, dibromochloromethane would not be detectable.

Tetrachloroethene. Tetrachloroethene was detected in groundwater samples collected from the water table and deep aquifer zones. Tetrachloroethene (molecular weight 119.38) has a solubilities ranging from 150,000 to 200,000 $\mu g/\ell$, a log octanol/water patrician coefficient of approximately 2.1 to 2.88, and a soil/sediment patrician coefficient of approximately 2.322 to 2.63 (USEPA, 1979 and Montgomery, 1991). The half-life based on unacclimated aqueous aerobic biodegradation is approximately 8,640 to 17,280 hours (Howard, et al., 1991). Based on the above physical properties for tetrachloroethene and the site hydraulic data collected by ICON (ICON, 1998a; and 1998b), and assuming a plume that is 150 feet long, 50 feet wide, and 10 feet thick, the estimated seepage velocity in the water table zone is approximately 17 ft/yr and the retarded seepage velocity for tetrachloroethene is approximately 5 ft/yr. The estimated seepage velocity in deep aquifer zone is approximately 23 ft/yr and the retarded seepage velocity for tetrachloroethene is approximately 7 ft/yr.

Assuming an initial concentrations of 100 and 120 $\mu g/\ell$ for maximum detected concentration in the water table and deep aquifer zones, respectively, the concentration after 150 feet of transport by mechanical dispersion would be approximately 47 and 56 $\mu g/\ell$, respectively. Assuming first order decay, tetrachloroethene would not be detectable after 150 feet of transport in either the water table or deep aquifer zones.

Trichloroethene. Trichloroethene was detected in groundwater samples collected from the water table, intermediate and deep aquifer zones. Trichloroethene (molecular weight 131.39) has a solubility of approximately 1,100,000 $\mu g/\ell$, a log octanol/water patrician coefficient of approximately 2.29 to 3.30, and a soil/sediment patrician coefficient of approximately 1.81 to 2.15 (USEPA, 1979 and Montgomery, 1991). The half-life based on unacclimated aqueous aerobic biodegradation is approximately 7,704 to 39,672 hours (Howard, et al., 1991).

Based on the above physical properties for trichloroethene and the site hydraulic data collected by ICON (ICON, 1998a; and 1998b), and assuming a plume that is 150 feet long, 50 feet wide, and 10 feet thick, the estimated seepage velocities in the water table, intermediate, and deep aquifer zones are approximately 17, 2, and 23 ft/yr, respectively. The retarded seepage velocities for trichloroethene in the water table, intermediate, and deep aquifer zones are approximately 10, 1, and 13 ft/yr.

Assuming an initial concentrations of 10, 4, and 810 $\mu g/\ell$ for maximum detected concentration in the water table, intermediate, and deep aquifer zones, respectively, the concentration after 150 feet of transport by mechanical dispersion would be approximately 4.7, 2, and 381 $\mu g/\ell$, respectively. Assuming first order decay, trichloroethene would not be detectable after 150 feet of transport in the water table and intermediate aquifer zones and would be at 90 $\mu g/\ell$ in the deep aquifer zone. The calculations also predict for the deep aquifer zone that trichloroethene would have to migrate approximately 425 feet before the concentration would be approximately equal to the State groundwater guidance concentration of 3 $\mu g/\ell$. Based on existing monitoring well locations and analytical results, this calculation may be a conservative overestimate.

Vinyl Chloride. Vinyl chloride was detected in groundwater samples collected from the water table and intermediate aquifer zones. Vinyl chloride (molecular weight 62.5) has a solubility of 60,000 $\mu g/\ell$, a log octanol/water patrician coefficient of approximately 0.6, and a soil/sediment patrician coefficient of approximately 0.39 (USEPA, 1979 and Montgomery, 1991). The half-life based on unacclimated aqueous aerobic biodegradation is approximately 1,344 to 69,000 hours (Howard, et al., 1991). Based on the above physical properties for vinyl chloride and the site hydraulic data collected by ICON (ICON, 1998a; and 1998b), and assuming a plume that is 150 feet long, 50 feet wide, and 10 feet thick, the estimated seepage velocities in the water table and intermediate zones are approximately 17 and 2 ft/yr, respectively. The retarded seepage velocity is the same as the seepage velocity for both zones.

Assuming an initial concentration of 1 $\mu g/\ell$ for maximum detected concentration in the water table and intermediate aquifer zones, respectively, the concentration after 150 feet of transport by mechanical dispersion and first order decay would be less than the detection limit of 1 $\mu g/\ell$.

Arsenic. The fate of arsenic in aquatic environments depends largely on prevailing pH and oxidation/reduction (Eh) conditions, metal sulfide and sulfide ion concentrations, iron concentrations, temperature, and salinity (USEPA, 1979). Arsenic in a water solution typically forms arsenate (As^5) or arsenite (As^3). Between a pH of 3 to 7 standard units the monovalent arsenate species would predominate, and between a pH of 7 to 11 standard units the divalent species arsenite would predominate (Hem, 1992). Arsenite as an uncharged anion is favored under mildly reducing conditions. Under extremely reducing (anoxic) conditions, the gas arsine (AsH_3) is formed (USEPA, 1979). Most arsenic in natural water is a mixture of arsenate and arsenite, with arsenate usually predominating in water that is aerobic and has an acidic to circumneutral pH (Braman and Foreback, 1973).

Arsenic is extremely mobile in the aquatic environment and, in most cases, sediments are the primary sinks for the accumulation of arsenic in aquatic environments. Arsenic may be sorbed onto clays, aluminum hydroxide, iron oxides, and organic material. The most prevalent process to remove dissolved arsenic is coprecipitation or sorption with iron. Arsenic may also isomorphously substitute

for phosphate. Adsorption is most important in aerobic, acidic fresh water and where conditions are more reducing or alkaline, and/or where saline arsenic is less likely to be adsorbed and more likely to remain dissolved (USEPA, 1979). Adsorption decreases with increasing pH above 9 standard units for arsenite and above a pH of 7 standard units for arsenate.

Iron. The concentration of dissolved iron is controlled by both Eh and pH constraints. Iron (Fe) is commonly found in two ionic states ferrous (Fe^{2+}) and ferric (Fe^{3+}). Ferrous iron is common only in reducing environments without appreciable oxygen and is fairly soluble in neutral to acidic water. Ferric iron is common in oxidizing conditions and is significantly soluble only in strongly acidic waters that have a pH of 2.5 or less. In less acidic, oxidizing waters, iron precipitates in an amorphous form ($Fe(OH)_3$), which adheres to soil and aquifer media. Reducing conditions can cause iron reduction and remobilization, but the reaction proceeds much more slowly than the precipitation reaction. Some bacteria can efficiently reduce ferric iron to ferrous iron as an energy source and may be a significant source of naturally dissolved iron (USEPA, 1979, and Hem, 1992).

Manganese. The chemistry of manganese (Mn) is somewhat like that of iron, in that both metals participate in the oxidation reduction process in weathering environments. However, manganese occurs in three oxidation states (Mn^{2+}, Mn^{3+}, and Mn^{4+}) in naturally occurring waters, and can form a wide variety of mixed-valence oxides. The Mn^{2+} ion is the most predominant ion under most conditions. The Mn^{2+} ion is much more stable than the higher oxidized Mn^{4+} ion. Two of the Mn^{3+} ions can auto-oxidize/reduce to form Mn^{2+} and Mn^{4+} ions. In oxidizing environments, dissolved manganese tends to precipitate as the Mn^{4+} oxide MnO^2, coprecipitating a number of other metal oxides with it. In a reducing environment, the Mn^{4+} ion can be reduced to the more soluble Mn^{2+} ion and be redissolved. The Mn^{2+} ion is more stable than the Fe^{2+} ion and can be transported at higher concentrations without complexing.

5.0 SUMMARY AND RECOMMENDATIONS

This chapter presents a summary of the findings and recommendations for Building 191 and Echo Pier.

5.1 SUMMARY. Interpretation of the results of the lithologic sampling and borehole geophysical survey by ICON suggests that the surficial aquifer beneath Building 191 has three distinct aquifer zones underlain by other permeable zones and discontinuous clay layers. Direct-push or conventional monitoring wells have been installed in the three upper zones but not in the other underlying permeable zones.

Interpretation of the groundwater flow directions by ICON for the three aquifer zones suggest the following:

- The water table zone (Zone A) consists of the interval from the water table (approximately 3 to 5 feet bls) to a depth of approximately 33 feet bls where a 3-foot-thick gray silty clay layer was encountered.

- The intermediate zone (Zone B) consists of a permeable zone between 36 to 39 feet bls. A greenish-gray sandy clay layer approximately 4 feet thick encountered at approximately 39 feet bls formed the base of Zone B. The shallow aquifer is in direct hydraulic connection with the intermediate aquifer zone (Zone B) where the 3-foot-thick clay layer is absent.

- The deep zone (Zone C) consists of a permeable zone that extends from approximately 43 to 47 feet bls, where a 2-foot-thick dark gray silty clay was encountered. The intermediate aquifer may be in direct hydraulic connection with the deep aquifer zone (Zone C) where the 4-foot-thick clay layer is absent (ICON, 1998a and 1998b).

Interpretation of the shallow and intermediate zone potentiometric surface flow lines suggest that the apparent groundwater flow direction is generally toward the northwest on the north side of Building 191 and towards the southwest on the

southside of Building 191 (ICON, 1998a; 1998b). Interpretation of the deep aquifer zone potentiometric surface flow lines suggests that a groundwater flow in general western direction (ICON, 1998a; 1998b).

Beneath the three aquifer zones, the geophysical and lithologic data suggest the presence of other permeable zones and discontinuous clay seams and layers (ICON, 1998a and 1998b). Monitoring wells were not installed in this deeper zone.

Seepage velocities calculated for direct-push monitoring wells installed in Zone A of the shallow aquifer were as follows:

- 3.9 feet per day (ft/day) for the top of Zone A,
- 19.2 and 51.6 ft/day for the middle of the Zone A, and
- 12.5 to 153.1 ft/day for the base of Zone A (Table 3-2).

Seepage velocities of 2.2 and 23.2 ft/day were calculated for direct-push monitoring wells MPT-TC-DPW9I and MPT-TC-DPW7D that were installed in Zones B and C of the surficial aquifer, respectively. Differences between the two values could be a result of the well construction methods, installation methods, plugging of the conventional monitoring well screen filter pack material, differences in the aquifer material hydraulic properties, or the aquifer test method.

Values for dissolved oxygen and oxidation reduction potential suggest that aerobic and anaerobic conditions are present in the shallow, intermediate and deep aquifer zones. The anaerobic zones are located at the west side of Building 191 in the intermediate and deep aquifer zones, and in the vicinity of Echo Pier.

Twelve VOCs (1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene (total), cis-1,2-dichloroethene, bromodichloromethane, dibromochloromethane, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride), have been detected in the groundwater samples collected in 1995, 1997, and 1998 in the vicinity of Building 191 and Echo Pier.

Chloroform, dibromochloromethane, tetrachloroethene, trichloroethene, and vinyl chloride were detected at concentrations that exceed their respective Florida

groundwater guidance concentrations in groundwater samples collected from monitoring wells installed in the water table aquifer zone.

Concentrations of tetrachloroethene and trichloroethene that were detected in groundwater samples collected from the water table zone at Building 191 (monitoring well MPT-TC-MW04S), have decreased over time (potentially through mechanical natural attenuation processes), and, currently, are at concentrations that do not exceed their respective Florida groundwater guidance concentrations.

Vinyl chloride, cis-1,2-dichloroethene, and ethane (degradation products of tetrachloroethene and trichloroethene, and possibly 1,1,1-trichloroethane) were detected in monitoring wells at Echo Pier. Vinyl chloride was detected at concentrations that equaled its Florida groundwater guidance criterion. Tetrachloroethene and trichloroethene were not detected in groundwater samples collected from Echo Pier. Interpretation of the analytical results suggest that natural attenuation mechanical and biological processes are mitigating these chemicals.

Methylene chloride, 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride were detected in groundwater samples collected from the intermediate zone at concentrations that are at or slightly below their respective Florida groundwater guidance concentrations.

Methylene chloride, tetrachloroethene, and trichloroethene were detected at concentrations exceeding their respective Florida groundwater guidance concentrations in groundwater samples collected from monitoring wells installed in the deep aquifer zone.

Methylene chloride is a common laboratory contaminant (USEPA, 1990). The laboratory also indicated that the detection of methylene chloride was possibly related to the laboratory.

The screen for direct-push monitoring well MPT-TC-DPW2DD was installed to a depth of approximately 41 to 47 feet bls, which is approximately 10 feet below the depth of monitoring wells MPT-TC-DPW2D and MPT-TC-MW7D, which contained the highest detected concentrations of tetrachloroethene and trichloroethene. The

groundwater sample from monitoring well MPT-TC-DPW2DD contained 1,1-dichloroethene and methylene chloride, but not detectable concentrations of tetrachloroethene and trichloroethene.

Twelve inorganic analytes were detected in the groundwater samples collected in 1995. Arsenic, iron, and manganese were detected at concentrations that exceed their respective Florida groundwater guidance concentrations in the groundwater sample collected from monitoring well MPT-TC-MW01S. Based on other assessments conducted for Groups I, II, and III at NAVSTA Mayport (ABB-ES, 1996b; 1996c; and 1996d; and U.S. Geological Survey, 1998) it is likely that arsenic, iron, and manganese concentration are not related to a release from Building 191.

A preliminary human health evaluation for cancer and noncancer risk posed by the hypothetical potable use of groundwater by adult and child was conducted for analytes that exceed their respective Florida groundwater guidance concentrations and USEPA Region III RBCs. The evaluation suggests that the Federal (risk range of 1×10^{-6} to 1×10^{-4}) and State (target risk level of 1×10^{-6}) risk evaluation criteria were exceeded by the RME (5×10^{-4}). The CT (1×10^{-4}) exceeded the State criteria and was at the lower limit for the Federal criteria. The Federal and State criterion for noncancer risk (HI of 1) was exceeded by the adult and child for both the RME and CT evaluations.

Purge water parameters and natural attenuation parameters were also used to characterize the potential for anaerobic biodegradation processes to occur according to USEPA protocol (USEPA, 1998b). Based on this evaluation, the water table (Echo Pier) and intermediate aquifer zones would appear to support anaerobic biodegradation of chlorinated organics. The evaluation of the deep aquifer zone suggest that limited anaerobic biodegradation would occur.

Evidence for denitrification and ferric iron reduction is the detection of nitrite and ferrous iron in groundwater samples collected in the vicinity of Building 191 and Echo Pier. Sulfide, the reduced form of sulfate, was not detected, suggesting that the more reductive processes are not likely occurring at the locations sampled.

Evidence for natural attenuation of chlorinated ethenes at the Building 191 and Echo Pier sites is the detection of tetrachloroethene and it degradation product trichloroethene in groundwater samples collected from monitoring wells screened in the water table and deep aquifer zones. Further evidence is the detection of cis-1,2-dichloroethene in groundwater samples collected from monitoring wells screened in the intermediate and deep aquifer zones. The most complete degradation sequence was observed at Echo Pier where cis-1,2-dichloroethene, vinyl chloride, and ethane were detected in groundwater samples collected from the shallow and intermediate aquifer zones.

1,1-Dichloroethane was detected in several groundwater samples collected in the vicinity of Building 191. 1,1-Dichloroethane is a degradation product from reductive dechlorination of 1,1,1-trichloroethane. However, 1,1,1-trichloroethane was not detected in any of the groundwater samples.

Interpretation of the above information suggest that there has been a release(s) of chlorinated VOCs to the environment at the Building 191 site and Echo Pier. The data support releases potentially sourced by the tetrachloroethene spill, or some other unknown event, and from a landfill that is reported by the Navy to be located beneath the western part of Building 191. The tetrachloroethene was detected in groundwater samples that were collected from the water table zone of the surficial aquifer in the vicinity of the 1993 spill.

Detection of tetrachloroethene and its degradation products in groundwater samples from monitoring wells screened in the intermediate and deep aquifer zone is likely sourced from an event(s) separate from the 1993 spill. The highest detected concentrations of tetrachloroethene and trichloroethene were in a groundwater sample collected from a monitoring well screened in the deep zone of the surficial aquifer. Unless there is a preferred pathway that is not reflected by the current monitoring well locations, the highest detected concentrations of tetrachloroethene and trichloroethene appear to be limited to the vicinity of Building 191. Groundwater samples were not collected beneath Building 191 because the floor had to be jacked up with approximate 6 feet of concrete to minimize settlement from the underlying landfill.

1,1-Dichloroethane (a likely degradation product of 1,1,1-trichloroethane) was also detected in monitoring wells screened in the intermediate and deep aquifer zones. 1,1,1-Trichloroethane, if present, was not detected in any of the groundwater samples.

The data collected to date do not provide conclusive evidence that the vinyl chloride and other degradation products detected in groundwater samples from Echo Pier are related to the releases at Building 191. This is based on analytical results from the current locations of monitoring wells and the detection of the vinyl chloride in monitoring wells screened in the water table zone. Additionally, as previously stated, the highest detected concentrations of tetrachloroethene and trichloroethene were in groundwater samples collected from a monitoring well screened in the deep aquifer zone. However, it is possible that the VOCs at Building 191 and Echo Pier are related and represent a plume that has split and retracted by natural attenuation processes to near the source.

5.2 RECOMMENDATIONS. Below are recommendations for additional assessment activities to sufficiently complete the site characterization and assessment of remedial alternatives at the Building 191 and Echo Pier sites.

Based on the above information, tetrachloroethene and trichloroethene were detected at concentrations exceeding the Florida groundwater cleanup concentrations at the locations of monitoring wells MPT-TC-MW04S and MPT-TC-MPT05S. However, the most recent analytical results for monitoring well MPT-TC-MW04S suggest that through natural attenuation physical processes, the concentrations no longer exceed regulatory criteria. Monitoring well MPT-TC-MW05S was only sampled in 1997. Additional groundwater samples should be collected from monitoring wells MPT-TC-MW04S and MPT-TC-MW05S to confirm this trend.

A survey of the locations and elevations of the monitoring wells should be completed to adequately characterize groundwater flow directions in the vicinity of Building 191 and Echo Pier. All monitoring wells installed in the vicinity of Building 191, Echo Pier, and the Shore Intermediate Maintenance Activity should be surveyed to the same datum. Potentiometric maps should be prepared for the water table, intermediate, and deep aquifer zones.

The potentiometric data should be used to characterize groundwater flow directions. The flow direction data should be used to direct the next assessment to find, if possible, the source of vinyl chloride detected in groundwater samples collected at Echo Pier. The potentiometric data, along with the analytical results, should also be used to evaluate whether or not the existing direct-push and conventional monitoring well locations sufficiently delineate the halogenated VOCs detected in the vicinity of Building 191.

A monitoring program should also be implemented to provide sufficient data to evaluate whether or not monitored natural attenuation (USEPA, 1997b) is an appropriate remedial alternative and/or evaluate and select other appropriate remedial alternatives, if required. The monitoring program could also be used to collect data to conduct a baseline human health risk assessment for groundwater.

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APPENDIX A

RELEASE REPORT

5090
Ser N4E2/ 0U110

26 AUG 1993

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL

Dear Mr. Frey:

On May 4, 1993, while re-locating drums of tetrachloroethylene, a 55-gallon drum was punctured spilling 25-30 gallons of dry cleaning fluid. This spill occurred when the forklift operator was attempting to pick up a pallet of drums in the materials handling area beside Building 191A, Fleet and Industrial Supply Center Jacksonville, Fleet Support Center Mayport. The location of the spill is shown on the enclosed map. Our spill response team acted immediately to contain and remove the spill material from the concrete and spill samples were taken for analysis. Copies of the analysis results are enclosed.

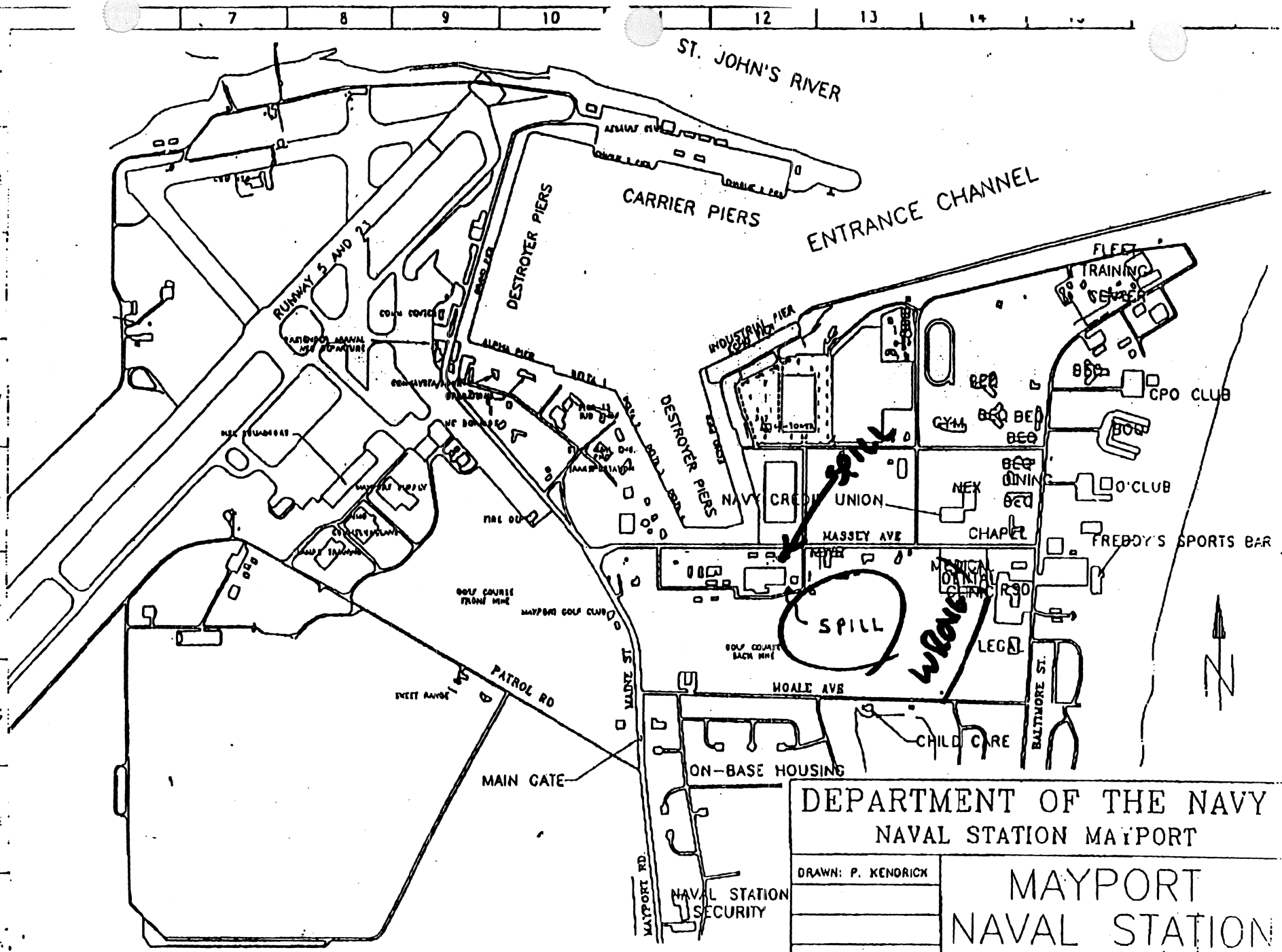
Please respond if there is any further action required by Naval Station Mayport. If you have any questions, please contact Mr. Michael Davenport, of my Environmental Staff, at (904) 270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC, U.S. Nav
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site Map
(2) Analysis Results
93-06-188 and 93-06-189

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kenton Brown)
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVAVNACTS Jacksonville (N3)
COMNAVAIRLANT (N442C)
bc: N4E Chron c:\wpdocs\Spill-TE.FIS/pl/8-11



DEPARTMENT OF THE NAVY
NAVAL STATION MAYPORT

DRAWN: P. KENDRICK

FILE: SITE.DWG

MAYPORT NAVAL STATION

DRAWING NO. 91-000-005

NOT TO SCALE

FEB-09-1996 11:44

FEB-09 1998 11:45

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 21, 1993

Client: Navy Public Work — Lab #: 9307-106-1

Sample I.D.: 93-06-185 — Date Received: 7-15-93

Sample Matrix: Solid — Date Completed: 7-19-93

Date Extraction: 7-16-93

Volatile Organic Compounds
Toxicity Characteristic Leaching Procedure SW-846 Method 1311
USEPA Method 8240 - GC/MS (8260)

Parameter	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Benzene	71-43-2	0.005	< 0.005	0.5
Carbon tetrachloride	56-23-5	0.005	< 0.005	0.5
Chlorobenzene	108-90-7	0.005	< 0.005	100.0
Chloroform	67-66-3	0.005	< 0.005	6.0
1,4-Dichlorobenzene	106-46-7	0.005	< 0.005	7.5
1,2-Dichloroethane	107-06-2	0.005	< 0.005	0.5
1,1-Dichloroethene	75-35-4	0.005	< 0.005	0.7
Methyl ethyl ketone	78-93-3	0.05	< 0.05	200.0
→ Tetrachloroethene	127-18-4	0.005	0.558	0.7
Trichloroethene	79-01-6	0.005	< 0.005	0.5
Vinyl chloride	75-01-4	0.005	< 0.005	0.2

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Surrogate Standards Recovery Percentage

	Recovey %	Acceptance Limits
Toluene - d_8	95.8	86 - 110
4-Bromofluorobenzene	106.9	86 - 115
1,2 Dichlorobenzene - d_4	102.4	87 - 112

Respectfully submitted:

Barry C. Byrd Jr., MS
Technical Director

ECB/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 23, 1993

Client: Navy Public Works
Lab #: 9307-106-1
Sample I.D.: 93-06-188
Date Received: 7-15-93
Sample Matrix: Solid
Date Completed: 7-22-93
Date Extraction 7-21-93

Analytical Report
TCLP - Contaminant List (Partial) Method 1311
Methods EPA 8250 (8270)

Parameter	Regulatory Level	Results mg/L
Cresols	200.0	ND *
2,4-Dinitrotoluene	0.13	ND *
Hexachlorobenzene	0.13	ND
Hexchlorobutadiene	0.5	ND
Hexachlorethane	3.0	ND
Nitrobenzene	2.0	ND
Pentachlorophenol	100.0	ND *
Pyridine	5.0	ND *
2,4,5-Trichlorophenol	400.0	ND *
2,4,6-Trichlorophenol	2.0	ND *

Note: ND = (None detected, lower detectable limit - 0.010 mg/L)
ND * = (None detected, lower detectable limit - 0.025 mg/L)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted:

Barry C. Byrd, Jr., MS
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY INC.

July 20, 1993

Client: Navy Public Works (93-06-188) Lab #: 9307-106-1

Sample I.D.: MYP1 Date Received: 7-15-93

Sample Matrix: Water Date Completed: 7-20-93

Metals Analytical Summary
Toxicity Characteristic Leaching Procedure SW-846 Method 1311

Parameter	SW-846 Method	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Arsenic	6010	7440-38-2	0.0394	0.053	5.0
Barium	6010	7440-39-3	0.00454	0.122	100.0
Cadmium	6010	7440-43-9	0.00836	< 0.00836	1.0
Chromium	6010	7440-47-3	0.0140	0.038	5.0
Lead	6010	7439-92-1	0.0600	< 0.060	5.0
Mercury	7470,1	7439-97-6	0.0000917	0.176	0.2
Selenium	6010	7782-49-2	0.0452	0.076	1.0
Silver	6010	7440-22-4	0.00414	0.008	5.0

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Respectfully submitted,

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL062
DER Comp QAPP # 870222G

AWW/tb

6810 Arlington Expressway [illegible] 32211
(904) 725-2647

Client:	[illegible]	Lab #:	[illegible]
Sample I.D.	93-06-80	Date Received:	7-15-93
Sample Matrix:	Solid	Date Completed:	7-20-93
		Date Extracted:	7-19-93

Volatile Organic Compounds
Toxicity Characteristic Leaching Procedure SW-846 Method 1311
USEPA Method 8240 - GC/MS (8260)

Parameter	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Benzene	[illegible]	0.005	< 0.005	0.5
[illegible]	[illegible]	0.005	< 0.005	0.5
Chlorobenzene	108-90-7	0.005	< 0.005	100.0
Chloroform	67-66-3	0.005	< 0.005	6.0
1,4-Dichlorobenzene	106-46-7	0.005	< 0.005	7.5
1,2-Dichloroethane	107-06	0.005	< 0.005	0.5
1,1-Dichloroethene	75-35-4	0.005	< 0.005	0.7
Methyl ethyl ketone	78-93	0.05	< 0.05	200.0
Tetrachloroethene	127-18	0.005	0.113	0.7
Trichloroethene	79-01-6	0.005	< 0.005	0.5
Vinyl chloride	75-01-4	0.005	< 0.005	0.2

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Surrogate Standards Recovery Percentage

	Recovery %	Acceptance Limits
Toluene - d8	1[illegible]	88 - 110
4-Bromofluorobenzene	10[illegible]	86 - 115
1,2 Dichlorobenzene - d4	1[illegible]	87 - 112

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director

BCB/tb

FEB-03 1993 [illegible]

FIRST COAST ENVIRONMENTAL [illegible] INC.

[illegible]

Client:	Navy Public Works	Job #:	9307-105-2
Sample I.D.	93-06-182	Date Received	7-15-93
Sample Matrix:	Solid	Date Completed	7-22-93
		Date Extracted	7-21-93

Analytical Report
TCLP Contaminant List (Partial) Method 1311
Methods: EPA 8250 (8270)

Parameter	Regulatory Level	Results mg/L
Cresol	200.0	ND *
2,4-Dinitrotoluene	0.13	ND *
Hexachlorobenzene	0.13	ND
Hexachlorobutadiene	0.5	ND
Hexachloroethane	3.0	ND
Nitrobenzene	2.0	ND
Pentachlorophenol	100.0	ND *
Pyridine	5.0	ND *
2,4,5-Trichlorophenol	400.0	ND *
2,4,6-Trichlorophenol	2.0	ND *

Note ND = (None detected, lower detectable limit - 0.010 mg/l
ND * = (None detected, lower detectable limit - 0.025 mg/L
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted:

Barry [illegible], MS
Technical Director

BCB:

[illegible]

[illegible] COAST ENVIRON[illegible]

July 20, 1993

Client: Navy Public Works (93-06-189) Lab #: 9307-106-2

Sample I.D.: MYPT Date Received: 7-15-93

Sample Matrix: Water Date Completed: 7-20-93

Metals Analytical Summary
Toxicity Characteristic Leaching Procedure SW-846 Method 1311

Parameter	SW-846 Method	CAS #	Detection Limit(mg/L)		RESULT(mg/L)	Max. Cont. Level(mg/L)
Arsenic	6010	7440-38-2	0.0394		0.093	5.0
Barium	6010	7440-39-3	0.00454		0.028	100.0
Cadmium	6010	7440-43-9	0.00838	<	0.00838	1.0
Chromium	6010	7440-47-3	0.0140		0.017	5.0
Lead	6010	7439-92-1	0.0600	<	0.060	5.0
Mercury	7470.1	7439-97-6	0.0000917		0.00016	0.2
Selenium	6010	7782-49-2	0.0452	<	0.0452	1.0
Silver	6010	7440-22-4	0.00414	<	0.00414	5.0

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Respectfully submitted.

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #A?110
EPA #FL062
DER Comp QAPP # 870222G

AWW/tb

12 July 93

From: 320.2
To: 240

Subj: ANALYTICAL TESTING

1. Request the following samples be tested for the parameters indicated.

Sample No.	Media	Test (Clin)	COST	Source
93-06-188	Solid, SAND	TCLP (full no pesticides)	$.	Mypt
93-06-189	Solid, black top	TCLP (full no pesticides)	$.	Mypt
93-06-190	Liquid	TCLP (full no pesticides)	$.	FAX Bldg 171
		Total	$ .00	

2. All analysis shall conform to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846.

3. Job Order number to be used this project is 1243006 and a 24-hour turn around is requested on analytical results.

4. Please contact Gail Fallon or Andy Long at 772-4551 if there are any questions.

Andy Long
ANDY LONG

RC# 00186
To 240 7/13/93
To 240 7/15/93

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 21, 1993

Client: Navy Public Works — Lab #: 9307-106

Sample I.D.: See Below (HYP1) — Date Received: 7-15-93

Sample Matrix: See Below — Date Completed: 7-20-93

Metals Analytical Summary

FCEL Lab #	Sample I.D. Station	Sample Matrix	Parameter	Method	Results
9307-106-1	93-06-188	Solid	Chromium	6010	7.97 mg/Kg
9307-106-2	93-06-189	Solid	Chromium	6010	5.56 mg/Kg

Respectfully submitted,

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL062
DER Comp QAPP # 8702226

AWW/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-1847 • Fax (904) 725-2215

APPENDIX B

ANALYTICAL RESULTS

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077007				RA077010				MF070012				RA077011			
Site		GROUPIII				GROUPIII				NELP				GROUPIII			
Locator		TCG00101				TCG00201				TCP00203				TCG00301			
Collect Date:		26-JUN-95				27-JUN-95				06-NOV-97				27-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
VOLATILES	ug/l																
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	25	U	ug/l	25	10	U	ug/l	10
Bromomethane		10	U	ug/l	10	10	U	ug/l	10	25	U	ug/l	25	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	25	U	ug/l	25	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	25	U	ug/l	25	10	U	ug/l	10
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	125	U	ug/l	125	5	U	ug/l	5
Acetone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10
Carbon disulfide		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
1,1-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
1,2-Dichloroethene (total)		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
Chloroform		5	U	ug/l	5	11		ug/l	5	25	U	ug/l	25	5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
2-Butanone		10	R	ug/l	10	10	R	ug/l	10	-		ug/l		10	R	ug/l	10
1,1,1-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Carbon tetrachloride		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5		ug/l	5	25	U	ug/l	25	5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Trichloroethene		5	U	ug/l	5	5	U	ug/l	5	810		ug/l	25	5	U	ug/l	5
Dibromochloromethane		5	U	ug/l	5	1	J	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Bromoform		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10
Tetrachloroethene		5	U	ug/l	5	5	U	ug/l	5	120		ug/l	25	5	U	ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	25	U	ug/l	25	10	U	ug/l	10
Trichlorofluoromethane		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
Acrolein		100	UJ	ug/l	100	100	UJ	ug/l	100	-		ug/l		100	UJ	ug/l	100
Iodomethane		10	UJ	ug/l	10	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10
1,4-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	25	U	ug/l	25	10	U	ug/l	10
Acrylonitrile		100	UJ	ug/l	100	100	UJ	ug/l	100	-		ug/l		100	UJ	ug/l	100
Dibromomethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
1,2-Dichlorobenzene		5	U	ug/l	5	5	U	ug/l	5	25	U	ug/l	25	5	U	ug/l	5
2-Chloroethylvinyl ether		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10
Ethyl methacrylate		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
1,2,3-Trichloropropane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
trans-1,4-Dichloro-2-butene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
Isobutyl alcohol		200	R	ug/l	200	200	R	ug/l	200	-		ug/l		200	R	ug/l	200
1,1,1,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5
1,2-Dibromo-3-chloropropane		10	R	ug/l	10	10	R	ug/l	10	-		ug/l		10	R	ug/l	10
Ethylene dibromide		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077007				RA077010				MF070012				RA077011					
Site		GROUPIII				GROUPIII				NELP				GROUPIII					
Locator		TCG00101				TCG00201				TCP00203				TCG00301					
Collect Date:		26-JUN-95				27-JUN-95				06-NOV-97				27-JUN-95					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
1,4-Dioxane		200	R	ug/l	200	200	R	ug/l	200	-		ug/l		200	R	ug/l	200		
3-Chloropropene		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5		
Acetonitrile		100	U	ug/l	100	100	U	ug/l	100	-		ug/l		100	U	ug/l	100		
Chloroprene		200	UJ	ug/l	200	200	UJ	ug/l	200	-		ug/l		200	UJ	ug/l	200		
Methacrylonitrile		5	UJ	ug/l	5	5	UJ	ug/l	5	-		ug/l		5	UJ	ug/l	5		
Methyl methacrylate		10	UJ	ug/l	10	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10		
Pentachloroethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Propionitrile		100	UJ	ug/l	100	100	UJ	ug/l	100	-		ug/l		100	UJ	ug/l	100		
Vinyl acetate		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
SEMIVOLATILES	ug/l																		
N-Nitrosodimethylamine		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Phenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Aniline		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
bis(2-Chloroethyl) ether		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzyl Alcohol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2-Methylphenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
bis(2-Chloroisopropyl) ether		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
N-Nitroso-di-n-propylamine		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Hexachloroethane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Nitrobenzene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Isophorone		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,4-Dimethylphenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzoic acid		50	UJ	ug/l	50	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50		
bis(2-Chloroethoxy) methane		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,4-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
1,2,4-Trichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Naphthalene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Chloroaniline		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Hexachlorobutadiene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Chloro-3-methylphenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2-Methylnaphthalene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Hexachlorocyclopentadiene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,4,6-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Dimethylphthalate		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,4,5-Trichlorophenol		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
2-Chloronaphthalene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Acenaphthylene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,6-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
3-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Acenaphthene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,4-Dinitrophenol		50	UJ	ug/l	50	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50		
4-Nitrophenol		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Dibenzofuran		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2,4-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Diethylphthalate		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Chlorophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Fluorene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
4,6-Dinitro-2-methylphenol		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077007				RA077010				MF070012				RA077011				
Site		GROUPIII				GROUPIII				NELP				GROUPIII				
Locator		TCG00101				TCG00201				TCP00203				TCG00301				
Collect Date:		26-JUN-95				27-JUN-95				06-NOV-97				27-JUN-95				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
N-Nitrosodiphenylamine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Anthracene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Pyrene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
3,3-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	-		ug/l		20	U	ug/l	20		
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Chrysene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Dibenzo (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Methyl methanesulfonate	10	UJ	ug/l	10	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10		
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Phenyl-tert-butylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50		
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
N-Nitrosodiethylamine	10	UJ	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Benzidine	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
1-Naphthylamine	50	UJ	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
Pronamide	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
p-Dimethylaminoazobenzene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Pyridine	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50		
p-Phenylenediamine	500	UJ	ug/l	500	500	UJ	ug/l	500	-		ug/l		500	UJ	ug/l	500		
Safrole	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077007				RA077010				MF070012				RA077011					
Site		GROUPIII				GROUPIII				NELP				GROUPIII					
Locator		TCG00101				TCG00201				TCP00203				TCG00301					
Collect Date:		26-JUN-95				27-JUN-95				06-NOV-97				27-JUN-95					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
Isosafrole		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
1,4-Naphthoquinone		1000	R	ug/l	1000	1000	R	ug/l	1000	-		ug/l		1000	R	ug/l	1000		
1,3-Dinitrobenzene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
5-Nitro-o-toluidine		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
1,3,5-Trinitrobenzene		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
4-Nitroquinoline-1-oxide		500	UJ	ug/l	500	500	UJ	ug/l	500	-		ug/l		500	UJ	ug/l	500		
Methapyrilene		50	UJ	ug/l	50	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50		
3,3-Dimethylbenzidine		10	UJ	ug/l	10	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10		
Hexachlorophene		500	R	ug/l	500	500	R	ug/l	500	-		ug/l		500	R	ug/l	500		
Aramite		50	U	ug/l	50	50	U	ug/l	50	-		ug/l		50	U	ug/l	50		
2-Chlorophenol		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
3- & 4-Methylphenol (2)		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		10	U	ug/l	10		
Hexachloropropene		50	UJ	ug/l	50	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50		
2-Acetylaminofluorene		10	UJ	ug/l	10	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10		
PESTICIDES/PCBs	ug/l																		
alpha-BHC		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
beta-BHC		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
delta-BHC		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
gamma-BHC (Lindane)		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Heptachlor		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Aldrin		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Heptachlor epoxide		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Endosulfan I		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Dieldrin		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
4,4-DDE		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Endrin		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
Endosulfan II		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
4,4-DDD		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
Endosulfan sulfate		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
4,4-DDT		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
Methoxychlor		.08	U	ug/l	.08	.08	U	ug/l	.08	-		ug/l		.08	U	ug/l	.08		
Endrin aldehyde		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
Endrin ketone		.04	U	ug/l	.04	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04		
Chlordane		.2	U	ug/l	.2	.2	U	ug/l	.2	-		ug/l		.2	U	ug/l	.2		
Chlorobenzilate		.5	U	ug/l	.5	.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5		
Diallate		1	U	ug/l	1	1	U	ug/l	1	-		ug/l		1	U	ug/l	1		
Toxaphene		1	U	ug/l	1	1	U	ug/l	1	-		ug/l		1	U	ug/l	1		
Isodrin		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02		
Kepone		1	UJ	ug/l	1	1	UJ	ug/l	1	-		ug/l		1	UJ	ug/l	1		
Aroclor-1016		1	U	ug/l	1	1	U	ug/l	1	-		ug/l		1	U	ug/l	1		
Aroclor-1221		2	U	ug/l	2	2	U	ug/l	2	-		ug/l		2	U	ug/l	2		
Aroclor-1232		2	U	ug/l	2	2	U	ug/l	2	-		ug/l		2	U	ug/l	2		
Aroclor-1242		1	U	ug/l	1	1	U	ug/l	1	-		ug/l		1	U	ug/l	1		
Aroclor-1248		1	U	ug/l	1	1	U	ug/l	1	-		ug/l		1	U	ug/l	1		
Aroclor-1254		.5	U	ug/l	.5	.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5		
Aroclor-1260		.5	U	ug/l	.5	.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5		
INORGANICS (WATER)	ug/l																		
Antimony		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		5	U	ug/l	5		
Arsenic		62.4		ug/l	.6	1.2	J	ug/l	.6	-		ug/l		.9	J	ug/l	.6		
Barium		9.8	J	ug/l	1.1	8.7	J	ug/l	1.1	-		ug/l		2.8	J	ug/l	1.1		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:	RA077007				RA077010				MF070012				RA077011						
Site	GROUPIII				GROUPIII				NELP				GROUPIII						
Locator	TCG00101				TCG00201				TCP00203				TCG00301						
Collect Date:	26-JUN-95				27-JUN-95				06-NOV-97				27-JUN-95						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
Beryllium	.3	U	ug/l	.3	.3	U	ug/l	.3	-		ug/l		.3	U	ug/l	.3			
Cadmium	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2	-		ug/l		1.2	U	ug/l	1.2			
Calcium	167000		ug/l	34.8	61200		ug/l	34.8	-		ug/l		79100		ug/l	34.8			
Chromium	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	-		ug/l		1.7	U	ug/l	1.7			
Cobalt	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	-		ug/l		3.1	U	ug/l	3.1			
Copper	1	U	ug/l	1	1	U	ug/l	1	-		ug/l		1	U	ug/l	1			
Cyanide	1.5	U	ug/l	1.5	2	J	ug/l	1.5	-		ug/l		2.6	J	ug/l	1.5			
Iron	4950		ug/l	1.9	14.8	UJ	ug/l	14.8	-		ug/l		27.2	UJ	ug/l	27.2			
Lead	.4	U	ug/l	.4	.4	U	ug/l	.4	-		ug/l		.4	U	ug/l	.4			
Magnesium	11300		ug/l	19.8	22700		ug/l	19.8	-		ug/l		23500		ug/l	19.8			
Manganese	543		ug/l	.5	.84	J	ug/l	.5	-		ug/l		1.5	J	ug/l	.5			
Mercury	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11	-		ug/l		.11	UJ	ug/l	.11			
Nickel	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7	-		ug/l		5.7	U	ug/l	5.7			
Selenium	.5	U	ug/l	.5	.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5			
Silver	1.7	J	ug/l	1.4	1.4	U	ug/l	1.4	-		ug/l		1.4	U	ug/l	1.4			
Sodium	16800		ug/l	19.5	17200		ug/l	19.5	-		ug/l		19800		ug/l	19.5			
Thallium	.6	U	ug/l	.6	.6	U	ug/l	.6	-		ug/l		.6	U	ug/l	.6			
Tin	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4	-		ug/l		14.4	UJ	ug/l	14.4			
Vanadium	6.3	J	ug/l	1.2	8.4	J	ug/l	1.2	-		ug/l		5.3	J	ug/l	1.2			
Zinc	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9	-		ug/l		4.9	UJ	ug/l	4.9			

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

US Naval Station, Mayport
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Lab Sample Number:		RA077009				MF070013				MF070014				MF070010					
Site		GROUPIII				NELP				NELP				NELP					
Locator		TCG00401				TCG00401				TCG00401D				TCP00402					
Collect Date:		27-JUN-95				06-NOV-97				06-NOV-97				06-NOV-97					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
VOLATILES	ug/l																		
Chloromethane		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Bromomethane		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Vinyl chloride		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Chloroethane		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5		
Acetone		10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l			
Carbon disulfide		5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
1,1-Dichloroethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,1-Dichloroethene		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,2-Dichloroethene (total)		1	J	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
Chloroform		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,2-Dichloroethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
2-Butanone		10	R	ug/l	10	-		ug/l		-		ug/l		-		ug/l			
1,1,1-Trichloroethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Carbon tetrachloride		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Bromodichloromethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,2-Dichloropropane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
cis-1,3-Dichloropropene		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Trichloroethene		9		ug/l	5	1.9		ug/l	1	1.7		ug/l	1	1	U	ug/l	1		
Dibromochloromethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,1,2-Trichloroethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Benzene		5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
trans-1,3-Dichloropropene		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Bromoform		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
4-Methyl-2-pentanone		10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l			
2-Hexanone		10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l			
Tetrachloroethene		26		ug/l	5	2.1		ug/l	1	2.1		ug/l	1	1	U	ug/l	1		
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Toluene		5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
Chlorobenzene		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Ethylbenzene		5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
Styrene		5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
Xylenes (total)		5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l			
Dichlorodifluoromethane		10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Trichlorofluoromethane		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,3-Dichlorobenzene		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Acrolein		100	UJ	ug/l	100	-		ug/l		-		ug/l		-		ug/l			
Iodomethane		10	UJ	ug/l	10	-		ug/l		-		ug/l		-		ug/l			
1,4-Dichlorobenzene		5	U	ug/l	5	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Acrylonitrile		100	UJ	ug/l	100	-		ug/l		-		ug/l		-		ug/l			

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077009				MF070013				MF070014				MF070010					
Site		GROUPIII				NELP				NELP				NELP					
Locator		TCG00401				TCG00401				TCG00401D				TCP00402					
Collect Date:		27-JUN-95				06-NOV-97				06-NOV-97				06-NOV-97					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
Dibromomethane	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
1,2-Dichlorobenzene	10	U	ug/l	10	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1			
2-Chloroethylvinyl ether	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Ethyl methacrylate	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
1,2,3-Trichloropropane	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
Isobutyl alcohol	200	R	ug/l	200	-		ug/l		-		ug/l		-		ug/l				
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
1,2-Dibromo-3-chloropropane	10	R	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Ethylene dibromide	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
1,4-Dioxane	200	R	ug/l	200	-		ug/l		-		ug/l		-		ug/l				
3-Chloropropene	5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
Acetonitrile	100	U	ug/l	100	-		ug/l		-		ug/l		-		ug/l				
Chloroprene	200	UJ	ug/l	200	-		ug/l		-		ug/l		-		ug/l				
Methacrylonitrile	5	UJ	ug/l	5	-		ug/l		-		ug/l		-		ug/l				
Methyl methacrylate	10	UJ	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Pentachloroethane	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Propionitrile	100	UJ	ug/l	100	-		ug/l		-		ug/l		-		ug/l				
Vinyl acetate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
SEMIVOLATILES ug/l																			
N-Nitrosodimethylamine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Phenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Aniline	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
bis(2-Chloroethyl) ether	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Benzyl Alcohol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2-Methylphenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
bis(2-Chloroisopropyl) ether	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
N-Nitroso-di-n-propylamine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Hexachloroethane	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Nitrobenzene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Isophorone	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2-Nitrophenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2,4-Dimethylphenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Benzoic acid	50	UJ	ug/l	50	-		ug/l		-		ug/l		-		ug/l				
bis(2-Chloroethoxy) methane	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2,4-Dichlorophenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
1,2,4-Trichlorobenzene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Naphthalene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
4-Chloroaniline	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Hexachlorobutadiene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
4-Chloro-3-methylphenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2-Methylnaphthalene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Hexachlorocyclopentadiene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2,4,6-Trichlorophenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
Dimethylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2,4,5-Trichlorophenol	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l				
2-Chloronaphthalene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2-Nitroaniline	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l				
Acenaphthylene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
2,6-Dinitrotoluene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l				
3-Nitroaniline	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l				

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077009				MF070013				MF070014				MF070010		
Site		GROUPIII				NELP				NELP				NELP		
Locator		TCG00401				TCG00401				TCG00401D				TCP00402		
Collect Date:		27-JUN-95				06-NOV-97				06-NOV-97				06-NOV-97		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Acenaphthene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
2,4-Dinitrophenol	50	UJ	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
4-Nitrophenol	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Dibenzofuran	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
2,4-Dinitrotoluene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Diethylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
4-Chlorophenyl-phenylether	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Fluorene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
4-Nitroaniline	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
N-Nitrosodiphenylamine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
1,2-Diphenylhydrazine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
4-Bromophenyl-phenylether	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Hexachlorobenzene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Pentachlorophenol	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Phenanthrene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Anthracene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Di-n-Butylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Fluoranthene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Pyrene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Butylbenzylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
3,3-Dichlorobenzidine	20	U	ug/l	20	-		ug/l		-		ug/l		-		ug/l	
Benzo (a) anthracene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Chrysene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Di-n-octylphthalate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Benzo (b) fluoranthene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Benzo (k) fluoranthene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Benzo (a) pyrene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Dibenzo (a,h) anthracene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Benzo (g,h,i) perylene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
2-Picoline	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Methyl methanesulfonate	10	UJ	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Ethyl methanesulfonate	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Acetophenone	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
N-Nitrosopiperidine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Phenyl-tert-butylamine	50	UJ	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
2,6-Dichlorophenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
N-Nitroso-di-n-butylamine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
N-Nitrosodiethylamine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
N-Nitrosopyrrolidine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Benzidine	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Pentachlorobenzene	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
1-Naphthylamine	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
2-Naphthylamine	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Phenacetin	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
4-Aminobiphenyl	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Pentachloronitrobenzene	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Pronamide	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077009				MF070013			MF070014			MF070010				
Site		GROUPIII				NELP			NELP			NELP				
Locator		TCG00401				TCG00401			TCG00401D			TCP00402				
Collect Date:		27-JUN-95				06-NOV-97			06-NOV-97			06-NOV-97				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
p-Dimethylaminoazobenzene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
3-Methylcholanthrene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Pyridine	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
N-Nitrosomethylethylamine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
N-Nitrosomorpholine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
o-Toluidine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Hexachloropropene	50	UJ	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
p-Phenylenediamine	500	UJ	ug/l	500	-		ug/l		-		ug/l		-		ug/l	
Safrole	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
Isosafrole	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
1,4-Naphthoquinone	1000	R	ug/l	1000	-		ug/l		-		ug/l		-		ug/l	
1,3-Dinitrobenzene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
5-Nitro-o-toluidine	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
1,3,5-Trinitrobenzene	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
4-Nitroquinoline-1-oxide	500	UJ	ug/l	500	-		ug/l		-		ug/l		-		ug/l	
Methapyrilene	50	UJ	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
3,3-Dimethylbenzidine	10	UJ	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Hexachlorophene	500	R	ug/l	500	-		ug/l		-		ug/l		-		ug/l	
Aramite	50	U	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
2-Chlorophenol	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
3- & 4-Methylphenol (2)	10	U	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
Hexachloropropene	50	UJ	ug/l	50	-		ug/l		-		ug/l		-		ug/l	
2-Acetylaminofluorene	10	UJ	ug/l	10	-		ug/l		-		ug/l		-		ug/l	
PESTICIDES/PCBs ug/l																
alpha-BHC	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
beta-BHC	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
delta-BHC	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
gamma-BHC (Lindane)	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Heptachlor	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Aldrin	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Heptachlor epoxide	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Endosulfan I	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Dieldrin	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
4,4-DDE	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Endrin	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
Endosulfan II	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
4,4-DDD	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
Endosulfan sulfate	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
4,4-DDT	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
Methoxychlor	.08	U	ug/l	.08	-		ug/l		-		ug/l		-		ug/l	
Endrin aldehyde	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
Endrin ketone	.04	U	ug/l	.04	-		ug/l		-		ug/l		-		ug/l	
Chlordane	.2	U	ug/l	.2	-		ug/l		-		ug/l		-		ug/l	
Chlorobenzilate	.5	U	ug/l	.5	-		ug/l		-		ug/l		-		ug/l	
Diallate	1	U	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Toxaphene	1	U	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Isodrin	.02	U	ug/l	.02	-		ug/l		-		ug/l		-		ug/l	
Kepone	1	UJ	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Aroclor-1016	1	U	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Aroclor-1221	2	U	ug/l	2	-		ug/l		-		ug/l		-		ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

		Lab Sample Number:	RA077009				MF070013				MF070014				MF070010		
		Site	GROUPIII				NELP				NELP				NELP		
		Locator	TCG00401				TCG00401				TCG00401D				TCP00402		
		Collect Date:	27-JUN-95				06-NOV-97				06-NOV-97				06-NOV-97		
			VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aroclor-1232			2	U	ug/l	2	-		ug/l		-		ug/l		-		ug/l	
Aroclor-1242			1	U	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Aroclor-1248			1	U	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Aroclor-1254			.5	U	ug/l	.5	-		ug/l		-		ug/l		-		ug/l	
Aroclor-1260			.5	U	ug/l	.5	-		ug/l		-		ug/l		-		ug/l	
INORGANICS (WATER)	ug/l																	
Antimony			5	U	ug/l	5	-		ug/l		-		ug/l		-		ug/l	
Arsenic			6	J	ug/l	.6	-		ug/l		-		ug/l		-		ug/l	
Barium			2.8	J	ug/l	1.1	-		ug/l		-		ug/l		-		ug/l	
Beryllium			.36	J	ug/l	.3	-		ug/l		-		ug/l		-		ug/l	
Cadmium			1.2	U	ug/l	1.2	-		ug/l		-		ug/l		-		ug/l	
Calcium			77000		ug/l	34.8	-		ug/l		-		ug/l		-		ug/l	
Chromium			1.7	U	ug/l	1.7	-		ug/l		-		ug/l		-		ug/l	
Cobalt			3.1	U	ug/l	3.1	-		ug/l		-		ug/l		-		ug/l	
Copper			1	U	ug/l	1	-		ug/l		-		ug/l		-		ug/l	
Cyanide			1.5	U	ug/l	1.5	-		ug/l		-		ug/l		-		ug/l	
Iron			299		ug/l	1.9	-		ug/l		-		ug/l		-		ug/l	
Lead			.4	U	ug/l	.4	-		ug/l		-		ug/l		-		ug/l	
Magnesium			6530		ug/l	19.8	-		ug/l		-		ug/l		-		ug/l	
Manganese			142		ug/l	.5	-		ug/l		-		ug/l		-		ug/l	
Mercury			.11	UJ	ug/l	.11	-		ug/l		-		ug/l		-		ug/l	
Nickel			5.7	U	ug/l	5.7	-		ug/l		-		ug/l		-		ug/l	
Selenium			.5	U	ug/l	.5	-		ug/l		-		ug/l		-		ug/l	
Silver			1.4	U	ug/l	1.4	-		ug/l		-		ug/l		-		ug/l	
Sodium			7450		ug/l	19.5	-		ug/l		-		ug/l		-		ug/l	
Thallium			.6	U	ug/l	.6	-		ug/l		-		ug/l		-		ug/l	
Tin			14.4	UJ	ug/l	14.4	-		ug/l		-		ug/l		-		ug/l	
Vanadium			6.7	J	ug/l	1.2	-		ug/l		-		ug/l		-		ug/l	
Zinc			4.9	UJ	ug/l	4.9	-		ug/l		-		ug/l		-		ug/l	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077004				MF070008				RA077005				RA077006					
Site		GROUPIII				NELP				GROUPIII				GROUPIII					
Locator		TCG00501				TCP00502				TCG00501D				TCG00601					
Collect Date:		26-JUN-95				06-NOV-97				26-JUN-95				26-JUN-95					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
VOLATILES	ug/l																		
Chloromethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Bromomethane		10	UJ	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Vinyl chloride		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Chloroethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5		
Acetone		10	UJ	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Carbon disulfide		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
1,1-Dichloroethane		5	U	ug/l	5	4		ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,1-Dichloroethene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichloroethene (total)		1	J	ug/l	5	-		ug/l		1	J	ug/l	5	5	U	ug/l	5		
Chloroform		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
2-Butanone		10	R	ug/l	10	-		ug/l		10	R	ug/l	10	10	R	ug/l	10		
1,1,1-Trichloroethane		5	UJ	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Carbon tetrachloride		5	UJ	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Bromodichloromethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichloropropane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
cis-1,3-Dichloropropene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Trichloroethene		10		ug/l	5	1	U	ug/l	1	8		ug/l	5	5	U	ug/l	5		
Dibromochloromethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,1,2-Trichloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Benzene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
trans-1,3-Dichloropropene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Bromoform		5	UJ	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
4-Methyl-2-pentanone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2-Hexanone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Tetrachloroethene		100		ug/l	5	1	U	ug/l	1	73		ug/l	5	5	U	ug/l	5		
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Toluene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Chlorobenzene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
Ethylbenzene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Styrene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Xylenes (total)		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Dichlorodifluoromethane		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Trichlorofluoromethane		5	UJ	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
1,3-Dichlorobenzene		10	U	ug/l	10	1	U	ug/l	1	5	U	ug/l	5	10	U	ug/l	10		
Acrolein		100	U	ug/l	100	-		ug/l		100	UJ	ug/l	100	100	UJ	ug/l	100		
Iodomethane		10	U	ug/l	10	-		ug/l		10	UJ	ug/l	10	10	UJ	ug/l	10		
1,4-Dichlorobenzene		10	U	ug/l	10	1	U	ug/l	1	10	U	ug/l	10	10	U	ug/l	10		
Acrylonitrile		100	U	ug/l	100	-		ug/l		100	UJ	ug/l	100	100	UJ	ug/l	100		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		RA077004				MF070008				RA077005				RA077006					
Site		GROUPIII				NELP				GROUPIII				GROUPIII					
Locator		TCG00501				TCP00502				TCG00501D				TCG00601					
Collect Date:		26-JUN-95				06-NOV-97				26-JUN-95				26-JUN-95					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
Dibromomethane		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
1,2-Dichlorobenzene		5	U	ug/l	5	1	U	ug/l	1	5	U	ug/l	5	5	U	ug/l	5		
2-Chloroethylvinyl ether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Ethyl methacrylate		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
1,2,3-Trichloropropane		5	UJ	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
trans-1,4-Dichloro-2-butene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Isobutyl alcohol		200	R	ug/l	200	-		ug/l		200	R	ug/l	200	200	R	ug/l	200		
1,1,1,2-Tetrachloroethane		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
1,2-Dibromo-3-chloropropane		10	UJ	ug/l	10	-		ug/l		10	R	ug/l	10	10	R	ug/l	10		
Ethylene dibromide		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
1,4-Dioxane		200	R	ug/l	200	-		ug/l		200	R	ug/l	200	200	R	ug/l	200		
3-Chloropropene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Acetonitrile		100	UJ	ug/l	100	-		ug/l		100	U	ug/l	100	100	U	ug/l	100		
Chloroprene		200	U	ug/l	200	-		ug/l		200	UJ	ug/l	200	200	UJ	ug/l	200		
Methacrylonitrile		5	U	ug/l	5	-		ug/l		5	UJ	ug/l	5	5	UJ	ug/l	5		
Methyl methacrylate		10	U	ug/l	10	-		ug/l		10	UJ	ug/l	10	10	UJ	ug/l	10		
Pentachloroethane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Propionitrile		100	UJ	ug/l	100	-		ug/l		100	UJ	ug/l	100	100	UJ	ug/l	100		
Vinyl acetate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
SEMIVOLATILES	ug/l																		
N-Nitrosodimethylamine		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Phenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Aniline		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
bis(2-Chloroethyl) ether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Benzyl Alcohol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2-Methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
bis(2-Chloroisopropyl) ether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
N-Nitroso-di-n-propylamine		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Hexachloroethane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Nitrobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Isophorone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2-Nitrophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2,4-Dimethylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Benzoic acid		50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50		
bis(2-Chloroethoxy) methane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2,4-Dichlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
1,2,4-Trichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Naphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
4-Chloroaniline		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Hexachlorobutadiene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
4-Chloro-3-methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2-Methylnaphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Hexachlorocyclopentadiene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2,4,6-Trichlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
Dimethylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2,4,5-Trichlorophenol		50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50		
2-Chloronaphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2-Nitroaniline		50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50		
Acenaphthylene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
2,6-Dinitrotoluene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10		
3-Nitroaniline		50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:	RA077004				MF070008				RA077005				RA077006			
Site	GROUPIII				NELP				GROUPIII				GROUPIII			
Locator	TCG00501				TCP00502				TCG00501D				TCG00601			
Collect Date:	26-JUN-95				06-NOV-97				26-JUN-95				26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Acenaphthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50
4-Nitrophenol	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
N-Nitrosodiphenylamine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
1,2-Diphenylhydrazine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
Phenanthrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	20	U	ug/l	20	-		ug/l		20	U	ug/l	20	20	U	ug/l	20
Benzo (a) anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
2-Picoline	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
Methyl methanesulfonate	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10	10	UJ	ug/l	10
Ethyl methanesulfonate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Acetophenone	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopiperidine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Phenyl-tert-butylamine	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50
2,6-Dichlorophenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-butylamine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
N-Nitrosodiethylamine	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10	10	UJ	ug/l	10
N-Nitrosopyrrolidine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Benzidine	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
Pentachlorobenzene	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
1-Naphthylamine	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50
2-Naphthylamine	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
Phenacetin	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10
4-Aminobiphenyl	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
Pentachloronitrobenzene	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50
Pronamide	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10

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Lab Sample Number:		RA077004				MF070008				RA077005				RA077006					
Site		GROUPIII				NELP				GROUPIII				GROUPIII					
Locator		TCG00501				TCP00502				TCG00501D				TCG00601					
Collect Date:		26-JUN-95				06-NOV-97				26-JUN-95				26-JUN-95					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
p-Dimethylaminoazobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
3-Methylcholanthrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
Pyridine	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50			
N-Nitrosomethylethylamine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
N-Nitrosomorpholine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
o-Toluidine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
Hexachloropropene	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50			
p-Phenylenediamine	500	UJ	ug/l	500	-		ug/l		500	UJ	ug/l	500	500	UJ	ug/l	500			
Safrole	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50			
Isosafrole	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50			
1,4-Naphthoquinone	1000	R	ug/l	1000	-		ug/l		1000	R	ug/l	1000	1000	R	ug/l	1000			
1,3-Dinitrobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
5-Nitro-o-toluidine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
1,3,5-Trinitrobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
4-Nitroquinoline-1-oxide	500	UJ	ug/l	500	-		ug/l		500	UJ	ug/l	500	500	UJ	ug/l	500			
Methapyrilene	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50			
3,3-Dimethylbenzidine	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10	10	UJ	ug/l	10			
Hexachlorophene	500	R	ug/l	500	-		ug/l		500	R	ug/l	500	500	R	ug/l	500			
Aramite	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	50	U	ug/l	50			
2-Chlorophenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
3- & 4-Methylphenol (2)	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	10	U	ug/l	10			
Hexachloropropene	50	UJ	ug/l	50	-		ug/l		50	UJ	ug/l	50	50	UJ	ug/l	50			
2-Acetylaminofluorene	10	UJ	ug/l	10	-		ug/l		10	UJ	ug/l	10	10	UJ	ug/l	10			
PESTICIDES/PCBs ug/l																			
alpha-BHC	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
beta-BHC	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
delta-BHC	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
gamma-BHC (Lindane)	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Heptachlor	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Aldrin	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Heptachlor epoxide	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Endosulfan I	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Dieldrin	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
4,4-DDE	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Endrin	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
Endosulfan II	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
4,4-DDD	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
Endosulfan sulfate	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
4,4-DDT	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
Methoxychlor	.08	U	ug/l	.08	-		ug/l		.08	U	ug/l	.08	.08	U	ug/l	.08			
Endrin aldehyde	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
Endrin ketone	.04	U	ug/l	.04	-		ug/l		.04	U	ug/l	.04	.04	U	ug/l	.04			
Chlordane	.2	U	ug/l	.2	-		ug/l		.2	U	ug/l	.2	.2	U	ug/l	.2			
Chlorobenzilate	.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5	.5	U	ug/l	.5			
Diallate	1	U	ug/l	1	-		ug/l		1	U	ug/l	1	1	U	ug/l	1			
Toxaphene	1	U	ug/l	1	-		ug/l		1	U	ug/l	1	1	U	ug/l	1			
Isodrin	.02	U	ug/l	.02	-		ug/l		.02	U	ug/l	.02	.02	U	ug/l	.02			
Kepone	1	UJ	ug/l	1	-		ug/l		1	UJ	ug/l	1	1	UJ	ug/l	1			
Aroclor-1016	1	U	ug/l	1	-		ug/l		1	U	ug/l	1	1	U	ug/l	1			
Aroclor-1221	2	U	ug/l	2	-		ug/l		2	U	ug/l	2	2	U	ug/l	2			

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Lab Sample Number:		RA077004				MF070008				RA077005				RA077006					
Site		GROUPIII				NELP				GROUPIII				GROUPIII					
Locator		TCG00501				TCP00502				TCG00501D				TCG00601					
Collect Date:		26-JUN-95				06-NOV-97				26-JUN-95				26-JUN-95					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
Aroclor-1232		2	U	ug/l	2	-		ug/l		2	U	ug/l	2	2	U	ug/l	2		
Aroclor-1242		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	1	U	ug/l	1		
Aroclor-1248		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	1	U	ug/l	1		
Aroclor-1254		.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5	.5	U	ug/l	.5		
Aroclor-1260		.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5	.5	U	ug/l	.5		
INORGANICS (WATER)	ug/l																		
Antimony		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	5	U	ug/l	5		
Arsenic		5.6	J	ug/l	.6	-		ug/l		6.1	J	ug/l	.6	1.6	J	ug/l	.6		
Barium		4.7	J	ug/l	1.1	-		ug/l		4.5	J	ug/l	1.1	7.8	J	ug/l	1.1		
Beryllium		.3	U	ug/l	.3	-		ug/l		.3	U	ug/l	.3	.3	U	ug/l	.3		
Cadmium		1.2	U	ug/l	1.2	-		ug/l		1.2	U	ug/l	1.2	1.2	U	ug/l	1.2		
Calcium		106000		ug/l	34.8	-		ug/l		105000		ug/l	34.8	100000		ug/l	34.8		
Chromium		1.7	U	ug/l	1.7	-		ug/l		1.7	U	ug/l	1.7	1.7	U	ug/l	1.7		
Cobalt		3.1	U	ug/l	3.1	-		ug/l		3.1	U	ug/l	3.1	3.1	U	ug/l	3.1		
Copper		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	1	U	ug/l	1		
Cyanide		1.5	U	ug/l	1.5	-		ug/l		1.5	U	ug/l	1.5	2	J	ug/l	1.5		
Iron		98.2	J	ug/l	1.9	-		ug/l		99.5	J	ug/l	1.9	280		ug/l	1.9		
Lead		.4	U	ug/l	.4	-		ug/l		.4	U	ug/l	.4	.4	U	ug/l	.4		
Magnesium		13500		ug/l	19.8	-		ug/l		13300		ug/l	19.8	13500		ug/l	19.8		
Manganese		4	J	ug/l	.5	-		ug/l		3.9	J	ug/l	.5	80.8		ug/l	.5		
Mercury		.11	UJ	ug/l	.11	-		ug/l		.11	UJ	ug/l	.11	.11	UJ	ug/l	.11		
Nickel		5.7	U	ug/l	5.7	-		ug/l		5.7	U	ug/l	5.7	5.7	U	ug/l	5.7		
Selenium		.79	J	ug/l	.5	-		ug/l		.5	U	ug/l	.5	.5	U	ug/l	.5		
Silver		1.4	U	ug/l	1.4	-		ug/l		1.4	U	ug/l	1.4	1.4	U	ug/l	1.4		
Sodium		12700		ug/l	19.5	-		ug/l		12600		ug/l	19.5	15500		ug/l	19.5		
Thallium		.6	U	ug/l	.6	-		ug/l		.6	U	ug/l	.6	.6	U	ug/l	.6		
Tin		14.4	UJ	ug/l	14.4	-		ug/l		14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4		
Vanadium		8.8	J	ug/l	1.2	-		ug/l		8.4	J	ug/l	1.2	3.4	J	ug/l	1.2		
Zinc		4.9	UJ	ug/l	4.9	-		ug/l		4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9		

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

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Lab Sample Number:		MF070015				MF070016				MF070003				MF070002					
Site		NELP				NELP				NELP				NELP					
Locator		TCG00703				TCP00703				TCG00801				TCP00801					
Collect Date:		06-NOV-97				06-NOV-97				05-NOV-97				05-NOV-97					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
VOLATILES	ug/l																		
Chloromethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Bromomethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Vinyl chloride		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Chloroethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Methylene chloride		100	U	ug/l	100	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5		
Acetone		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Carbon disulfide		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
1,1-Dichloroethane		20	U	ug/l	20	20		ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,1-Dichloroethene		20	U	ug/l	20	8.2		ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,2-Dichloroethene (total)		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Chloroform		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,2-Dichloroethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
2-Butanone		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
1,1,1-Trichloroethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Carbon tetrachloride		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Bromodichloromethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,2-Dichloropropane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
cis-1,3-Dichloropropene		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Trichloroethene		730		ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Dibromochloromethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,1,2-Trichloroethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Benzene		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
trans-1,3-Dichloropropene		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Bromoform		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
4-Methyl-2-pentanone		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
2-Hexanone		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Tetrachloroethene		78		ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,1,2,2-Tetrachloroethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Toluene		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Chlorobenzene		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Ethylbenzene		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Styrene		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Xylenes (total)		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Dichlorodifluoromethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Trichlorofluoromethane		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
1,3-Dichlorobenzene		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Acrolein		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
Iodomethane		-		ug/l		-		ug/l		-		ug/l		-		ug/l			
1,4-Dichlorobenzene		20	U	ug/l	20	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Acrylonitrile		-		ug/l		-		ug/l		-		ug/l		-		ug/l			

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Lab Sample Number:		MF070015				MF070016				MF070003				MF070002					
Site		NELP				NELP				NELP				NELP					
Locator		TCG00703				TCP00703				TCG00801				TCP00801					
Collect Date:		06-NOV-97				06-NOV-97				05-NOV-97				05-NOV-97					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL			
Dibromomethane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
1,2-Dichlorobenzene		20	U ug/l	20		1	U ug/l	1		1	U ug/l	1		1	U ug/l	1			
2-Chloroethylvinyl ether		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Ethyl methacrylate		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
1,2,3-Trichloropropane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
trans-1,4-Dichloro-2-butene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Isobutyl alcohol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
1,1,1,2-Tetrachloroethane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
1,2-Dibromo-3-chloropropane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Ethylene dibromide		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
1,4-Dioxane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
3-Chloropropene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Acetonitrile		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Chloroprene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Methacrylonitrile		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Methyl methacrylate		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Pentachloroethane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Propionitrile		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Vinyl acetate		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
SEMIVOLATILES	ug/l																		
N-Nitrosodimethylamine		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Phenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Aniline		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
bis(2-Chloroethyl) ether		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Benzyl Alcohol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2-Methylphenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
bis(2-Chloroisopropyl) ether		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
N-Nitroso-di-n-propylamine		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Hexachloroethane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Nitrobenzene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Isophorone		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2-Nitrophenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2,4-Dimethylphenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Benzoic acid		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
bis(2-Chloroethoxy) methane		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2,4-Dichlorophenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
1,2,4-Trichlorobenzene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Naphthalene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
4-Chloroaniline		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Hexachlorobutadiene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
4-Chloro-3-methylphenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2-Methylnaphthalene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Hexachlorocyclopentadiene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2,4,6-Trichlorophenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Dimethylphthalate		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2,4,5-Trichlorophenol		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2-Chloronaphthalene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2-Nitroaniline		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
Acenaphthylene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
2,6-Dinitrotoluene		-	ug/l			-	ug/l			-	ug/l			-	ug/l				
3-Nitroaniline		-	ug/l			-	ug/l			-	ug/l			-	ug/l				

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:	MF070015			MF070016			MF070003			MF070002		
Site	NELP			NELP			NELP			NELP		
Locator	TCG00703			TCP00703			TCG00801			TCP00801		
Collect Date:	06-NOV-97			06-NOV-97			05-NOV-97			05-NOV-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Acenaphthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,4-Dinitrophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Nitrophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Dibenzofuran	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,4-Dinitrotoluene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Diethylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Chlorophenyl-phenylether	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Fluorene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Nitroaniline	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4,6-Dinitro-2-methylphenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosodiphenylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
1,2-Diphenylhydrazine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Bromophenyl-phenylether	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Hexachlorobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pentachlorophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Phenanthrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Anthracene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Di-n-Butylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Fluoranthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pyrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Butylbenzylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
3,3-Dichlorobenzidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (a) anthracene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Chrysene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
bis(2-Ethylhexyl) phthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Di-n-octylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (b) fluoranthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (k) fluoranthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (a) pyrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Indeno (1,2,3-cd) pyrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Dibenzo (a,h) anthracene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (g,h,i) perylene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2-Picoline	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Methyl methanesulfonate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Ethyl methanesulfonate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Acetophenone	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosopiperidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Phenyl-tert-butylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,6-Dichlorophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitroso-di-n-butylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosodiethylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosopyrrolidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
1,2,4,5-Tetrachlorobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pentachlorobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
1-Naphthylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2-Naphthylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,3,4,6-Tetrachlorophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Phenacetin	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Aminobiphenyl	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pentachloronitrobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pronamide	-	ug/l		-	ug/l		-	ug/l		-	ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070015			MF070016			MF070003			MF070002		
Site		NELP			NELP			NELP			NELP		
Locator		TCG00703			TCP00703			TCG00801			TCP00801		
Collect Date:		06-NOV-97			06-NOV-97			05-NOV-97			05-NOV-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
p-Dimethylaminoazobenzene		- ug/l			- ug/l			- ug/l			- ug/l	
7,12-Dimethylbenz(A)Anthracene		- ug/l			- ug/l			- ug/l			- ug/l	
3-Methylcholanthrene		- ug/l			- ug/l			- ug/l			- ug/l	
Pyridine		- ug/l			- ug/l			- ug/l			- ug/l	
N-Nitrosomethylethylamine		- ug/l			- ug/l			- ug/l			- ug/l	
N-Nitrosomorpholine		- ug/l			- ug/l			- ug/l			- ug/l	
o-Toluidine		- ug/l			- ug/l			- ug/l			- ug/l	
Hexachloropropene		- ug/l			- ug/l			- ug/l			- ug/l	
p-Phenylenediamine		- ug/l			- ug/l			- ug/l			- ug/l	
Safrole		- ug/l			- ug/l			- ug/l			- ug/l	
Isosafrole		- ug/l			- ug/l			- ug/l			- ug/l	
1,4-Naphthoquinone		- ug/l			- ug/l			- ug/l			- ug/l	
1,3-Dinitrobenzene		- ug/l			- ug/l			- ug/l			- ug/l	
5-Nitro-o-toluidine		- ug/l			- ug/l			- ug/l			- ug/l	
1,3,5-Trinitrobenzene		- ug/l			- ug/l			- ug/l			- ug/l	
4-Nitroquinoline-1-oxide		- ug/l			- ug/l			- ug/l			- ug/l	
Methapyrilene		- ug/l			- ug/l			- ug/l			- ug/l	
3,3-Dimethylbenzidine		- ug/l			- ug/l			- ug/l			- ug/l	
Hexachlorophene		- ug/l			- ug/l			- ug/l			- ug/l	
Aramite		- ug/l			- ug/l			- ug/l			- ug/l	
2-Chlorophenol		- ug/l			- ug/l			- ug/l			- ug/l	
3- & 4-Methylphenol (2)		- ug/l			- ug/l			- ug/l			- ug/l	
Hexachloropropene		- ug/l			- ug/l			- ug/l			- ug/l	
2-Acetylaminofluorene		- ug/l			- ug/l			- ug/l			- ug/l	
PESTICIDES/PCBs	ug/l											
alpha-BHC		- ug/l			- ug/l			- ug/l			- ug/l	
beta-BHC		- ug/l			- ug/l			- ug/l			- ug/l	
delta-BHC		- ug/l			- ug/l			- ug/l			- ug/l	
gamma-BHC (Lindane)		- ug/l			- ug/l			- ug/l			- ug/l	
Heptachlor		- ug/l			- ug/l			- ug/l			- ug/l	
Aldrin		- ug/l			- ug/l			- ug/l			- ug/l	
Heptachlor epoxide		- ug/l			- ug/l			- ug/l			- ug/l	
Endosulfan I		- ug/l			- ug/l			- ug/l			- ug/l	
Dieldrin		- ug/l			- ug/l			- ug/l			- ug/l	
4,4-DDE		- ug/l			- ug/l			- ug/l			- ug/l	
Endrin		- ug/l			- ug/l			- ug/l			- ug/l	
Endosulfan II		- ug/l			- ug/l			- ug/l			- ug/l	
4,4-DDD		- ug/l			- ug/l			- ug/l			- ug/l	
Endosulfan sulfate		- ug/l			- ug/l			- ug/l			- ug/l	
4,4-DDT		- ug/l			- ug/l			- ug/l			- ug/l	
Methoxychlor		- ug/l			- ug/l			- ug/l			- ug/l	
Endrin aldehyde		- ug/l			- ug/l			- ug/l			- ug/l	
Endrin ketone		- ug/l			- ug/l			- ug/l			- ug/l	
Chlordane		- ug/l			- ug/l			- ug/l			- ug/l	
Chlorobenzilate		- ug/l			- ug/l			- ug/l			- ug/l	
Diallate		- ug/l			- ug/l			- ug/l			- ug/l	
Toxaphene		- ug/l			- ug/l			- ug/l			- ug/l	
Isodrin		- ug/l			- ug/l			- ug/l			- ug/l	
Kepone		- ug/l			- ug/l			- ug/l			- ug/l	
Aroclor-1016		- ug/l			- ug/l			- ug/l			- ug/l	
Aroclor-1221		- ug/l			- ug/l			- ug/l			- ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070015			MF070016			MF070003			MF070002			
Site		NELP			NELP			NELP			NELP			
Locator		TCG00703			TCP00703			TCG00801			TCP00801			
Collect Date:		06-NOV-97			06-NOV-97			05-NOV-97			05-NOV-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aroclor-1232		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1242		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1248		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1254		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1260		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
INORGANICS (WATER)	ug/l															
Antimony		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Arsenic		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Barium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Beryllium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Cadmium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Calcium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Chromium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Cobalt		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Copper		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Cyanide		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Iron		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Lead		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Magnesium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Manganese		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Mercury		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Nickel		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Selenium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Silver		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Sodium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Thallium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Tin		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Vanadium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Zinc		-	ug/l			-	ug/l			-	ug/l			-	ug/l	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070007				MF070005				MF070006				MF070011					
Site		NELP				NELP				NELP				NELP					
Locator		TCG00802				TCP00802				TCP00802D				TCP00902					
Collect Date:		06-NOV-97				06-NOV-97				06-NOV-97				06-NOV-97					
	VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL	
VOLATILES	ug/l																			
Chloromethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Bromomethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Chloroethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Methylene chloride		5	U	ug/l	5		5	U	ug/l	5		5	U	ug/l	5		5	U	ug/l	5
Acetone		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Carbon disulfide		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
1,1-Dichloroethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1.4		ug/l	1
1,1-Dichloroethene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
1,2-Dichloroethene (total)		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Chloroform		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
2-Butanone		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
1,1,1-Trichloroethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Trichloroethene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Benzene		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
trans-1,3-Dichloropropene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Bromoform		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
4-Methyl-2-pentanone		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
2-Hexanone		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Tetrachloroethene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Toluene		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Chlorobenzene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Ethylbenzene		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Styrene		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Xylenes (total)		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Dichlorodifluoromethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Acrolein		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
Iodomethane		-		ug/l			-		ug/l			-		ug/l			-		ug/l	
1,4-Dichlorobenzene		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1		1	U	ug/l	1
Acrylonitrile		-		ug/l			-		ug/l			-		ug/l			-		ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070007				MF070005				MF070006				MF070011					
Site		NELP				NELP				NELP				NELP					
Locator		TCG00802				TCP00802				TCP00802D				TCP00902					
Collect Date:		06-NOV-97				06-NOV-97				06-NOV-97				06-NOV-97					
	VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL		VALUE	QUAL	UNITS	DL	
Dibromomethane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
1,2-Dichlorobenzene		1	U ug/l		1		1	U ug/l		1		1	U ug/l		1		1	U ug/l		1
2-Chloroethylvinyl ether		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Ethyl methacrylate		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
1,2,3-Trichloropropane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
trans-1,4-Dichloro-2-butene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Isobutyl alcohol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
1,1,1,2-Tetrachloroethane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
1,2-Dibromo-3-chloropropane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Ethylene dibromide		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
1,4-Dioxane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
3-Chloropropene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Acetonitrile		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Chloroprene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Methacrylonitrile		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Methyl methacrylate		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Pentachloroethane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Propionitrile		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Vinyl acetate		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
SEMIVOLATILES	ug/l																		
N-Nitrosodimethylamine		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Pherol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Aniline		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
bis(2-Chloroethyl) ether		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Benzyl Alcohol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2-Methylphenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
bis(2-Chloroisopropyl) ether		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
N-Nitroso-di-n-propylamine		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Hexachloroethane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Nitrobenzene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Isophorone		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2-Nitrophenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2,4-Dimethylphenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Benzoic acid		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
bis(2-Chloroethoxy) methane		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2,4-Dichlorophenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
1,2,4-Trichlorobenzene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Naphthalene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
4-Chloroaniline		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Hexachlorobutadiene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
4-Chloro-3-methylphenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2-Methylnaphthalene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Hexachlorocyclopentadiene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2,4,6-Trichlorophenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Dimethylphthalate		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2,4,5-Trichlorophenol		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2-Chloronaphthalene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2-Nitroaniline		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
Acenaphthylene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
2,6-Dinitrotoluene		-	ug/l				-	ug/l				-	ug/l				-	ug/l		
3-Nitroaniline		-	ug/l				-	ug/l				-	ug/l				-	ug/l		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:	MF070007			MF070005			MF070006			MF070011		
Site	NELP			NELP			NELP			NELP		
Locator	TCG00802			TCP00802			TCP00802D			TCP00902		
Collect Date:	06-NOV-97			06-NOV-97			06-NOV-97			06-NOV-97		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Acenaphthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,4-Dinitrophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Nitrophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Dibenzofuran	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,4-Dinitrotoluene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Diethylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Chlorophenyl-phenylether	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Fluorene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Nitroaniline	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4,6-Dinitro-2-methylphenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosodiphenylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
1,2-Diphenylhydrazine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Bromophenyl-phenylether	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Hexachlorobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pentachlorophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Phenanthrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Anthracene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Di-n-Butylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Fluoranthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pyrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Butylbenzylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
3,3-Dichlorobenzidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (a) anthracene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Chrysene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
bis(2-Ethylhexyl) phthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Di-n-octylphthalate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (b) fluoranthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (k) fluoranthene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (a) pyrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Indeno (1,2,3-cd) pyrene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Dibenzo (a,h) anthracene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzo (g,h,i) perylene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2-Picoline	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Methyl methanesulfonate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Ethyl methanesulfonate	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Acetophenone	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosopiperidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Phenyl-tert-butylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,6-Dichlorophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitroso-di-n-butylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosodiethylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
N-Nitrosopyrrolidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Benzidine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
1,2,4,5-Tetrachlorobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pentachlorobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
1-Naphthylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2-Naphthylamine	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
2,3,4,6-Tetrachlorophenol	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Phenacetin	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
4-Aminobiphenyl	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pentachloronitrobenzene	-	ug/l		-	ug/l		-	ug/l		-	ug/l	
Pronamide	-	ug/l		-	ug/l		-	ug/l		-	ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070007			MF070005			MF070006			MF070011		
Site		NELP			NELP			NELP			NELP		
Locator		TCG00802			TCP00802			TCP00802D			TCP00902		
Collect Date:		06-NOV-97			06-NOV-97			06-NOV-97			06-NOV-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
p-Dimethylaminoazobenzene		- ug/l			- ug/l			- ug/l			- ug/l		
7,12-Dimethylbenz(A)Anthracene		- ug/l			- ug/l			- ug/l			- ug/l		
3-Methylcholanthrene		- ug/l			- ug/l			- ug/l			- ug/l		
Pyridine		- ug/l			- ug/l			- ug/l			- ug/l		
N-Nitrosomethylethylamine		- ug/l			- ug/l			- ug/l			- ug/l		
N-Nitrosomorpholine		- ug/l			- ug/l			- ug/l			- ug/l		
o-Toluidine		- ug/l			- ug/l			- ug/l			- ug/l		
Hexachloropropene		- ug/l			- ug/l			- ug/l			- ug/l		
p-Phenylenediamine		- ug/l			- ug/l			- ug/l			- ug/l		
Safrole		- ug/l			- ug/l			- ug/l			- ug/l		
Isosafrole		- ug/l			- ug/l			- ug/l			- ug/l		
1,4-Naphthoquinone		- ug/l			- ug/l			- ug/l			- ug/l		
1,3-Dinitrobenzene		- ug/l			- ug/l			- ug/l			- ug/l		
5-Nitro-o-toluidine		- ug/l			- ug/l			- ug/l			- ug/l		
1,3,5-Trinitrobenzene		- ug/l			- ug/l			- ug/l			- ug/l		
4-Nitroquinoline-1-oxide		- ug/l			- ug/l			- ug/l			- ug/l		
Methapyrilene		- ug/l			- ug/l			- ug/l			- ug/l		
3,3-Dimethylbenzidine		- ug/l			- ug/l			- ug/l			- ug/l		
Hexachlorophene		- ug/l			- ug/l			- ug/l			- ug/l		
Aramite		- ug/l			- ug/l			- ug/l			- ug/l		
2-Chlorophenol		- ug/l			- ug/l			- ug/l			- ug/l		
3- & 4-Methylphenol (2)		- ug/l			- ug/l			- ug/l			- ug/l		
Hexachloropropene		- ug/l			- ug/l			- ug/l			- ug/l		
2-Acetylaminofluorene		- ug/l			- ug/l			- ug/l			- ug/l		
PESTICIDES/PCBs	ug/l												
alpha-BHC		- ug/l			- ug/l			- ug/l			- ug/l		
beta-BHC		- ug/l			- ug/l			- ug/l			- ug/l		
delta-BHC		- ug/l			- ug/l			- ug/l			- ug/l		
gamma-BHC (Lindane)		- ug/l			- ug/l			- ug/l			- ug/l		
Heptachlor		- ug/l			- ug/l			- ug/l			- ug/l		
Aldrin		- ug/l			- ug/l			- ug/l			- ug/l		
Heptachlor epoxide		- ug/l			- ug/l			- ug/l			- ug/l		
Endosulfan I		- ug/l			- ug/l			- ug/l			- ug/l		
Dieldrin		- ug/l			- ug/l			- ug/l			- ug/l		
4,4-DDE		- ug/l			- ug/l			- ug/l			- ug/l		
Endrin		- ug/l			- ug/l			- ug/l			- ug/l		
Endosulfan II		- ug/l			- ug/l			- ug/l			- ug/l		
4,4-DDD		- ug/l			- ug/l			- ug/l			- ug/l		
Endosulfan sulfate		- ug/l			- ug/l			- ug/l			- ug/l		
4,4-DDT		- ug/l			- ug/l			- ug/l			- ug/l		
Methoxychlor		- ug/l			- ug/l			- ug/l			- ug/l		
Endrin aldehyde		- ug/l			- ug/l			- ug/l			- ug/l		
Endrin ketone		- ug/l			- ug/l			- ug/l			- ug/l		
Chlordane		- ug/l			- ug/l			- ug/l			- ug/l		
Chlorobenzilate		- ug/l			- ug/l			- ug/l			- ug/l		
Diallate		- ug/l			- ug/l			- ug/l			- ug/l		
Toxaphene		- ug/l			- ug/l			- ug/l			- ug/l		
Isodrin		- ug/l			- ug/l			- ug/l			- ug/l		
Kepone		- ug/l			- ug/l			- ug/l			- ug/l		
Aroclor-1016		- ug/l			- ug/l			- ug/l			- ug/l		
Aroclor-1221		- ug/l			- ug/l			- ug/l			- ug/l		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070007			MF070005			MF070006			MF070011			
Site		NELP			NELP			NELP			NELP			
Locator		TCG00802			TCP00802			TCP00802D			TCP00902			
Collect Date:		06-NOV-97			06-NOV-97			06-NOV-97			06-NOV-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aroclor-1232		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1242		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1248		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1254		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Aroclor-1260		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
INORGANICS (WATER)	ug/l															
Antimony		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Arsenic		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Barium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Beryllium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Cadmium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Calcium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Chromium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Cobalt		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Copper		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Cyanide		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Iron		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Lead		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Magnesium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Manganese		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Mercury		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Nickel		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Selenium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Silver		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Sodium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Thallium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Tin		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Vanadium		-	ug/l			-	ug/l			-	ug/l			-	ug/l	
Zinc		-	ug/l			-	ug/l			-	ug/l			-	ug/l	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:	MF070009
Site	NELP
Locator	TCP00903
Collect Date:	06-NOV-97

		VALUE	QUAL	UNITS	DL
VOLATILES	ug/l				
Chloromethane		1	U	ug/l	1
Bromomethane		1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1
Chloroethane		1	U	ug/l	1
Methylene chloride		5	U	ug/l	5
Acetone		-		ug/l	
Carbon disulfide		-		ug/l	
1,1-Dichloroethane		8.3		ug/l	1
1,1-Dichloroethene		1	U	ug/l	1
1,2-Dichloroethene (total)		-		ug/l	
Chloroform		1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1
2-Butanone		-		ug/l	
1,1,1-Trichloroethane		1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1
Trichloroethene		1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1
Benzene		-		ug/l	
trans-1,3-Dichloropropene		1	U	ug/l	1
Bromoform		1	U	ug/l	1
4-Methyl-2-pentanone		-		ug/l	
2-Hexanone		-		ug/l	
Tetrachloroethene		1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1
Toluene		-		ug/l	
Chlorobenzene		1	U	ug/l	1
Ethylbenzene		-		ug/l	
Styrene		-		ug/l	
Xylenes (total)		-		ug/l	
Dichlorodifluoromethane		1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1
Acrolein		-		ug/l	
Iodomethane		-		ug/l	
1,4-Dichlorobenzene		1	U	ug/l	1
Acrylonitrile		-		ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070009			
Site		NELP			
Locator		TCP00903			
Collect Date:		06-NOV-97			
	VALUE	QUAL	UNITS	DL	
Dibromomethane		-	ug/l		
1,2-Dichlorobenzene	1	U	ug/l	1	
2-Chloroethylvinyl ether		-	ug/l		
Ethyl methacrylate		-	ug/l		
1,2,3-Trichloropropane		-	ug/l		
trans-1,4-Dichloro-2-butene		-	ug/l		
Isobutyl alcohol		-	ug/l		
1,1,1,2-Tetrachloroethane		-	ug/l		
1,2-Dibromo-3-chloropropane		-	ug/l		
Ethylene dibromide		-	ug/l		
1,4-Dioxane		-	ug/l		
3-Chloropropene		-	ug/l		
Acetonitrile		-	ug/l		
Chloroprene		-	ug/l		
Methacrylonitrile		-	ug/l		
Methyl methacrylate		-	ug/l		
Pentachloroethane		-	ug/l		
Propionitrile		-	ug/l		
Vinyl acetate		-	ug/l		
SEMIVOLATILES	ug/l				
N-Nitrosodimethylamine		-	ug/l		
Phenol		-	ug/l		
Aniline		-	ug/l		
bis(2-Chloroethyl) ether		-	ug/l		
Benzyl Alcohol		-	ug/l		
2-Methylphenol		-	ug/l		
bis(2-Chloroisopropyl) ether		-	ug/l		
N-Nitroso-di-n-propylamine		-	ug/l		
Hexachloroethane		-	ug/l		
Nitrobenzene		-	ug/l		
Isophorone		-	ug/l		
2-Nitrophenol		-	ug/l		
2,4-Dimethylphenol		-	ug/l		
Benzoic acid		-	ug/l		
bis(2-Chloroethoxy) methane		-	ug/l		
2,4-Dichlorophenol		-	ug/l		
1,2,4-Trichlorobenzene		-	ug/l		
Naphthalene		-	ug/l		
4-Chloroaniline		-	ug/l		
Hexachlorobutadiene		-	ug/l		
4-Chloro-3-methylphenol		-	ug/l		
2-Methylnaphthalene		-	ug/l		
Hexachlorocyclopentadiene		-	ug/l		
2,4,6-Trichlorophenol		-	ug/l		
Dimethylphthalate		-	ug/l		
2,4,5-Trichlorophenol		-	ug/l		
2-Chloronaphthalene		-	ug/l		
2-Nitroaniline		-	ug/l		
Acenaphthylene		-	ug/l		
2,6-Dinitrotoluene		-	ug/l		
3-Nitroaniline		-	ug/l		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070009		
Site		NELP		
Locator		TCP00903		
Collect Date:		06-NOV-97		
	VALUE	QUAL	UNITS	DL
Acenaphthene		-	ug/l	
2,4-Dinitrophenol		-	ug/l	
4-Nitrophenol		-	ug/l	
Dibenzofuran		-	ug/l	
2,4-Dinitrotoluene		-	ug/l	
Diethylphthalate		-	ug/l	
4-Chlorophenyl-phenylether		-	ug/l	
Fluorene		-	ug/l	
4-Nitroaniline		-	ug/l	
4,6-Dinitro-2-methylphenol		-	ug/l	
N-Nitrosodiphenylamine		-	ug/l	
1,2-Diphenylhydrazine		-	ug/l	
4-Bromophenyl-phenylether		-	ug/l	
Hexachlorobenzene		-	ug/l	
Pentachlorophenol		-	ug/l	
Phenanthrene		-	ug/l	
Anthracene		-	ug/l	
Di-n-Butylphthalate		-	ug/l	
Fluoranthene		-	ug/l	
Pyrene		-	ug/l	
Butylbenzylphthalate		-	ug/l	
3,3-Dichlorobenzidine		-	ug/l	
Benzo (a) anthracene		-	ug/l	
Chrysene		-	ug/l	
bis(2-Ethylhexyl) phthalate		-	ug/l	
Di-n-octylphthalate		-	ug/l	
Benzo (b) fluoranthene		-	ug/l	
Benzo (k) fluoranthene		-	ug/l	
Benzo (a) pyrene		-	ug/l	
Indeno (1,2,3-cd) pyrene		-	ug/l	
Dibenzo (a,h) anthracene		-	ug/l	
Benzo (g,h,i) perylene		-	ug/l	
2-Picoline		-	ug/l	
Methyl methanesulfonate		-	ug/l	
Ethyl methanesulfonate		-	ug/l	
Acetophenone		-	ug/l	
N-Nitrosopiperidine		-	ug/l	
Phenyl-tert-butylamine		-	ug/l	
2,6-Dichlorophenol		-	ug/l	
N-Nitroso-di-n-butylamine		-	ug/l	
N-Nitrosodiethylamine		-	ug/l	
N-Nitrosopyrrolidine		-	ug/l	
Benzidine		-	ug/l	
1,2,4,5-Tetrachlorobenzene		-	ug/l	
Pentachlorobenzene		-	ug/l	
1-Naphthylamine		-	ug/l	
2-Naphthylamine		-	ug/l	
2,3,4,6-Tetrachlorophenol		-	ug/l	
Phenacetin		-	ug/l	
4-Aminobiphenyl		-	ug/l	
Pentachloronitrobenzene		-	ug/l	
Pronamide		-	ug/l	

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:			MF070009		
Site			NELP		
Locator			TCP00903		
Collect Date:			06-NOV-97		
	VALUE	QUAL	UNITS	DL	
p-Dimethylaminoazobenzene		-	ug/l		
7,12-Dimethylbenz(A)Anthracene		-	ug/l		
3-Methylcholanthrene		-	ug/l		
Pyridine		-	ug/l		
N-Nitrosomethylethylamine		-	ug/l		
N-Nitrosomorpholine		-	ug/l		
o-Toluidine		-	ug/l		
Hexachloropropene		-	ug/l		
p-Phenylenediamine		-	ug/l		
Safrole		-	ug/l		
Isosafrole		-	ug/l		
1,4-Naphthoquinone		-	ug/l		
1,3-Dinitrobenzene		-	ug/l		
5-Nitro-o-toluidine		-	ug/l		
1,3,5-Trinitrobenzene		-	ug/l		
4-Nitroquinoline-1-oxide		-	ug/l		
Methapyrilene		-	ug/l		
3,3-Dimethylbenzidine		-	ug/l		
Hexachlorophene		-	ug/l		
Aramite		-	ug/l		
2-Chlorophenol		-	ug/l		
3- & 4-Methylphenol (2)		-	ug/l		
Hexachloropropene		-	ug/l		
2-Acetylaminofluorene		-	ug/l		
PESTICIDES/PCBs	ug/l				
alpha-BHC		-	ug/l		
beta-BHC		-	ug/l		
delta-BHC		-	ug/l		
gamma-BHC (Lindane)		-	ug/l		
Heptachlor		-	ug/l		
Aldrin		-	ug/l		
Heptachlor epoxide		-	ug/l		
Endosulfan I		-	ug/l		
Dieldrin		-	ug/l		
4,4-DDE		-	ug/l		
Endrin		-	ug/l		
Endosulfan II		-	ug/l		
4,4-DDD		-	ug/l		
Endosulfan sulfate		-	ug/l		
4,4-DDT		-	ug/l		
Methoxychlor		-	ug/l		
Endrin aldehyde		-	ug/l		
Endrin ketone		-	ug/l		
Chlordane		-	ug/l		
Chlorobenzilate		-	ug/l		
Diallate		-	ug/l		
Toxaphene		-	ug/l		
Isodrin		-	ug/l		
Kepone		-	ug/l		
Aroclor-1016		-	ug/l		
Aroclor-1221		-	ug/l		

US Naval Station, Mayport
Building 191 Groundwater Data

Lab Sample Number:		MF070009			
Site		NELP			
Locator		TCP00903			
Collect Date:		06-NOV-97			
	VALUE	QUAL	UNITS	DL	
Aroclor-1232		-	ug/l		
Aroclor-1242		-	ug/l		
Aroclor-1248		-	ug/l		
Aroclor-1254		-	ug/l		
Aroclor-1260		-	ug/l		
INORGANICS (WATER)	ug/l				
Antimony		-	ug/l		
Arsenic		-	ug/l		
Barium		-	ug/l		
Beryllium		-	ug/l		
Cadmium		-	ug/l		
Calcium		-	ug/l		
Chromium		-	ug/l		
Cobalt		-	ug/l		
Copper		-	ug/l		
Cyanide		-	ug/l		
Iron		-	ug/l		
Lead		-	ug/l		
Magnesium		-	ug/l		
Manganese		-	ug/l		
Mercury		-	ug/l		
Nickel		-	ug/l		
Selenium		-	ug/l		
Silver		-	ug/l		
Sodium		-	ug/l		
Thallium		-	ug/l		
Tin		-	ug/l		
Vanadium		-	ug/l		
Zinc		-	ug/l		

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED

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ENCO Laboratories

DHRS Certification No. E82277

Laboratory Narrative

Client: Harding Lawson

Project No.: Mayport Bldg. 191 (2504-05)

Lab No.: JR2446

Sample ID(s): EPP00202, TCP01302, EPG00401

Contaminant: Methylene Chloride

The above-referenced sample(s) reported positive results for one or more of the materials referred to as "common laboratory solvents". Their presence is suspected as being due to laboratory contamination.

The associated method blank and matrix spike results for these components indicate that this contamination is of a sporadic and irregular nature, and may not be actually present in the samples. The Florida Department of Environmental Protection forbids the use of "blank subtraction" on such results, and requires that all positive data determined be reported as analyzed, with appropriate data qualifiers if necessary.

At this time, Environmental Conservation Laboratories is investigating this problem for potential internal sources of contamination, in an attempt to reduce and eliminate these occurrences.

There were no other anomalies encountered with this report.

Environmental Conservation Laboratories, Inc.

Richard E. Camp, II
Laboratory Manager

cc: Dr. Mark Inman, Corporate Quality Assurance Officer

Laboratory Narrative

Client: Harding Lawson

Project No.: Mayport Bldg. 191 (2504-05)

Lab No.: JR2377

Sample ID(s): TCP00204

Contaminant: Methylene Chloride

The above-referenced sample(s) reported positive results for one or more of the materials referred to as "common laboratory solvents". Their presence is suspected as being due to laboratory contamination.

The associated method blank and matrix spike results for these components indicate that this contamination is of a sporadic and irregular nature, and may not be actually present in the samples. The Florida Department of Environmental Protection forbids the use of "blank subtraction" on such results, and requires that all positive data determined be reported as analyzed, with appropriate data qualifiers if necessary.

At this time, Environmental Conservation Laboratories is investigating this problem for potential internal sources of contamination, in an attempt to reduce and eliminate these occurrences.

There were no other anomalies encountered with this report.

Environmental Conservation Laboratories, Inc.

Richard E. Camp, II
Laboratory Manager

cc: Dr. Mark Inman, Corporate Quality Assurance Officer

CLIENT : Harding Lawson
ADDRESS: 2590 Executive Center
Circle E. - Berkeley Bldg.
Tallahassee, FL 32301-5001

REPORT # : JR2377
DATE SUBMITTED: July 17, 1998
DATE REPORTED : August 5, 1998

ATTENTION: Mr. Terry Hansen

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: 2504-05

Mayport Bldg. 191

#1	- TCT011	@ 08:00	(07/15/98)
#2	- TCP00802	@ 10:20	(07/15/98)
#3	- TCP01003	@ 11:45	(07/15/98)
#4	- TCP01002	@ 12:40	(07/15/98)
#5	- TCP01102	@ 17:50	(07/15/98)
#6	- TCP00204	@ 14:45	(07/16/98)
#7	- TCG00401	@ 15:30	(07/16/98)
#8	- TCP01203	@ 18:25	(07/16/98)
#9	- TCP01202	@ 18:45	(07/16/98)
#10	- TCP00902	@ 10:00	(07/17/98)
#11	- TCP00902D	@ 10:00	(07/17/98)
#12	- 25G00101	@ 16:30	(07/14/98)
#13	- 19G00101	@ 11:20	(07/16/98)

PROJECT MANAGER _____

Scott D. Martin
ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCT011**	**TCP00802**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	60	65	37-153
Date Analyzed	07/25/98	07/25/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCP00802**	**Units**
Methane	**0.069**	mg/L
Ethene	0.0010 U	mg/L
Ethane	0.0010 U	mg/L
Date Analyzed	07/30/98	

MISCELLANEOUS	**METHOD**	**TCP00802**	**Units**
Sulfate, Total	375.4	**13**	mg/L
Date Analyzed		07/24/98	
Sulfide, Total	376.1	1.0 U	mg/L
Date Analyzed		07/22/98	
Total Org. Carbon	415.1	**6.0**	mg/L
Date Analyzed		07/21/98	
Nitrate-Nitrite-N	353.1	0.020 U	mg/L
Date Analyzed		07/24/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCP01003**	**TCP01002**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	**7.0**	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	65	65	37-153
Date Analyzed	07/25/98	07/25/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCP01003**	**TCP01002**	**Units**
Methane	**0.017**	**0.022**	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	0.0010 U	0.0010 U	mg/L
Date Analyzed	07/30/98	07/30/98	

MISCELLANEOUS	**METHOD**	**TCP01003**	**TCP01002**	**Units**
Sulfate, Total	375.4	**250**	**76**	mg/L
Date Analyzed		07/24/98	07/24/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/22/98	07/22/98	
Total Org. Carbon	415.1	**14**	**4.0** I	mg/L
Date Analyzed		07/21/98	07/21/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/24/98	07/24/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCP01102**	**TCP00204**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	**2.0** I	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	**2.0**	µg/L
c-1,2-Dichloroethene	**1.0** I	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	65	70	37-153
Date Analyzed	07/25/98	07/26/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCP01102**	**TCP00204**	**Units**
Methane	**0.018**	**0.035**	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	0.0010 U	0.0010 U	mg/L
Date Analyzed	07/30/98	07/30/98	

MISCELLANEOUS	**METHOD**	**TCP01102**	**TCP00204**	**Units**
Sulfate, Total	375.4	**66**	**1400**	mg/L
Date Analyzed		07/24/98	07/24/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/22/98	07/22/98	
Total Org. Carbon	415.1	**8.0**	**13**	mg/L
Date Analyzed		07/21/98	07/21/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/24/98	07/24/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCG00401**	**TCP01203**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	**1.0** I	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	75	70	37-153
Date Analyzed	07/27/98	07/27/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCG00401**	**TCP01203**	**Units**
Methane	**0.0049**	**0.011**	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	0.0010 U	0.0010 U	mg/L
Date Analyzed	07/30/98	07/30/98	

MISCELLANEOUS	**METHOD**	**TCG00401**	**TCP01203**	**Units**
Sulfate, Total	375.4	**20**	**370**	mg/L
Date Analyzed		07/24/98	07/24/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/22/98	07/22/98	
Total Org. Carbon	415.1	**4.0**	**12**	mg/L
Date Analyzed		07/21/98	07/21/98	
Nitrate-Nitrite-N	353.1	**1.4**	0.020 U	mg/L
Date Analyzed		07/24/98	07/24/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCP01202**	**TCP00902**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	**2.0**	µg/L
c-1,2-Dichloroethene	1.0 U	**2.0**	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	**3.0**	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	70	65	37-153
Date Analyzed	07/27/98	07/27/98	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCP01202**	**TCP00902**	**Units**
Methane	**0.0074**	**0.034**	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	0.0010 U	0.0010 U	mg/L
Date Analyzed	07/30/98	07/30/98	

MISCELLANEOUS	**METHOD**	**TCP01202**	**TCP00902**	**Units**
Sulfate, Total	375.4	**70**	**280**	mg/L
Date Analyzed		07/24/98	07/24/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/22/98	07/22/98	
Total Org. Carbon	415.1	**4.0** I	**21**	mg/L
Date Analyzed		07/21/98	07/21/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/24/98	07/24/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCP00902D**	**Units**
Dichlorodifluoromethane	1.0 U	µg/L
Chloromethane	2.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
Bromomethane	1.0 U	µg/L
Chloroethane	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	µg/L
Methylene Chloride	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	µg/L
1,1-Dichloroethane	**2.0**	µg/L
c-1,2-Dichloroethene	**3.0**	µg/L
Chloroform	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	µg/L
Trichloroethene	**4.0**	µg/L
1,2-Dichloropropane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L

Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	65	37-153
Date Analyzed	07/27/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8080 - PESTICIDE/PCB'S	**25G00101**	**Units**
alpha-BHC	0.050 U	µg/L
beta-BHC	0.050 U	µg/L
gamma-BHC (Lindane)	0.050 U	µg/L
delta-BHC	0.050 U	µg/L
Heptachlor	0.050 U	µg/L
Aldrin	0.050 U	µg/L
Heptachlor epoxide	0.050 U	µg/L
Endosulfan I	0.050 U	µg/L
Dieldrin	0.050 U	µg/L
4,4'-DDE	0.050 U	µg/L
Endrin	0.050 U	µg/L
Endosulfan II	0.050 U	µg/L
4,4'-DDD	0.050 U	µg/L
Endrin aldehyde	0.050 U	µg/L
Endosulfan sulfate	0.050 U	µg/L
4,4'-DDT	0.050 U	µg/L
Methoxychlor	0.050 U	µg/L
Chlordane (Total)	1.0 U	µg/L
Chlordane alpha	1.0 U	µg/L
Chlordane gamma	1.0 U	µg/L
Toxaphene	2.0 U	µg/L
PCB-1016/1242	1.0 U	µg/L
PCB-1221	1.0 U	µg/L
PCB-1232	1.0 U	µg/L
PCB-1248	1.0 U	µg/L
PCB-1254	1.0 U	µg/L
PCB-1260	1.0 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
DBC	125	30-159
2,4,5,6-TCMX	107	52-122
Date Extracted	07/21/98	
Date Analyzed	07/23/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**LAB BLANK**	**Units**
Dichlorodifluoromethane	1.0 U	µg/L
Chloromethane	2.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
Bromomethane	1.0 U	µg/L
Chloroethane	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	µg/L
Methylene Chloride	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	µg/L
Chloroform	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	µg/L
Trichloroethene	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L

Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	70	37-153
Date Analyzed	07/24/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD 8080 - PESTICIDE/PCB'S	**LAB BLANK**	**Units**
alpha-BHC	0.050 U	µg/L
beta-BHC	0.050 U	µg/L
gamma-BHC (Lindane)	0.050 U	µg/L
delta-BHC	0.050 U	µg/L
Heptachlor	0.050 U	µg/L
Aldrin	0.050 U	µg/L
Heptachlor epoxide	0.050 U	µg/L
Endosulfan I	0.050 U	µg/L
Dieldrin	0.050 U	µg/L
4,4'-DDE	0.050 U	µg/L
Endrin	0.050 U	µg/L
Endosulfan II	0.050 U	µg/L
4,4'-DDD	0.050 U	µg/L
Endrin aldehyde	0.050 U	µg/L
Endosulfan sulfate	0.050 U	µg/L
4,4'-DDT	0.050 U	µg/L
Methoxychlor	0.050 U	µg/L
Chlordane (Total)	1.0 U	µg/L
Chlordane alpha	1.0 U	µg/L
Chlordane gamma	1.0 U	µg/L
Toxaphene	2.0 U	µg/L
PCB-1016/1242	1.0 U	µg/L
PCB-1221	1.0 U	µg/L
PCB-1232	1.0 U	µg/L
PCB-1248	1.0 U	µg/L
PCB-1254	1.0 U	µg/L
PCB-1260	1.0 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
DBC	120	30-159
2,4,5,6-TCMX	60	52-122
Date Extracted	07/20/98	
Date Analyzed	07/23/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

ENCO LABORATORIES
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DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**LAB BLANK**	**Units**
Methane	0.0010 U	mg/L
Ethene	0.0010 U	mg/L
Ethane	0.0010 U	mg/L
Date Analyzed	07/30/98	

MISCELLANEOUS	**METHOD**	**LAB BLANK**	**Units**
Sulfate, Total	375.4	1.0 U	mg/L
Date Analyzed		07/24/98	
Sulfide, Total	376.1	1.0 U	mg/L
Date Analyzed		07/22/98	
Total Org. Carbon	415.1	1.0 U	mg/L
Date Analyzed		07/21/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8010 (TCP00204,TCG00401,TCP01203,TCP01202,TCP00902,TCP00902D)				
Methylene Chloride	105/100/ 90	51-155	5	29
Chloroform	125/115/ 95	63-145	8	16
Carbon Tetrachloride	115/105/ 85	64-146	9	21
Trichloroethene	105/ 95/ 80	60-140	10	24
Tetrachloroethene	110/100/ 80	66-146	10	21
Chlorobenzene	100/108/ 88	70-137	8	19
EPA Method 8010 (TCP01002,TCP01102)				
Methylene Chloride	105/100/105	51-155	5	29
Chloroform	125/115/115	63-145	8	16
Carbon Tetrachloride	115/105/100	64-146	9	21
Trichloroethene	105/ 95/100	60-140	10	24
Tetrachloroethene	110/100/100	66-146	10	21
Chlorobenzene	100/108/102	70-137	8	19
A Method 608				
gamma-BHC (Lindane)	66/ 62/106	41-133	6	24
Heptachlor	60/ 59/114	34-169	2	27
Aldrin	65/ 63/114	31-159	3	27
Dieldrin	77/ 82/122	41-157	6	28
Endrin	65/ 63/124	41-157	3	28
4,4'-DDT	93/ 86/ 99	48-163	8	31
EPA Method RSK 175				
Methane	NA/ NA/ 99	-	NA	
Ethene	NA/ NA/103	-	NA	
Ethane	NA/ NA/104	-	NA	

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

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ENCO LABORATORIES
REPORT # : JR2377
DATE REPORTED: August 5, 1998
REFERENCE : 2504-05

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
Miscellaneous				
Sulfate, Total, 375.4	105/105/100	61-138	<1	22
Sulfide, Total, 376.1	NA/ NA/100	-	NA	
Total Org. Carbon, 415.1	105/110/104	69-132	4	13
Nitrate-Nitrite-N, 353.1	119/109/110	61-144	9	21
Total Metals				
Aluminum, 200.7	104/106/102	78-125	2	22
Antimony, 204.2	70/ 70/ 89	45-152	<1	15
Arsenic, 200.7	101/106/ 98	64-126	5	12
Barium, 200.7	99/101/ 98	74-119	2	11
Beryllium, 200.7	102/103/101	76-126	<1	12
Cadmium, 200.7	97/100/ 98	68-121	3	12
Calcium, 200.7	156/137/ 96	63-131	13	22
Chromium, 200.7	99/102/ 98	73-120	3	10
Cobalt, 200.7	98/101/ 98	76-120	3	17
Copper, 200.7	95/ 96/ 93	75-123	1	11
Iron, 200.7	102/102/ 98	48-144	<1	23
Lead, 200.7	98/102/ 98	68-126	4	19
Magnesium, 200.7	115/114/100	59-129	<1	22
Manganese, 200.7	99/100/ 98	86-105	1	19
Mercury, 245.1	107/108/103	70-136	<1	12
Nickel, 200.7	96/ 99/ 97	64-126	3	12
Potassium, 200.7	110/104/ 92	53-121	6	20
Selenium, 200.7	104/109/103	65-129	5	10
Silver, 200.7	110/111/106	69-121	<1	12
Sodium, 273.1	121/120/111	46-127	<1	21
Thallium, 279.2	101/105/102	69-153	4	15
Thallium, 200.7	101/105/100	67-135	4	13
Vanadium, 200.7	104/106/102	82-115	2	16
Zinc, 200.7	97/ 98/ 97	63-131	1	24

Environmental Conservation Laboratories Comprehensive QA Plan #960038
< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference
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ENCO Laboratories

DHRS Certification No. E82277

CLIENT : Harding Lawson
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Tallahassee, FL 32301-5001

REPORT # : JR2446
DATE SUBMITTED: July 24, 1998
DATE REPORTED : August 17, 1998

ATTENTION: Mr. Mike Jaynes

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: 2504-05

Mayport Bldg. 191

#1	- EPP00401	@ 09:30	(07/22/98)
#2	- EPP00202	@ 11:00	(07/22/98)
#3	- EPP00302	@ 14:45	(07/22/98)
#4	- TCP01302	@ 16:05	(07/22/98)
#5	- EPP00101	@ 08:45	(07/23/98)
#6	- TCP01402	@ 11:07	(07/23/98)
#7	- TCP01402D	@ 11:07	(07/23/98)
#8	- TCP01401	@ 11:35	(07/23/98)
#9	- TCP00703	@ 14:25	(07/23/98)
#10	- EPG00401	@ 16:30	(07/23/98)
#11	- EPG00101	@ 09:00	(07/24/98)
#12	- EPG00301	@ 10:25	(07/24/98)
#13	- TCR020	@ 11:15	(07/24/98)
#14	- AAP00201	@ 13:07	(07/24/98)

OJECT MANAGER Scott D. Martin

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	EPP00401	EPP00202	Units
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	**1.0** I	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	**2.0** I	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	82	90	37-161
Date Analyzed	07/29/98	07/29/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**EPP00401**	**EPP00202**	**Units**
Methane	**2.2**	**2.3**	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	**0.0016**	0.0010 U	mg/L
Date Analyzed	08/06/98	08/06/98	

MISCELLANEOUS	**METHOD**	**EPP00401**	**EPP00202**	**Units**
Sulfate, Total	375.4	**27**	1.0 U	mg/L
Date Analyzed		08/03/98	08/03/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/31/98	07/31/98	
Total Org. Carbon	415.1	**10**	**9.0**	mg/L
Date Analyzed		08/14/98	08/14/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/29/98	07/29/98	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**EPP00302**	**TCP01302**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	**5.0**	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	91	62	37-161
Date Analyzed	07/30/98	07/30/98	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**EPP00302**	**TCP01302**	**Units**
Methane	**1.5**	**0.019**	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	0.0010 U	0.0010 U	mg/L
Date Analyzed	08/06/98	08/06/98	

MISCELLANEOUS	**METHOD**	**EPP00302**	**TCP01302**	**Units**
Sulfate, Total	375.4	**23**	**27**	mg/L
Date Analyzed		08/03/98	08/03/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/31/98	07/31/98	
Total Org. Carbon	415.1	**6.0**	**3.0** I	mg/L
Date Analyzed		08/14/98	08/14/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/29/98	07/29/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	EPP00101	TCP01402	Units
Dichlorodifluoromethane	**1.2** I	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	85	91	37-161
Date Analyzed	07/30/98	07/30/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**EPP00101**		**TCP01402**		**Units**
Methane	**0.31**	D1	**0.064**	D2	mg/L
Ethene	0.0050 U	D1	0.0020 U	D2	mg/L
Ethane	0.0050 U	D1	0.0020 U	D2	mg/L
Date Analyzed	08/10/98		08/10/98		

MISCELLANEOUS	**METHOD**	**EPP00101**	**TCP01402**	**Units**
Sulfate, Total	375.4	**43**	**13**	mg/L
Date Analyzed		08/03/98	08/03/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/31/98	07/31/98	
Total Org. Carbon	415.1	**3.0** I	**5.0**	mg/L
Date Analyzed		08/14/98	08/14/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/29/98	07/29/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).
D1 = Analyte value determined from a 1:5 dilution.
D2 = Analyte value determined from a 1:2 dilution.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCP01402D**	**TCP01401**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	79	57	37-161
Date Analyzed	07/31/98	07/31/98	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCP01401**		**Units**
Methane	**0.31**	D1	mg/L
Ethene	0.0050 U	D1	mg/L
Ethane	0.0050 U	D1	mg/L
Date Analyzed	08/10/98		

MISCELLANEOUS	**METHOD**	**TCP01401**	**Units**
Sulfate, Total	375.4	**37**	mg/L
Date Analyzed		08/03/98	
Sulfide, Total	376.1	1.0 U	mg/L
Date Analyzed		07/31/98	
Total Org. Carbon	415.1	**8.0**	mg/L
Date Analyzed		08/14/98	
Nitrate-Nitrite-N	353.1	0.020 U	mg/L
Date Analyzed		07/29/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.
D1 = Analyte value determined from a 1:5 dilution.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCP00703**	**EPG00401**	**Units**
Dichlorodifluoromethane	1.0 U	**1.3** I	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	**14**	1.0 U	µg/L
Methylene Chloride	2.0 U	**4.0**	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	**19**	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	**1.9** I	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	82	82	37-161
Date Analyzed	07/31/98	07/31/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**TCP00703**	**EPG00401**		**Units**
Methane	**0.067**	**0.16**	D1	mg/L
Ethene	0.0010 U	0.0050 U	D1	mg/L
Ethane	0.0010 U	0.0050 U	D1	mg/L
Date Analyzed	08/07/98	08/10/98		

MISCELLANEOUS	**METHOD**	**TCP00703**	**EPG00401**	**Units**
Sulfate, Total	375.4	**86**	**62**	mg/L
Date Analyzed		08/03/98	08/03/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/31/98	07/31/98	
Total Org. Carbon	415.1	**11**	**5.0**	mg/L
Date Analyzed		08/14/98	08/14/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/29/98	07/29/98	

U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:5 dilution.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**EPG00101**	**EPG00301**	**Units**
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	**1.3** I	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	**23**	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	69	74	37-161
Date Analyzed	07/31/98	07/31/98	

U = Compound was analyzed for but not detected to the level shown.
I = Analyte detected; value is between the Method Detection Level (MDL) and the Practical Quantitation Level (PQL).

RESULTS OF ANALYSIS

EPA METHOD RSK 175 - Dissolved Gases	**EPG00101**		**EPG00301**		**Units**
Methane	**0.22**	D3	**0.17**	D1	mg/L
Ethene	0.010 U	D3	0.0050 U	D1	mg/L
Ethane	0.010 U	D3	0.0050 U	D1	mg/L
Date Analyzed	08/10/98		08/10/98		

MISCELLANEOUS	**METHOD**	**EPG00101**	**EPG00301**	**Units**
Sulfate, Total	375.4	**190**	**62**	mg/L
Date Analyzed		08/03/98	08/03/98	
Sulfide, Total	376.1	1.0 U	1.0 U	mg/L
Date Analyzed		07/31/98	07/31/98	
Total Org. Carbon	415.1	**11**	**15**	mg/L
Date Analyzed		08/14/98	08/14/98	
Nitrate-Nitrite-N	353.1	0.020 U	0.020 U	mg/L
Date Analyzed		07/29/98	07/29/98	

U = Compound was analyzed for but not detected to the level shown.
D1 = Analyte value determined from a 1:5 dilution.
D3 = Analyte value determined from a 1:10 dilution.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	**TCR020**	**Units**
Dichlorodifluoromethane	1.0 U	µg/L
Chloromethane	2.0 U	µg/L
Vinyl Chloride	1.0 U	µg/L
Bromomethane	1.0 U	µg/L
Chloroethane	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	µg/L
Methylene Chloride	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	µg/L
Chloroform	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	µg/L
Trichloroethene	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	µg/L
Bromodichloromethane	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	µg/L
Tetrachloroethene	1.0 U	µg/L
Dibromochloromethane	1.0 U	µg/L
Chlorobenzene	1.0 U	µg/L
Bromoform	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	µg/L

Surrogate:	**% RECOV**	**LIMITS**
Bromofluorobenzene	67	37-161
Date Analyzed	07/31/98	

U = Compound was analyzed for but not detected to the level shown.
NR = Analysis not requested for this sample.

RESULTS OF ANALYSIS

EPA METHOD 8010 - VOLATILE HALOCARBONS	LAB BLANK	LAB BLANK	Units
Dichlorodifluoromethane	1.0 U	1.0 U	µg/L
Chloromethane	2.0 U	2.0 U	µg/L
Vinyl Chloride	1.0 U	1.0 U	µg/L
Bromomethane	1.0 U	1.0 U	µg/L
Chloroethane	2.0 U	2.0 U	µg/L
Trichlorofluoromethane	2.0 U	2.0 U	µg/L
1,1-Dichloroethene	1.0 U	1.0 U	µg/L
Methylene Chloride	2.0 U	2.0 U	µg/L
t-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
1,1-Dichloroethane	1.0 U	1.0 U	µg/L
c-1,2-Dichloroethene	1.0 U	1.0 U	µg/L
Chloroform	1.0 U	1.0 U	µg/L
1,1,1-Trichloroethane	1.0 U	1.0 U	µg/L
Carbon Tetrachloride	1.0 U	1.0 U	µg/L
1,2-Dichloroethane	1.0 U	1.0 U	µg/L
Trichloroethene	1.0 U	1.0 U	µg/L
1,2-Dichloropropane	1.0 U	1.0 U	µg/L
Bromodichloromethane	1.0 U	1.0 U	µg/L
c-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
t-1,3-Dichloropropene	1.0 U	1.0 U	µg/L
1,1,2-Trichloroethane	1.0 U	1.0 U	µg/L
Tetrachloroethene	1.0 U	1.0 U	µg/L
Dibromochloromethane	1.0 U	1.0 U	µg/L
Chlorobenzene	1.0 U	1.0 U	µg/L
Bromoform	1.0 U	1.0 U	µg/L
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U	µg/L
1,3-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,4-Dichlorobenzene	1.0 U	1.0 U	µg/L
1,2-Dichlorobenzene	1.0 U	1.0 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	89	71	37-161
Date Analyzed	07/29/98	07/31/98	

U = Compound was analyzed for but not detected to the level shown.

RESULTS OF ANALYSIS

EPA METHOD 8310 - PAH BY HPLC	**LAB BLANK**	**Units**
Naphthalene	0.50 U	µg/L
Acenaphthylene	0.10 U	µg/L
1-Methylnaphthalene	0.50 U	µg/L
2-Methylnaphthalene	0.50 U	µg/L
Acenaphthene	0.50 U	µg/L
Fluorene	0.10 U	µg/L
Phenanthrene	0.050 U	µg/L
Anthracene	0.50 U	µg/L
Fluoranthene	0.10 U	µg/L
Pyrene	0.050 U	µg/L
Benzo(a)anthracene	0.050 U	µg/L
Chrysene	0.050 U	µg/L
Benzo(b)fluoranthene	0.10 U	µg/L
Benzo(k)fluoranthene	0.050 U	µg/L
Benzo(a)pyrene	0.050 U	µg/L
Dibenzo(a,h)anthracene	0.10 U	µg/L
Benzo(g,h,i)perylene	0.10 U	µg/L
Indeno(1,2,3-cd)pyrene	0.050 U	µg/L
Surrogate:	**% RECOV**	**LIMITS**
p-terphenyl	92	60-120
Date Extracted	07/26/98	
Date Analyzed	07/28/98	

EPA METHOD RSK 175 - Dissolved Gases	**LAB BLANK**	**LAB BLANK**	**Units**
Methane	0.0010 U	0.0010 U	mg/L
Ethene	0.0010 U	0.0010 U	mg/L
Ethane	0.0010 U	0.0010 U	mg/L
Date Analyzed	08/06/98	08/07/98	

U = Compound was analyzed for but not detected to the level shown.

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8021 (EPP00401,EPP00202,TCP01302,EPP00101,TCP01402)				
Methylene Chloride	109/ 94/ 82	51-155	15	29
Chloroform	123/117/102	63-145	5	16
Carbon Tetrachloride	105/125/ 95	64-146	17	21
Trichloroethene	106/102/ 93	60-140	4	24
Tetrachloroethene	111/107/ 92	66-146	4	21
Chlorobenzene	98/ 96/ 87	70-137	2	19
EPA Method 8021 (EPP00302)				
Methylene Chloride	109/ 94/ 77	51-155	15	29
Chloroform	123/117/105	63-145	5	16
Carbon Tetrachloride	105/125/112	64-146	17	21
Trichloroethene	106/102/ 97	60-140	4	24
Tetrachloroethene	111/107/105	66-146	4	21
Chlorobenzene	98/ 96/ 92	70-137	2	19
EPA Method 8021 (TCP01402D,TCP01401,TCP00703,EPG00401,EPG00101,EPG00301,TCR020)				
Methylene Chloride	80/ 75/ 93	51-155	6	29
Chloroform	131/121/123	63-145	8	16
Carbon Tetrachloride	141/137/141	64-146	3	21
Trichloroethene	120/108/112	60-140	10	24
Tetrachloroethene	122/106/116	66-146	14	21
Chlorobenzene	103/109/108	70-137	6	19

Environmental Conservation Laboratories Comprehensive QA Plan #960038

< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
EPA Method 8310				
Naphthalene	*/ */ 73	66-105	*	20
Acenaphthene	*/ */ 86	66-104	*	19
Benzo(a)pyrene	*/ */ 82	50-122	*	36
Benzo(g,h,i)perylene	*/ */ 81	64-133	*	34
EPA Method RSK 175				
Methane	NA/ NA/102	NA	NA	NA
Ethene	NA/ NA/104	NA	NA	NA
Ethane	NA/ NA/106	NA	NA	NA
EPA Method RSK 175				
Methane	NA/ NA/ 99	NA	NA	NA
Ethene	NA/ NA/103	NA	NA	NA
Ethane	NA/ NA/104	NA	NA	NA
Miscellaneous				
Nitrite-N, 354.1	92/ 89/ 98	69-124	3	13
Sulfate, Total, 375.4	98/ 97/100	61-138	1	22
Nitrate-Nitrite-N, 353.1	89/109/ NA	61-144	20	21
Total Org. Carbon, 415.1	104/103/ 97	69-132	<1	13

Environmental Conservation Laboratories Comprehensive QA Plan #960038

* = MS/MSD/RPD unavailable due to high original sample concentration.
< = Less Than
MS = Matrix Spike
MSD = Matrix Spike Duplicate
LCS = Laboratory Control Standard
RPD = Relative Percent Difference

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APPENDIX C

PRELIMINARY RISK CALCULATION SPREADSHEETS

TABLE C-1
Adult Resident - Reasonable Maximum Exposure
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Exposure Parameters

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	2	liters/day	USEPA, 1991
BODY WEIGHT	BW	70	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1991
EXPOSURE DURATION	ED	24	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	24	years	USEPA, 1991

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance:
"Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
ug/liter = microgrrams per liter
kg = kilogram
mg/ug = microgram per kilogram
mg/kg-day = milligram per kilogram per day

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)-1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

$$\text{INTAKE} = \frac{\text{CW x IR x EF x ED x CF}}{\text{BW x AT x 365 days/year}}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE C-1
Adult Resident - Reasonable Maximum Exposure
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Carcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day)^-1	CANCER RISK INGESTION
1,1-Dichloroethene	14	ug/liter	1.3E-04	0.6	7.9E-05
Chloroform	11	ug/liter	1.0E-04	0.0061	6.3E-07
Bromodichloromethane	5	ug/liter	4.7E-05	0.062	2.9E-06
Dibromochloromethane	1	ug/liter	9.4E-06	0.084	7.9E-07
Methylene chloride	3	ug/liter	2.8E-05	0.0075	2.1E-07
Tetrachloroethene	52	ug/liter	4.9E-04	0.002	9.8E-07
Trichloroethene	260	ug/liter	2.4E-03	0.011	2.7E-05
Vinyl cloride	1.2	ug/liter	1.1E-05	0.3	3.4E-06
Arsenic	13	ug/liter	1.2E-04	1.5	1.8E-04
				TOTAL CANCER RISK	3E-04

ug/liter = micrograms per liter.
mg/kg-day = milligram per kilogram per day.

TABLE C-1
Adult Resident - Reasonable Maximum Exposure
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Noncarcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION	TARGET ORGANS OR EFFECT
1,1-Dichloroethene	14	ug/liter	3.8E-04	0.009	0.04	Kidney, Heart, and Lung
Chloroform	11	ug/liter	3.0E-04	0.01	0.03	Liver and Kidney
Bromodichloromethane	5	ug/liter	1.4E-04	0.02	0.01	
Dibromochloromethane	1	ug/liter	2.7E-05	0.02	0.0	
Methylene chloride	3		8.2E-05	0.06	0.001	Central Nervous System
Tetrachloroethene	52		1.4E-03	0.01	0.14	Liver and Kidney
Trichloroethene	260		7.1E-03	0.006	1.19	Neurtoxic
Vinyl chloride	1.2					
Arsenic	13	ug/liter	3.6E-04	0.0003	1.2	Skin
Iron	1407	ug/liter	3.9E-02			Liver and Kidney
Manganese	128.68	ug/liter	3.5E-03	0.047	0.1	Central Nervous System
				TOTAL HAZARD INDEX	**3**	

mg/kg-day = milligrams per kilogram per day
ug/liter = micrograms per liter
ND = no data available.
NC = not calculated

Table C-2
Child Resident - Reasonable Maximum Exposure
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Exposure Parameters

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	1	liters/day	USEPA, 1995
BODY WEIGHT	BW	15	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1991
EXPOSURE DURATION	ED	6	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	USEPA, 1991

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance:
"Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
USEPA, 1995. Region IV Supplemental Gudance to RAGS, Bulletin No. 3, November.
ug/liter = micrograms per liter
kg = kilogram
mg/ug = milligram per microgram
mg/kg-day = milligram per kilogram per day

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)-1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

$$\text{INTAKE} = \frac{\text{CW x IR x EF x ED x CF}}{\text{BW x AT x 365 days/year}}$$

Note: For noncarcinogenic effects, AT = ED.

Table C-2
Child Resident - Reasonable Maximum Exposure
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Carcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day)^-1	CANCER RISK INGESTION
1,1-Dichloroethene	14	ug/liter	7.7E-05	0.6	4.6E-05
Chloroform	11	ug/liter	6.0E-05	0.0061	3.7E-07
Bromodichloromethane	5	ug/liter	2.7E-05	0.062	1.7E-06
Dibromochloromethane	1	ug/liter	5.5E-06	0.084	4.6E-07
Methylene chloride	3	ug/liter	1.6E-05	0.0075	1.2E-07
Tetrachloroethene	52	ug/liter	2.9E-04	0.002	5.7E-07
Trichloroethene	260	ug/liter	1.4E-03	0.011	1.6E-05
Vinyl chloride	1.2	ug/liter	6.6E-06	0.3	2.0E-06
Arsenic	13	ug/liter	7.1E-05	1.5	1.1E-04
				TOTAL CANCER RISK	2E-04

mg/kg-day - milligrams per kilogram per day
ug/liter = micrograms per liter.

Table C-2
Child Resident - Reasonable Maximum Exposure
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Nocarcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION	TARGET ORGANS OR EFFECT
1,1-Dichloroethene	14	ug/liter	8.9E-04	0.009	0.10	Kidney, Heart, and Lung
Chloroform	11	ug/liter	7.0E-04	0.01	0.07	Liver and Kidney
Bromodichloromethane	5	ug/liter	3.2E-04	0.02	0.02	
Dibromochloromethane	1	ug/liter	6.4E-05	0.02	0.003	
Methylene chloride	3	ug/liter	1.9E-04	0.06	0.0032	Central Nervous System
Tetrachloroethene	52	ug/liter	3.3E-03	0.01	0.33	Liver and Kidney
Trichloroethene	260	ug/liter	1.7E-02	0.006	2.77	Neurtoxic
Vinyl chloride	1.2	ug/liter	7.7E-05			
Arsenic	13	ug/liter	8.3E-04	0.0003	2.77	Skin
Iron	1407	ug/liter	9.0E-02			Liver and Kidney
Manganese	129	ug/liter	8.2E-03	0.047	0.18	Central Nervous System
				TOTAL HAZARD INDEX	6	

mg/kg-day - milligrams per kilogram per day
ug/liter = micrograms per liter.
ND = no data available.
NC = not calculated.

TABLE C-3
Adult Resident - Central Tendency
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Exposure Parameters

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	1.4	liters/day	USEPA, 1991
BODY WEIGHT	BW	70	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1991
EXPOSURE DURATION	ED	7	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	7	years	USEPA, 1991

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance:
"Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
ug/liter = microgrrams per liter
kg = kilogram
mg/ug = microgram per kilogram
mg/kg-day = milligram per kilogram per day

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)-1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

$$\text{INTAKE} = \frac{\text{CW x IR x EF x ED x CF}}{\text{BW x AT x 365 days/year}}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE C-3
Adult Resident - Central Tendency
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Carcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day)^-1	CANCER RISK INGESTION
1,1-Dichloroethene	14	ug/liter	2.7E-05	0.6	1.6E-05
Chloroform	11	ug/liter	2.1E-05	0.0061	1.3E-07
Bromodichloromethane	5	ug/liter	9.6E-06	0.062	5.9E-07
Dibromochloromethane	1	ug/liter	1.9E-06	0.084	1.6E-07
Methylene chloride	3	ug/liter	5.8E-06	0.0075	4.3E-08
Tetrachloroethene	52	ug/liter	1.0E-04	0.002	2.0E-07
Trichloroethene	260	ug/liter	5.0E-04	0.011	5.5E-06
Vinyl cloride	1.2	ug/liter	2.3E-06	0.3	6.9E-07
Arsenic	13	ug/liter	2.5E-05	1.5	3.7E-05
			TOTAL CANCER RISK		**6E-05**

ug/liter = micrograms per liter.
mg/kg-day = milligram per kilogram per day.

TABLE C-3
Adult Resident - Central Tendency
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Noncarcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION	TARGET ORGANS OR EFFECT
1,1-Dichloroethene	14	ug/liter	2.7E-04	0.009	0.03	Kidney, Heart, and Lung
Chloroform	11	ug/liter	2.1E-04	0.01	0.02	Liver and Kidney
Bromodichloromethane	5	ug/liter	9.6E-05	0.02	0.00	
Dibromochloromethane	1	ug/liter	1.9E-05	0.02	0.0	
Methylene chloride	3		5.8E-05	0.06	0.001	Central Nervous System
Tetrachloroethene	52		1.0E-03	0.01	0.10	Liver and Kidney
Trichloroethene	260		5.0E-03	0.006	0.83	Neurtoxic
Vinyl chloride	1.2					
Arsenic	13	ug/liter	2.5E-04	0.0003	0.8	Skin
Iron	1407	ug/liter				Liver and Kidney
Manganese	128.68	ug/liter		0.047	0.0E+00	Central Nervous System
				TOTAL HAZARD INDEX	**2**	

mg/kg-day = milligrams per kilogram per day
ug/liter = micrograms per liter
ND = no data available.
NC = not calculated

TABLE C-4
Child Resident - Central Tendency
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Exposure Parameters

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	0.7	liters/day	USEPA, 1991
BODY WEIGHT	BW	15	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1991
EXPOSURE DURATION	ED	2	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	2	years	USEPA, 1991

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance:
"Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
ug/liter = micrograms per liter
kg = kilogram
mg/ug = microgram per kilogram
mg/kg-day = milligram per kilogram per day

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)-1

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

$$\text{INTAKE} = \frac{\text{CW x IR x EF x ED x CF}}{\text{BW x AT x 365 days/year}}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE C-4
Child Resident - Central Tendency
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Carcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day)^-1	CANCER RISK INGESTION
1,1-Dichloroethene	14	ug/liter	1.8E-05	0.6	1.1E-05
Chloroform	11	ug/liter	1.4E-05	0.0061	8.6E-08
Bromodichloromethane	5	ug/liter	6.4E-06	0.062	4.0E-07
Dibromochloromethane	1	ug/liter	1.3E-06	0.084	1.1E-07
Methylene chloride	3	ug/liter	3.8E-06	0.0075	2.9E-08
Tetrachloroethene	52	ug/liter	6.7E-05	0.002	1.3E-07
Trichloroethene	260	ug/liter	3.3E-04	0.011	3.7E-06
Vinyl cloride	1.2	ug/liter	1.5E-06	0.3	4.6E-07
Arsenic	13	ug/liter	1.7E-05	1.5	2.5E-05
Iron	1407	ug/liter	1.8E-03		
Manganese	129	ug/liter	1.6E-04	0.047	7.7E-06
			TOTAL CANCER RISK		5E-05

ug/liter = micrograms per liter.
mg/kg-day = milligram per kilogram per day.

TABLE C-4
Child Resident - Central Tendency
Ingestion of Groundwater (Unfiltered) as Drinking Water

Technical Memorandum Groundwater Assessment of
Tetrachloroethene Release at Building 191
U.S. Naval Station, Mayport, Florida

Noncarcinogenic Effects

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION	TARGET ORGANS OR EFFECT
1,1-Dichloroethene	14	ug/liter	6.3E-04	0.009	0.07	Kidney, Heart, and Lung
Chloroform	11	ug/liter	4.9E-04	0.01	0.05	Liver and Kidney
Bromodichloromethane	5	ug/liter	2.2E-04	0.02	0.01	
Dibromochloromethane	1	ug/liter	4.5E-05	0.02	0.0	
Methylene chloride	3		1.3E-04	0.06	0.002	Central Nervous System
Tetrachloroethene	52		2.3E-03	0.01	0.23	Liver and Kidney
Trichloroethene	260		1.2E-02	0.006	1.94	Neurtoxic
Vinyl chloride	1.2					
Arsenic	13	ug/liter	5.8E-04	0.0003	1.9	Skin
Iron	1407	ug/liter				Liver and Kidney
Manganese	128.68	ug/liter		0.047	0.0E+00	Central Nervous System
			TOTAL HAZARD INDEX		4	

mg/kg-day = milligrams per kilogram per day
ug/liter = micrograms per liter
ND = no data available.
NC = not calculated

APPENDIX D

NATURAL ATTENUATION CRITERIA AND CALCULATIONS

United States
Environmental Protection
Agency

Office of Research and
Development
Washington DC 20460

EPA/600/R-98/128
September 1998

EPA

Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water

TECHNICAL PROTOCOL FOR EVALUATING NATURAL ATTENUATION OF CHLORINATED SOLVENTS IN GROUND WATER

by

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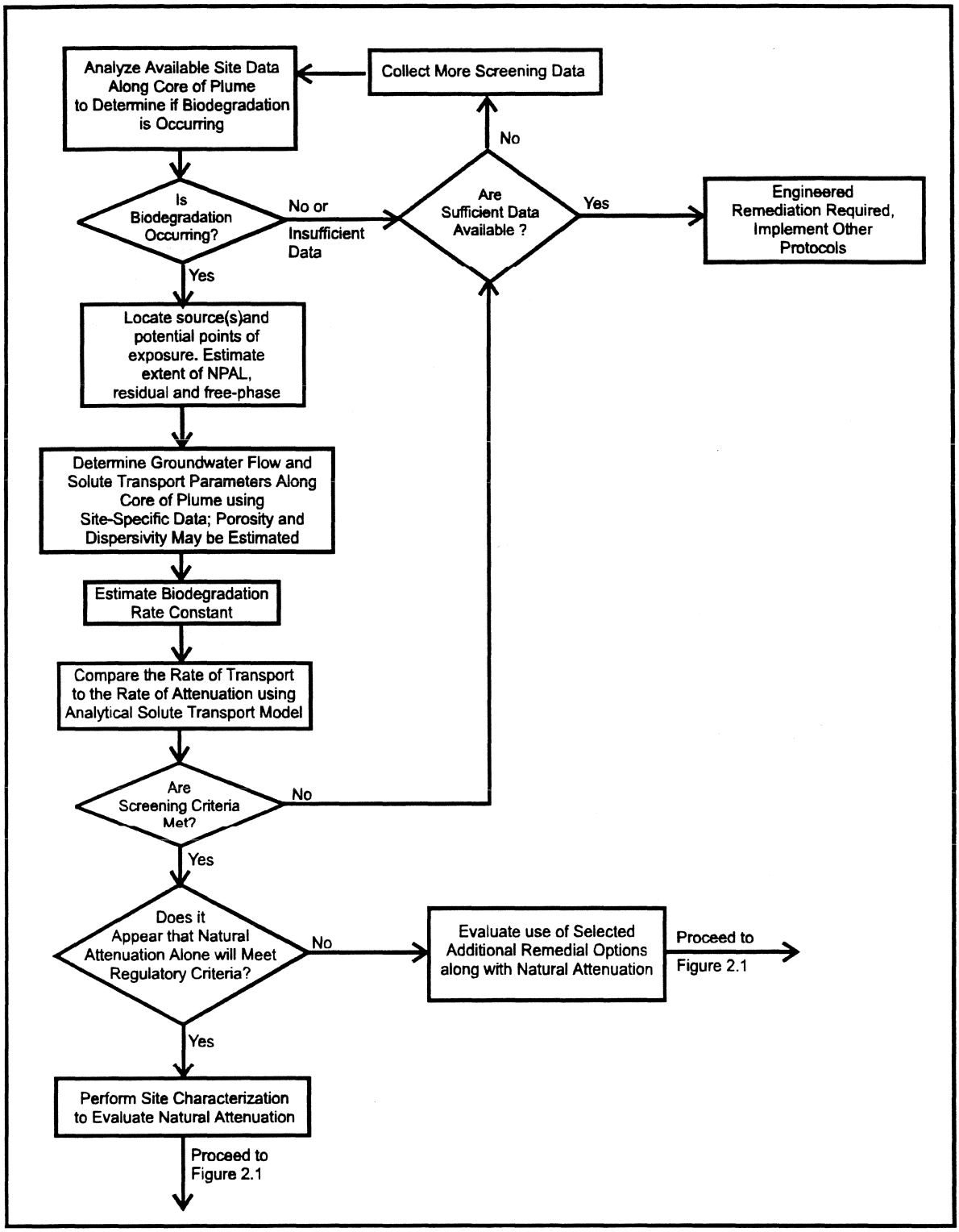

Figure 2.3 *Initial screening process flow chart.*

Table 2.3 Analytical Parameters and Weighting for Preliminary Screening for Anaerobic Biodegradation Processes[a/]

Analysis	Concentration in Most Contaminated Zone	Interpretation	Value
Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
Sulfide*	>1 mg/L	Reductive pathway possible	3
Methane*	<0.5 mg/L >0.5 mg/L	VC oxidizes Ultimate reductive daughter product, VC Accumulates	0 3
Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV) <-100mV	Reductive pathway possible Reductive pathway likely	1 2
pH*	5 < pH < 9 5 > pH >9	Optimal range for reductive pathway Outside optimal range for reductive pathway	0 -2
TOC	> 20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
Temperature*	> 20°C	At T >20°C biochemical process is accelerated	1
Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
Chloride*	>2x background	Daughter product of organic chlorine	2
Hydrogen	>1 nM	Reductive pathway possible, VC may accumulate	3
Hydrogen	<1 nM	VC oxidized	0
Volatile Fatty Acids	> 0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
BTEX*	> 0.1 mg/L	Carbon and energy source; drives dechlorination	2
Tetrachloroethene		Material released	0
Trichloroethene*		Material released Daughter product of PCE	0 2[a/]
DCE*		Material released Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	0 2[a/]
VC*		Material released Daughter product of DCE	0 2[a/]
1,1,1-Trichloroethane*		Material released	0
DCA		Daughter product of TCA under reducing conditions	2
Carbon Tetrachloride		Material released	0
Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
Ethene/Ethane	>0.01mg/L >0.1 mg/L	Daughter product of VC/ethene	2 3
Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
Dichloromethane		Material released Daughter product of Chloroform	0 2

* Required analysis. a/ Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).

Table 2.4 Interpretation of Points Awarded During Screening Step 1

Score	Interpretation
0 to 5	Inadequate evidence for anaerobic biodegradation* of chlorinated organics
6 to 14	Limited evidence for anaerobic biodegradation* of chlorinated organics
15 to 20	Adequate evidence for anaerobic biodegradation* of chlorinated organics
> 20	Strong evidence for anaerobic biodegradation* of chlorinated organics

**reductive dechlorination*

The following two examples illustrate how Step 1 of the screening process is implemented. The site used in the first example is a former fire training area contaminated with chlorinated solvents mixed with fuel hydrocarbons. The presence of the fuel hydrocarbons appears to reduce the ORP of the ground water to the extent that reductive dechlorination is favorable. The second example contains data from a dry cleaning site contaminated only with chlorinated solvents. This site was contaminated with spent cleaning solvents that were dumped into a shallow dry well situated just above a well-oxygenated, unconfined aquifer with low organic carbon concentrations of dissolved organic carbon.

Example 1: Strong Evidence for Anaerobic Biodegradation (Reductive Dechlorination) of Chlorinated Organics

Analyte	Concentration in Most Contaminated Zone	Points Awarded
Dissolved Oxygen	0.1 mg/L	3
Nitrate	0.3 mg/L	2
Iron (II)	10 mg/L	3
Sulfate	2 mg/L	2
Methane	5 mg/L	3
ORP	-190 mV	2
Chloride	3 times background	2
PCE (released)	1,000 µg/L	0
TCE (none released)	1,200 µg/L	2
cis-DCE (none released)	500 µg/L	2
VC (none released)	50 µg/L	2
	Total Points Awarded	23 Points

In this example, the investigator can infer that biodegradation is likely occurring at the time of sampling and may proceed to Step 2.

Example 2: Anaerobic Biodegradation (Reductive Dechlorination) Unlikely

Analyte	Concentration in Most Contaminated Zone	Points Awarded
Dissolved Oxygen	3 mg/L	-3
Nitrate	0.3 mg/L	2
Iron (II)	Not Detected (ND)	0
Sulfate	10 mg/L	2
Methane	ND	0
ORP	+ 100 mV	0
Chloride	background	0
TCE (released)	1,200 µg/L	0
cis-DCE (none released)	ND	0
VC (none released)	ND	0
	Total Points Awarded	1 Point

Natural Attenuation Scoring – Water Table Aquifer Zone (Zone A)

Analysis	Minimum Concentration	Maximum Concentration	Scoring Criteria	Rating	Minimum Value	Maximum Value
Oxygen	3.7	0	<.5	3	0	3
Oxygen	3.7	0	>5	-3	0	0
Nitrate	0.051	0.23	<1	2	2	2
Iron II	0.005	1.76	>1	3	0	3
Sulfate	20	190	<20	2	2	0
Sulfide			>1	3		
Methane	0.0049	2.2	>.5	3	0	3
ORP	212.3		<50	1	0	0
ORP	212.3	-101	<-100	2	0	2
pH	6.93	6.93	pH<5	-2	0	0
pH	7.44	7.44	pH>9	-2	0	0
TOC	3	15	>20	2	0	0
Temperature	26.7	29.2	>20 C	2	2	2
Carbon Dioxide	35	35	Bkg Value			
Carbon Dioxide	35	205	>2x Bkg	1	0	1
Alkalinity	47.6	47.6	Bkg Value			
Alkalinity	47.6	289	>2x Bkg	1	0	1
Chloride	15	15	Bkg Value			
Chloride	15	125	>2x Bkg	1	0	1
Hydrogen			>1 nm	3	0	0
Hydrogen			<1 nm	0	0	0
VFA			>.1	2	0	0
BTEX			>.1 mg/l	2	0	0
Tetrachloroethene			Source	0		
Trichloroethene	10		ug/l	2	2	0
DCE		23	ug/l	2	0	2
VC		1.3	ug/l	2	0	2
1,1,1-TCA			Source	0		
DCA			ug/l	2	0	0
Carbon Tetrachloride			Source	0		
Chloroethane			ug/l	2	0	0
Chloroform			ug/l	2	0	0
Dichloromethane			ug/l	2	0	0
Ethane/ethene		0.0016	> 0.1 mg/l	3	0	0
				Total	8	22

Minimum and mzximum values for Oxygen and Oxidation/Reduction Potential (ORP) reversed to reflect aerobi

Natural Attenuation Scoring – Intermediate Aquifer Zone (Zone B)

Analysis	Minimum Concentration	Maximum Concentration	Criteria	Rating	Minimum Value	Maximum Value
Oxygen	6.2	0	<.5	3	0	3
Oxygen	6.2	0	>5	-3	-3	0
Nitrate	0.001	0.05	<1	2	2	2
Iron II	0.04	2.29	>1	3	0	3
Sulfate	13	280	<20	2	2	0
Sulfide			>1	3		
Methane	0.0074	2.3	>.5	3	0	3
ORP	100.7	-117.8	<50	1	0	1
ORP	100.7	-117.8	<-100	2	0	2
pH	6.93	7.8	pH<5	-2	0	0
pH	6.93	7.8	pH>9	-2	0	0
TOC	3	8	>20	2	0	0
Temperature	24	26	>20 C	2	2	2
Carbon Dioxide	20	20	Bkg Value			
Carbon Dioxide	20	150	>2x Bkg	1	0	1
Alkalinity	54.5	54.4	Bkg Value			
Alkalinity	54.4	357	>2x Bkg	1	0	1
Chloride	15	15	Bkg Value			
Chloride	15	400	>2x Bkg	1	0	1
Hydrogen			>1 nm	3	0	0
Hydrogen			<1 nm	0	0	0
VFA			>.1	2	0	0
BTEX			>.1 mg/l	2	0	0
Tetrachloroethene			Source	0		
Trichloroethene	4		ug/l	2	2	0
DCE	3	1	ug/l	2	2	2
VC		1	ug/l	2	0	2
1,1,1-TCA			Source	0		
DCA	4		ug/l	2	2	0
Carbon Tetrachloride			Source	0		
Chloroethane			ug/l	2	0	0
Chloroform			ug/l	2	0	0
Dichloromethane			ug/l	2	0	0
Ethane/ethene			> 0.1 mg/l	3	0	0
				Total	9	23

Minimum and mzximum values for Oxygen and Oxidation/Reduction Potential (ORP) reversed to reflect aerob

Natural Attenuation Scoring -- Deep Aquifer Zone (Zone C)

Analysis	Minimum Concentration	Maximum Concentration	Criteria	Rating	Minimum Value	Maximum Value
Oxygen	7.55	1.26	<.5	3	0	0
Oxygen	7.55	1.26	>5	-3	-3	0
Nitrate	0.008	3.6	<1	2	2	0
Iron II	0.04	1.01	>1	3	0	3
Sulfate	86	1400	<20	2	0	0
Sulfide			>1	3		
Methane	0.0011	0.067	>.5	3	0	0
ORP	48.6		<50	1	1	0
ORP	48.6	-104.2	<-100	2	0	2
pH	7.26	7.55	pH<5	-2	0	0
pH	7.26	7.55	pH>9	-2	0	0
TOC	11	14	>20	2	0	0
Temperature	24.5	26	>20 C	2	2	2
Carbon Dioxide	55	55	Bkg Value			
Carbon Dioxide	55	200	>2x Bkg	1	0	1
Alkalinity	122.4	122.4	Bkg Value			
Alkalinity	122.4	2045	>2x Bkg	1	0	1
Chloride	30	30	Bkg Value			
Chloride	30	400	>2x Bkg	1	0	1
Hydrogen			>1 nm	3	0	0
Hydrogen			<1 nm	0	0	0
VFA			>.1	2	0	0
BTEX			>.1 mg/l	2	0	0
Tetrachloroethene			Source	0		
Trichloroethene		810	ug/l	2	0	2
DCE		14	ug/l	2	0	2
VC			ug/l	2	0	0
1,1,1-TCA			Source	0		
DCA		20	ug/l	2	0	2
Carbon Tetrachloride			Source	0		
Chloroethane			ug/l	2	0	0
Chloroform			ug/l	2	0	0
Dichloromethane			ug/l	2	0	0
Ethane/ethene			> 0.1 mg/l	3	0	0
				Total	2	16

Minimum and mzximum values for Oxygen and Oxidation/Reduction Potential (ORP) reversed to reflect aero

APPENDIX E

FIRST ORDER DECAY COMPUTER SIMULATION

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Dibromochloromethane

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	5	ug/l			Measured		
Soil Sorption Coefficient	Koc	83.2	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	4320	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0104	ft/min	15.00	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0011	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **6.E-04 meters/hour** **0.047 feet/day** **17 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

R_f = 1 + (gamma / gn) * K_d

K_d = K_{oc} * F_{oc}

$V_{retarded}$ = 4.E-04 meters/hour or **0.033 feet/day** **12 feet/year**

(Domenico, 1987)
(Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta =	**-0.638**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	5		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**2.35 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	5		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.000104		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**2.E-04 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

References

Ameriocan Society for Testing and Materials (ASTM), 1995, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. ASTM, Phidelphia, Pennsylvania. ASTM E-1739-95.

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Chloroform

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	11	ug/l			Measured		
Soil Sorption Coefficient	Koc	87	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	43200	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0104	ft/min	15.00	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0011	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **6.E-04 meters/hour** **0.047 feet/day** **17 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

R_f = 1 + (gamma / gn) * K_d

K_d = K_{oc} * F_{oc}

$V_{retarded}$ = 4.E-04 meters/hour or **0.032 feet/day** **12 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta =	-0.627

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	11		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**5.17 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	11		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.21331		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**1.E+00 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Tetrachloroethene in water table zone.

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	100	ug/l			Measured		
Soil Sorption Coefficient	Koc	426	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	17280	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0104	ft/min	15.0	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0011	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **6.E-04 meters/hour** **0.047 feet/day** **17 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded} = V_{advection}$ / Retardation Factor (R_f)

$R_f = 1 + (gamma / gn) * K_d$

$K_d = K_{oc} * F_{oc}$

$V_{retarded}$ = 2.E-04 meters/hour or **0.015 feet/day** **5 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta =	**-0.044**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	100		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**47.03 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	100		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.002163		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**1.E-01 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Tetrachloroethene in deep aquifer zone.

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	120	ug/l			Measured		
Soil Sorption Coefficient	Koc	426	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	17280	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0097	ft/min	13.98	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0016	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **8.E-04 meters/hour** **0.064 feet/day** **23 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

$R_f = 1 + (gamma / gn) * K_d$

$K_d = K_{oc} * F_{oc}$

$V_{retarded}$ = 3.E-04 meters/hour or **0.020 feet/day** **7 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta =	**-0.261**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	120		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**56.44 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	120		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.007434		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**4.E-01 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Trichloroethene in water table aquifer zone.

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	10	ug/l			Measured		
Soil Sorption Coefficient	Koc	141	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	39672	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0104	ft/min	15.00	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0011	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **6.E-04 meters/hour** **0.047 feet/day** **17 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

$R_f = 1 + (gamma / gn) * K_d$

$K_d = K_{oc} * F_{oc}$

$V_{retarded}$ = 3.E-04 meters/hour or **0.027 feet/day** (Domenico, 1987)
10 feet/year (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta = -0.492

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	10		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.8	erf =	0.989091

$C_o$max = 4.70 ug/l

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	10		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.143331		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.825742	erf =	0.989091

$C_o$max = 7.E-01 ug/l

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Trichloroethene in intermediate aquifer zone.

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	4	ug/l			Measured		
Soil Sorption Coefficient	Koc	141	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	39672	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0010	ft/min	1.43	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0015	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **8.E-05 meters/hour** **0.006 feet/day** **2 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded} = V_{advection}$ / Retardation Factor (R_f)

$R_f = 1 + (gamma / gn) * K_d$

$K_d = K_{oc} * F_{oc}$

$V_{retarded}$ = 4.E-05 meters/hour or **0.004 feet/day** **1 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$Beta = (L_x - (V_{retardation} * t)) / (2 * (gamma * V_{retardation} * t)^{1/2})$$

Beta =	**1.036**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o max = (C_o) (erf (Y/4(alpha_{yx})^{1/2}) (erf (Z/2(alpha_{zx})^{1/2})$$

C_o =	4		
$(erf (Y/4(alpha_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(erf (Y/2(alpha_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**1.88 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o max = (C_o) \exp. (L_x /2alpha_x) (1- (1+4(0.693/t^{1/2})alpha_x / V_{retarded}) (erf (Y/4(alpha_{yx})^{1/2}) (erf (Z/2(alpha_{zx})^{1/2})$$

C_o =	4		
$\exp. (L_x /2alpha_x) (1-1+4(0.693/t^{1/2})alpha_x/V_{retarded})$ =	9.48E-05		
$(erf (Y/4(alpha_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(erf (Y/2(alpha_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**2.E-04 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Trichloroethene in deep aquifer zone.

Migration distance 150 feet

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	810	ug/l			Measured		
Soil Sorption Coefficient	Koc	141	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	39672	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0097	ft/min	13.98	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0016	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **8.E-04 meters/hour** **0.064 feet/day** **23 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

R_f = 1 + (gamma / gn) * K_d

K_d = K_{oc} * F_{oc}

$V_{retarded}$ = 5.E-04 meters/hour or **0.037 feet/day** **13 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

Beta = $(L_x - (V_{retardation} * t)) / (2 * (gamma * V_{retardation} * t)^{1/2})$

Beta =	**-0.726**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$C_o max = (C_o) (erf (Y/4(alpha_{yx})^{1/2}) (erf (Z/2(alpha_{zx})^{1/2})$

C_o =	810		
$(erf (Y/4(alpha_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(erf (Y/2(alpha_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**380.94 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$C_o max = (C_o) exp. (L_x /2alpha_x) (1- (1+4(0.693/t^{1/2})alpha_x / V_{retarded}) (erf (Y/4(alpha_{yx})^{1/2}) (erf (Z/2(alpha_{zx})^{1/2})$

C_o =	810		
$exp. (L_x /2alpha_x) (1-1+4(0.693/t^{1/2})alpha_x/V_{retarded})$ =	0.225487		
$(erf (Y/4(alpha_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(erf (Y/2(alpha_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**9.E+01 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Trichloroethene in deep aquifer zone.

Migration distance 425 feet

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	810	ug/l			Measured		
Soil Sorption Coefficient	Koc	141	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	39672	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0097	ft/min	13.98	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0016	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	425	feet	130	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	42.5	feet	13	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	14	feet	4	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.425	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **8.E-04 meters/hour** **0.064 feet/day** **23 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded} = V_{advection}$ / Retardation Factor (R_f)

$R_f = 1 + (gamma / gn) * K_d$

$K_d = K_{oc} * F_{oc}$

$V_{retarded}$ = 5.E-04 meters/hour or **0.037 feet/day** **13 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta = 0.023

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	810		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.2	erf =	0.167996
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.1	erf =	0.842701

$C_o$max = 114.67 ug/l

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	810		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.028085		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.161095	erf =	0.167996
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.084652	erf =	0.842701

$C_o$max = 3.E+00 ug/l

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Vinyl chloride in the intermediate aquifer zone.

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	1	ug/l			Measured		
Soil Sorption Coefficient	Koc	2.45	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	69000	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0010	ft/min	1.43	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0015	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **8.E-05 meters/hour** **0.006 feet/day** **2 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

$R_f = 1 + (gamma / gn) * K_d$

$K_d = K_{oc} * F_{oc}$

$V_{retarded}$ = 8.E-05 meters/hour or **0.006 feet/day** **2 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$Beta = (L_x - (V_{retardation} * t)) / (2 * (gamma * V_{retardation} * t)^{1/2})$$

Beta =	**0.594**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o max = (C_o) (erf (Y/4(alpha_{yx})^{1/2}) (erf (Z/2(alpha_{zx})^{1/2})$$

C_o =	1		
$(erf (Y/4(alpha_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(erf (Y/2(alpha_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**0.47 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o max = (C_o) \exp. (L_x /2alpha_x) (1- (1+4(0.693/t^{1/2})alpha_x / V_{retarded}) (erf (Y/4(alpha_{yx})^{1/2}) (erf (Z/2(alpha_{zx})^{1/2})$$

C_o =	1		
$\exp. (L_x /2alpha_x) (1-1+4(0.693/t^{1/2})alpha_x/V_{retarded})$ =	0.014903		
$(erf (Y/4(alpha_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(erf (Y/2(alpha_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**7.E-03 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
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Estimate the seepage and retaded velocities, and chemical concentrations at a discharge or discrete point using no degradation or first order decay for: Vinyl chloride in water table aquifer zone.

Input Parameter	Symbol	Value	Unit	Value	Unit	Source		
Chemical Concentration	C_o	1	ug/l			Measured		
Soil Sorption Coefficient	Koc	2.45	unitless			Literature	(Montgomery, 1991)	
Chemical HalfLife	$t^{1/2}$	69000	hours			Literature	(Howard, et al., 1991)	
Hydraulic Conductivity	K	0.0104	ft/min	15.00	ft/day	Measured	ICON, 1998a; and 1998b)	
Hydraulic Gradient	i	0.0011	ft/ft			Measured	ICON, 1998a; and 1998b)	
Unit Weight	gamma	18	kg/m^3			Measured		
Gravity	g	9.81	m/s^2			Constant		
Porosity	n	0.35	unitless			Assumed		
Fraction of Organic Carbon	Foc	0.001	unitless			Assumed		
Age of Source	t	30	year(s)			Assumed		
Length of Flow Path	L_x	150	feet	46	meters	Assumed		
Width of Source	Y	50	feet	15	meters	Assumed		
Source Thickness	Z	10	feet	3	meters	Assumed		
Longitudinal Dispersivity	$alpha_x$	15	feet	5	meters	Assumed	(1/10 length (L_x))	(Pickens and Grisak, 1981)
Transverse Dispersivity	$alpha_y$	5	feet	2	meters	Assumed	(1/3 $alpha_x$)	(ASTM, 1995) (USEPA, 1986)
Vertical Dispersivity	$alpha_z$	0.15	feet	0	meters	Assumed	(1/100 $alpha_x$)	(USEPA, 1986)

erf = standard error functio.
erfc = complimentary error function.

Estimate Seepage Velocity Q=Kia **6.E-04 meters/hour** **0.047 feet/day** **17 feet/year** (Fetter, 1988)

Estimate Retarded Velocity ($V_{retarded}$) of Chemical.

$V_{retarded}$ = $V_{advection}$ / Retardation Factor (R_f)

R_f = 1 + (gamma / gn) * K_d

K_d = K_{oc} * F_{oc}

$V_{retarded}$ = 6.E-04 meters/hour or **0.047 feet/day** **17 feet/year** (Domenico, 1987) (Domenico and Schwartz, 1990)

Estimate if chemical has reached discharge point.

$$\text{Beta} = (L_x - (V_{retardation} * t)) / (2 * (\text{gamma} * V_{retardation} * t)^{1/2})$$

Beta =	**-0.920**

If Beta is between - 2 to 2 then it is assumed that the concentration is between 0 and steady state , (i.e, the chemical has reached the discharge point).

Therefore

Estimate steady state concentration at dischage point (no degradation).

$$C_o\text{max} = (C_o)\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	1		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.5	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.8	erf =	0.989091
$C_o$max =	**0.47 ug/l**		

Also, Calculate First Order Decay if estimates for Soil Sorption Coefficient and Halflife are provided.

Estimate steady state concentration at dischage point (first order decay).

$$C_o\text{max} = (C_o)\ \exp.\ (L_x/2\text{alpha}_x)\ (1-(1+4(0.693/t^{1/2})\text{alpha}_x / V_{retarded})\ (\text{erf}\ (Y/4(\text{alpha}_{yx})^{1/2})\ (\text{erf}\ (Z/2(\text{alpha}_{zx})^{1/2})$$

C_o =	1		
$\exp.\ (L_x/2\text{alpha}_x)\ (1-1+4(0.693/t^{1/2})\text{alpha}_x/V_{retarded})$ =	0.484644		
$(\text{erf}\ (Y/4(\text{alpha}_y L_x)^{1/2}$ =	0.456435	erf =	0.475482
$(\text{erf}\ (Y/2(\text{alpha}_z L_x)^{1/2}$ =	1.825742	erf =	0.989091
$C_o$max =	**2.E-01 ug/l**		

Standard and Complimentary Error Function Values

x	erf	erfc
NA	NA	NA
0	0	1
0.05	0.056372	0.943628
0.1	0.112463	0.887537
0.15	0.167996	0.832004
0.2	0.222703	0.777297
0.25	0.276326	0.723674
0.3	0.328627	0.671373
0.35	0.379382	0.620618
0.4	0.428392	0.571608
0.45	0.475482	0.524518
0.5	0.520500	0.479500
0.55	0.563323	0.436677
0.6	0.603856	0.396144
0.65	0.642029	0.357971
0.7	0.677801	0.322199
0.75	0.711156	0.288844
0.8	0.742101	0.257899
0.85	0.770668	0.229332
0.9	0.796908	0.203092
0.95	0.820891	0.179109
1	0.842701	0.157299
1.1	0.880205	0.119795
1.2	0.910314	0.089686
1.3	0.934008	0.065992
1.4	0.952285	0.047715
1.5	0.966105	0.033895
1.6	0.976348	0.023652
1.7	0.983799	0.016201
1.8	0.989091	0.010909
1.9	0.992790	0.007210
2	0.995322	0.004678
2.1	0.997021	0.002979
2.2	0.998137	0.001863
2.3	0.998857	0.001143
2.4	0.999311	0.000689

2.5	0.999593	0.000407
2.6	0.999764	0.000236
2.7	0.999866	0.000134
2.8	0.999925	0.000075
2.9	0.999959	0.000041
3	0.999978	0.000022

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United States Environmental Protection Agency, 1986, Background Document for the Ground-Water Screening Procedure to Support 40 Code of Federal Regulation Part 269, Land Disposal. EPA/530-SW86-047. January.

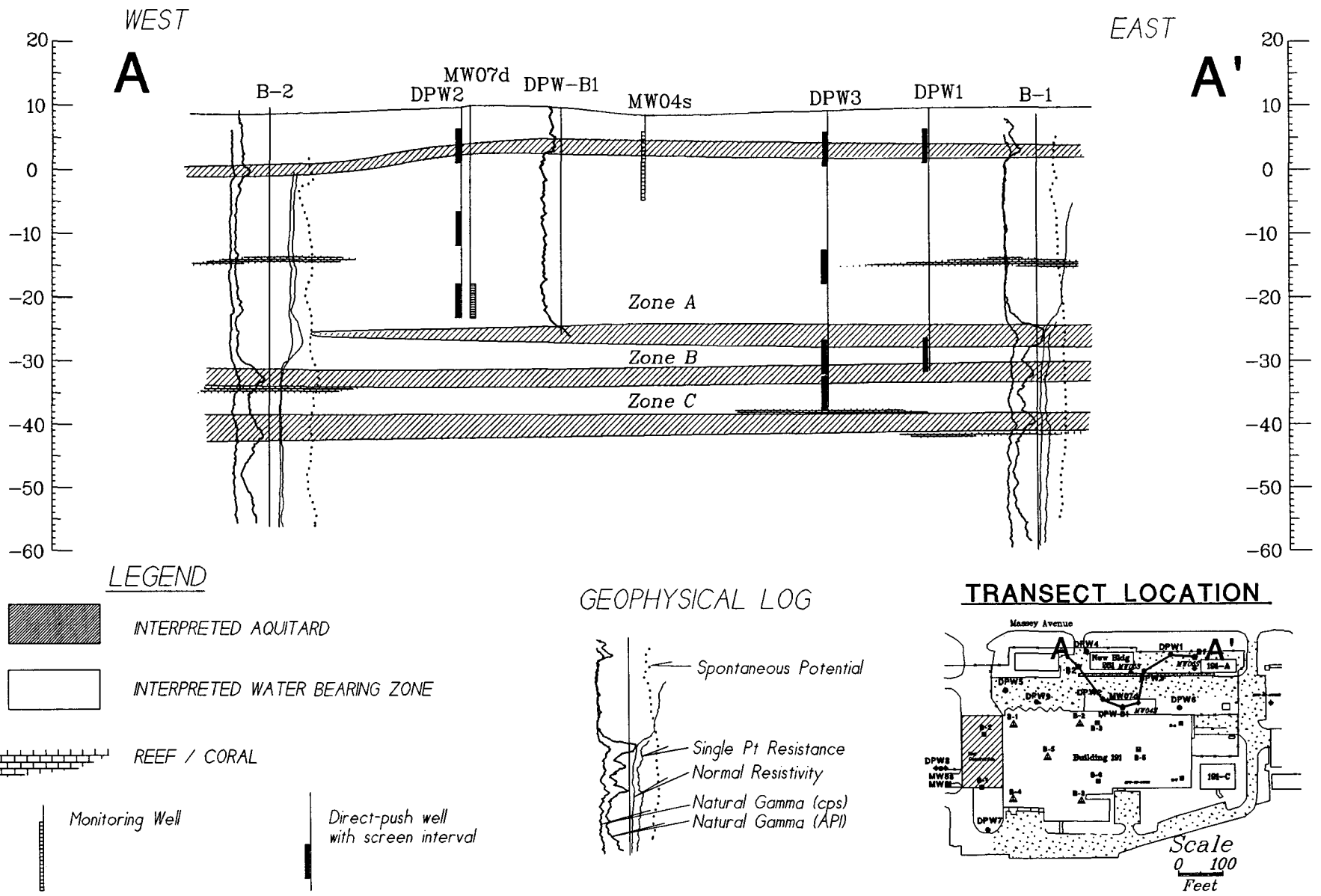


Figure 3-2

EAST-WEST CROSS SECTION DIAGRAM DEPICTING SUBSURFACE GEOLOGY
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
File Directory	
Drawn By	

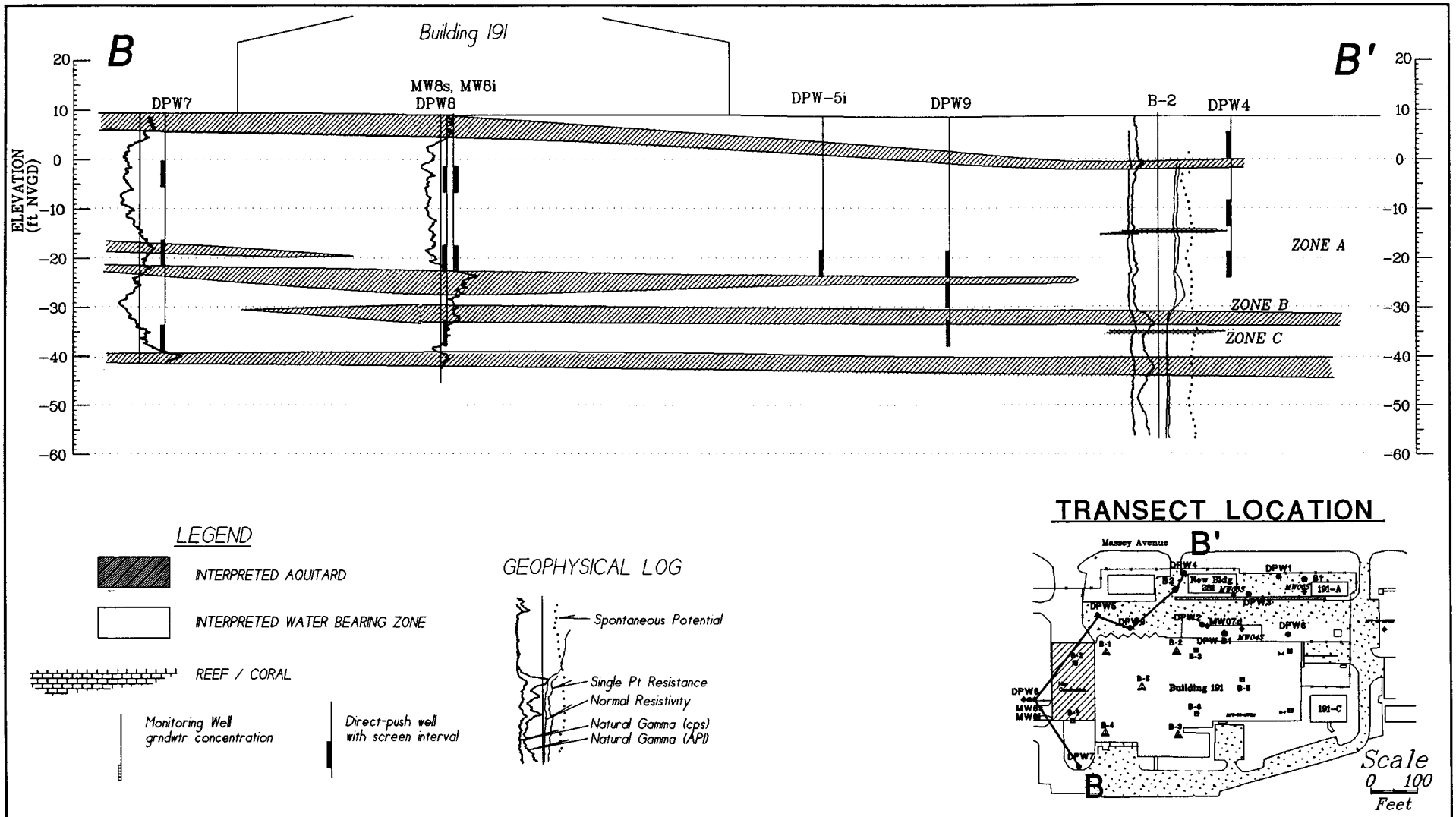


Figure 3-3

NORTH - SOUTH CROSS SECTION DIAGRAM DEPICTING SUBSURFACE GEOLOGY
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
File Directory	
Drawn By	

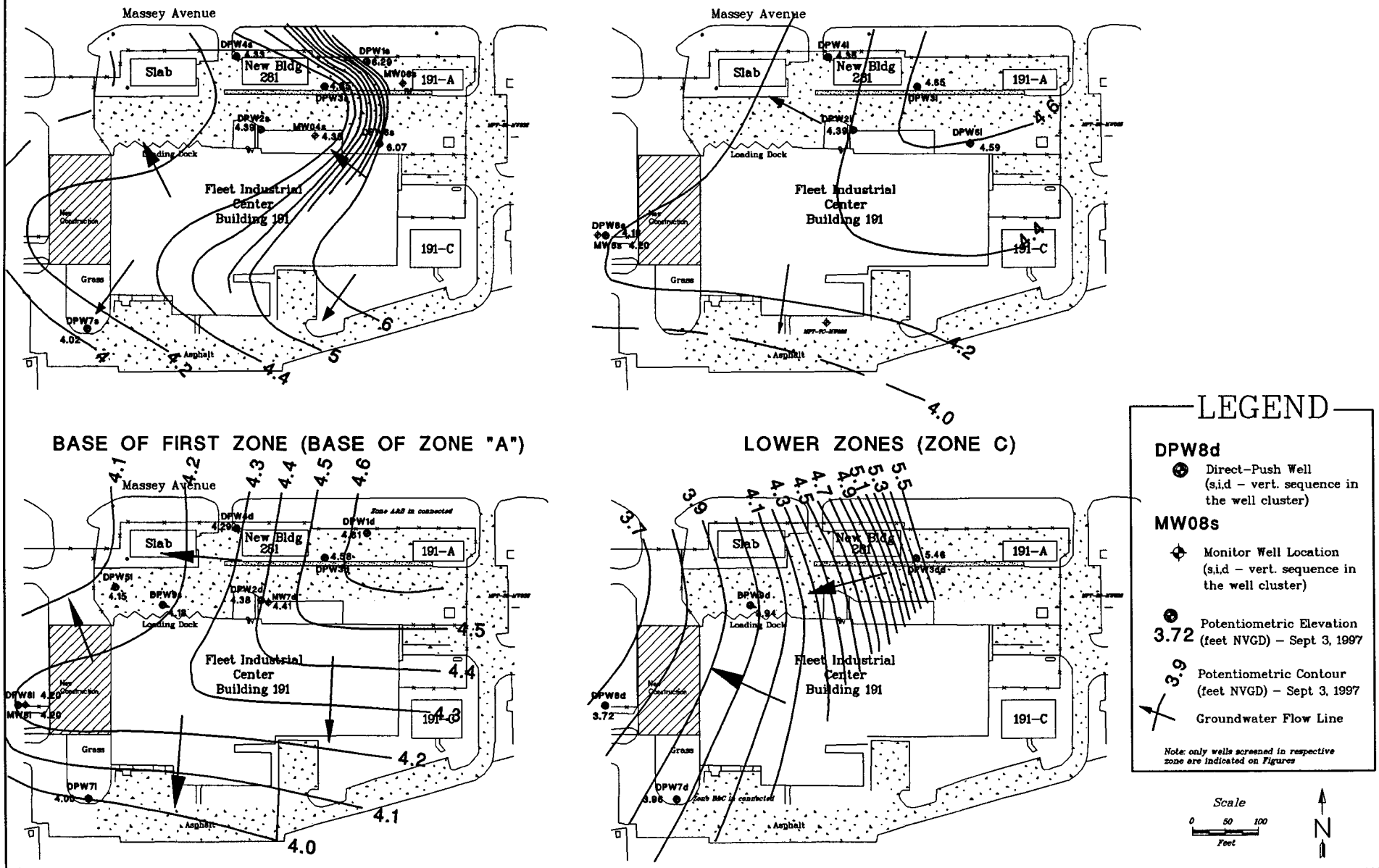
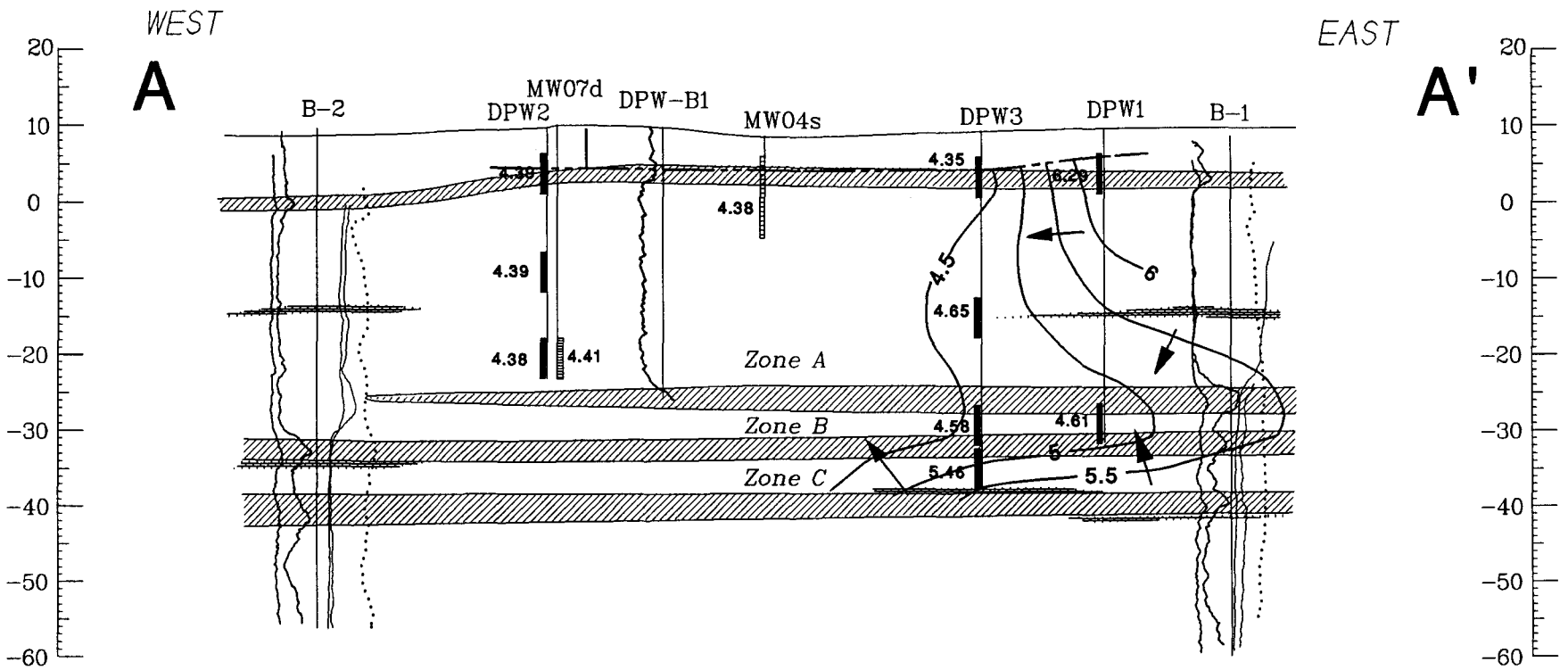


Figure 3-4

POTENTIOMETRIC CONTOURS, BUILDING 191 AREA, SEPTEMBER 3, 1997
NAVSTA MAYPORT, FLORIDA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY/METHODOLOGY
NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC)

ICON ENVIRONMENTAL SERVICES
6160 Perkins Road Suite 100 Baton Rouge, LA 70808
(504) 769-2073 fax (504) 761-4489

File Name: 191-pots.gcd	Date: January 1997
Project Number: 9052-001-0100	Source: NFESC Field Measurement
Revision Number 0	ICON Env. Svcs.; 1996, 1997
File Directory data\navy	
Drawn By Greg Miller	



LEGEND

INTERPRETED AQUITARD

INTERPRETED WATER BEARING ZONE

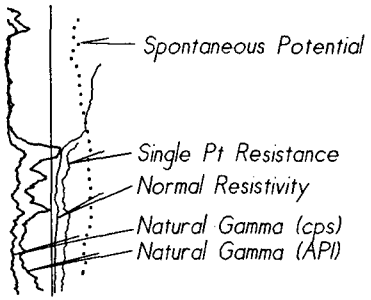
REEF / CORAL

Monitoring Well

4.65 - Potentiometric Elev. (ft msl) Sept 1997

Direct-push well with screen interval

GEOPHYSICAL LOG



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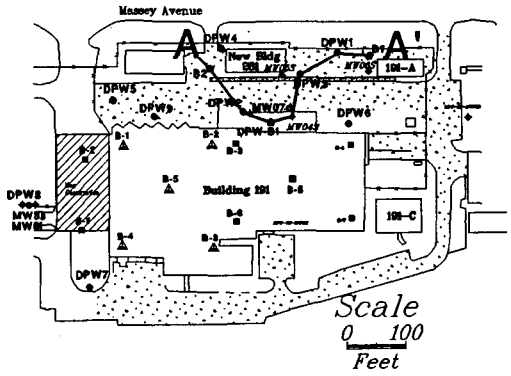
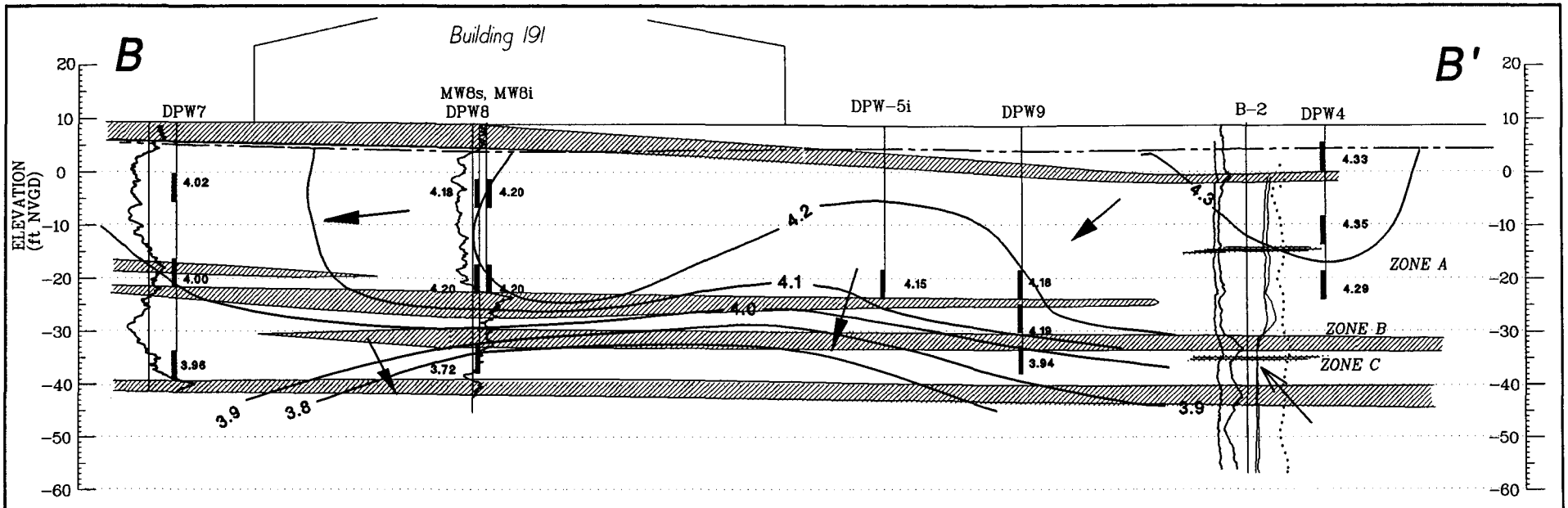


Figure 3-5

EAST-WEST CROSS SECTION DIAGRAM WITH POTENTIOMETRIC CONTOURS - SEPT 1997
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

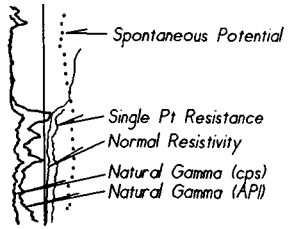
File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
File Directory	
Drawn By	



LEGEND

- INTERPRETED AQUITARD
- INTERPRETED WATER BEARING ZONE
- REEF / CORAL
- Monitoring Well grndwtr concentration
- 4.50 - Potentiometric Elev. (ft NVGD) Sept 1997
- Direct-push well with screen interval

GEOPHYSICAL LOG



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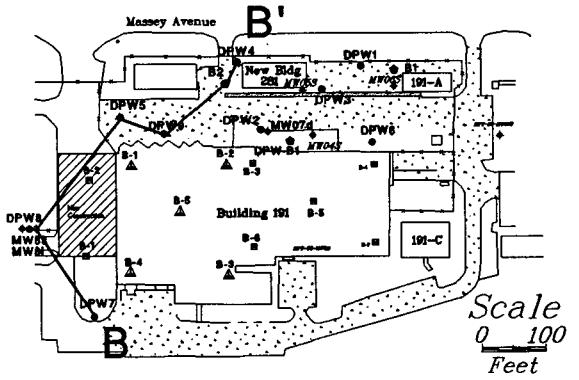

Figure 3-6

NORTH - SOUTH CROSS SECTION DIAGRAM WITH POTENTIOMETRIC CONTOURS - SEPT 1997
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
File Directory	
Drawn By	

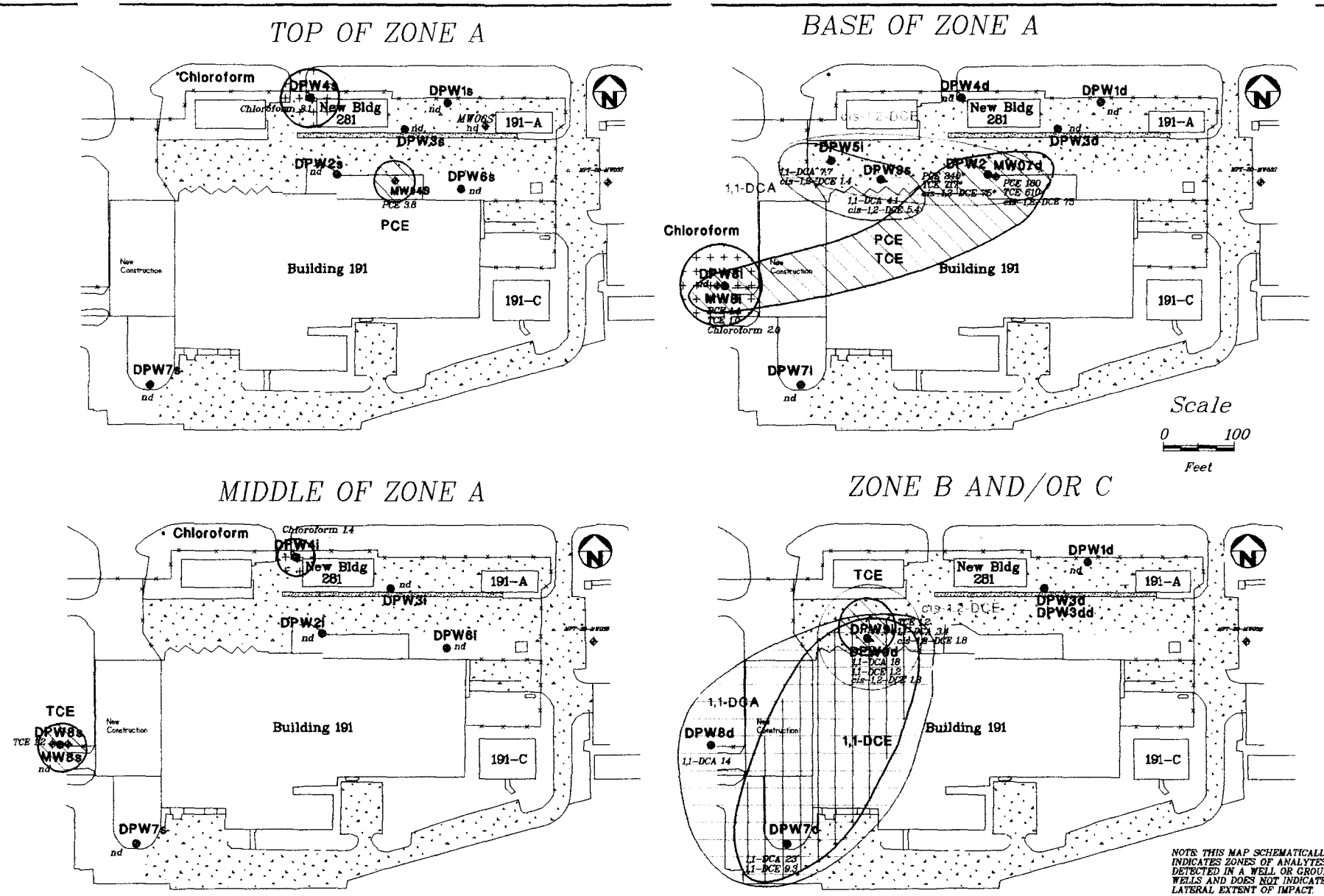

Figure 3-7

BUILDING 191 WELL LOCATIONS WITH ZONES OF DETECTED ANALYTES
NAVSTA MAYPORT, FLORIDA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY/METHODOLOGY
NAVAL FACILITIES ENGINEERING SERVICE CENTER (NFESC)

ICON
6160 Perkins Road Suite 100 Baton Rouge, LA 70808
(504) 769-2073 fax (504) 761-4489

File Name: 191-pots.gsd	Date: January 1997
Project Number: 9052-001-0100	Source: NFESC
Revision Number 0	Field Measurement
File Directory data\navy	ICON Env. Svcs.; 1996, 1997
Drawn By Greg Miller	

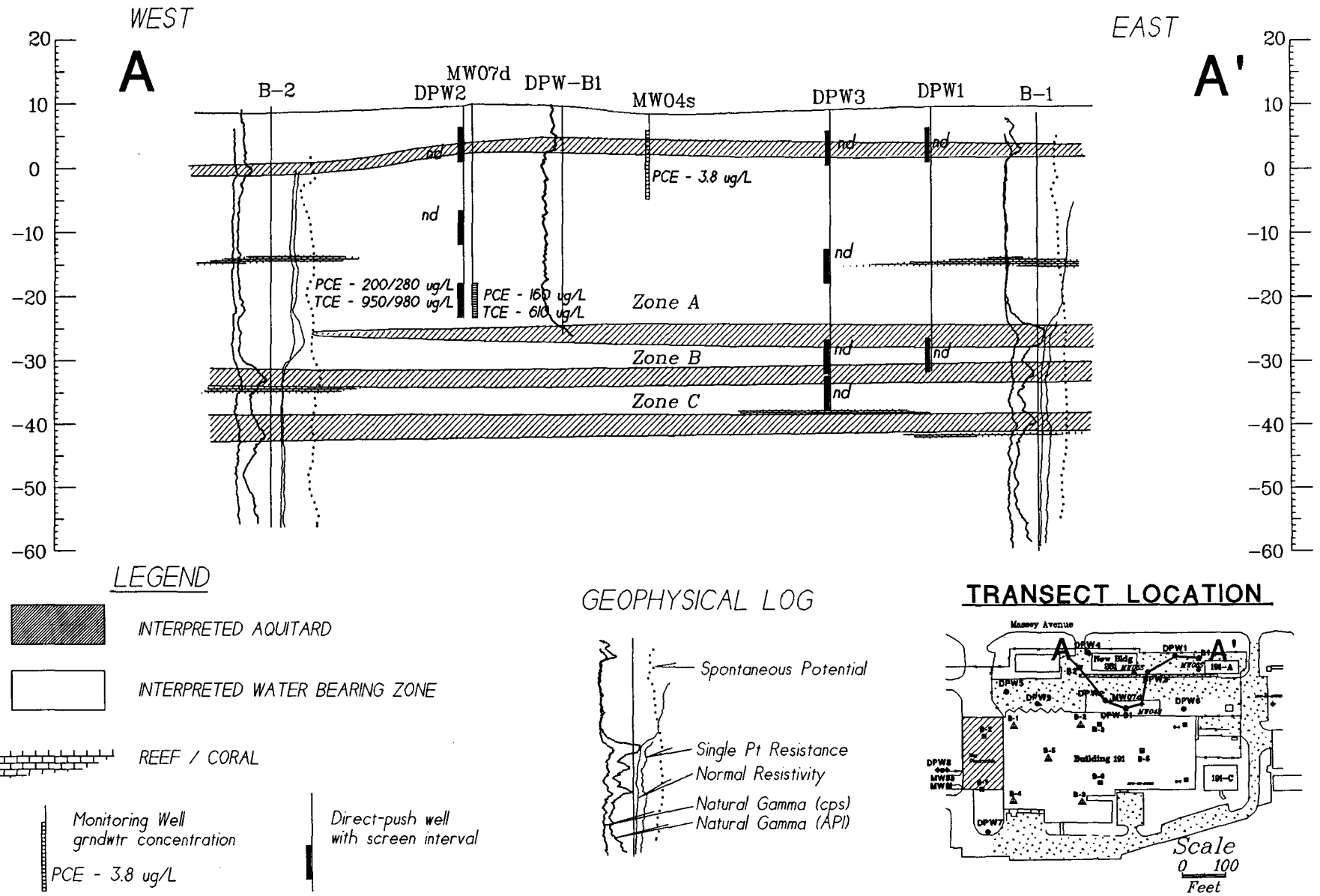

Figure 3-8

EAST-WEST CROSS SECTION DIAGRAM, WITH GROUNDWATER CHLORINATED HALOGEN RESULTS
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
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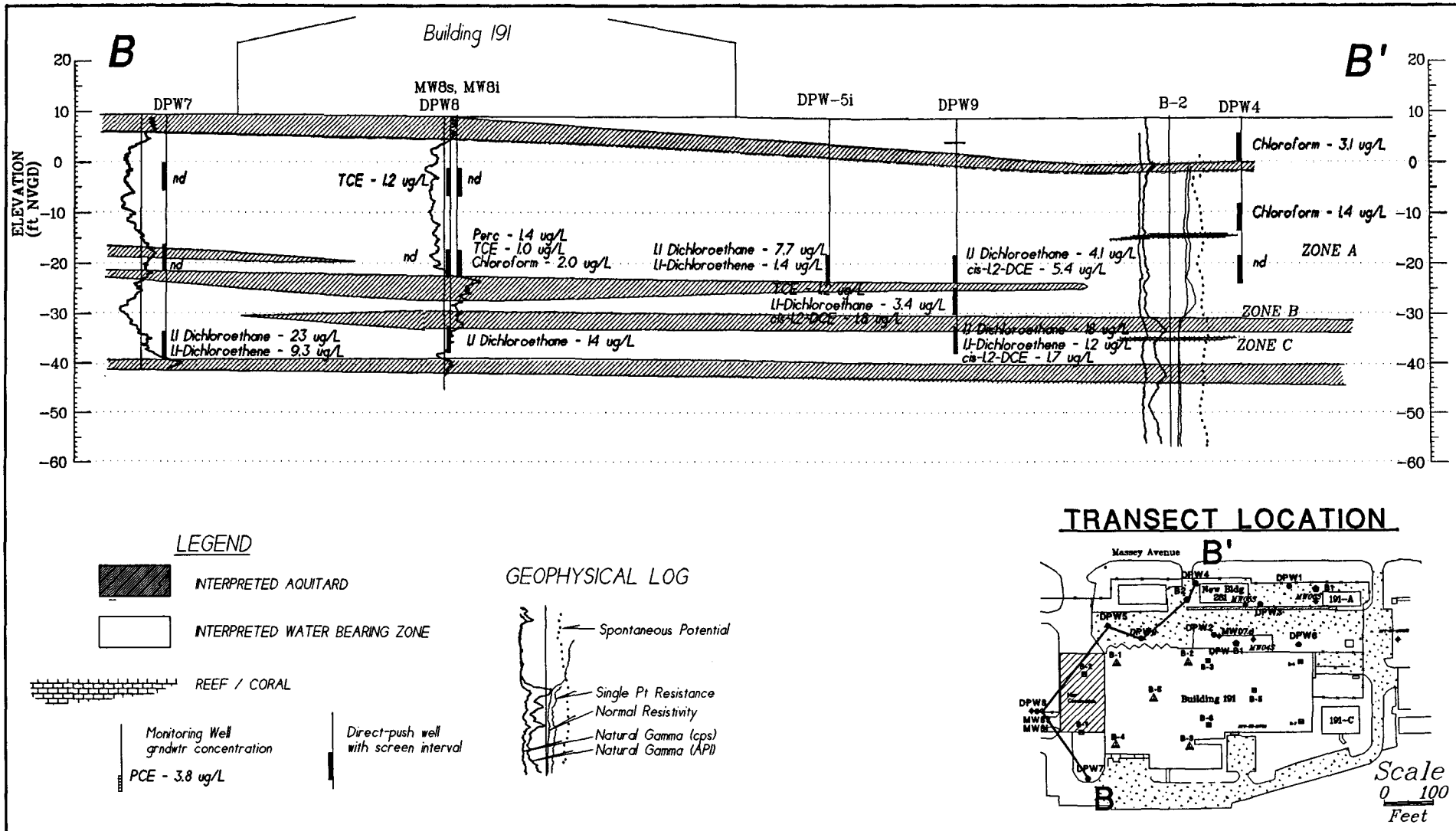
Drawn By	



LEGEND

INTERPRETED AQUITARD

INTERPRETED WATER BEARING ZONE

REEF / CORAL

Monitoring Well grndwtr concentration

PCE - 3.8 ug/L

Direct-push well with screen interval

GEOPHYSICAL LOG

TRANSECT LOCATION

Figure 3-9

NORTH - SOUTH CROSS SECTION DIAGRAM WITH GROUNDWATER CHLORINATED HALOGEN RESULTS
BUILDING 191 AREA
ADDITIONAL ASSESSMENT USING INNOVATIVE TECHNOLOGY
NAVSTA MAYPORT, FLORIDA

ICON ENVIRONMENTAL SERVICES
5637 Superior Dr. Suite B-1 Baton Rouge, LA 70816

File Name:	Date: 05/23/97
Project Number: 9052-001-0300	Source: Field Measurement ICON Env. Svcs.; 1993; 1996
Revision Number	
File Directory	
Drawn By	

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW01S	BORING NO. MW-1
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling	DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 9.56 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM	Post-Hole Observation	
				Total Depth of Boring = 13' bls				
				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				

TITLE: U.S. Naval Station, Mayport, FL	**LOG of WELL:** MPT-TC-MW01I		**BORING NO.** MW-1D
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8534-05
CONTRACTOR: Huss Drilling		**DATE STARTED:** 5/19/94	**COMPLTD:** 5/19/94
METHOD: Mud Rotary	**CASE SIZE:** 4 in.	**SCREEN INT.:** 35' to 40'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.6 FT.	**MONITOR INST.:** N/A	**TOT DPTH:** 40FT.	**DPTH TO ▽** 6 FT.
LOGGED BY: Paul Locascio (ESE)	**WELL DEVELOPMENT DATE:** 5/19/94		**SITE:** Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM	Post-Hole	
							Observation	
5								
10								
						SP		
15								
20				SAND: fine to very fine, gray, moist, w/ shell fragments			16,20,20,22	
25				SAND: as above			18,20,20,24	
30							12,14,16,12	

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW011	BORING NO. MW-10
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Mud Rotary	CASE SIZE: 4 in.	SCREEN INT.: 35' to 40'	PROTECTION LEVEL: D
TOC ELEV.: 9.6 FT.	MONITOR INST.: N/A	TOT DPTH: 40FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
				SAND: as above		SP		
35				SAND: as above, w/ abundant shell fragments			12,22,24,30	
40				SAND: as above, w/ trace shell fragments			18,22,24,28	
				Total Depth of Boring = 40' bls				
				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				
45								
50								
55								
60								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW02S	BORING NO. MW-2
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling	DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in. / SCREEN INT.: 4.0' to 14.0'	PROTECTION LEVEL: D
TOC ELEV.: 10.89 FT.	MONITOR INST.: N/A / TOT DPTH: 14FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94	SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				SILTY SAND: fine grained		SM		Post-Hole
5								Observation
10								
15				Total Depth of Boring = 14' bls				
20				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW03S	BORING NO. MW-3
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 8.68 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM	Post-Hole	
5							Observation	
10								
				Total Depth of Boring = 13' bls				
15				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				
20								

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW04S	BORING NO. MW-4
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/20/94	COMPLTD: 5/20/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 8.68 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO ▽ N/A FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/20/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM		
							Post-Hole	
							Observation	
5								
10								
				Total Depth of Boring = 13' bls				
15				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW05S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/31/95	COMPLTD: 05/31/95
METHOD: 4.25" H.S.A. / CASE SIZE: 2"	SCREEN INT.: 2.5-12.5'	PROTECTION LEVEL: D
TOC ELEV.: 8.73 FT. / MONITOR INST.: F.I.D.	TOT DPTH: 12.5FT.	DPTH TO ▽ 3.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 06/02/95	SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				ASPHALT (5")				
				SILTY SAND- fine to very fine, dark brown.		SM		
				SAND- fine with shell fragments, light tan.		SP		
5				SAND- as above.				
				SAND- fine with shell fragments, gray.				
10								
				TOTAL DEPTH OF BORING = 12.5' BLS				
15								
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW06S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/31/95	COMPLTD: 05/31/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 2.5-12.5'	PROTECTION LEVEL: D
TOC ELEV.: 9.84 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 12.5FT.	DPTH TO ▽ 3.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 06/02/95	SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				ASPHALT (5")				
				SILTY SAND- fine to very fine, dark brown.		SM		
				SAND- fine with shell fragments, light tan.		SP		▽
5				SAND- as above.				
				SAND- fine with shell fragments, gray.				
10								
				TOTAL DEPTH OF BORING = 12.5' BLS				
15								
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-20-MW01S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 13.49 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 5.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20S00101	X	100%	0.0	CONCRETE (6")			Hand Auger	
					SILTY CLAY-fill material, tan to brown, slight odor.		SC		
					CONCRETE DEBRIS				
	20B00105	X	100%	0.0	SAND- fine with shell fragments, light tan to gray.		SP	Hand Auger	
5					SAND- as above.				
10					CLAYEY SAND- gray to dark gray.		SC	Observation	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-20-MW02S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 4-14'	PROTECTION LEVEL: D
TOC ELEV.: 13.68 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 14.2FT.	DPTH TO ▽ 5.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20S00201 X	100%	0.0	ORGANIC RICH SOIL		OH	Hand Auger	
				SAND- fine, with shell fragmens. gray.		SP		
	20B00205 X	100%	0.0	SAND- as above.			Hand Auger	
5								
				SAND- as above.				
10								
				CLAYEY SAND- gray to dark gray.		SC	Observation	
15				TOTAL DEPTH OF BORING = 14.2' BLS				
20								

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-20-MW03S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 3-13'	PROTECTION LEVEL: D
TOC ELEV.: 12.01 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 14.0FT.	DPTH TO ▽ 5.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20S00301 X	100%	0.0	ORGANIC RICH SOIL SAND- fine, damp, light gray to gray.		SP	Hand Auger	
	20B00105 X	100%	0.0	SAND- as above.			Hand Auger	
5				SAND- as above.			Observation	
10				CLAYEY SAND- gray to dark gray.		SC	Observation	
				TOTAL DEPTH OF BORING = 14.0' BLS				
15								
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-21-MW01S		BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 13.21 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 4.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	21S00101 D,MS,MSD	X	100%	0.0	CONCRETE (5")			Hand Auger	
					SAND- fine with shell fragments, gray to light tan.		SP		
	21B00104	X	100%	0.0	SAND- as above.			Hand Auger	
5									▽
					SAND- as above.			Observation	
10							SC		
					CLAYEY SAND- gray to dark gray.			Observation	
15									
					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-21-MW02S		BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 12.79 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 3.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	21S00201	X	100%	0.0	ORGANIC RICH SOIL		OL	Hand Auger	
					SAND- fine with shell fragments, gray.		SP		
	21B00203	X	100%	0.0	SAND- as above.			Hand Auger	
5					SAND- as above.			Observation	
10					CLAYEY SAND- gray to dark gray, mild odor.		SC	Observation	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-21-MW03S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 12.36 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 3.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	21S00301	X	100%	0.0	CONCRETE (5")			Posthole	
					SAND- fine with shell fragments, moist, gray.		SP	0 to 4'	
	21B00303	X	100%	0.0	SAND- as above.			Hand Auger	▽
5					SAND- as above.				
10					CLAYEY SAND- gray to dark gray, mild odor.		SC	Observation	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

APPENDIX C

SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT FOR TETRACHLOROETHENE RELEASE NEAR BUILDING 191

NAVSTA Mayport Administrative Record
Document Index Number

32228-000
19.03.00.0010

April 17, 1996

Southern Division
Naval Facilities Engineering Command
ATTN: Mr. David Driggers
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29418

Dear David:

SUBJECT: Solid Waste Management Unit Assessment Report
for Tetrachloroethene Release near Building 191
U.S. Naval Station, Mayport, Florida
CLEAN District I CTO No. 0028
Contract No. N62467-89-D-0317/028

INTRODUCTION

The following report presents the site description, background, field investigative activities, findings, preliminary risk evaluation, and conclusions and recommendations for the assessment of the possible release of a solvent, tetrachloroethene, to the environment at Building 191, U.S. Naval Station (NAVSTA), Mayport, Florida. Confirmation of the release at concentrations that exceed human health or ecological risk-based screening criteria are criteria used to recommend the site be designated as a solid waste management unit (SWMU) or area of concern (AOC) under the NAVSTA, Mayport Resource Conservation and Recovery Act (RCRA) Corrective Action program. Figures and tables described in this report are provided in Attachments A and B, respectively. A chronology of events and correspondence related to the possible release of the solvent at Building 191 are presented in Attachment C, Table C-1.

NAVSTA, Mayport is located in northeastern Duval County, Florida, at the confluence of the St. Johns River and the Atlantic Ocean (Figure 1). The location of Building 191 at NAVSTA, Mayport relative to other sites designated as SWMUs within the Group III SWMUs are shown on Figure 2. Building 191, which houses the Fleet Industrial Supply Center, is located on the south side of Massey Avenue in central NAVSTA, Mayport (Figure 3).

Building 191 is not listed in NAVSTA, Mayport's Hazardous and Solid Waste Amendment (HSWA) permit as either an SWMU or AOC. The purpose of the assessment at Building 191 was to collect surface and subsurface soil samples and groundwater samples for laboratory analysis. The analytical data are used to confirm whether or not a hazardous material(s) has been released to the environment. Release of a contaminant(s) to the environment at Building 191 is suspected but not confirmed.

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Tallahassee, Florida 32301

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The sampling event is not intended to assess the horizontal and vertical extent of contamination, if present. Data analysis has been focused to support one of the following recommendations for Building 191: (1) take no further action, (2) investigate the nature and extent of contamination by performing an Resource Conservation and Recovery Act (RCRA) facility investigation (RFI), or (3) implement an interim measure to remediate a potential threat to human or ecological receptors.

SITE DESCRIPTION AND BACKGROUND

Below are paragraphs describing the Building 191 site and background information pertaining to a release of tetrachloroethene near Building 191.

Site Description. Storage areas at Building 191 are used to support ship and shore services at NAVSTA, Mayport by providing areas to receive, temporarily store, and distribute supplies. Outlying building are used to warehouse hazardous materials such as solvents and compressed gases. These buildings or structures include two quonset buildings (Buildings 264 and 281), an open-sided covered structure with concrete floor (Building 191-A), and an aluminum-constructed structure (Building 191-C).

The topography of the land surface in the vicinity of Building 191 slopes gently toward the southwest. Three SWMUs are located in the vicinity of Building 191: SWMU 46, the Shore Intermediate Maintenance Activity (SIMA), and SWMUs 20 and 21, the Hobby Shop Drain and Scrap Storage Areas (Figure 2). SIMA is located to the north, across Massey Avenue from Building 191. The Hobby Shop (Building 414) is located approximately 270 feet to the east of Building 191. South of Building 191 is part of the station's golf course.

Background. An accident report dated May 4, 1993, indicates that approximately 25 to 30 gallons of tetrachloroethene (a solvent used for drycleaning) were released from a punctured 55-gallon drum onto asphalt pavement (Attachment C). The release was reported to have been contained before it could enter a nearby stormwater inlet located approximately 130 feet from the release (Attachment C; Accident Report, May 4, 1993). The release was located north of Building 191 between Buildings 281 and 191-A (Attachment C; Public Works Center Memorandum, May 4, 1994). The approximate areal extent of the release near Building 191-A is shown on Figure 3 and is based on the map in the Public Works Center Memorandum (May 4, 1994).

In correspondence dated August 10, 1994, from Lieutenant Commander Douglas P. Tomlinson, Staff Civil Engineer, Department of the Navy, to Mr. Erney Frey, Northeast District, Florida Department of Environmental Protection (FDEP), Lt. Tomlinson reports that analytical results from samples consisting of asphalt, limerock, and soil collected from within the release area "show that the area is clean of contamination and requires no further action" (Attachment C).

A contamination assessment report was prepared by Environmental Science and Engineering, Inc. (ESE, 1994) for the assessment of a potential release(s) of diesel fuel from leaking underground lines from an aboveground storage tank (300-gallon capacity) located on the southern side of Building 191. The assessment by ESE consisted of installing three piezometers and four monitoring wells, collecting information on water levels in the vicinity of Building 191, determining groundwater flow directions, and collecting groundwater samples for chemical analysis from the monitoring wells.

Tetrachloroethene (22 micrograms per liter [$\mu g/\ell$]) and trichloroethene (5 $\mu g/\ell$) were detected in a groundwater sample collected by ESE from monitoring well MW-4 (ABB Environmental Service, Inc. [ABB-ES] designation MPT-TC-MW04S), located on the northern side of Building 191 (Figure 3) (ESE, 1994). Groundwater samples collected from monitoring wells MW-1, MW-2, and MW-3 (ABB-ES

designations MPT-TC-MW01S, MPT-TC-MW02S, and MPT-TC-MW03S, respectively), located south and southwest of Building 191, did not contain detectable concentrations of tetrachloroethene or trichloroethene (ESE, 1994). Groundwater flow direction, as determined by ESE, was to the southwest.

Subsequent to the ESE report, ABB-ES was requested to prepare a workplan to assess whether hazardous materials have been released to the environment. A site visit was made by ABB-ES personnel in March 1995 to select proposed sampling locations at the site. The piezometers and monitoring wells installed by ESE were still located at Building 191 and based on their appearance were assumed to be functional. A sampling and analysis workplan was developed by ABB-ES (1995b) based upon the site visit and the results of the assessment conducted by ESE.

Soil and groundwater sampling was proposed to assess whether or not hazardous constituents have been released at the site and to obtain a sufficient number of samples to evaluate potential exposure pathways and conduct a preliminary risk screening. There are no ecological receptor pathways because the sites are paved; therefore, risks to ecological receptors were not considered.

REPORT FORMAT

This report provides results of sampling activities at Building 191. The report includes a summary of field investigative activities, findings, a preliminary risk evaluation, and recommendations. The report contains the following elements:

- Field investigations present data collection activities and deviations from the workplan (ABB-ES, 1995b), if any, that occurred during the assessment of the possible solvent release at Building 191.

- Findings present a brief characterization of the geologic and hydrologic setting and laboratory analytical results for surface and subsurface soil and groundwater samples.

- The preliminary risk evaluation presents an assessment of chemicals detected in surface and subsurface soil and groundwater samples. The preliminary risk evaluation includes comparison of the chemical concentrations detected in environmental samples with human health screening criteria (benchmarks) for each environmental medium.

- Recommendations present a suggested action(s) based on interpretation of the data collected during the field activities, the laboratory analytical results, and the preliminary risk evaluation.

A general overview of the environmental setting of NAVSTA, Mayport and methods used conducting the assessment at Building 191 is available in the RCRA Corrective Action Program General Information Report (GIR) for NAVSTA, Mayport (ABB-ES, 1995a). This report provides information generated during the RCRA Corrective Action program at NAVSTA, Mayport and includes background sampling information, analytical methodology, risk assessment approach, and the ecological characterization of NAVSTA, Mayport. The NAVSTA, Mayport GIR also contains a summary of published information including geography, physiography, demographics, climate, regional geology, and hydrogeology; methods and procedures used to conduct the field activities; methodology used to validate analytical data and conduct risk assessments; and characterization of stationwide background conditions including surface and subsurface soil, surface water, sediment, and groundwater that is used to evaluate the data from each SWMU investigation. Because the information contained in the GIR (ABB-ES, 1995a) is common to all

of NAVSTA, Mayport's SWMU groups, which includes areas adjacent to Building 191, it will not be repeated in this report.

FIELD INVESTIGATION

Except as noted within this report, field activities were conducted in general accordance with the approved NAVSTA, Mayport RFI Workplan (ABB-ES, 1991). The general operating guidelines for access, security, and field team organization implemented during investigation activities were consistent with RFI requirements as described in Chapter 2.0, Site Management Plan, of the RFI Workplan, Volume II (ABB-ES, 1991). In addition, Section 3.1, General Site Operations, of the RFI Workplan, Volume II, provides descriptions of field personnel responsibilities, sample identification, sample management, chain of custody, project documentation, field changes, corrective actions, decontamination, waste management, and other general project standards and procedures. These general requirements were followed during sampling activities at Building 191.

Field activities to assess the possible release of a solvent at Building 191 included the following: (1) field screening using a TerraProbe^{SM} to collect groundwater samples for onsite field screening using a portable gas chromatograph (GC); (2) collecting surface and subsurface soil samples; (3) installing monitoring wells; (4) collecting groundwater samples; and (5) submitting these environmental samples for laboratory analysis (ABB-ES, 1995b).

Below is a description of the field activities conducted in the vicinity of Building 191. The location of Building 191-A and the reported release relative to the sampling locations are shown on Figures 3 and 4.

Soil Sampling. Surface and subsurface soil sampling was accomplished as described in the NAVSTA, Mayport RFI Workplan (ABB-ES, 1991), and Subsection 2.1.1, Soil Sampling, of the GIR (ABB-ES, 1995a). Surface and subsurface soil samples were collected on May 31, 1995, from areas adjacent to Building 191 (Figure 4). Surface and subsurface soil samples were collected to assess whether or not hazardous constituents have been released to these media.

The soil samples consist of four surface and subsurface soil sample pairs and one duplicate for each medium. Surface soil samples were collected from the land surface to a depth of 1 foot, and subsurface soil samples were collected from 2 to 3 feet below land surface (bls).

Groundwater Field Screening. Field screening of groundwater using a TerraProbe^{SM} was accomplished as described in Paragraph 2.1.4.1, Terraprobe^{SM} Groundwater Sampling, of the NAVSTA, Mayport GIR (ABB-ES, 1995a). Groundwater field screening was proposed (ABB-ES, 1995b) to assess the area where the tetrachloroethene was reported to have been released (please refer to Attachment C) and in the vicinity of monitoring wells where groundwater samples were collected and contained tetrachloroethene and trichloroethene (ESE, 1994). The purpose of the groundwater field screening program was to select locations for installing monitoring wells that would be used in collecting groundwater samples that would be used to confirm the presence of hazardous constituents, if any.

Fifteen groundwater field screening samples (excluding duplicates) were collected in the vicinity of Building 191 using the TerraProbe^{SM} direct-push technology (Figure 4). Groundwater samples were collected from 4 to 6 feet bls. Each of the groundwater samples was then transported directly to an onsite field screening laboratory for analysis.

Monitoring Well Installation. Drilling and well installation was accomplished as described in the NAVSTA, Mayport RFI Workplan (ABB-ES, 1991) and Subsection 2.1.1, Monitoring Well and Piezometer Installation, of the NAVSTA, Mayport GIR (ABB-ES, 1995a). The purpose of the monitoring wells was to allow the collection of groundwater samples that are representative of the water table zone of the surficial aquifer.

Previously, four shallow wells (MW-1 through MW-4, designated MPT-TC-MW01S, MPT-TC-MW02S, MPT-TC-MW03S, and MPT-TC-MW04S, respectively, by ABB-ES) and one deep monitoring well (MW-1D, designated MPT-TC-MW01I by ABB-ES) were installed by ESE to assess a suspected release of diesel fuel at Building 191 (ESE, 1994) (Figures 3 and 4).

Two monitoring wells (MPT-TC-MW05S and MPT-TC-MW06S) were installed on May 31, 1995, by ABB-ES at Building 191 (Figure 4). The new monitoring wells were developed on June 2, 1995. Boring logs for the two newly installed monitoring wells at Building 191 and at nearby SWMUs 20 and 21 (Figure 4) are in Attachment D. The boring logs for monitoring wells at SWMUs 20 and 21 are included with this report because water level data from these wells were used in determining the direction of groundwater flow in the vicinity of Building 191.

Groundwater Sampling. Groundwater sampling was accomplished as described in Subsection 2.1.4, Groundwater Sampling, of the NAVSTA, Mayport GIR (ABB-ES, 1995a). Six groundwater samples were collected on June 26 and 27, 1995, from the existing and newly installed monitoring wells. The shallow water table zone monitoring wells are screened at depths which range from approximately 2 to 15 feet bls in the surficial aquifer. The purpose of the groundwater samples was to confirm whether or not there has been a release of hazardous constituents to groundwater in the vicinity of Building 191.

Monitoring well MPT-TC-MW01I (installed by ESE), which is screened from approximately 35 to 40 feet bls, was not sampled because of an obstruction in the well casing.

Groundwater sampling was accomplished using low-flow sampling (less than 1 liter a minute). This groundwater sampling procedure is a modification of previous sampling methods; however, it closely resembles a method proposed by U.S. Environmental Protection Agency (USEPA) (1994). Prior to groundwater sample collection, the monitoring well was slowly purged with the intake hose (disposable Teflon™) of a peristaltic pump at the middle of the well screen interval. Purging was conducted to remove stagnant water within the well screen interval without causing the resuspension of silts and clays. Turbidity, temperature, pH, and specific conductance were measured during purging to ensure good hydraulic continuity between the well and the surrounding aquifer matrix. Each monitoring well was purged until temperature, specific conductance, and pH had stabilized and at least three well volumes of water were removed. Also, purging continued until a turbidity of 5 nephelometric turbidity units (NTUs) or less was achieved.

The groundwater samples were collected using a peristaltic pump and disposable Teflon™ tubing. Aliquots for semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBS), and inorganics were collected first, and the aliquot for volatile organics was collected last. The aliquots for SVOCs, pesticides, PCBS, and inorganics were collected before the material came in contact with the peristaltic pump. The inorganic groundwater samples were not filtered and represent total concentrations. The aliquot for volatile organic compound (VOCs) was collected when the Teflon™ tubing (which contained the groundwater sample) was removed from the monitoring well. The tubing contents were carefully transferred to a VOC vial for shipment to the laboratory.

Analytical Program and Data Validation. Environmental samples were analyzed using field screening and offsite laboratory analytical methods. Samples submitted for offsite laboratory analysis were validated, and screening data were not validated. Below is a description of the analytical programs and data validation.

Field Screening. Groundwater samples collected using direct-push technology were screened for halogenated organics and aromatic organics using HNu, Inc. systems portable GC with a photoionization detector.

Laboratory Analysis. Soil and groundwater samples were analyzed for target analytes selected from the Groundwater Monitoring List contained in Appendix IX, 40 Code of Federal Regulations (CFR), Part 264, and USEPA Contract Laboratory program target compound list and target analyte list, including VOCs, SVOCs, pesticides, PCBs, and inorganics (metals and cyanide). The analysis was conducted using methods contained in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA SW846 (USEPA, 1986). The analytical methods for each fraction and a list of the target analytes are presented in Tables 2-2 through 2-5 of the NAVSTA, Mayport GIR (ABB-ES, 1995a). Analytical results of the 1995 sampling events at Building 191 are provided in Attachment E.

Data Validation. Data validation is the technical review of individual analytical results relative to the following criteria:

- Data quality objectives (DQOs) and the quality assurance project plan (QAPP) in the NAVSTA, Mayport RFI Workplan (ABB-ES, 1991)
- Naval Energy and Environmental Support Activity (NEESA) guidance document 20.2-047B, Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Program (NEESA, 1988)
- Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (USEPA, 1988)
- National Functional Guidelines for Organic Data Review (USEPA, 1990)

The data validation process is described in Section 2.3 of the NAVSTA, Mayport GIR (ABB-ES, 1995a).

After the data were reviewed and validated, they were evaluated using the precision, accuracy, representativeness, comparability, and completeness (PARCC) criteria specified in the DQOs. PARCC criteria are described in Section 2.3 of the NAVSTA, Mayport GIR (ABB-ES, 1995a). The evaluation of the Building 191 data according to the PARCC criteria is presented within the Group III RFI Report for NAVSTA, Mayport (ABB-ES, 1996).

FINDINGS

Below are paragraphs describing results of the sampling activities at Building 191. The findings include site geologic and hydrogeologic conditions, results of the field screening investigation, and analyses of surface and subsurface soil and groundwater samples.

Site Geology. Subsurface soils encountered during the installation of monitoring wells at Building 191 and nearby SWMUs had little variation over the short lateral distance between each location. The boring logs (MPT-TC-MW01S through MPT-TC-MW04S) prepared by ESE (1994) indicate that to explored

depths of 13 and 14 feet bls subsurface soil consists predominantly of a fine-grained, silty sand. Beneath the pavement at boring locations MPT-TC-MW05S and MPT-TC-MW06S the subsurface soil was found to consist of dark brown fine to very fine-grained silty sands to approximately 3 feet bls, underlain by light tan to grey fine sand, with varying amounts of shell fragments.

These materials may consist of dredge and/or naturally deposited material. The thickness of the dredge material is not known because of the similarity between the dredge and natural materials.

At boring location MPT-TC-MW01I, the subsurface soil consists of fine-grained silty sands to 15 feet bls and were underlain by fine to very fine sands with varying amounts of shell fragments to the explored depth of 40 feet bls (ESE, 1994).

Site Hydrogeology. Groundwater levels were measured on July 19, 1995, in monitoring wells located in the vicinity of Building 191. The depth to groundwater at each monitoring well location was measured relative to the top of the monitoring well casing. The depths to groundwater measured in the monitoring wells and in other wells (SWMUs 20 and 21) in the vicinity of the site are provided in Table 1. Also shown in the table are values for the water level measurements relative to the National Geodetic Vertical Datum (NGVD) of 1929 (commonly referred to as mean sea level [msl]).

The elevation data were used to prepare a map of potentiometric surface lines that represent altitudes of equal height above the reference datum for the water table zone of the surficial aquifer (Figure 5). The potentiometric surface map of the water table is used to infer that groundwater flow is from higher to lower altitudes in a direction perpendicular to the equipotential lines. Based on the equipotential lines shown on Figure 5, the groundwater flow direction at Building 191 on July 19, 1995, appears to be toward the west. This direction of groundwater flow differs from the southwestern direction determined by ESE (1994). The difference is likely the use of monitoring wells located at SWMUs 20 and 21 to aid in determining the groundwater flow direction; these wells were not present at the time ESE conducted their study. The hydrologic relationship of monitoring wells relative to Building 191-A, which is located adjacent to the reported release of tetrachloroethene, is provided in Table 2.

An approximation of the horizontal linear velocity of groundwater flow in the water table zone of the surficial aquifer in the vicinity of Building 191 is based on the potentiometric surface (hydraulic gradient) of the water table, estimates of radial hydraulic conductivities at monitoring well locations, and an estimate of the porosity (ratio of the volume of voids to total volume of the soil) of the saturated subsurface soil. The horizontal linear velocity was calculated from a modified form of Darcy's equation and represents the ratio of linear travel distance to travel time between two points (Freeze and Cherry, 1979). The horizontal linear velocity is expressed as V_D/N_e, where V_D is the Darcy velocity ($V_D = KI$, K = radial hydraulic conductivity, and I = hydraulic gradient) and N_e is the effective porosity of the saturated geologic stratum. An effective porosity of 0.35 was used in the calculations. (See Subsection 3.2.3, Physical Characteristics of Soil, in the NAVSTA, Mayport GIR [ABB-ES, 1995a] or Subsection 3.2.5, Physical Characteristics of Soil, in the Group III RFI Report [ABB-ES, 1996]).

In situ radial hydraulic conductivity values for monitoring wells in the vicinity of Building 191 (including monitoring wells at SWMUs 20 and 21) are presented in Table 3. *In situ* radial hydraulic conductivity values for monitoring wells located near Building 191 range from approximately 1.4 feet per day (MPT-TC-MW06S) to 20.5 feet per day (MPT-TC-MW03S) with an average hydraulic conductivity value of 11.3 feet per day (excluding the monitoring wells at SWMUs 20 and 21).

A hydraulic gradient of 0.011 foot per foot (ft/ft) for the vicinity of Building 191 and 0.0064 ft/ft for the vicinity of SWMUs 20 and 21 was estimated between monitoring wells MPT-20-MW03S and MPT-TC-

MW04S and MPT-20-MW02S and MPT-20-MW03s, respectively, using water level data obtained on July 19, 1995.

Based on the values for horizontal linear velocity and assuming no dilution, dispersion, or retardation, a contaminant in the water table zone of the surficial aquifer may travel at rates of 16 to 235 feet per year and average approximately 130 feet per year (Table 3) in the vicinity of Building 191.

Relatively lower horizontal linear velocities, ranging from 15 to 52 feet per year, are indicated for the adjacent SWMUs 20 and 21 as compared to the range of values determined at monitoring wells at Building 191. The difference is likely a result of less permeable materials that have lower hydraulic conductivity values and a lower hydraulic gradient (Table 3).

Surface and Subsurface Soil Samples. Four surface and subsurface soil sample pairs were collected in the vicinity of Buildings 191 and 191-A (Figure 3). One surface and subsurface soil sample pair (MPT-TC-SS/BS01) was collected from a grassy area located adjacent to the north side of Building 191. The other three surface and subsurface soil sample pairs (MPT-TC-SS/BS02 through MPT-TC/SS/BS04) were collected from grassy areas on the north and east side of Building 191-A. Surface soils found at these sampling locations consist of dark brown, fine to very fine silty sand. Subsurface soil was similar to the surface soil but contained pea-size shell fragments. Below are summaries of the chemicals detected in the surface and subsurface soil samples.

Surface Soil. Tables 4 and 5 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in the surface soil samples. Organic target analytes detected in the surface soil samples consist of 1 VOC (methylene chloride), 11 SVOCs (dimethylphthalate, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene), 4 pesticides (heptachlor, heptachlor epoxide, 4,4'-dichlorodiphenyldichloroethene [DDE], and chlordane) and 1 PCB (Aroclor-1260) (Table 4). It should be noted that most of the SVOCs were detected from surface soil sampling locations MPT-TC-SS01 and MPT-TC-SS04 that were near asphalt paved areas.

Fifteen inorganic target analytes were detected in the surface soil samples. The analytes detected were arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, tin, vanadium, zinc, and cyanide (Table 5).

Subsurface Soil. Tables 6 and 7 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in the subsurface soil samples. Organic analytes detected in the subsurface soil samples consist of three VOCs (methylene chloride, carbon disulfide, and trichloro-fluoromethane), and one pesticide (chlordane) (Table 6).

Nine inorganic target analytes were detected in the subsurface soil samples. The analytes detected were barium, beryllium, chromium, copper, lead, tin, vanadium, zinc, and cyanide (Tables 7).

Groundwater Field Screening. Field screening results for the groundwater samples (Figure 5) suggest that tetrachloroethene, toluene, and trichloroethene were possibly present (Table 8). Concentrations of tetrachloroethene, toluene, and trichloroethene ranged from 34.9 to 445 $\mu g/\ell$, 1.0 to 2.5 $\mu g/\ell$, and 2.3 to 7.9 $\mu g/\ell$, respectively. The highest detected concentrations are located in the general area of the May 4, 1993, release. Based on the field screening data, monitoring well MPT-TC-MW06S was located at the release area, and well MPT-TC-MW05S was located hydraulically downgradient from the release area.

Groundwater Samples. Below is a characterization of water quality for the water table zone of the surficial aquifer in the vicinity of Building 191 and results of the chemical analysis of groundwater samples from the existing and newly installed monitoring wells (Figures 3 and 4).

Water Quality. Measurements of indicator parameters for groundwater are provided in Table 9. Results of indicator parameters for the shallow groundwater beneath Building 191 groundwater monitoring wells were compared to the State of Florida secondary water quality criteria (Florida Administrative Code [FAC], Chapter 62-550.320) (Table 10).

Total dissolved solids (TDS) ranged from 280 to 631; the secondary water quality standard for TDS is 500 milligrams per liter (mg/ℓ) (FAC, 62-520). TDS exceed State of Florida secondary water quality criteria of 500 mg/ℓ in one of six groundwater samples. A maximum value of 10,000 mg/ℓ is the criterion used to classify groundwater in an aquifer as a Class G-I or G-II drinking water supply. The values measured are less than the maximum criterion used to classify the groundwater as a G-I or G-II drinking water supply. TDS also is used to classify water as fresh (0 to 1,000 mg/ℓ), brackish (1,000 to 10,000 mg/ℓ), and saline (10,000 to 100,000 mg/ℓ) (Freeze and Cherry, 1979). The TDS results suggest that the groundwater would be considered fresh.

Concentrations of chloride detected in the groundwater samples ranged from 10.9 to 30 mg/ℓ; the secondary water quality standard for chloride is 250 mg/ℓ (FAC, 62-520, Groundwater Classes, Standards and Exemptions). Chloride measured in groundwater samples was less than this standard.

Color measured in the groundwater samples ranged from 15 to 100 American Public Health Association (APHA) units. The standard for color is 15 APHA units, which was exceeded in groundwater samples.

Sulfate, a common form of sulfur found in oxygenated systems, ranged from 33.1 to 98.1 mg/ℓ; the water quality standard for sulfate is 250 mg/ℓ (FAC, 62-520). The concentrations measured were less than the standard.

Hardness was measured at 224 to 505 mg/ℓ, which suggests that the water is very hard (greater than 180 mg/ℓ [Durfor and Becker, 1964]).

A summary of nutrients (ammonia-N [ammonia as nitrogen], nitrate/nitrite, phosphorous-P, and total Kjeldahl nitrogen) measured in the groundwater samples is provided in Tables 9 and 10.

Results of the water quality indicator parameters suggest that groundwater in the vicinity of Building 191 meets the criteria of a Class G-I or G-II drinking water supply.

Analytical Results. Tables 11 and 12 summarize the validated analytical results for organic and inorganic target analytes, respectively, detected in groundwater samples collected at Building 191. Six VOCs, including 1,2-dichloroethene, chloroform, bromodichloromethane, dibromochloromethane, tetrachloroethene, and trichloroethene, were detected in the groundwater samples collected from the monitoring wells in the vicinity of Building 191. No SVOCs, pesticides, or PCBs were detected in the groundwater samples.

The trihalomethanes, bromodichloromethane, chloroform, and dibromochloromethane were detected in the groundwater sample collected from monitoring well MPT-TC-MW02S. This monitoring well is located hydraulically sidegradient from the location of the tetrachloroethane release (Table 2, and Figures 3 and 5).

1,2-Dichloroethene, tetrachloroethene, and trichloroethene were detected in groundwater samples from monitoring wells MPT-TC-MW04S and MPT-TC-MW05S, which are located hydraulically downgradient from the release site. Trichloroethene and 1,2-dichloroethene can be byproducts from sequential reductive dehalogenation of tetrachloroethene (USEPA, 1987). Monitoring well MPT-TC-MW04S also may be considered to be slightly hydraulically sidegradient to the release site.

It should be noted that VOCs were not detected in the groundwater sample from monitoring well MPT-TC-MW06S, which was located near the tetrachloroethene release site (Figures 3 and 4).

There was not a good correlation between the groundwater field screening samples and the groundwater samples collected from monitoring wells. This may be a result of the length of the intake for the TerraProbe^{SM} sampler (2 feet) and the length of the monitoring well screen (10 feet). The groundwater sample collected with the TerraProbe^{SM} sampler may represent a strata or aquifer zone where contaminants are present at higher concentrations, whereas the monitoring well with a longer intake interval may provide a sample that represents a composite over a larger area (Pohlmann and Alduino, 1992).

Twelve inorganic analytes were detected in the groundwater samples. Inorganic analytes detected include: arsenic, barium, beryllium, calcium, iron, magnesium, manganese, selenium, silver, sodium, vanadium, and cyanide. The highest detected concentrations of arsenic, calcium, iron, manganese, and silver appear to be in the groundwater sample collected from monitoring well MPT-TC-MW01S. This monitoring well is located hydraulically sidegradient from the location of the tetrachloroethane release (Table 2, and Figures 3 and 5). The detection of these chemicals in a monitoring well located hydraulically sidegradient from the tetrachloroethene release site suggests that they are not related to the incident. It is likely that inorganic chemicals detected in groundwater samples may be related to the deposition and natural leaching of inorganics from dredge material used to construct the land mass at NAVSTA, Mayport (ABB-ES, 1996).

PRELIMINARY RISK EVALUATION

The Federal National Oil and Hazardous Substance Pollution Contingency Plan (NCP), Final Rule, (40 CFR, Part 300) states that for carcinogens a lifetime excess cancer risk in the range of $1x10^{-4}$ (a chance of 1 in 10,000 for an adverse carcinogenic effect for a continuous lifetime exposure) to $1x10^{-6}$ represents concentrations that are considered by USEPA to be protective of human health. FDEP, however, uses $1x10^{-6}$ as a risk management goal to evaluate whether or not contaminants at a site are present at concentrations that are protective of human health.

Surface and Subsurface Soil. A summary of frequencies of detection, range of detection limits, range of detected concentrations, and arithmetic mean and benchmark comparison values is provided in Tables 13 and 14 for surface and subsurface soil samples, respectively. The target analytes detected in the environmental samples were also compared in Tables 13 and 14 to background screening values computed from stationwide surface and subsurface soil samples (ABB-ES, 1995a), benchmark values from USEPA Region III risk-based concentrations (RBC) (USEPA, 1995), and the State of Florida soil cleanup goals (residential and industrial) (FDEP, 1995).

Each of the benchmark criteria provided in Tables 13 and 14 are human health-based and represent the lower of either: (1) a noncarcinogenic hazard index (HI) where values of less than 1 represent a concentration at which noncarcinogenic effects are not likely or (2) a lifetime excess cancer risk of 10^{-6}, which represents a chance of 1 in 1,000,000 for an adverse carcinogenic effect for a continuous lifetime exposure.

Surface Soil. No VOCs or pesticides were detected in the surface soil samples at concentrations that exceed the benchmark values (Table 13). One SVOC (benzo(a)pyrene), one PCB (Aroclor-1260), and one inorganic (arsenic) were detected in surface soil samples at concentrations that exceeded the residential benchmark values, which are based on values for a lifetime excess cancer risk of $1x10^{-6}$.

One surface soil sample (MPT-TC-SS01) contained benzo(a)pyrene (180 micrograms per kilograms [μg/kg]) at a concentration that exceeds residential exposure values for the USEPA Region III RBC (88 μg/kg) and the FDEP soil cleanup goal (100 μg/kg) (Tables 4 and 13). Benzo(a)pyrene was not detected in the surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (500 μg/kg).

Two surface soil samples (MPT-TC-SS01 and MPT-TC-SS04) and one duplicate (MPT-TC-SS04) contained Aroclor-1260 at concentrations (160, 170, and 150 μg/kg, respectively) that exceed the USEPA Region III residential RBC (83 μg/kg) (Tables 4 and 13). Aroclor-1260 was not detected in the surface soil samples at concentrations that exceed the FDEP residential soil cleanup goal (900 μg/kg).

One surface soil sample (MPT-TC-SS01) contained arsenic (1.6 milligrams per kilogram [mg/kg]) at a concentration that exceeds the USEPA Region III residential RBC (0.37 mg/kg) and the FDEP residential soil cleanup goal (0.7 mg/kg) (Tables 5 and 13). Arsenic was not detected in the surface soil samples at concentrations that exceed the FDEP industrial soil cleanup goal (3.1 mg/kg). Arsenic was not detected in background surface soil samples.

Calculations for estimated cancer risk values are provided in Table 15 for the chemicals benzo(a)pyrene, Aroclor-1260, and arsenic that were detected in surface soil samples at concentrations exceeding the human health based screening values. A ratio at $1x10^{-6}$ was calculated using the maximum detected concentration of a chemical exceeding the human health-based screening values and the aggregate residential exposure (child and adult) for USEPA Region III RBCs and residential and industrial soil cleanup goals for the FDEP Soil Cleanup Goals (FDEP, 1995). The ratios for each chemical were summed to determine a value for an estimated cancer risk.

This assessment suggests that hypothetical residential exposure to these three chemicals in surface soil are likely to be within the risk management range of $1x10^{-4}$ to $1x10^{-6}$ that is acceptable to the USEPA. The assessment also suggests that the hypothetical residential exposure is greater than the FDEP risk management goal of $1x10^{-6}$; however, the industrial exposure is at the risk management goal.

Subsurface Soil. None of the VOCs, pesticides, or inorganic chemicals detected in the subsurface soil samples exceed either their respective residential or industrial benchmark values (Table 14). SVOCs and PCBs were not detected in the subsurface soil samples.

Groundwater. A summary of frequencies of detection, range of detection limits, range of detected concentrations, arithmetic mean, and benchmark comparison values are provided in Table 16. The target analytes detected in the environmental samples were compared in Table 16 to background screening values computed from stationwide background groundwater samples (ABB-ES, 1995a), benchmark values consisting of USEPA Region III RBCs (USEPA, 1995), and Florida groundwater guidance concentrations (FDEP, 1994). The Florida groundwater guidance concentrations consist of promulgated and unpromulgated values. The State of Florida promulgated values are equal to or more stringent than Federal primary and secondary drinking water regulations (57FR31777, July 17, 1992).

Each of the benchmark criteria provided in Table 16 are human health-based and represent the lower of either a noncarcinogenic HI where for noncarcinogens values less than 1 represent a concentration at

which noncarcinogenic effects are not likely, or for a carcinogen a lifetime excess cancer risk of $1x10^{-6}$, which represents a chance of 1 in 1,000,000 for an adverse carcinogenic effect for a continuous lifetime exposure.

Four VOCs (bromodichloromethane, chloroform, tetrachloroethene, and trichloroethene) were detected in groundwater samples at concentrations exceeding the USEPA Region III tap water RBCs and Florida groundwater guidance concentrations (Table 16).

Two trihalomethanes, bromodichloromethane and chloroform, were detected as single occurrences in monitoring well MPT-TC-MW02S at concentrations that exceed their respective USEPA Region III RBC and Florida groundwater guidance concentration. The Florida groundwater guidance concentration is based on the chemicals being carcinogens. The State's primary standard under FAC, 62-550.310, for trihalomethanes (total concentration per sample) of 100 $\mu g/\ell$ was not exceeded.

Tetrachloroethene and trichloroethene were detected in two groundwater samples (MPT-TC-MW04S and MPT-TC-MW05S) and an associated duplicate (MPT-TC-MW05S) at concentrations that exceed their respective USEPA Region III RBC and Florida groundwater guidance concentration. The Florida groundwater guidance concentrations for these two chemicals are primary standards under FAC, 62-550.310.

Four inorganic analytes (arsenic, manganese, iron, and beryllium) were detected at concentrations that exceed one or more of the benchmark values (Table 16). Arsenic and manganese were detected at concentrations exceeding the USEPA Region III tap water RBCs and Florida groundwater guidance concentrations (primary standard under FAC, 62-550.310). Iron was detected at a concentration that exceeded the Florida groundwater guidance concentration (secondary standard under FAC, 62-550.320) but not its essential nutrient screening value (ABB-ES, 1995a). Beryllium was detected at a concentration exceeding the USEPA Region III tap water RBC but not the Florida groundwater guidance concentrations.

Arsenic was detected in groundwater samples at concentrations ranging from 0.9 to 62.4 $\mu g/\ell$, which exceeds the USEPA Region III RBC. One groundwater sample (monitoring well MPT-TC-MW01S) contained arsenic at a concentration that exceeded the Florida groundwater guidance concentration of 50 $\mu g/\ell$. The concentration of arsenic in this sample also exceeds the background screening value.

Manganese was detected in three of six groundwater samples (monitoring wells MPT-TC-MW01S, MPT-TC-MW04S, and MPT-TC-MW06S) at concentrations that exceed the USEPA Region III RBC and Florida groundwater guidance concentration. One groundwater sample (MPT-TC-MW01S) contained manganese at concentrations that exceeded the background screening concentration.

Iron was detected in one of six groundwater samples at a concentration (4,950 $\mu g/\ell$) that exceeded the Florida groundwater guidance concentration (300 $\mu g/\ell$) and the background screening concentration (1,728 $\mu g/\ell$), which is also less than the essential nutrient screening value (ABB-ES, 1995a).

Beryllium was detected in one groundwater sample (MPT-TC-MW04S) at a concentration (0.36 $\mu g/\ell$) that exceeded the Region III tap water RBC (0.016 $\mu g/\ell$). This sample did not exceed the Florida groundwater guidance concentration (4 $\mu g/\ell$). Beryllium was not detected in the background groundwater samples.

The excess lifetime carcinogenic human health risk (groundwater) was estimated for analytes that exceeded benchmarks (bromodichloromethane, chloroform, tetrachloroethene, trichloroethene, arsenic, and beryllium) by comparison of the maximum detected value (Table 16) with the estimated 1×10^{-6}

cancer risk values from the USEPA Region III tap water RBC and the FDEP Florida groundwater guidance concentration (Table 17).

This assessment suggests that a hypothetical exposure to groundwater used as drinking water is likely to be above both USEPA's risk range and FDEP's target risk goal. The estimated HI of 9 also suggests that there is a potential noncancer risk.

RECOMMENDATIONS

The recommendations are derived from review and interpretation of the data collected during the assessment of the reported release of the solvent tetrachloroethene near Building 191-A. The recommendations are based on current use of the Building 191 area as an industrial site and a hypothetical future residential exposure. Based on the data collected, there appears to have been a release of tetrachloroethene and/or trichloroethene to the environment in the vicinity of Building 191-A, and it is recommended that this site be designated as an AOC. It is recommended that the investigation should concentrate on assessing the nature and extent of the tetrachloroethene release to groundwater and conducting a human health risk assessment. Should the results of the groundwater assessment suggest the presence of another possible source area(s), then additional soil sampling should be conducted. Below are the rationales used to derive and support the recommendations:

- No VOCs were detected in surface soil samples at concentrations that exceed benchmark values. Tetrachloroethene was not one of the VOCs detected in the surface soil samples.

- Estimated human health risks were based on exposure to benzo(a)pyrene, Aroclor-1260, and arsenic in surface soil. The estimated risk for residential exposure is within the range ($1x10^{-4}$ to $1x10^{-6}$) considered acceptable by USEPA but exceeds the FDEP risk target goal of $1x10^{-6}$. The estimated risk for industrial exposure is at the FDEP risk target goal.

- None of the VOCs, pesticides, or inorganic chemicals detected in the subsurface soil samples exceed either their respective residential or industrial benchmark values. Tetrachloroethene was not one of the VOCs detected in the subsurface soil samples, and SVOCs and PCBs detected in surface soil samples were not detected in the subsurface soil samples.

- Three trihalomethane compounds were detected in groundwater samples from monitoring wells located hydraulically sidegradient from the tetrachloroethene release site. The State's primary standard under FAC, 62-550.310, for trihalomethanes (total concentrations per sample) of 100 $\mu g/\ell$ was not exceeded.

- Chemical analytical results of groundwater samples suggest that tetrachloroethene, trichloroethene, and 1,2-dichloroethene (total) are likely present in the groundwater in the vicinity of Building 191-A. It is possible that trichloroethene and 1,2-dichloroethene are by-products from sequential reductive dehalogenation of tetrachloroethene.

- This assessment suggests that a hypothetical exposure to groundwater used as drinking water is likely to be above both USEPA's risk range and FDEP's target risk goal. The estimated HI also suggests that there is a potential noncancer risk.

- Tetrachloroethene, trichloroethene, and 1,2-dichloroethene (total) have higher densities relative to water and generally migrate downward in an aquifer. Where these two solvents are present as dense nonaqueous-phase liquids (DNAPLs), their downward migration may also be controlled and limited by the lithology and capillary pressure of the aquifer.

- The highest detected concentrations of inorganic chemicals were in a groundwater sample from a monitoring well located hydraulically sidegradient from the tetrachloroethene release site. This suggests that the concentrations of the inorganic analytes are not related to the tetrachloroethene release. It is likely that inorganic chemicals detected in groundwater samples may be related to the deposition and natural leaching of inorganics from dredge material used to construct the land mass at NAVSTA, Mayport (ABB-ES, 1996).

If you have any questions or comments concerning this information, or should any additional information become available for this site that would affect this recommendation, please contact us.

Sincerely,

ABB Environmental Services, Inc.

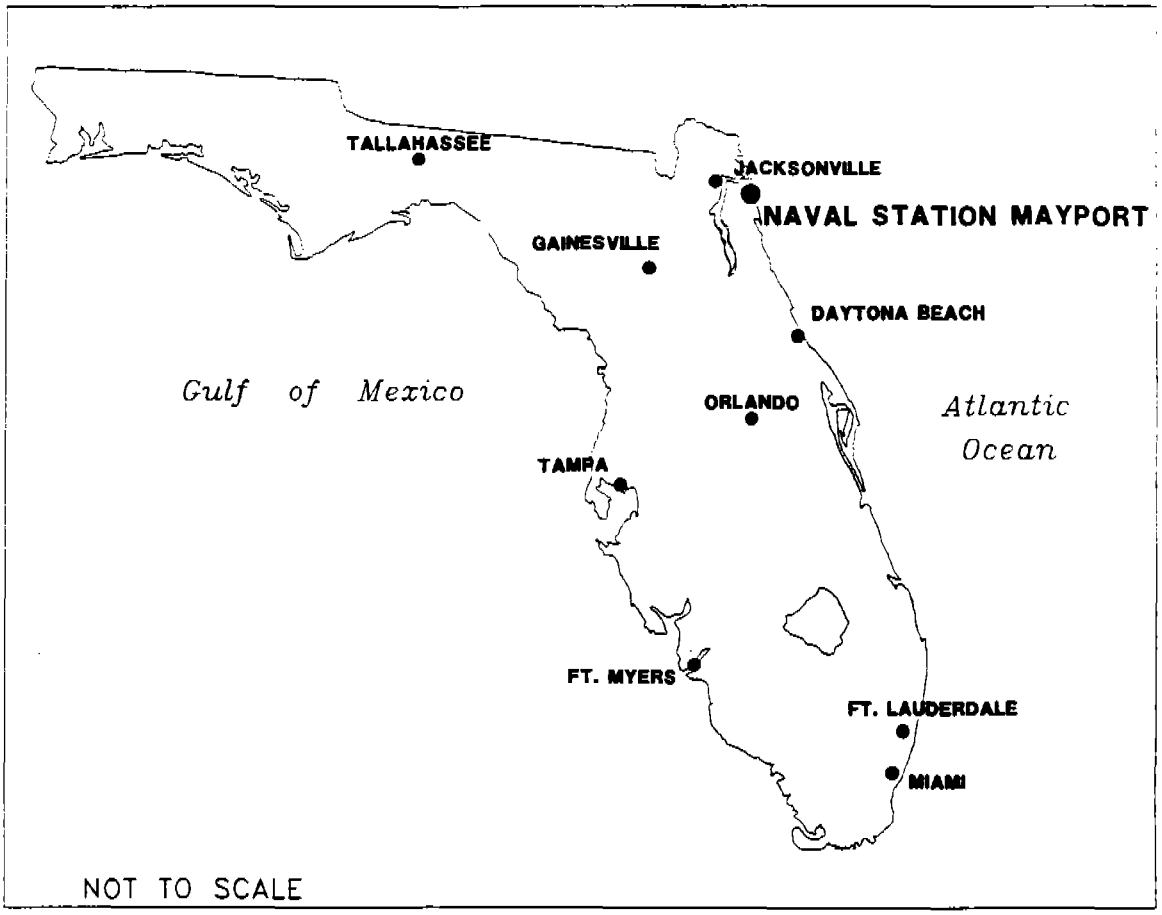
Francis K. Lesesne, P.G.
Technical Lead

Terry Hansen, P.G.
Project Manager

cc: Cheryl Mitchell, NAVSTA, Mayport

ATTACHMENT A

FIGURES



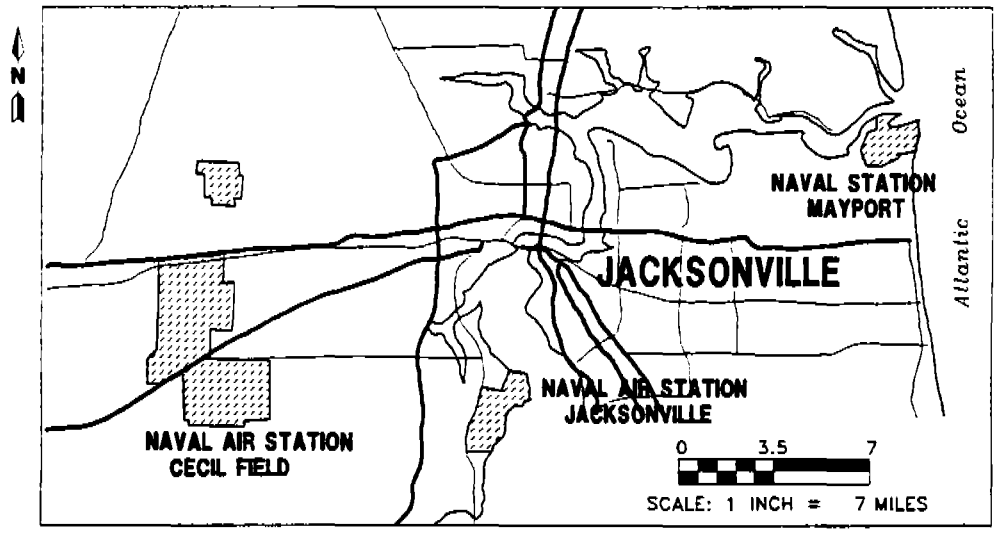


FIGURE 1
FACILITY LOCATION MAP

H:\MPT\SITEMAPS\NAB-GLC\04-05-96

SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT, BUILDING 191

U.S. NAVAL STATION MAYPORT, FLORIDA

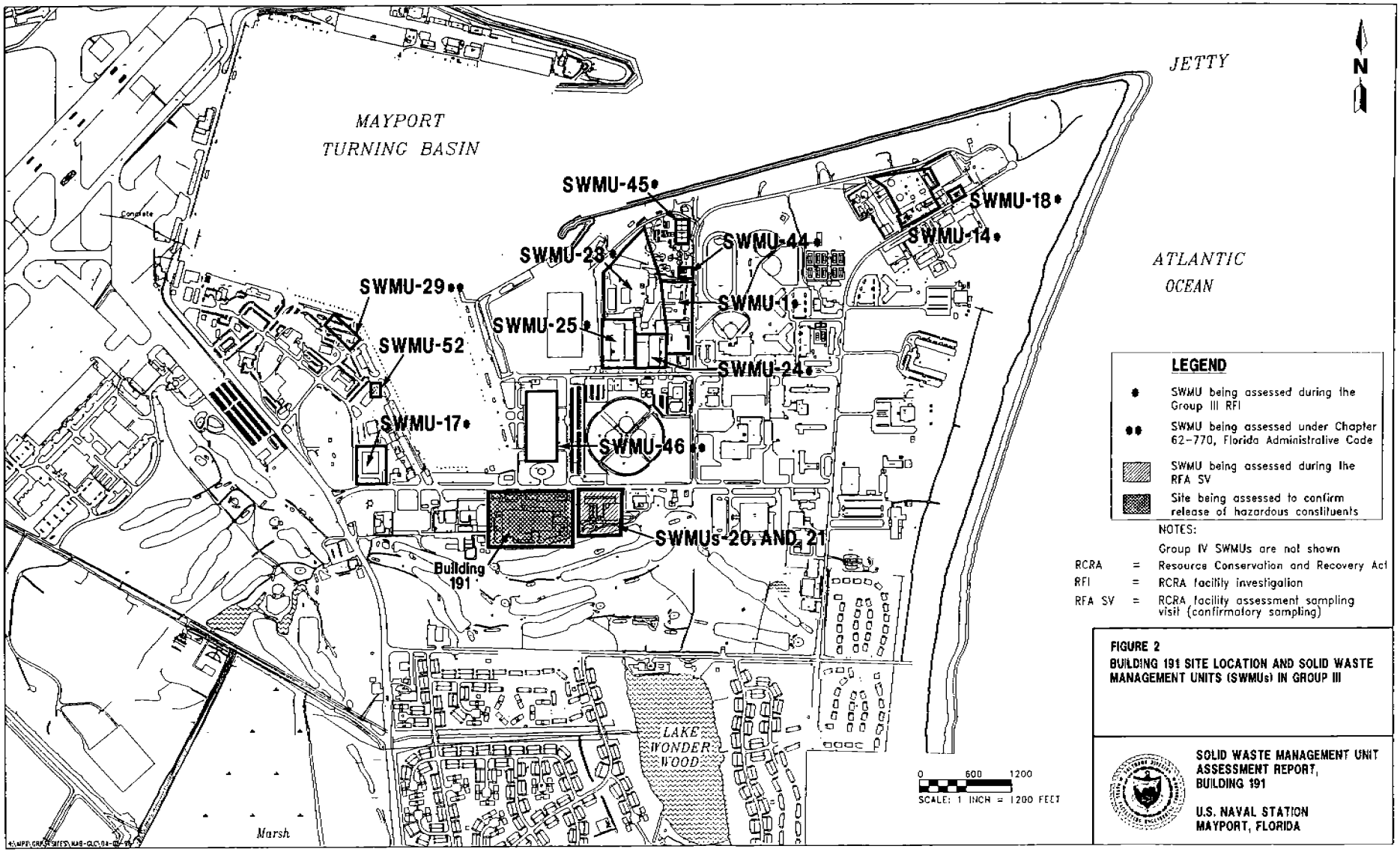


FIGURE 2
BUILDING 191 SITE LOCATION AND SOLID WASTE MANAGEMENT UNITS (SWMUs) IN GROUP III

SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT, BUILDING 191

U.S. NAVAL STATION MAYPORT, FLORIDA

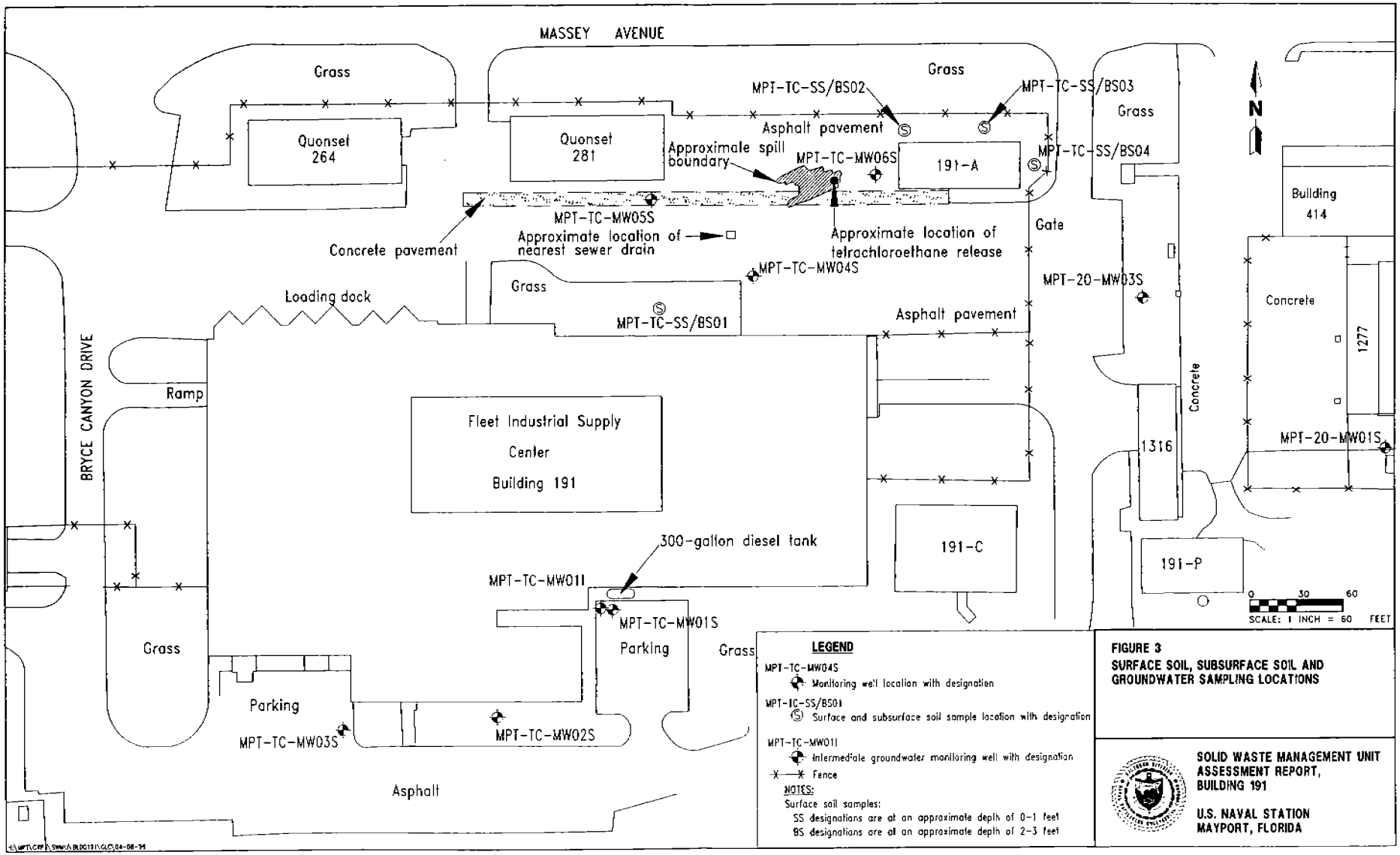


FIGURE 3
SURFACE SOIL, SUBSURFACE SOIL AND GROUNDWATER SAMPLING LOCATIONS

SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT, BUILDING 191

U.S. NAVAL STATION MAYPORT, FLORIDA

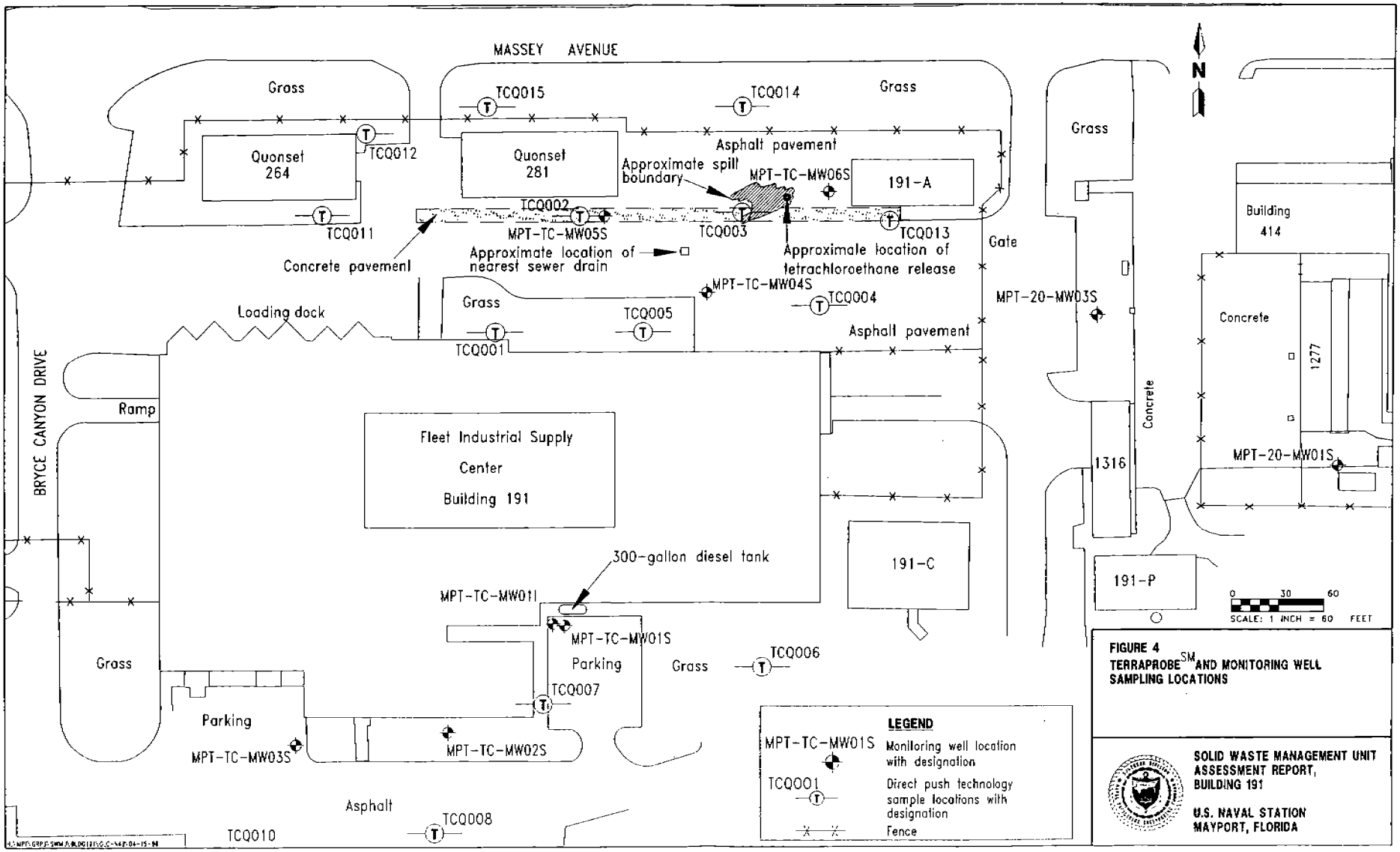


FIGURE 4
TERRAPROBE℠ AND MONITORING WELL SAMPLING LOCATIONS

SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT, BUILDING 191

U.S. NAVAL STATION MAYPORT, FLORIDA

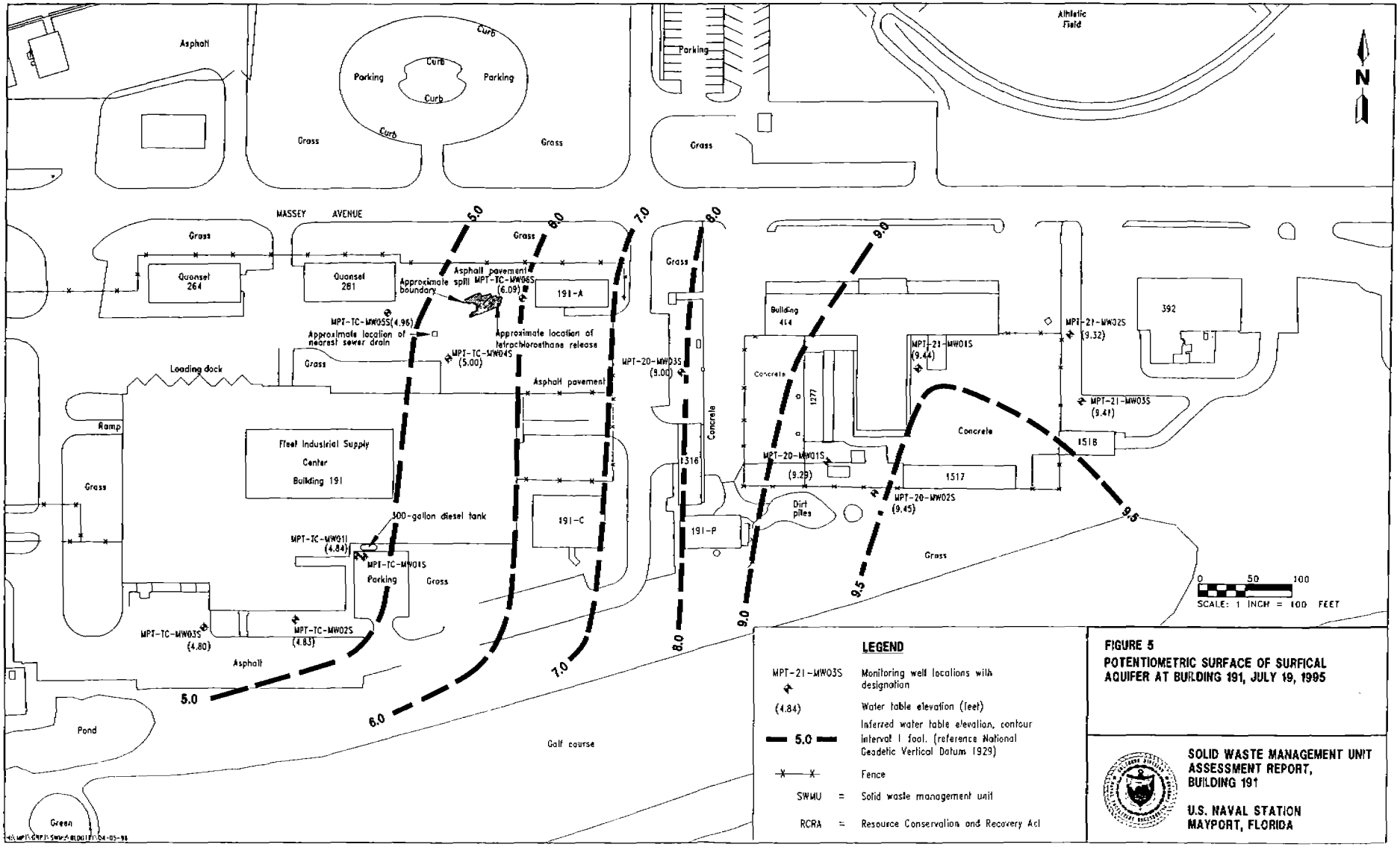


FIGURE 5
POTENTIOMETRIC SURFACE OF SURFICAL AQUIFER AT BUILDING 191, JULY 19, 1995

SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT, BUILDING 191

U.S. NAVAL STATION MAYPORT, FLORIDA

ATTACHMENT B

TABLES

Table 1
Building 191 Water-Level Data, July 19, 1995

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Monitoring Well	Elevation (NGVD)	Water Level		
		Time (EST)	Depth (TOC)	Elevation (msl)
MPT-TC-MW01S	9.56	12:16	4.72	4.84
MPT-TC-MW01I	9.6	NM	NM	NM
MPT-TC-MW02S	10.89	12:14	6.06	4.83
MPT-TC-MW03S	8.68	12:06	3.88	4.8
MPT-TC-MW04S	8.78	12:40	3.78	5.0
MPT-TC-MW06S	9.84	12:36	3.75	6.09
MPT-TC-MW05S	8.73	12:38	3.77	4.96
MPT-20-MW01S	13.49	12:51	4.20	9.29
MPT-20-MW02S	13.68	11:55	4.23	9.45
MPT-20-MW03S	12.01	12:33	4.01	8.00
MPT-21-MW01S	13.21	12:46	3.77	9.44
MPT-21-MW02S	12.79	12:59	3.47	9.32
MPT-21-MW03S	12.36	13:02	2.95	9.41

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
NGVD = National Geodetic Vertical Datum of 1929.
EST = Eastern Standard Time.
TOC = top of casing; the top of casing was the surveyed datum point for measuring the water level.
msl = mean sea level.
S = suffix on the monitoring well identifier that designates a shallow monitoring well screened across the water table.
I = suffix on the monitoring well that designates a well screened in an intermediate zone of the surficial aquifer.
NM = water level not measured.

Table 2
Hydraulic Position of Monitoring Wells Relative to Building 191-A and Nearby Solid Waste Management Units

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

SWMU Number	Monitoring Well No.	Hydraulic Position	Diameter (inches)	Total Depth (feet)	Screened Interval (feet bls)
NA	MPT-TC-MW01S	S of Building 191-A	4	13	3 to 13
NA	MPT-TC-MW01I	S of Building 191-A	4	40	35 to 40
NA	MPT-TC-MW02S	S of Building 191-A	4	14	4 to 14
NA	MPT-TC-MW03S	S of Building 191-A	4	13	3 to 13
NA	MPT-TC-MW04S	D of Building 191-A	4	13	3 to 13
NA	MPT-TC-MW05S	D of Building 191-A	2	12.5	2.5 to 12.5
NA	MPT-TC-MW06S	D of Building 191-A	2	12.5	2.5 to 12.5
20	MPT-20-MW01S	U of Building 191-A	2	15.5	5 to 15
20	MPT-20-MW02S	U of Building 191-A	2	14.2	4 to 14
20	MPT-20-MW03S	U of Building 191-A	2	14	3 to 13
21	MPT-21-MW01S	U of Building 191-A	2	15.5	5 to 15
21	MPT-21-MW02S	U of Building 191-A	2	15.5	5 to 15
21	MPT-21-MW03S	U of Building 191-A	2	15.5	5 to 15

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
bls = below land surface.
NA = not applicable.
U = hydraulic upgradient.
D = hydraulic downgradient.
S = hydraulic sidegradient.

Table 3
Average Groundwater Velocities at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Location	Hydraulic Conductivity (ft/day)	Estimated Gradient[1] (ft/ft)	Estimated Effective Porosity	Estimated Linear Velocity (ft/day)	Estimated Linear Velocity (ft/year)
MPT-TC-MW01S	[2]11.5	0.011	0.35	0.36	132
MPT-TC-MW02S	[2]14.8	0.011	0.35	0.47	170
MPT-TC-MW03S	[2]20.5	0.011	0.35	0.64	235
MPT-TC-MW04S	[2]11.4	0.011	0.35	0.36	131
MPT-TC-MW05S	[2]8.4	0.011	0.35	0.26	96
MPT-TC-MW06S	[2]1.4	0.011	0.35	0.04	16
MPT-20-MW01S	[2]3.6	0.0064	0.35	0.07	24
MPT-20-MW02S	[2]2.3	0.0064	0.35	0.04	15
MPT-20-MW03S	[2]2.5	0.0064	0.35	0.05	17
MPT-21-MW01S	[2]7.8	0.0064	0.35	0.14	52
MPT-21-MW02S	[2]4.0	0.0064	0.35	0.07	27
MPT-21-MW03S	[2]4.1	0.0064	0.35	0.07	27

[1] Based on synoptic water table elevations on July 19, 1995.
[2] *In situ* conductivity measurement, July 1995.

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
ft/day = feet per day.
ft/ft = foot per foot.
ft/year = feet per year.

Table 4
Organic Analytes Detected in Surface Soil Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	R9971	R9971	R9971	R9971	R9971
Sample Location:	MPT-TC-SS01	MPT-TC-SS02	MPT-TC-SS03	MPT-TC-SS04	MPT-TC-SS04
Sample Number:	TCS00101	TCS00201	TCS00301	TCS00401	TCS00401DUP
Date Sampled:	31-MAY-95	31-MAY-95	31-MAY-95	31-MAY-95	31-MAY-95
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Volatile Organic Compounds (µg/kg)					
Methylene chloride	–	2 J	–	–	–
Semivolatile Organic Compounds (µg/kg)					
Dimethylphthalate	–	110 J	–	–	–
Phenanthrene	71 J	–	–	57 J	–
Fluoranthene	300 J	–	64 J	110 J	130 J
Pyrene	220 J	–	42 J	67 J	86 J
Benzo(a)anthracene	130 J	–	–	51 J	64 J
Chrysene	210 J	–	47 J	63 J	90 J
Benzo(b)fluoranthene	230 J	–	–	–	100 J
Benzo(k)fluoranthene	230 J	–	–	–	110 J
Benzo(a)pyrene	180 J	–	–	–	82 J
Indeno(1,2,3-cd)pyrene	87 J	–	–	–	–
Benzo(g,h,i)perylene	85 J	–	–	–	–
Pesticides/PCBs (µg/kg)					
Heptachlor	–	–	–	1.3 J	1.2 J
Heptachlor epoxide	–	–	–	8.7	8.9
4,4-DDE	–	–	–	2.3	2
Chlordane	12	–	–	93	91
Aroclor-1260	160	–	25 J	170	150

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
DUP = duplicate.
ft bls = feet below land surface.
µg/kg = micrograms per kilogram.
– = analyte not detected.
J = estimated value.
PCB = polychlorinated biphenyls.
DDE = dichlorodiphenyldichloroethene.

Table 5
Inorganic Analytes Detected in Surface Soil Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	R9971	R9971	R9971	R9971	R9971
Sample Location:	MPT-TC-SS01	MPT-TC-SS02	MPT-TC-SS03	MPT-TC-SS04	MPT-TC-SS04
Sample Number:	TCS00101	TCS00201	TCS00301	TCS00401	TCS00401DUP
Date Sampled:	31-MAY-95	31-MAY-95	31-MAY-95	31-MAY-95	31-MAY-95
Sample Depth (ft bls):	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Inorganics (mg/kg)					
Arsenic	1.6 J	–	–	–	–
Barium	56.7	4.4 J	7.7 J	4.2 J	3.4 J
Beryllium	0.08 J	0.09 J	0.1 J	0.12 J	–
Cadmium	0.44 J	–	–	–	–
Chromium	12.8	3	2.4	3.3	2.1 J
Cobalt	0.76 J	–	–	–	–
Copper	8.9	3.3 J	4.3 J	2.8 J	1.9 J
Lead	21.5	3.6	16.4	7.2	9.3
Mercury	–	–	–	–	0.03 J
Nickel	3.6 J	–	2.1 J	–	1.8 J
Selenium	–	–	–	0.2 J	–
Tin	–	–	–	5.7 J	–
Vanadium	5.4 J	3.3 J	4.3 J	2.9 J	2.7 J
Zinc	48.2	10.7	15.3	10.6	9.7
Cyanide	0.11 J	0.09 J	0.14 J	0.12 J	0.15 J

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
DUP = duplicate.
ft bls = feet below land surface.
mg/kg = milligrams per kilogram.
– = analyte not detected.
J = estimated value.

Table 6
Organic Analytes Detected in Subsurface Soil Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	R9971	R9971	R9971	R9971
Sample Location:	MPT-TC-BS01	MPT-TC-BS02	MPT-TC-BS03	MPT-TC-BS04
Sample Number:	TCB00103	TCB00203	TCB00303	TCB00403
Date Sampled:	31-MAY-95	31-MAY-95	31-MAY-95	31-MAY-95
Sample Depth (ft bls):	2 to 3	2 to 3	2 to 3	2 to 3
Volatile Organic Compounds (µg/kg)				
Carbon disulfide	1 J	–	–	–
Methylene chloride	2 J	4 J	4 J	1 J
Trichlorofluoromethane	–	–	–	2 J
Pesticides/PCBs (µg/kg)				
Chlordane	–	–	–	19

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
ft bls = feet below land surface.
µg/kg = micrograms per kilogram.
J = estimated value.
– = analyte not detected.
PCB = polychlorinated biphenyls.

Table 7
Inorganic Analytes Detected in Subsurface Soil Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	R9971	R9971	R9971	R9971
Sample Location:	MPT-TC-BS01	MPT-TC-BS02	MPT-TC-BS03	MPT-TCBS04
Sample Number:	TCB00103	TCB00203	TCB00303	TCB00403
Date Sampled:	31-MAY-95	31-MAY-95	31-MAY-95	31-MAY-95
Sample Depth (ft bls):	2 to 3	2 to 3	2 to 3	2 to 3
Inorganics (mg/kg)				
Barium	4.1 J	2.2 J	2.7 J	1.9 J
Beryllium	0.07 J	0.14 J	0.15 J	–
Chromium	–	2.1 J	1.9 J	1.7 J
Copper	2.2 J	2.1 J	1.4 J	1 J
Lead	0.63 J	0.67 J	1.3	1.1
Tin	–	4.4 J	–	4.8 J
Vanadium	1.8 J	1.4 J	1.9 J	1.8 J
Zinc	–	2.8 J	3.3 J	3.4 J
Cyanide	0.09 J	0.13 J	0.17 J	0.15 J

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
ft bls = feet below land surface.
mg/kg = milligrams per kilogram.
J = estimated value.
– = analyte not detected.

Table 8
Groundwater Field Screening Results

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Groundwater Sample Location	Tetrachloroethene µg/ℓ	Toluene µg/ℓ	Trichloroethene µg/ℓ
TCQ001	–	1.6 J	–
TCQ002	445.0 E	1.0	2.9
TCQ003	44.1 E	2.5	2.3
TCQ004	34.9 E	2.2	7.9
TCQ005	–	1.8	–
TCQ006	–	–	–
TCQ007	–	1.1	–
TCQ008	–	1.4	–
TCQ010	–	1.0	–
TCQ011	–	–	–
TCQ012	–	–	–
TCQ013	–	1.9	–
TCQ014	–	–	–
TCQ015	–	–	–

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
µg/ℓ = micrograms per liter.
– = analyte not detected.
J = estimated value, continuing calibration standard exceeded percent D criteria.
E = estimated value, concentration outside calibration range.
Sample TCQ009 was not collected.

Table 9
Water Quality Indicator Parameters for Groundwater Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:		RA077	RA077	RA077	RA077	RA077	RA077
Sample Location:		MPT-TC-MW01S	MPT-TC-MW02S	MPT-TC-MW03S	MPT-TC-MW04S	MPT-TC-MW05S	MPT-TC-MW06S
Sample Number:		TCG00101	TCG00201	TCG00301	TCG00401	TCG00501	TCG00601
Date Sampled:	Units	26-JUN-95	27-JUN-95	27-JUN-95	27-JUN-95	26-JUN-95	26-JUN-95
Water Quality Parameters (mg/ℓ)							
Alkalinity as $CaCO_3$	(mg/ℓ)	460	147	200	196	258	280
Ammonia as N	(mg/ℓ)	1.1	--	--	--	--	--
Chloride	(mg/ℓ)	18.5	30	27.4	10.9	23.1	19.8
Hardness as $CaCO_3$	(mg/ℓ)	505	253	301	224	309	327
Nitrate/Nitrite as N	(mg/ℓ)	0.27	0.29	--	0.24	2.28	0.32
Phosphorous as P, Total	(mg/ℓ)	0.61	0.63	0.48	0.1	0.34	0.21
Sulfate	(mg/ℓ)	60.2	98.1	96.6	33.1	64.6	45.7
Total Dissolved Solids	(mg/ℓ)	631	340	381	280	425	410
Total Kjeldahl Nitrogen	(mg/ℓ)	1.5	--	--	0.4	0.4	0.6
Total Organic Carbon	(mg/ℓ)	19.5	4.8	3.9	5.6	6.5	6.9
Color	Alpha	100	20	15	30	20	20
pH	Standard	6.91	7.48	7.37	7.95	7.33	7.48

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
S = S as a suffix in the location identification indicates the well is screened in the shallow surficial aquifer, typically 5 to 15 feet below land surface.
mg/ℓ = milligrams per liter.
$CaCO_3$ = calcium carbonate.
N = nitrogen.
-- = analyte not detected.
P = phosphorous.

Table 10
Summary of Water Quality Indicator Parameters for Groundwater Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[2]	Water Quality Criteria[3]	Exceeds Water Quality Criteria Benchmark (Yes/No)
Water Quality Parameters (mg/ℓ)[4]						
Total Organic Carbon	6/6	3.9 - 19.5	NR	7.9	NS	NS
Alkalinity as $CaCO_3$	6/6	147 - 460	NR	257	NS	NS
Ammonia as N	1/6	1.1	0.3 - 0.3	1.1	NS	NS
Chloride	6/6	10.9 - 30	NR	21.6	250	No
Hardness as $CaCO_3$	6/6	224 - 505	NR	320	NS	NS
Sulfate	6/6	33.1 - 98.1	NR	66.4	250	No
Total Dissolved Solids	6/6	280 - 631	NR	411	500	Yes
Total Kjeldahl Nitrogen	4/6	0.4 - 1.5	0.3 - 0.3	0.73	NS	NS
Nitrate/Nitrite as N	5/6	0.24 - 2.28	0.1 - 0.1	0.68	10	No
Phosphorous as P, total	6/6	0.1 - 0.63	NR	0.4	NS	NS
Color[4]	6/6	15 - 100	NR	34.2	NS	NS
pH[4]	6/6	6.91 - 7.95	NR	7.4	6.5 to 8.5	No

1 Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).
2 The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).
3 Value is a groundwater guidance concentration from the Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994.
4 Units for color and ph are APHA and SU, respectively.

Notes: Environmental samples included in this evaluation are MPT-TC-MW01S, MPT-TC-MW02S, MPT-TC-MW03S, MPT-TC-MW04S, MPT-TC-MW05S, and MPT-TC-MW06S.

SWMU = solid waste management unit.
TCE = trichloroethene.
mg/ℓ = milligrams per liter.
NR = no nondetection range, see Range of Detected Concentrations.
NS = no screening concentration available.
$CaCO_3$ = calcium carbonate.
N = nitrogen.
APHA = American Public Health Association.
SU = standard units.

Table 11
Organic Analytes Detected in Groundwater Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	RA077	RA077	RA077	RA077
Sample Location:	MPT-TC-MW02S	MPT-TC-MW04S	MPT-TC-MW05S	MPT-TC-MW05S
Sample Number:	TCG00201	TCG00401	TCG00501	TCG00501DUP
Date Sampled:	27-JUN-95	27-JUN-95	26-JUN-95	26-JUN-95
Volatile Organic Compounds ($\mu g/\ell$)				
1,2-Dichloroethene (total)	–	1 J	1 J	1 J
Bromodichloromethane	5	–	–	–
Chloroform	11	–	–	–
Dibromochloromethane	1 J	–	–	–
Tetrachloroethene	–	26	100	73
Trichloroethene		9	10	8

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
S = S as a suffix in the location identification indicates the well is screened in the shallow surficial aquifer, typically 3 to 13 feet below land surface.
DUP = duplicate.
$\mu g/\ell$ = micrograms per liter.
– = analyte not detected.
J = estimated value.

Table 12
Inorganic Analytes Detected in Groundwater Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analytical Batch Number:	RA077	RA077	RA077	RA077	RA077	RA077	RA077
Sample Location:	MPT-TC-MW01S	MPT-TC-MW02S	MPT-TC-MW03S	MPT-TC-MW04S	MPT-TC-MW05S	MPT-TC-MW05S	MPT-TC-MW06S
Sample Number:	TCG00101	TCG00201	TCG00301	TCG00401	TCG00501	TCG00501DUP	TCG00601
Date Sampled:	26-JUN-95	27-JUN-95	27-JUN-95	27-JUN-95	26-JUN-95	26-JUN-95	26-JUN-95
Inorganics (µg/l)							
Arsenic	62.4	1.2 J	0.9 J	6 J	5.6 J	6.1 J	1.6 J
Barium	9.8 J	8.7 J	2.8 J	2.8 J	4.7 J	4.5 J	7.8 J
Beryllium	--	--	--	0.36 J	--	--	--
Calcium	167,000	61,200	79,100	77,000	106,000	105,000	100,000
Iron	4,950	--	--	299	98.2 J	99.5 J	280
Magnesium	11,300	22,700	23,500	6,530	13,500	13,300	13,500
Manganese	543	.84 J	1.5 J	142	4 J	3.9 J	80.8
Selenium	--	--	--	--	0.79 J	--	--
Silver	1.7 J	--	--	--	--	--	--
Sodium	16,800	17,200	19,800	7,450	12,700	12,600	15,500
Vanadium	6.3 J	8.4 J	5.3 J	6.7 J	8.8 J	8.4 J	3.4 J
Cyanide	--	2 J	2.6 J	--	--	--	2 J

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
S = S as a suffix in the location identification indicates the well is screened in the shallow surficial aquifer, typically 5 to 15 feet below land surface.
DUP = duplicate.
µg/l = micrograms per liter.
J = estimated value.
– = analyte not detected.

Table 13
Preliminary Risk Screening of Surface Soil Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Value[4]	Region III RBCs[5] Residential	FDEP Soil Cleanup Goals[6] Residential	FDEP Soil Cleanup Goals[6] Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
Volatile Organic Compounds (µg/kg)										
Methylene chloride	1/4	2	5 - 6	2	ND	85,000	16,000	23,000	No	No
Semivolatile Organic Compounds (µg/kg)										
Benzo(a)anthracene	2/4	[2]57.5 - 130	340 - 380	93.8	ND	880	1,400	4,900	No	No
Benzo(a)pyrene	2/4	[2]136 - 180	190 - 380	158	ND	88	100	500	Yes	No
Benzo(b)fluoranthene	2/4	[2]145 - 230	190 - 380	188	ND	880	1,400	5,000	No	No
Benzo(g,h,i)perylene	1/4	85	340 - 380	85	ND	NS	14,000	50,000	No	No
Benzo(k)fluoranthene	2/4	[2]150 - 230	190 - 380	190	ND	8,800	14,000	48,000	No	No
Chrysene	3/4	47 - 210	380 - 380	111	ND	88,000	140,000	500,000	No	No
Dimethyl-phthalate	1/4	110	340 - 375	110	ND	63,000,000	63,000,000	NA	No	No
Fluoranthene	3/4	64 - 300	380 - 380	161	ND	3,100,000	2,900,000	48,000,000	No	No
Indeno(1,2,3-cd) pyrene	1/4	87	340 - 380	87	ND	880	1,400	5,000	No	No
Phenanthrene	2/4	71 - [2]121	185 - 380	96	ND	NS	1,700,000	21,000,000	No	No
Pyrene	3/4	42 - 220	380 - 380	113	ND	2,300,000	2,200,000	41,000,000	No	No
Pesticides PCBs (µg/kg)										
4,4'-DDE	1/4	[2]2.15	0.7 - 0.78	2.2	2.3	1,900	3,000	11,000	No	No
Aroclor - 1260	3/4	25 - 160	20 - 20	115	ND	83	900	3,500	Yes	No
Chlordane	2/4	12 - [2]92	7 - 7.8	52	ND	490	800	3,000	No	No
Heptachlor	1/4	[2]1.25	0.7 - 0.78	1.3	ND	140	200	500	No	No

See notes at end of table.

Table 13 (Continued)
Preliminary Risk Screening of Surface Soil Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Value[4]	Region III RBCs[5] Residential	FDEP Soil Cleanup Goals[6] Residential	FDEP Soil Cleanup Goals[6] Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
Pesticides/PCBs (µg/kg) (Continued)										
Heptachlor epoxide	1/4	[2]8.8	0.7 - 0.78	8.8	ND	70	100	300	No	No
Inorganics (mg/kg)										
Arsenic	1/4	1.6	0.46 - 1	1.6	ND	[7]0.37	0.7	3.1	Yes	No
Barium	4/4	[2]3.8 - 56.7	NR	18.2	5.6	5,500	5,200	84,000	No	No
Beryllium	4/4	[2]0.07 - 0.1	0.035 - 0.035	0.09	0.16	0.15	[8]0.2	[8]1.0	No	No
Cadmium	1/4	0.44	0.25 - 0.28	0.44	2	39	37	600	No	No
Chromium	4/4	2.4 - 12.8	NR	5.2	2.6	[9]390	[9]290	[9]430	No	No
Cobalt	1/4	0.76	0.64 - 0.72	0.76	ND	4,700	4,700	110,000	No	No
Copper	4/4	[2]2.3 - 8.9	NR	4.7	2.2	2,900	NS	NS	No	No
Lead	4/4	3.6 - 21.5	NR	12.4	ND	[10]400	500	1,000	No	No
Mercury	1/4	[2]0.022	0.015 - 0.03	0.02	ND	23	23	480	No	No
Nickel	3/4	[2]1.2 - 3.6	0.65 - 1.3	2.3	ND	1,600	1,500	26,000	No	No
Selenium	1/4	[2]0.12	0.055 - 0.12	0.13	1.36	390	390	9,900	No	No
Tin	1/4	[2]3.62	1.55 - 3.1	3.6	ND	4,700	44,000	670,000	No	No
Vanadium	4/4	[2]2.8 - 5.4	NR	4	4	550	490	4,800	No	No
Zinc	4/4	[2]10.15 - 48.2	NR	21.1	2.6	23,000	23,000	560,000	No	No
Cyanide	4/4	0.09 - 0.14	NR	0.12	ND	160	1,600	40,000	No	No

See notes at end of table.

Table 13 (Continued)
Preliminary Risk Screening of Surface Soil Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).
[2] Values is the average of the detected concentrations in a sample and its duplicate. For duplicate samples having one nondetected value, 1/2 the Contract-Required Quantitation Limit is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).
[4] The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations, and are included for comparison purposes only. Surface soil background samples are MPT-B-SS1, MPT-B-SS1DUP, MPT-B-SS2, MPT-B-SS3, MPT-B-SS4, MPT-B-SS5, and MPT-B-SS6.
[5] For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III risk-based screening concentrations (RBCs) for residential surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening [EPA/903/R-93-001]) was used for screening. Actual values are taken from the USEPA Region III RBC Tables dated February 9, 1995 and are based on a cancer risk of 10^{-6} and for noncarcinogens a hazard quotient (HQ) of 1.
[6] Values are taken from the Florida Department of Environmental Protection memorandum, Soil Cleanup Goals for Florida, dated September 27, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of 10^{-6} and for noncarcinogens an HQ of 1.
[7] The risk-based concentration is based on carcinogenic effects.
[8] Based on dermal adsorption of 0.0001
[9] Chromium in hexavalent form.
[10] No RBC is available for lead because of the lack of toxicity data. The value provided is based on USEPA's recommended target cleanup level for Superfund sites (USEPA, 1994).

Notes: Environmental samples included in this evaluation are MPT-TC-SS01, MPT-TC-SS02, MPT-TC-SS03, MPT-TC-SS04 and MPT-TC-SS04DUP.

SWMU = solid waste management unit
TCE = trichloroethene.
RBC = risk-based concentrations.
FDEP = Florida Department of Environmental Protection.
µg/kg = micrograms per kilogram.
ND = analyte not detected in background surface soil sample.
NS = no screening concentration..
NA = value is greater than $1x10^{-6}$.
PCBs = polychlorinated biphenyls.
4,4'-DDE = dichlorodiphenyldichloroethene.
mg/kg = milligrams per kilogram.
NR = no reporting limits available.

Table 14
Preliminary Risk Screening of Subsurface Soil Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations	Range of Reporting Limits	Mean of Detected Concentrations[2]	Background Screening Value[3]	Region III RBCs[4] Industrial	FDEP Cleanup Goals[5] Residential	FDEP Cleanup Goals[5] Industrial	Exceeds Residential Benchmark (Yes/No)	Exceeds Industrial Benchmark (Yes/No)
Volatile Organic Compounds (µg/kg)										
Carbon disulfide	1/4	1	6 - 6	1	ND	200,000,000	5,200	34,000	No	No
Methylene chloride	4/4	1 - 4	NR	2.8	ND	440,000	16,000	23,000	No	No
Trichlorofluoromethane	1/4	2	6 - 6	2	ND	610,000,000	6,600	44,000	No	No
Pesticides/PCBs (µg/kg)										
Chlordane	1/4	19	8.2 - 8.6	19	ND	4,400	800	3,000	No	No
Inorganics (mg/kg)										
Barium	4/4	1.9 - 4.1	NR	2.7	7.2	140,000	5,200	84,000	No	No
Beryllium	3/4	0.07 - 0.15	0.07 - 0.07	0.12	0.14	1.3	[6]0.2	[6]1.0	No	No
Chromium	3/4	1.7 - 2.1	0.4 - 0.4	1.9	3.4	[7]10,000	[7]290	[7]430	No	No
Copper	4/4	1 - 2.2	NR	1.7	3.6	76,000	NS	NS	No	No
Lead	4/4	0.63 - 1.3	NR	0.93	2.8	[8]400	500	1,000	No	No
Tin	2/4	4.4 - 4.8	3.2 - 3.3	4.6	5.4	500,000	44,000	67,000	No	No
Vanadium	4/4	1.4 - 1.9	NR	1.7	3.2	14,000	490	4,800	No	No
Zinc	3/4	2.8 - 3.4	2.4 - 2.4	3.2	4.8	610,000	23,000	560,000	No	No
Cyanide	4/4	0.09 - 0.17	NR	0.14	0.66	41,000	1,600	40,000	No	No

See notes at end of table.

Table 14 (Continued)
Preliminary Risk Screening of Subsurface Soil Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).
[2] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).
[3] The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations, and are included for comparison purposes only. Subsurface soil background samples are MPT-B-BS1, MPT-B-BS1DUP, MPT-B-BS4, MPT-B-BS5, and MPT-B-BS6.
[4] For all chemicals except the essential nutrients (calcium, iron, magnesium, potassium, and sodium), U.S. Environmental Protection Agency (USEPA) Region III risk-based screening concentrations (RBCs) for industrial surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening [EPA/903/R-93-001]) was used for screening. Actual values are taken from the USEPA Region III RBC Tables dated February 9, 1995, and are based on a cancer risk of 10^{-6} and for noncarcinogens a hazard quotient (HQ) of 1.
[5] Values are taken from the Florida Department of Environmental Protection memorandum, Soil Cleanup Goals for Florida, dated September 27, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of 10^{-6} and for noncarcinogens an HQ of 1.
[6] Based on dermal absorption of 0.0001
[7] Chromium in hexavalent form.
[8] No RBC is available for lead because of the lack of toxicity data. The value provided is based on USEPA's recommended target cleanup level for Superfund sites (USEPA, 1994).

Notes: Environmental samples included in this evaluation are MPT-TC-BS01, MPT-TC-BS02, MPT-TC-BS03 and MPT-TC-BS04.

SWMU = solid waste management unit.
TCE = trichloroethene.
µg/kg = micrograms per kilogram.
ND = analyte not detected in background surface soil sample.
NR = no reporting limits available.
PCBs = polychlorinated biphenyls.
mg/kg = milligram per kilogram.
NS = no screening concentration.

Table 15
Estimated Human Health Cancer Risk Based on Maximum Values for Chemicals Detected in Surface Soil Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Maximum Detected Concentration[1]	Residential Exposure				Industrial Exposure	
		USEPA Region III RBC[2]	Estimated Residential Cancer Risk[3]	FDEP Soil Cleanup Goal[4]	Estimated Residential Cancer Risk[3]	FDEP Soil Cleanup Goal[4]	Estimated Industrial Cancer Risk[3]
Volatile Organic Compounds (µg/kg)							
No analytes exceeded screening criteria							
Semivolatile Organic Compounds (µg/kg)							
Benzo(a)pyrene	180	88	2E-6	100	2E-6	500	4E-7
Pesticides and PCBs (µg/kg)							
Aroclor-1260	160	83	2E-6	900	2E-7	3,500	5E-8
Inorganics (mg/kg)							
Arsenic	1.6	0.37	4E-6	0.7	2E-6	3.1	5E-7
Estimated Cancer Risk			8E-6		4E-6		1E-6

[1] The maximum value is from Table 13.
[2] USEPA Region III risk-based screening concentrations (RBCs) for residential surface soil exposure per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening [EPA/903/R-93-001]) was used for screening. Actual values are taken from the USEPA Region III RBC Tables dated February 9, 1995, and are based on a cancer risk of 10^{-6}.
[3] The cancer risk is an estimated value based on the assumptions used to determine the human health-based risk values.
[4] Values are taken from the Florida Department of Environmental Protection memorandum, Soil Cleanup Goals for Florida, dated September 27, 1995. The values are for either a residential or industrial worker soil exposure and are based on a cancer risk of 10^{-6}.

Notes: SWMU = solid waste management unit
TCE = trichloroethene.
USEPA = U.S. Environmental Protection Agency.
RBC = risk-based concentration.
FDEP = Florida Department of Environmental Protection.
µg/kg = micrograms per kilogram.
PCB = polychlorinated biphenyl.
mg/kg = milligrams per kilogram.

Table 16
Preliminary Risk Screening of Groundwater Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Frequency of Detection[1]	Range of Detected Concentrations[2]	Range of Reporting Limits	Mean of Detected Concentrations[3]	Background Screening Value[4]	Region III RBCs Tap Water[5]	Florida Guidance Concentrations[6]	Exceeds Region III RBCs Benchmark (Yes/No)	Exceeds Florida Guidance Benchmark (Yes/No)
Volatile Organic Compounds (µg/ℓ)									
1,2-Dichloroethene (total)	2/6	1 - 1	5 - 5	1	ND	55	[9]70	No	No
Bromodichloromethane	1/6	5	5 - 5	5	2	0.17	[10]0.6	Yes	Yes
Chloroform	1/6	11	5 - 5	11	2.5	0.15	[10]6	Yes	Yes
Dibromochloromethane	1/6	1	5 - 5	1	ND	0.13	[10]1	Yes	Yes
Tetrachloroethene	2/6	26 - [2]86.5	5 - 5	56.3	ND	1.1	[9]3	Yes	Yes
Trichloroethene	2/6	9 - 9	5 - 5	9	ND	1.6	[9]3	Yes	Yes
Inorganics (µg/ℓ)									
Arsenic	6/6	0.9 - 62.4	NR	13	9.8	[7]0.038	[9]50	Yes	Yes
Barium	6/6	2.8 - 9.8	NR	6.1	39.0	2,600	[9]2,000	No	No
Beryllium	1/6	0.36	0.3 - 0.3	0.36	ND	0.016	[9]4	Yes	No
Calcium	6/6	61,200 - 167-,000	NR	98,300	207,466	[8]1,055,398	NS	No	NS
Iron	4/6	[2]98.8 - 4,950	14.8 - 27.2	1,407	1,728	[8]13,267	[11]300	No	Yes
Magnesium	6/6	66,530 - 23,500	NR	15,155	153,984	[8]118,807	NS	No	NS
Manganese	6/6	0.84 - 543	NR	129	210	180	[11]50	Yes	Yes
Selenium	1/6	[2]0.52	0.25 - 0.5	0.52	11.8	180	[9]50	No	No
Silver	1/6	1.7	1.4 - 1.4	1.7	ND	180	[11]100	No	No
Sodium	6/6	7,450 - 19,800	NR	14,900	1,519,016	[8]396,022	[9]160,000	No	No
Vanadium	6/6	3.4 - [2]8.6	NR	6.5	9.2	260	[12]49	No	No
Cyanide	3/6	2 - 2.6	1.5 - 1.5	2.2	1.9	730	[9]200	No	No

See notes at end of table.

Table 16 (Continued)
Preliminary Risk Screening of Groundwater Samples from Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

[1] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected values, "R" qualifier).
[2] Asterisk values are the average of the detected concentrations in a sample and its duplicate. For duplicate samples having one nondetected value, 1/2 the Contract-Required Quantitation Limit is used as a surrogate.
[3] The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected, including values qualified as "J"; it does not include those samples where the analyte was not detected ("U" or "UJ" qualifiers) and rejected ("R" qualifier).
[4] The background screening concentration is twice the average of detected concentrations for inorganic analytes in background samples. Organic values are only one time the mean of detected concentrations, and are included for comparison purposes only. Surface soil background samples are 01MW001, 08MW005S, 0BMW001S, 0SMW001R, 8MW5S, MPT-1-MW1-1, MPT-S-1-1, S1 and 0SMW001RD.
[5] U.S. Environmental Protection Agency (USEPA) Region III Risk-Based Concentration for tap water per January 1993 guidance (Selecting Exposure routes and Contaminants of Concern by Risk-Based Screening [EPA/903/R-93-001]) was used for screening. Actual values are taken from the USEPA Region III RBC Tables dated February 9, 1995, and are based on a cancer risk of 10^{-6} and for noncarcinogens a hazard quotient (HQ) of 1.
[6] Value is a groundwater guidance concentration from the Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994.
[7] The risk-based concentration is based on carcinogenic effects.
[8] Essential Nutrient Screening Values: U.S. Naval Station Mayport General Information Report, Volume II of II (ABB-ES, July 1995).
[9] Primary Standard under Florida Administrative Code (FAC), 62-550.310.
[10] Guidance value base on chemical being a carcinogen.
[11] Secondary Standard under FAC, 62-550.320.
[12] Guidance value based on chemical being a systemic toxicant.

Notes: Environmental samples included in this evaluation are MPT-TC-MW01S, MPT-TC-MW02S, MPT-TC-MW03S, MPT-TC-MW04S, MPT-TC-MW05S, MPT-TC-MW05DUP, and MPT-TC-MW06S.

SWMU = solid waste management unit.
TCE = trichloroethene.
RBC = risk-based concentration.
$\mu g/\ell$ = micrograms per liter.
NS = no screening concentration.
ND = analyte not detected in background surface soil sample.
NR = no range available.

Table 17
Estimated Human Health Cancer and Noncancer Risk Based on Maximum Values for Chemicals Detected in Groundwater Samples at Building 191

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

Analyte	Maximum Detected Concentration[1]	USEPA Region III Tap Water RBCs[2]	Estimated Residential Cancer Risk[3]	Florida Guidance Concentrations[4]	Estimated Florida Guidance Concentration Cancer Risk[3]	USEPA Region III Tap Water RBCs[5]	Estimated Hazard Index
Volatile Organic Compounds (µg/ℓ)							
Bromodichloromethane	5	0.17	3E-05	0.6	8E-06	NC	NC
Chloroform	11	0.15	7E-05	6	2E-06	NC	NC
Dibromochloromethane	1	0.13	7E-06	1	1E-06	NC	NC
Tetrachloroethene	86.5	1.1	8E-05	3	3E-05	NC	NC
Trichloroethene	9	1.6	6E-06	3	3E-06	NC	NC
Semivolatile Organic Compounds (µg/ℓ)							
No analytes detected.							
Pesticides and PCBs (µg/ℓ)							
No analytes detected.							
Inorganics (mg/ℓ)							
Arsenic	62.4	0.038	2E-03	50	1E-06	11	6
Beryllium	0.36	0.016	2E-05	4	9E-08	NC	NC
Manganese	543	NA	NA	NA	NA	180	3
Estimated Cancer Risk			2E-03		4E-05		
Estimated Hazard Index (Noncancer Risk)							9

[1] The maximum value is from Table 16.
[2] USEPA Region III risk-based screening concentrations (RBCs) for tap water per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening (EPA/903/R-93-001) was used for screening. Actual values are taken from the USEPA Region III RBC Tables dated February 9, 1995, and are based on a cancer risk of 10^{-6}.
[3] The cancer risk is an estimated value based on the assumptions used to determine the human health based risk values.
[4] Value is a groundwater guidance concentration from the Florida Department of Environmental Protection (FDEP), Groundwater Guidance Concentrations, June 1994.
[5] USEPA Region III risk-based screening concentrations (RBCs) for tap water per January 1993 guidance (Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening (EPA/903/R-93-001)) was used for screening. Actual values are taken from the USEPA Region III RBC Tables dated February 9, 1995, and are based on a hazard index of 1.

Notes: SWMU = solid waste management unit.
TCE = trichloroethene.
USEPA = U.S. Environmental Protection Agency.
RBC = risk-based concentration.
µg/ℓ = micrograms per liter.
NC = Not calculated; Chemical evaluated as a carcinogen.
PCB = polychlorinated biphenyl.
mg/ℓ = milligrams per liter.
NA = Not applicable, Chemical evaluated as a noncarcinogen.

ATTACHMENT C

PROJECT CHRONOLOGY

Table C-1
Project Chronology

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

When	Action
05/04/93	U.S. Naval Station (NAVSTA) Mayport Safety Officer issued an internal accident report concerning the accidental release of tetrachloroethene near Building 191.
08/26/93	Staff Civil Engineer at NAVSTA, Mayport issued correspondence to the Northeast District Office of the Florida Department of Environmental Protection to report the release of drycleaning fluid (tetrachloroethene) near Building 191 and provided analytical results of samples from the release site.
05/04/94	Public Works Center, Jacksonville, Florida: The Environmental Department issued a memorandum requesting sampling and analytical services, remediation services, and preparation of a map of the tetrachloroethene release site.
06/24/94	Public Works Center, Jacksonville, Florida: The Environmental Department issued a memorandum reporting analytical results and indicated that contamination was not evident at the sampling locations.
08/12/94	Staff Civil Engineer at NAVSTA, Mayport issued correspondence to the Northeast District Office of the Florida Department of Environmental Protection reporting the analysis of asphalt, limerock, and soil samples. In the correspondence it was stated that the "area is clean of contamination and requires no further action." Written concurrence of this opinion also was requested.
08/11/94	Environmental Science and Engineering issued a Contamination Assessment Report to Navy Public Works Center, Jacksonville, Florida. The report was for the assessment of a release from leaking underground fuel lines which serviced a 300-gallon above-ground storage tank. The report indicates that the Building 191 site qualifies for "No Further Action" as outlined in Chapter 17-770. The report also indicated that tetrachloroethene and trichloroethene were detected in a groundwater sample from a background monitoring well at concentrations that exceed their respective Florida groundwater guidance concentrations.

ACCIDENT REPORT
FISC MAYPORT
BESIDE BLDG 191A
5/4/93

On the above date at approximately 1500 AKAN John A. Loden from the USS CONSTELLATION punctured a 55 gallon drum of chemicals creating a hazardous spill. The drum contained DRY CLEANING SOLVENT chemical name was, TETRACHLOROETHYLENE. Approximately 25 - 30 gallons were spilled. the accident was caused when he attempted to pick up a pallet of drums to move. The forklift blade punctured the drum. SKCS Montelongo was his supervisor but was not present. He was notified by another sailor who was on the detail with AKAN Loden. Due to the fact that he stepped in the chemical he was taken to medical to have his feet washed.

Problems:

(1) The drums were not stored in the spill containment area.
(2) Within 130 feet of the spill area was a storm drain.
(3) AKAN Loden did not attemp to get help to invert the drum creating a larger spill.
(4) Clean up equipment was not readily available for use.

Solutions:

(1) Move all liquid drums to spill containment area.
(2) Have a designated spill containment cart in an easily accessible area with all necessary supplies.
(3) Review spill procedures with all employees.
(4) Order a Spilmagnet Drain Cover to be kept on the cart.
(5) Have the area supervisor check the cart and maintain all supplies monthly,(example a check off sheet).

Thanks to the fast thinking of SC Martinez and Pete Wilson we were able to avoid a really serious accident by the chemical getting into the storm drain. This would have caused possible environmental damage.

Report By

Marie Boone

Marie Boone
Safety Officer
Mayport

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Mike Davenport	From Marie Boone
Co. NAVE	Co. Safety

5090
Ser N4E2/ 00110
26 AUG 1993

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL

Dear Mr. Frey:

On May 4, 1993, while re-locating drums of tetrachloroethylene, a 55-gallon drum was punctured spilling 25-30 gallons of dry cleaning fluid. This spill occurred when the forklift operator was attempting to pick up a pallet of drums in the materials handling area beside Building 191A, Fleet and Industrial Supply Center Jacksonville, Fleet Support Center Mayport. The location of the spill is shown on the enclosed map. Our spill response team acted immediately to contain and remove the spill material from the concrete and spill samples were taken for analysis. Copies of the analysis results are enclosed.

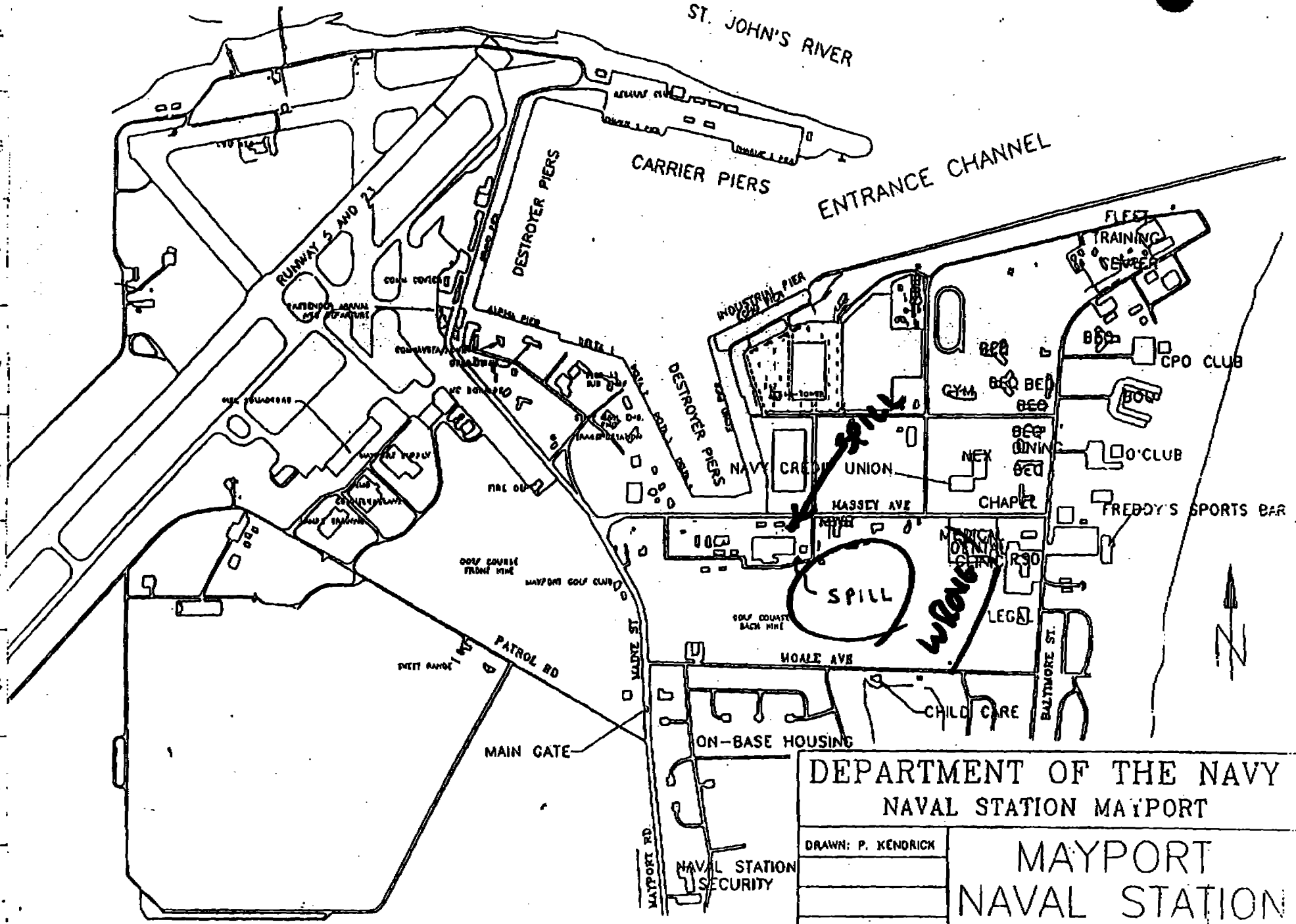
Please respond if there is any further action required by Naval Station Mayport. If you have any questions, please contact Mr. Michael Davenport, of my Environmental Staff, at (904) 270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC, U.S. Nav
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site Map
(2) Analysis Results
93-06-188 and 93-06-189

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kenton Brown)
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVAVNACTS Jacksonville (N3)
COMNAVAIRLANT (N442C)
bc: N4E Chron c:\wpdocs\Spill-TE.FIS/pl/8-11



DEPARTMENT OF THE NAVY
NAVAL STATION MAYPORT

DRAWN: P. KENDRICK	MAYPORT NAVAL STATION
FILE: SITE.DWG	
DRAWING NO. 91-000-005	NOT TO SCALE

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 21, 1993

Client: Navy Public Work
Sample I.D.: 93-06-186
Sample Matrix: Solid

Lab #: 9307-106-1
Date Received: 7-15-93
Date Completed: 7-19-93
Date Extraction: 7-16-93

Volatile Organic Compounds
Toxicity Characteristic Leaching Procedure SW-846 Method 1311
USEPA Method 8240 - GC/MS (8260)

Parameter	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Benzene	71-43-2	0.005	< 0.005	0.5
Carbon tetrachloride	56-23-5	0.005	< 0.005	0.5
Chlorobenzene	108-90-7	0.005	< 0.005	100.0
Chloroform	67-66-3	0.005	< 0.005	6.0
1,4-Dichlorobenzene	106-46-7	0.005	< 0.005	7.5
1,2-Dichloroethane	107-06-2	0.005	< 0.005	0.5
1,1-Dichloroethene	75-35-4	0.005	< 0.005	0.7
Methyl ethyl ketone	78-93-3	0.05	< 0.05	200.0
Tetrachloroethene	127-18-4	0.005	0.558	0.7
Trichloroethene	79-01-6	0.005	< 0.005	0.5
Vinyl chloride	75-01-4	0.005	< 0.005	0.2

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Surrogate Standards Recovery Percentage

	Recovey %	Acceptance Limits
Toluene - d_8	95.8	88 - 110
4-Bromofluorobenzene	106.9	86 - 115
1,2 Dichlorobenzene - d_4	102.4	87 - 112

Respectfully submitted:

Barry C. Byrd Jr., MS
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 23, 1993

Client: Navy Public Works — Lab #: 9307-106-1

Sample I.C.: 93-06-188 — Date Received: 7-15-93

Sample Matrix: Solid — Date Completed: 7-22-93

Date Extraction 7-21-93

Analytical Report
TCLP - Contaminant List (Partial) Method 1311
Methods EPA 8250 (8270)

Parameter	Regulatory Level	Results mg/L
Cresols	200.0	ND *
2,4-Dinitrotoluene	0.13	ND *
Hexachlorobenzene	0.13	ND
Hexchlorobutadiene	0.5	ND
Hexachloroethane	3.0	ND
Nitrobenzene	2.0	ND
Pentachlorophenol	100.0	ND *
Pyridine	5.0	ND *
2,4,5-Trichlorophenol	400.0	ND *
2,4,6-Trichlorophenol	2.0	ND *

Note: ND = (None detected, lower detectable limit - 0.010 mg/L)
ND * = (None detected, lower detectable limit - 0.025 mg/L)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted:

Barry C. Byrd, Jr., MS
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY INC.

July 20, 1993

Client: Navy Public Works (93-06-188) Lab #: 9307-106-1

Sample I.D.: MYP1 Date Received: 7-15-93

Sample Matrix: Water Date Completed: 7-20-93

Metals Analytical Summary
Toxicity Characteristic Leaching Procedure SW-846 Method 1311

Parameter	SW-846 Method	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Arsenic	6010	7440-38-2	0.0394	0.053	5.0
Barium	6010	7440-39-3	0.00454	0.122	100.0
Cadmium	6010	7440-43-9	0.00836	< 0.00836	1.0
Chromium	6010	7440-47-3	0.0140	0.036	5.0
Lead	6010	7439-92-1	0.0600	< 0.060	5.0
Mercury	7470,1	7439-97-6	0.0000917	0.176	0.2
Selenium	6010	7782-49-2	0.0452	0.076	1.0
Silver	6010	7440-22-4	0.00414	0.008	5.0

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Respectfully submitted,

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL062
DER Comp QAPP # 8702226

AWW/tb

6814 Arlington Expressway [illegible] 32211
(904) 725-4847

July 21, 1993

Client	[illegible]	Lab #	[illegible]
Sample I.D.	93-06-[illegible]	Date Received:	7-15-93
Sample Matrix	Solid	Date Completed:	7-20-93
		Date Extraction:	7-19-93

Volatile Organic Compounds
Toxicity Characteristic Leaching Procedure SW-846 Method 1311
USEPA Method 8240 - GC/MS (8260)

Parameter	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Benzene	71-43-2	0.005	< 0.005	0.5
Carbon tetrachloride	56-23-5	0.005	< 0.005	0.5
Chlorobenzene	108-90-7	0.005	< 0.005	100.0
Chloroform	67-66-3	0.005	< 0.005	6.0
1,4-Dichlorobenzene	106-46-7	0.005	< 0.005	7.5
1,2-Dichloroethane	107-06-2	0.005	< 0.005	0.5
1,1-Dichloroethylene	75-35-4	0.005	< 0.005	0.7
Methyl ethyl ketone	78-93-3	0.05	< 0.05	200.0
Tetrachloroethylene	127-18-4	0.005	0.110	0.7
Trichloroethylene	79-01-6	0.005	< 0.005	0.5
Vinyl chloride	75-01-4	0.005	< 0.005	0.2

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Surrogate Standards Recovery Percentage

	Recovery %	Acceptance Limits
Toluene - d_8	[illegible]	88 - 110
4-Bromofluorobenzene	[illegible]	86 - 115
1,2 Dichlorobenzene - d_4	[illegible]	87 - 112

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL ... INC.

Client:	Navy Public Works	Job #:	9307-106-2
Sample I.D.	93-06-182	Date Received:	7-15-93
Sample Matrix:	Solid	Date Completed:	7-22-93
		Date Extracted:	7-21-93

Analytical Report
TCLP Contaminant List (Partial) Method 1311
Methods EPA 8250 (8270)

Parameter	Regulatory Level	Results mg/L
Cresols	200.0	ND *
2,4-Dinitrotoluene	0.13	ND *
Hexachlorobenzene	0.13	ND
Hexachlorobutadiene	0.5	ND
Hexachloroethane	3.0	ND
Nitrobenzene	2.0	ND
Pentachlorophenol	100.0	ND *
Pyridine	5.0	ND *
2,4,5-Trichlorophenol	400.0	ND *
2,4,6-Trichlorophenol	2.0	ND *

Note ND = (None detected, lower detectable limit - 0.010 mg/l
ND * = (None detected, lower detectable limit - 0.025 mg/L
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted:

Barry ... MS
Technical Director

BCB/...

July 20, 1993

Client: Navy Public Works (93-06-189) Lab #: 9307-106-2

Sample I.D.: MYPT Date Received: 7-15-93

Sample Matrix: Water Date Completed: 7-20-93

Metals Analytical Summary
Toxicity Characteristic Leaching Procedure SW-846 Method 1311

Parameter	SW-846 Method	CAS #	Detection Limit(mg/L)		RESULT(mg/L)	Max. Cont. Level(mg/L)
Arsenic	6010	7440-38-2	0.0394		0.093	5.0
Barium	6010	7440-39-3	0.00454		0.028	100.0
Cadmium	6010	7440-43-9	0.00838	<	0.00838	1.0
Chromium	6010	7440-47-3	0.0140		0.017	5.0
Lead	6010	7439-92-1	0.0600	<	0.060	5.0
Mercury	7470.1	7439-97-6	0.0000917		0.00016	0.2
Selenium	6010	7782-49-2	0.0452	<	0.0452	1.0
Silver	6010	7440-22-4	0.00414	<	0.00414	5.0

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Respectfully submitted.

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #A2110
EPA #FL062
DER Comp QAPP # 870222G

AWW/tb

12 July 93

From: 320.2
To: 240

Subj: ANALYTICAL TESTING

1. Request the following samples be tested for the parameters indicated.

Sample No.	Media	Test (Clin)	COST	Source
93-06-188	Solid, SAND	TCLP (full no pesticides)	$.	Mypt
93-06-189	Solid, black top	TCLP (full no pesticides)	$.	Mypt
93-06-190	Liquid	TCLP (full no pesticides)	$.	Bldg 171
		Total	$ .00	

2. All analysis shall conform to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846.

3. Job Order number to be used this project is 1243006 and a 24-hour turn around is requested on analytical results.

4. Please contact Gail Fallon or Andy Long at 772-4551 if there are any questions.

Andy Long
ANDY LONG

RC# 00186
To 240 7/13/93
To AB 7/15/93

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 21, 1993

Client: Navy Public Works — Lab #: 9307-106

Sample I.D.: See Below (MYP1) — Date Received: 7-15-93

Sample Matrix: See Below — Date Completed: 7-20-93

Metals Analytical Summary

FCEL Lab #	Sample I.D. Station	Sample Matrix	Parameter	Method	Results
9307-106-1	93-06-188	Solid	Chromium	6010	7.97 mg/Kg
9307-106-2	93-06-189	Solid	Chromium	6010	5.56 mg/Kg

Respectfully submitted,

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL062
DER Comp QAPP # 8702226

AWW/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-1847 • Fax (904) 725-2315

PUBLIC WORKS CENTER
JACKSONVILLE
ENVIRONMENTAL DEPARTMENT
Memorandum

94 MAY 4 AM 12:51

Date: 4 May 1994

From: Hazardous Waste Division Director (Code 320)
To: Laboratory Division (Code 330)

Subj: ANALYTICAL SERVICES REQUEST FOR TF24030, CHEMICAL ANALYSIS AND CLEAN UP BEHIND BLDG. 191, NAVSTA MAYPORT

Encl: (1) Location Sketch
(2) Plan of Action and Milestones

1. Request subject services per the following requirements.

a. Analytes/Method: Method 8240 (CLIN 0001HL)

b. Sampling: Collect 6 samples as noted on enclosure (1). Recommend pick and hand auger be used to collect samples. Requested analysis should be conducted on each of the six samples. Code 330 should leave sampling locations as level as possible after work; code 320 will followup to have paving patched pending test results (if results show tetrachloroethylene above detectable limits, remediation work will require removing additional paving anyway.)

c. Turn Around Time: Project has been charted on enclosure (2) for Mayport Zone Manager. Request sampling be performed by 20 May 94 with test results back by 8 Jun 94.

d. Point of Contact: G. Fallon at ext. 8320.

e. Job Order Number: 1243006

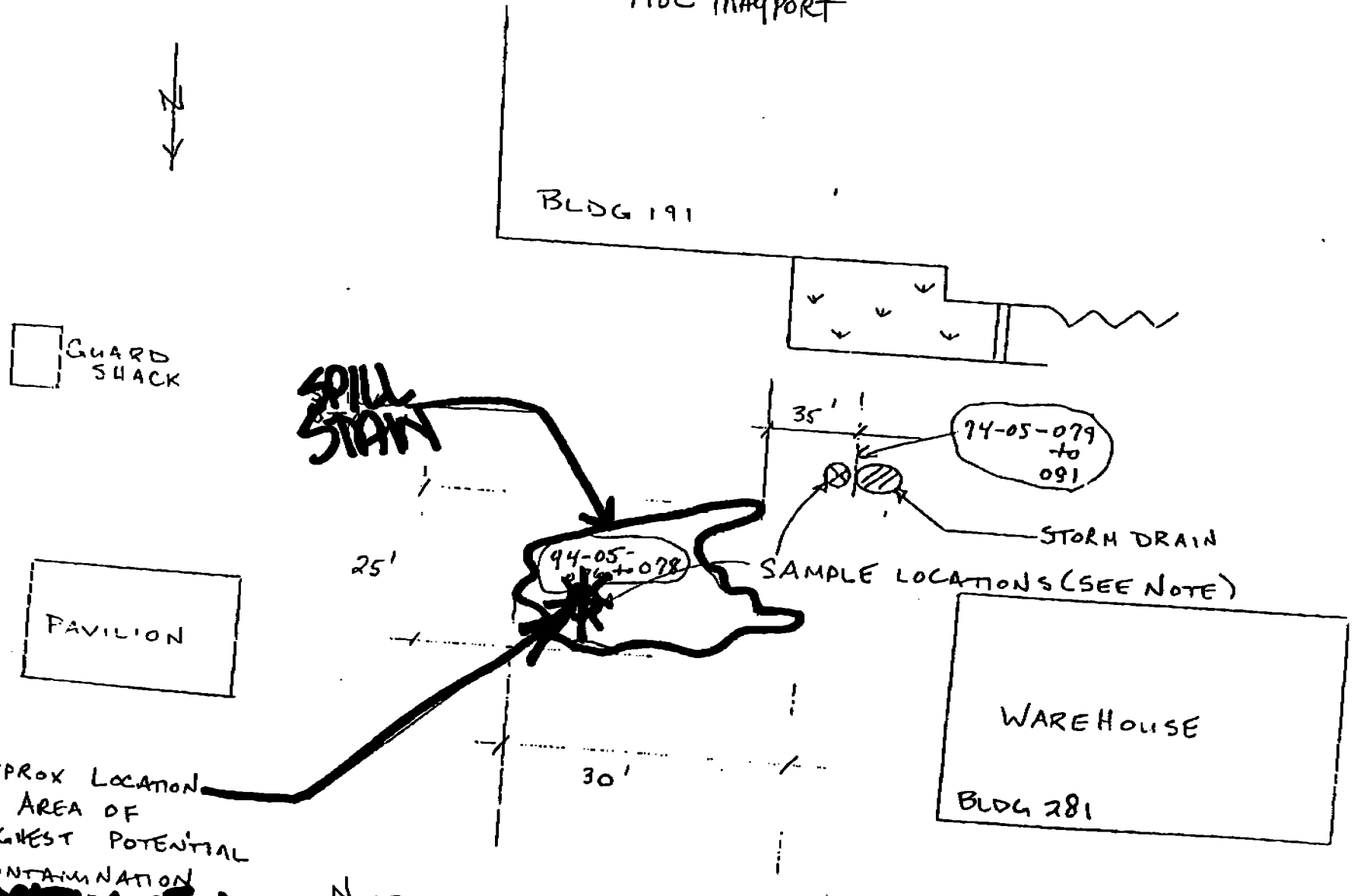
2. A more accurate sketch, suitable for submission to FDEP, is also requested with the final results. The sketch must include, as a minimum, the location of the spill, where the forklift punctured the drum, the storm drain, and where the samples were taken. The main concern with the sketch's accuracy is the location of samples.

G. L. Fallon

GAIL L. FALLON

Proj # 94-161
Sample # 94-05-076
to
94-05-081

ROUGH SKETCH - BLDG 191, TF 24030
FISC MAYPORT



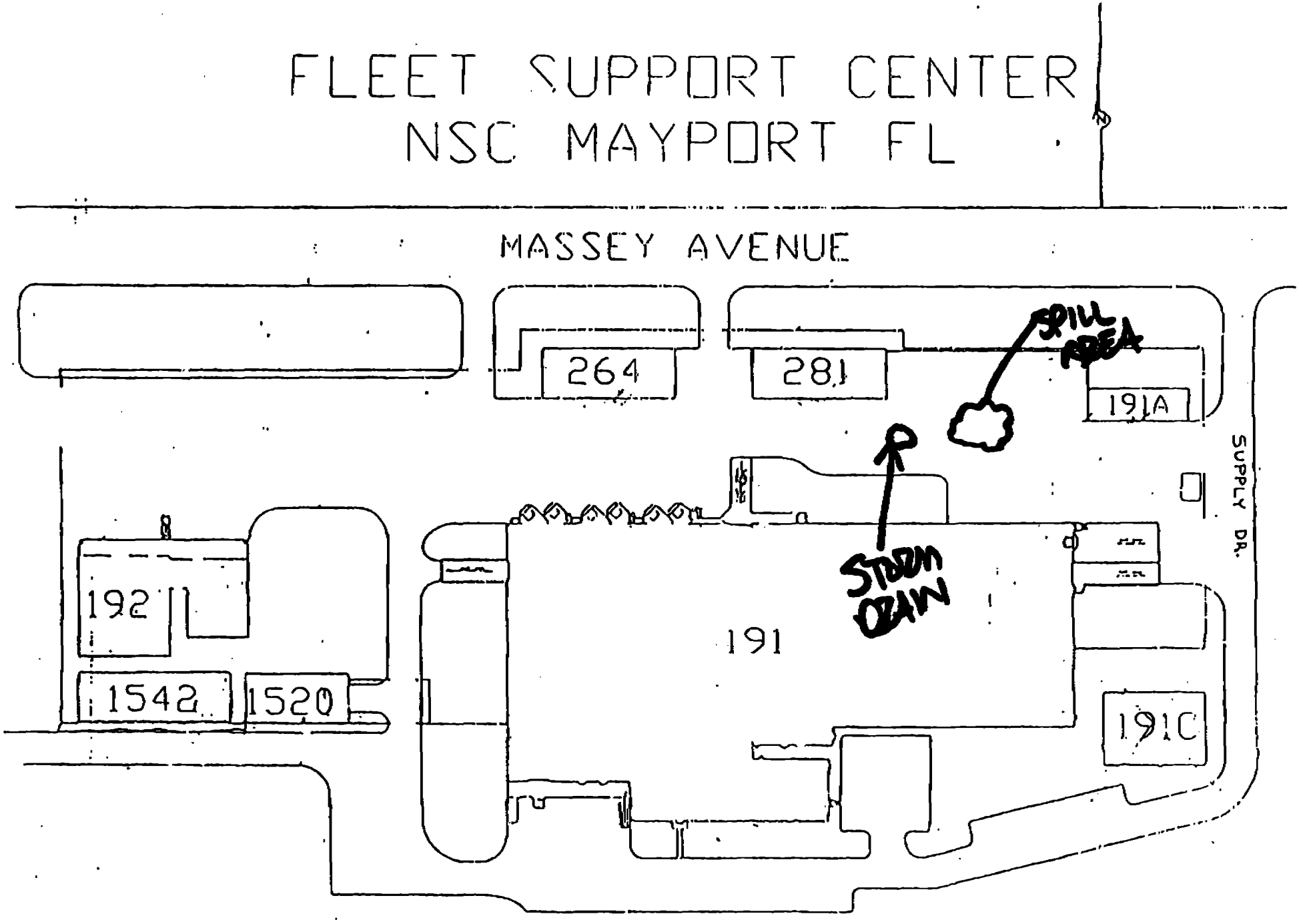
NOTE

3 SAMPLES (PROPOSED AT EACH LOCATION (TOTAL 6 SAMPLES)
TO INCLUDE:

	APPROX. DEPTH (FT)
1. ASPHALT SAMPLE	0
2. LIMEROCK SAMPLE	.5-1.0
3. SOIL SAMPLE	1.0-2.0

FEB-09-1996 11:38 FROM SCE NAVSTA MAYPORT TO 9190465386 P.16

FLEET SUPPORT CENTER
NSC MAYPORT FL



FEB-09-1996 11:34 FROM SCE NAVSTA MAYPORT TO 9190465366 P.03

7 Apr 94

PLAN OF ACTION AND MILESTONES FOR FISC BLDG. 191 SPILL (TF24030)

ACTION	ORIGINAL / REVISED DATE	STATUS
1. Code 320 identify analytical methods and submit request for sampling and analysis to Code 330.	29 Apr 94	
2. Code 330 perform sampling and deliver sample to laboratory. Also provide sketch of sample locations.	20 May 94	
3. Code 330 receive analytical results back from laboratory.	8 Jun 94	
4. Code 320 review analysis and provide recommendation on additional remediation.	10 Jul 94	
Following items contingent on discovering low level contamination		
5. Code 320 develop statement of work for site remediation; include additional analysis, excavation, and written report.	24 Jun 94	
6. Code 240 award contract for site remediation.	24 Jul 94	
7. Contractor complete work.	5 Aug 94	
8. Code 320 dispose of contaminated soil through DRMO.	23 Sep 94	

NAVY PUBLIC WORKS CENTER
JACKSONVILLE
ENVIRONMENTAL DEPARTMENT
MEMORANDUM

Date: 24 Jun 94

From: Acting HW Division Director
To: FISC (Attn: Marie Boone)

Subj: TF-24030, CHEMICAL ANALYSIS AND CLEAN UP BEHIND BLDG. 191, SPILL AREA

Encl: (1) Analytical Results
(2) Sketch of Sample Area

1. Per enclosure (1), the tetrachloroethylene sample results from enclosure (2) sample locations indicate no contamination. Constituents found such as xylene is normal for a parking area and associated motor vehicle undercarriage leakage.

K. J. MELCHIORRE
LT, CEC, USN

Copy to:
Codes 300S

23 JUN 94

MEMORANDUM

From: 330.2
To: 320

Subj: ANALYTICAL TEST RESULTS

Ref: (a) Code 320 Request for Analytical Service of 4 MAY 94

Encl: (1) Lab Results, Call # 0113, Project # 94-161
(2) Chain of Custody

1. Per reference request, samples were collected by our staff from MYPT area behind BLDG 191 and forwarded to the lab for testing. The results and the chain of custody are provided in enclosures (1) and (2).

2. If there are any questions, please call me at 772-4548, ext 8306.

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Amended

Client: Navy Public Works — Lab #: 9405-236-1

Sample I.D.: 94-05-076 Asphalt — Date Received: 5-27-94

Sample Matrix: Solid — Date Completed: 5-28-94

Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	188
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	586
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-076 Asphalt
Sample Matrix: Solid

Lab #: 9405-236-1
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Other Determined Volatile Organic Compounds
USEPA METHOD 624/524.2/8260 - GC/MS

The compounds reported below are compounds determined to be present in the sample which are reported on lists other than the requested parameter list.

Parameter	Conc. Units	Det. Limit	Result
Total Xylenes	ug/Kg	5	477

Tentatively Identified Compounds

The compounds in this section are compounds which generated significant peaks in the chromatographic analysis and were tentatively identified utilizing the NBS Library in the Mass Spectal Data System. Since standard instrument responses have not been determined for these compounds a Response Factor of 1.00 has been utilized to calculate the result. Therefore, the result should be viewed in a conservative manner.

Parameter	Estimated Result

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

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FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.C.: 94-05-077
Sample Matrix: Solid

Lab #: 9405-236-2
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	66.5
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	18.2
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected. lower detectable limit - 5 ug/Kg)
ND * = (None detected. lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit. quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-077 homerock
Sample Matrix: Solid

Lab #: 9405-236-2
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Other Determined Volatile Organic Compounds
USEPA METHOD 624/524.2/8260 - GC/MS

The compounds reported below are compounds determined to be present in the sample which are reported on lists other than the requested parameter list.

Parameter	Conc. Units	Det. Limit	Result
Total Xylenes	ug/Kg	5	203

Tentatively Identified Compounds

The compounds in this section are compounds which generated significant peaks in the chromatographic analysis and were tentatively identified utilizing the NBS Library in the Mass Spectal Data System. Since standard instrument responses have not been determined for these compounds a Response Factor of 1.00 has been utilized to calculate the result. Therefore, the result should be viewed in a conservative manner.

Parameter	Estimated Result

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
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FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-078 Soil
Sample Matrix: Solid

Lab #: 9405-236-3
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethyl vinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry E. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
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(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-079
Sample Matrix: Solid

Lab #: 9405-236-4
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	7.42
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	9.27
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-080 Limerock
Sample Matrix: Solid

Lab #: 9405-236-5
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloromethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	6.77
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry E. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-082 / Soil
Sample Matrix: Solid

Lab #: 9405-236-6
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted

Garry D. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 8702220

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

8618 ARLINGTON EXPRESSWAY
JACKSONVILLE, FLORIDA 32211
FAX (904) 725-2215
(904) 725-4847
(904) 725-5708

CHAIN OF CUSTODY RECORD

Client: NAVY PUBLIC WORKS CENTER JACKSONVILLE

ATTN: CODE 330 (ENVIRONMENTAL LABORATORY)

JACKSONVILLE, FL 32212-0030

Project Description: MAYPORT SPILL AREA AND STORM DRAIN AREA

ATTN:

PROJECT #94-161 CALL #103

Sampler (Signature)

Page 1 of 1

STATION	DATE	TIME (Military)	SAMPLE DESCRIPTION	NO. OF SAMPLE CONTAINERS	REMARKS
MYPT-SPILL AREA			94-05-076 - SOLID		8240
MYPT-SPILL AREA			94-05-077 - SOLID		8240
MYPT-SPILL AREA			94-05-078 - SOLID		8240
MYPT-STORM DRAIN			94-05-079 - SOLID		8240
MYPT-STORM DRAIN			94-05-080 - SOLID		8240
MYPT-STORM DRAIN			94-05-081 - SOLID		8240

Relinquished by (Signature):	Date	Time (Military)	Received by (Signature):	Date	Time (Military)	Relinquished by (Signature):	Date	Time (Military)	Received by (Signature):	Date	Time (Military)
[signature]	6-27-94	1333	[signature]								
Relinquished by (Signature):	Date	Time (Military)	Received by (Signature):	Date	Time (Military)	REMARKS:					

FEB-09-1996 11:38 FROM SCE NAVSTA MAYPORT TO 9190465633386 P.15

DEPARTMENT OF THE NAVY

NAVAL STATION
MAYPORT, FLORIDA 32228-0116

Bureau of Waste Cleanup

REPLY REFER TO
5090.10
Ser N4E/

AUG 12 1994

10 AUG 1994

Technical Review Section

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL
MAY 4, 1993, AT BUILDING 191

Dear Mr. Frey:

On May 4, 1993, a spill of tetrachloroethylene occurred and immediately cleaned up. The spill occurred while relocating drums Building 191, Fleet Industrial Supply Center, Fleet Support Center Mayport. Please reference Naval Station Mayport letter 5090, Ser N4E2/00110 of August 26, 1993, which provided initial report of spill and analysis.

As requested by your office, additional chemical analyses performed on the asphalt, limerock, and soil. The results enclosed and show the area is clean of contamination and requires further action.

Naval Station Mayport requests written concurrence from your office that the area requires no further clean up. If you have questions, please contact Mr. Michael Davenport, N4E, at 904-270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site map
(2) Analysis Results 94-05-076, 077, 078, 079, 080, 081 and Chain of Custody

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kevin [illegible])
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVBASE Jacksonville (N3)

5090.10
Ser N4E/ 00186
10 AUG 1994

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL OF MAY 4, 1993, AT BUILDING 191

Dear Mr. Frey:

On May 4, 1993, a spill of tetrachloroethylene occurred and was immediately cleaned up. The spill occurred while relocating drums at Building 191, Fleet Industrial Supply Center, Fleet Support Center Mayport. Please reference Naval Station Mayport letter 5090, Ser N4E2/00110 of August 26, 1993, which provided initial report of spill and analysis.

As requested by your office, additional chemical analysis was performed on the asphalt, limerock, and soil. The results are enclosed and show the area is clean of contamination and requires no further action.

Naval Station Mayport requests written concurrence from your office that the area requires no further clean up. If you have any questions, please contact Mr. Michael Davenport, N4E, at 904-270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC, U.S. Navy
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site map
(2) Analysis Results 94-05-076, 077, 078, 079, 080, 081 and Chain of Custody

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kenton Brown)
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVBASE Jacksonville (N3)
bc: N4E Chron, N4E4 c:\-OHS-SPC\Spill-T2.DEP/pl/8-8

ATTACHMENT D

BORING LOGS

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW01S	BORING NO. MW-1
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling	DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 9.56 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM	Post-Hole Observation	
				Total Depth of Boring = 13' bls				
				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				

TITLE: U.S. Naval Station, Mayport, FL	**LOG of WELL:** MPT-TC-MW01I		**BORING NO.** MW-1D
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8534-05
CONTRACTOR: Huss Drilling		**DATE STARTED:** 5/19/94	**COMPLTD:** 5/19/94
METHOD: Mud Rotary	**CASE SIZE:** 4 in.	**SCREEN INT.:** 35' to 40'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.6 FT.	**MONITOR INST.:** N/A	**TOT DPTH:** 40FT.	**DPTH TO ▽** 6 FT.
LOGGED BY: Paul Locascio (ESE)	**WELL DEVELOPMENT DATE:** 5/19/94		**SITE:** Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM	Post-Hole	
							Observation	
5								
10								
						SP		
15								
20				SAND: fine to very fine, gray, moist, w/ shell fragments			16,20,20,22	
25				SAND: as above			18,20,20,24	
30							12,14,16,12	

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW011	BORING NO. MW-10
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Mud Rotary	CASE SIZE: 4 in.	SCREEN INT.: 35' to 40'	PROTECTION LEVEL: D
TOC ELEV.: 9.6 FT.	MONITOR INST.: N/A	TOT DPTH: 40FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
				SAND: as above		SP		
35				SAND: as above, w/ abundant shell fragments			12,22,24,30	
40				SAND: as above, w/ trace shell fragments			18,22,24,28	
				Total Depth of Boring = 40' bls				
				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				
45								
50								
55								
60								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW02S	BORING NO. MW-2
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling	DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in. / SCREEN INT.: 4.0' to 14.0'	PROTECTION LEVEL: D
TOC ELEV.: 10.89 FT.	MONITOR INST.: N/A / TOT DPTH: 14FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94	SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				SILTY SAND: fine grained		SM		Post-Hole
5								Observation
10								
15				Total Depth of Boring = 14' bls				
20				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW03S	BORING NO. MW-3
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/19/94	COMPLTD: 5/19/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 8.68 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO ▽ 6 FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/19/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM	Post-Hole	
5							Observation	
10								
				Total Depth of Boring = 13' bls				
15				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				
20								

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL		LOG of WELL: MPT-TC-MW04S	BORING NO. MW-4
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: Huss Drilling		DATE STARTED: 5/20/94	COMPLTD: 5/20/94
METHOD: Hollow Stem Auger	CASE SIZE: 4 in.	SCREEN INT.: 3.0' to 13.0'	PROTECTION LEVEL: D
TOC ELEV.: 8.68 FT.	MONITOR INST.: N/A	TOT DPTH: 13FT.	DPTH TO ▽ N/A FT.
LOGGED BY: Paul Locascio (ESE)	WELL DEVELOPMENT DATE: 5/20/94		SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				SILTY SAND: fine grained		SM		
							Post-Hole	
							Observation	
5								
10								
				Total Depth of Boring = 13' bls				
15				Note: Logs obtained from Environmental Science and Engineering, 1994, Contamination Assessment Report for Building 191, U.S. Naval Station Mayport, Florida.				
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW05S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/31/95	COMPLTD: 05/31/95
METHOD: 4.25" H.S.A. / CASE SIZE: 2"	SCREEN INT.: 2.5-12.5'	PROTECTION LEVEL: D
TOC ELEV.: 8.73 FT. / MONITOR INST.: F.I.D.	TOT DPTH: 12.5FT.	DPTH TO ▽ 3.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 06/02/95	SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				ASPHALT (5")				
				SILTY SAND- fine to very fine, dark brown.		SM		
				SAND- fine with shell fragments, light tan.		SP		
5				SAND- as above.				
				SAND- fine with shell fragments, gray.				
10								
				TOTAL DEPTH OF BORING = 12.5' BLS				
15								
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-TC-MW06S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/31/95	COMPLTD: 05/31/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 2.5-12.5'	PROTECTION LEVEL: D
TOC ELEV.: 9.84 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 12.5FT.	DPTH TO ▽ 3.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 06/02/95	SITE: Bldg. 191

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				ASPHALT (5")				
				SILTY SAND- fine to very fine, dark brown.		SM		
				SAND- fine with shell fragments, light tan.		SP		▽
5				SAND- as above.				
				SAND- fine with shell fragments, gray.				
10								
				TOTAL DEPTH OF BORING = 12.5' BLS				
15								
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-20-MW01S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 13.49 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 5.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20S00101	X	100%	0.0	CONCRETE (6")			Hand Auger	
					SILTY CLAY-fill material, tan to brown, slight odor.		SC		
					CONCRETE DEBRIS				
	20B00105	X	100%	0.0	SAND- fine with shell fragments, light tan to gray.		SP	Hand Auger	
5					SAND- as above.				
10					CLAYEY SAND- gray to dark gray.		SC	Observation	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-20-MW02S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 4-14'	PROTECTION LEVEL: D
TOC ELEV.: 13.68 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 14.2FT.	DPTH TO ▽ 5.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20S00201 X	100%	0.0	ORGANIC RICH SOIL		OH	Hand Auger	
				SAND- fine, with shell fragmens. gray.		SP		
	20B00205 X	100%	0.0	SAND- as above.			Hand Auger	
5								
				SAND- as above.				
10								
				CLAYEY SAND- gray to dark gray.		SC	Observation	
15				TOTAL DEPTH OF BORING = 14.2' BLS				
20								

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-20-MW03S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/05/95	COMPLTD: 05/05/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 3-13'	PROTECTION LEVEL: D
TOC ELEV.: 12.01 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 14.0FT.	DPTH TO ▽ 5.0 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 20

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	20S00301 X	100%	0.0	ORGANIC RICH SOIL SAND- fine, damp, light gray to gray.		SP	Hand Auger	
	20B00105 X	100%	0.0	SAND- as above.			Hand Auger	
5				SAND- as above.			Observation	
10				CLAYEY SAND- gray to dark gray.		SC	Observation	
				TOTAL DEPTH OF BORING = 14.0' BLS				
15								
20								

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-21-MW01S		BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 13.21 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 4.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	21S00101 D,MS,MSD	X	100%	0.0	CONCRETE (5")			Hand Auger	
					SAND- fine with shell fragments, gray to light tan.		SP		
	21B00104	X	100%	0.0	SAND- as above.			Hand Auger	
5									▽
					SAND- as above.			Observation	
10							SC		
					CLAYEY SAND- gray to dark gray.			Observation	
15									
					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-21-MW02S		BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM			PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.		DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 12.79 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 3.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95		SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	21S00201	X	100%	0.0	ORGANIC RICH SOIL		OL	Hand Auger	
					SAND- fine with shell fragments, gray.		SP		
	21B00203	X	100%	0.0	SAND- as above.			Hand Auger	
5					SAND- as above.			Observation	
10					CLAYEY SAND- gray to dark gray, mild odor.		SC	Observation	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: U.S. Naval Station, Mayport, FL	LOG of WELL: MPT-21-MW03S	BORING NO.
CLIENT: SOUTHERN DIVISION, NAVFACENGCOM		PROJECT NO: 8534-05
CONTRACTOR: GROUNDWATER PROTECTION, INC.	DATE STARTED: 05/04/95	COMPLTD: 05/04/95
METHOD: 4.25" H.S.A.	CASE SIZE: 2"	SCREEN INT.: 5-15'	PROTECTION LEVEL: D
TOC ELEV.: 12.36 FT.	MONITOR INST.: F.I.D.	TOT DPTH: 15.5FT.	DPTH TO ▽ 3.5 FT.
LOGGED BY: S. SCAVONE	WELL DEVELOPMENT DATE: 05/17/95	SITE: SWMU 21

DEPTH FT.	LABORATORY SAMPLE ID.		RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
	21S00301	X	100%	0.0	CONCRETE (5")			Posthole	
					SAND- fine with shell fragments, moist, gray.		SP	0 to 4'	
	21B00303	X	100%	0.0	SAND- as above.			Hand Auger	▽
5					SAND- as above.				
10					CLAYEY SAND- gray to dark gray, mild odor.		SC	Observation	
15					TOTAL DEPTH OF BORING = 15.5' BLS				
20									

ATTACHMENT E

DATA SUMMARY TABLE

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:		R9971003				R9971003				R9971005				R9971005		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCS00101				TCS00101				TCS00201				TCS00201		
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/kg																
Chloromethane		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Bromomethane		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Vinyl chloride		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Chloroethane		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Methylene chloride		5	U	ug/kg	5	-		ug/kg		2	J	ug/kg	6	-		ug/kg	
Acetone		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Carbon disulfide		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethene (total)		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chloroform		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
2-Butanone		11	R	ug/kg	11	-		ug/kg		11	R	ug/kg	11	-		ug/kg	
1,1,1-Trichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Carbon tetrachloride		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromodichloromethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloropropane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
cis-1,3-Dichloropropene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Trichloroethene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dibromochloromethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2-Trichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Benzene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,3-Dichloropropene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromoform		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
4-Methyl-2-pentanone		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
2-Hexanone		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Tetrachloroethene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2,2-Tetrachloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Toluene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chlorobenzene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Ethylbenzene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Styrene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Xylenes (total)		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dichlorodifluoromethane		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Trichlorofluoromethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,3-Dichlorobenzene		5	U	ug/kg	5	360	U	ug/kg	360	6	U	ug/kg	6	380	U	ug/kg	380
Acrolein		110	UJ	ug/kg	110	-		ug/kg		110	UJ	ug/kg	110	-		ug/kg	
Iodomethane		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,4-Dichlorobenzene		5	U	ug/kg	5	360	U	ug/kg	360	6	U	ug/kg	6	380	U	ug/kg	380
Acrylonitrile		110	U	ug/kg	110	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Dibromomethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichlorobenzene		5	U	ug/kg	5	360	U	ug/kg	360	6	U	ug/kg	6	380	U	ug/kg	380
2-Chloroethylvinyl ether		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Ethyl methacrylate		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2,3-Trichloropropane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,4-Dichloro-2-butene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Isobutyl alcohol		220	R	ug/kg	220	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
1,1,1,2-Tetrachloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dibromo-3-chloropropane		11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,2-Dibromoethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	

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Surface Soil Data

Lab Sample Number:	R9971003				R9971003				R9971005				R9971005			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCS00101				TCS00101				TCS00201				TCS00201			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,4-Dioxane	220	R	ug/kg	220	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
3-Chloropropene	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetonitrile	110	U	ug/kg	110	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Chloroprene	220	U	ug/kg	220	-		ug/kg		230	U	ug/kg	230	-		ug/kg	
Methacrylonitrile	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Methyl methacrylate	11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Pentachloroethane	11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Propionitrile	110	U	ug/kg	110	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Vinyl acetate	11	U	ug/kg	11	-		ug/kg		11	U	ug/kg	11	-		ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:		R9971007				R9971007				R9971009				R9971009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCS00301				TCS00301				TCS00401				TCS00401			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/kg																
Chloromethane		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Bromomethane		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Vinyl chloride		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Chloroethane		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Methylene chloride		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetone		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Carbon disulfide		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethene (total)		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chloroform		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
2-Butanone		10	R	ug/kg	10	-		ug/kg		11	R	ug/kg	11	-		ug/kg	
1,1,1-Trichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Carbon tetrachloride		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromodichloromethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloropropane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
cis-1,3-Dichloropropene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Trichloroethene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dibromochloromethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2-Trichloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Benzene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,3-Dichloropropene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromoform		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
4-Methyl-2-pentanone		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
2-Hexanone		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Tetrachloroethene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2,2-Tetrachloroethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Toluene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chlorobenzene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Ethylbenzene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Styrene		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Xylenes (total)		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dichlorodifluoromethane		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Trichlorofluoromethane		5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,3-Dichlorobenzene		5	U	ug/kg	5	340	U	ug/kg	340	6	U	ug/kg	6	380	U	ug/kg	380
Acrolein		100	UJ	ug/kg	100	-		ug/kg		110	UJ	ug/kg	110	-		ug/kg	
Iodomethane		10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,4-Dichlorobenzene		5	U	ug/kg	5	340	U	ug/kg	340	6	U	ug/kg	6	380	U	ug/kg	380
Acrylonitrile		100	U	ug/kg	100	-		ug/kg		110	U	ug/kg	110	-		ug/kg	

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971007				R9971007				R9971009				R9971009			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCS00301				TCS00301				TCS00401				TCS00401			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Dibromomethane	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichlorobenzene	5	U	ug/kg	5	340	U	ug/kg	340	6	U	ug/kg	6	380	U	ug/kg	380
2-Chloroethylvinyl ether	10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Ethyl methacrylate	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2,3-Trichloropropane	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,4-Dichloro-2-butene	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Isobutyl alcohol	210	R	ug/kg	210	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
1,1,1,2-Tetrachloroethane	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dibromo-3-chloropropane	10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,2-Dibromoethane	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,4-Dioxane	210	R	ug/kg	210	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
3-Chloropropene	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetonitrile	100	U	ug/kg	100	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Chloroprene	210	U	ug/kg	210	-		ug/kg		230	U	ug/kg	230	-		ug/kg	
Methacrylonitrile	5	U	ug/kg	5	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Methyl methacrylate	10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Pentachloroethane	10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Propionitrile	100	U	ug/kg	100	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Vinyl acetate	10	U	ug/kg	10	-		ug/kg		11	U	ug/kg	11	-		ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Buil...g 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:		R9971010				R9971010			
Site		GROUP111				GROUP111			
Locator		TCS00401D				TCS00401D			
Collect Date:		31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
VOLATILES	ug/kg								
Chloromethane		11	U	ug/kg	11	-	ug/kg		
Bromomethane		11	U	ug/kg	11	-	ug/kg		
Vinyl chloride		11	U	ug/kg	11	-	ug/kg		
Chloroethane		11	U	ug/kg	11	-	ug/kg		
Methylene chloride		6	U	ug/kg	6	-	ug/kg		
Acetone		11	U	ug/kg	11	-	ug/kg		
Carbon disulfide		6	U	ug/kg	6	-	ug/kg		
1,1-Dichloroethane		6	U	ug/kg	6	-	ug/kg		
1,1-Dichloroethene		6	U	ug/kg	6	-	ug/kg		
1,2-Dichloroethene (total)		6	U	ug/kg	6	-	ug/kg		
Chloroform		6	U	ug/kg	6	-	ug/kg		
1,2-Dichloroethane		6	U	ug/kg	6	-	ug/kg		
2-Butanone		11	R	ug/kg	11	-	ug/kg		
1,1,1-Trichloroethane		6	U	ug/kg	6	-	ug/kg		
Carbon tetrachloride		6	U	ug/kg	6	-	ug/kg		
Bromodichloromethane		6	U	ug/kg	6	-	ug/kg		
1,2-Dichloropropane		6	U	ug/kg	6	-	ug/kg		
cis-1,3-Dichloropropene		6	U	ug/kg	6	-	ug/kg		
Trichloroethene		6	U	ug/kg	6	-	ug/kg		
Dibromochloromethane		6	U	ug/kg	6	-	ug/kg		
1,1,2-Trichloroethane		6	U	ug/kg	6	-	ug/kg		
Benzene		6	U	ug/kg	6	-	ug/kg		
trans-1,3-Dichloropropene		6	U	ug/kg	6	-	ug/kg		
Bromoform		6	U	ug/kg	6	-	ug/kg		
4-Methyl-2-pentanone		11	U	ug/kg	11	-	ug/kg		
2-Hexanone		11	U	ug/kg	11	-	ug/kg		
Tetrachloroethene		6	U	ug/kg	6	-	ug/kg		
1,1,2,2-Tetrachloroethane		6	U	ug/kg	6	-	ug/kg		
Toluene		6	U	ug/kg	6	-	ug/kg		
Chlorobenzene		6	U	ug/kg	6	-	ug/kg		
Ethylbenzene		6	U	ug/kg	6	-	ug/kg		
Styrene		6	U	ug/kg	6	-	ug/kg		
Xylenes (total)		6	U	ug/kg	6	-	ug/kg		
Dichlorodifluoromethane		11	U	ug/kg	11	-	ug/kg		
Trichlorofluoromethane		6	U	ug/kg	6	-	ug/kg		
1,3-Dichlorobenzene		6	U	ug/kg	6	370 U	ug/kg	370	
Acrolein		110	UJ	ug/kg	110	-	ug/kg		
Iodomethane		11	U	ug/kg	11	-	ug/kg		
1,4-Dichlorobenzene		6	U	ug/kg	6	370 U	ug/kg	370	
Acrylonitrile		110	U	ug/kg	110	-	ug/kg		

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:		R9971010				R9971010			
Site		GROUP111				GROUP111			
Locator		TCS00401D				TCS00401D			
Collect Date:		31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
Dibromomethane	6	U	ug/kg	6	-		ug/kg		
1,2-Dichlorobenzene	6	U	ug/kg	6	370	U	ug/kg	370	
2-Chloroethylvinyl ether	11	U	ug/kg	11	-		ug/kg		
Ethyl methacrylate	6	U	ug/kg	6	-		ug/kg		
1,2,3-Trichloropropane	6	U	ug/kg	6	-		ug/kg		
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6	-		ug/kg		
Isobutyl alcohol	220	R	ug/kg	220	-		ug/kg		
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6	-		ug/kg		
1,2-Dibromo-3-chloropropane	11	U	ug/kg	11	-		ug/kg		
1,2-Dibromoethane	6	U	ug/kg	6	-		ug/kg		
1,4-Dioxane	220	R	ug/kg	220	-		ug/kg		
3-Chloropropene	6	U	ug/kg	6	-		ug/kg		
Acetonitrile	110	U	ug/kg	110	-		ug/kg		
Chloroprene	220	U	ug/kg	220	-		ug/kg		
Methacrylonitrile	6	U	ug/kg	6	-		ug/kg		
Methyl methacrylate	11	U	ug/kg	11	-		ug/kg		
Pentachloroethane	11	U	ug/kg	11	-		ug/kg		
Propionitrile	110	U	ug/kg	110	-		ug/kg		
Vinyl acetate	11	U	ug/kg	11	-		ug/kg		

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

		R9971003				R9971005				R9971007				R9971009			
Lab Sample Number:																	
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCS00101				TCS00201				TCS00301				TCS00401			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
SEMIVOLATILES	ug/kg																
N-Nitrosodimethylamine		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Phenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Aniline		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
bis(2-Chloroethyl) ether		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Benzyl Alcohol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2-Methylphenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
bis(2-Chloroisopropyl) ether		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
N-Nitroso-di-n-propylamine		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Hexachloroethane		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Nitrobenzene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Isophorone		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2-Nitrophenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,4-Dimethylphenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Benzoic acid		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
bis(2-Chloroethoxy) methane		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,4-Dichlorophenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
1,2,4-Trichlorobenzene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Naphthalene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Chloroaniline		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Hexachlorobutadiene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Chloro-3-methylphenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2-Methylnaphthalene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Hexachlorocyclopentadiene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,4,6-Trichlorophenol		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Dimethylphthalate		360	U	ug/kg	360	110	J	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,4,5-Trichlorophenol		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
2-Chloronaphthalene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2-Nitroaniline		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Acenaphthylene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,6-Dinitrotoluene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
3-Nitroaniline		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Acenaphthene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,4-Dinitrophenol		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
4-Nitrophenol		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Dibenzofuran		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
2,4-Dinitrotoluene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Diethylphthalate		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Chlorophenyl-phenylether		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Fluorene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Nitroaniline		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
4,6-Dinitro-2-methylphenol		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
N-Nitrosodiphenylamine (1)		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
1,2-Diphenylhydrazine		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Bromophenyl-phenylether		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Hexachlorobenzene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Pentachlorophenol		1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Phenanthrene		71	J	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	57	J	ug/kg	380
Anthracene		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Di-n-Butylphthalate		360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Fluoranthene		300	J	ug/kg	360	380	U	ug/kg	380	64	J	ug/kg	340	110	J	ug/kg	380

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

	R9971003				R9971005				R9971007				R9971009			
Lab Sample Number:																
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCS00101				TCS00201				TCS00301				TCS00401			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Pyrene	220	J	ug/kg	360	380	U	ug/kg	380	42	J	ug/kg	340	67	J	ug/kg	380
Butylbenzylphthalate	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
3,3-Dichlorobenzidine	720	U	ug/kg	720	760	U	ug/kg	760	690	U	ug/kg	690	760	U	ug/kg	760
Benzo (a) anthracene	130	J	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	51	J	ug/kg	380
Chrysene	210	J	ug/kg	360	380	U	ug/kg	380	47	J	ug/kg	340	63	J	ug/kg	380
bis(2-Ethylhexyl) phthalate	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Di-n-octylphthalate	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Benzo (b) fluoranthene	230	J	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Benzo (k) fluoranthene	230	J	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Benzo (a) pyrene	180	J	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	87	J	ug/kg	360	380	UJ	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380
Dibenz (a,h) anthracene	360	UJ	ug/kg	360	380	U	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380
Benzo (g,h,i) perylene	85	J	ug/kg	360	380	UJ	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380
2-Picoline	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Methyl methanesulfonate	360	UJ	ug/kg	360	380	UJ	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380
Ethyl methanesulfonate	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Acetophenone	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
N-Nitrosopiperidine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Phenyl-tert-butylamine	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800
2,6-Dichlorophenol	360	UJ	ug/kg	360	380	UJ	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380
N-Nitroso-di-n-butylamine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
N-Nitrosodiethylamine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
N-Nitrosopyrrolidine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Benzidine	1700	U	ug/kg	1700	1800	UJ	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
1,2,4,5-Tetrachlorobenzene	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Pentachlorobenzene	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
1-Naphthylamine	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800
2-Naphthylamine	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800
2,3,4,6-Tetrachlorophenol	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Phenacetin	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Aminobiphenyl	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800
Pentachloronitrobenzene	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
Pronamide	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
p-(Dimethylamino)azobenzene	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
7,12-Dimethylbenz(A)Anthracene	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
3-Methylcholanthrene	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Pyridine	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
N-Nitrosomethylethylamine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
N-Nitrosomorpholine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
o-Toluidine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Hexachloropropene	1700	U	ug/kg	1700	1800	UJ	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
p-Phenylenediamine	17000	UJ	ug/kg	17000	18000	UJ	ug/kg	18000	17000	UJ	ug/kg	17000	18000	UJ	ug/kg	18000
Safrole	1700	U	ug/kg	1700	1800	UJ	ug/kg	1800	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800
Isosafrole	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
1,4-Naphthoquinone	36000	R	ug/kg	36000	38000	U	ug/kg	38000	34000	R	ug/kg	34000	38000	R	ug/kg	38000
1,3-Dinitrobenzene	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
5-Nitro-o-toluidine	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
1,3,5-Trinitrobenzene	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
4-Nitroquinoline-1-oxide	17000	U	ug/kg	17000	18000	R	ug/kg	18000	17000	U	ug/kg	17000	18000	U	ug/kg	18000
Methapyrilene	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800	1700	UJ	ug/kg	1700	1800	UJ	ug/kg	1800
3,3-Dimethylbenzidine	360	UJ	ug/kg	360	380	UJ	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380
Hexachlorophene	17000	UJ	ug/kg	17000	18000	R	ug/kg	18000	17000	UJ	ug/kg	17000	18000	UJ	ug/kg	18000

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971003				R9971005				R9971007				R9971009			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCS00101				TCS00201				TCS00301				TCS00401			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aramite	1700	U	ug/kg	1700	1800	U	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
2-Chlorophenol	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
3- & 4-Methylphenol (2)	360	U	ug/kg	360	380	U	ug/kg	380	340	U	ug/kg	340	380	U	ug/kg	380
Hexachloropropene	1700	U	ug/kg	1700	1800	UJ	ug/kg	1800	1700	U	ug/kg	1700	1800	U	ug/kg	1800
2-Acetylaminofluorene	360	UJ	ug/kg	360	380	UJ	ug/kg	380	340	UJ	ug/kg	340	380	UJ	ug/kg	380

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971010
Site	GROUP111
Locator	TCS00401D
Collect Date:	31-MAY-95

		VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/kg				
N-Nitrosodimethylamine		370	U	ug/kg	370
Phenol		370	U	ug/kg	370
Aniline		370	U	ug/kg	370
bis(2-Chloroethyl) ether		370	U	ug/kg	370
Benzyl Alcohol		370	U	ug/kg	370
2-Methylphenol		370	U	ug/kg	370
bis(2-Chloroisopropyl) ether		370	U	ug/kg	370
N-Nitroso-di-n-propylamine		370	U	ug/kg	370
Hexachloroethane		370	U	ug/kg	370
Nitrobenzene		370	U	ug/kg	370
Isophorone		370	U	ug/kg	370
2-Nitrophenol		370	U	ug/kg	370
2,4-Dimethylphenol		370	U	ug/kg	370
Benzoic acid		1800	U	ug/kg	1800
bis(2-Chloroethoxy) methane		370	U	ug/kg	370
2,4-Dichlorophenol		370	U	ug/kg	370
1,2,4-Trichlorobenzene		370	U	ug/kg	370
Naphthalene		370	U	ug/kg	370
4-Chloroaniline		370	U	ug/kg	370
Hexachlorobutadiene		370	U	ug/kg	370
4-Chloro-3-methylphenol		370	U	ug/kg	370
2-Methylnaphthalene		370	U	ug/kg	370
Hexachlorocyclopentadiene		370	U	ug/kg	370
2,4,6-Trichlorophenol		370	U	ug/kg	370
Dimethylphthalate		370	U	ug/kg	370
2,4,5-Trichlorophenol		1800	U	ug/kg	1800
2-Chloronaphthalene		370	U	ug/kg	370
2-Nitroaniline		1800	U	ug/kg	1800
Acenaphthylene		370	U	ug/kg	370
2,6-Dinitrotoluene		370	U	ug/kg	370
3-Nitroaniline		1800	U	ug/kg	1800
Acenaphthene		370	U	ug/kg	370
2,4-Dinitrophenol		1800	U	ug/kg	1800
4-Nitrophenol		1800	U	ug/kg	1800
Dibenzofuran		370	U	ug/kg	370
2,4-Dinitrotoluene		370	U	ug/kg	370
Diethylphthalate		370	U	ug/kg	370
4-Chlorophenyl-phenylether		370	U	ug/kg	370
Fluorene		370	U	ug/kg	370
4-Nitroaniline		1800	U	ug/kg	1800

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971010
Site	GROUP111
Locator	TCS00401D
Collect Date:	31-MAY-95

	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	1800	U	ug/kg	1800
N-Nitrosodiphenylamine (1)	370	U	ug/kg	370
1,2-Diphenylhydrazine	370	U	ug/kg	370
4-Bromophenyl-phenylether	370	U	ug/kg	370
Hexachlorobenzene	370	U	ug/kg	370
Pentachlorophenol	1800	U	ug/kg	1800
Phenanthrene	370	U	ug/kg	370
Anthracene	370	U	ug/kg	370
Di-n-Butylphthalate	370	U	ug/kg	370
Fluoranthene	130	J	ug/kg	370
Pyrene	86	J	ug/kg	370
Butylbenzylphthalate	370	U	ug/kg	370
3,3-Dichlorobenzidine	740	U	ug/kg	740
Benzo (a) anthracene	64	J	ug/kg	370
Chrysene	90	J	ug/kg	370
bis(2-Ethylhexyl) phthalate	370	U	ug/kg	370
Di-n-octylphthalate	370	U	ug/kg	370
Benzo (b) fluoranthene	100	J	ug/kg	370
Benzo (k) fluoranthene	110	J	ug/kg	370
Benzo (a) pyrene	82	J	ug/kg	370
Indeno (1,2,3-cd) pyrene	370	UJ	ug/kg	370
Dibenz (a,h) anthracene	370	UJ	ug/kg	370
Benzo (g,h,i) perylene	370	UJ	ug/kg	370
2-Picoline	1800	U	ug/kg	1800
Methyl methanesulfonate	370	UJ	ug/kg	370
Ethyl methanesulfonate	370	U	ug/kg	370
Acetophenone	370	U	ug/kg	370
N-Nitrosopiperidine	370	U	ug/kg	370
Phenyl-tert-butylamine	1800	UJ	ug/kg	1800
2,6-Dichlorophenol	370	UJ	ug/kg	370
N-Nitroso-di-n-butylamine	370	U	ug/kg	370
N-Nitrosodiethylamine	370	U	ug/kg	370
N-Nitrosopyrrolidine	370	U	ug/kg	370
Benzidine	1800	U	ug/kg	1800
1,2,4,5-Tetrachlorobenzene	1800	U	ug/kg	1800
Pentachlorobenzene	1800	U	ug/kg	1800
1-Naphthylamine	1800	UJ	ug/kg	1800
2-Naphthylamine	1800	UJ	ug/kg	1800
2,3,4,6-Tetrachlorophenol	370	U	ug/kg	370
Phenacetin	370	U	ug/kg	370
4-Aminobiphenyl	1800	UJ	ug/kg	1800
Pentachloronitrobenzene	1800	U	ug/kg	1800
Pronamide	370	U	ug/kg	370
p-(Dimethylamino)azobenzene	370	U	ug/kg	370
7,12-Dimethylbenz(A)Anthracene	370	U	ug/kg	370
3-Methylcholanthrene	370	U	ug/kg	370
Pyridine	1800	U	ug/kg	1800
N-Nitrosomethylethylamine	370	U	ug/kg	370
N-Nitrosomorpholine	370	U	ug/kg	370
o-Toluidine	370	U	ug/kg	370
Hexachloropropene	1800	U	ug/kg	1800
p-Phenylenediamine	18000	UJ	ug/kg	18000

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971010
Site	GROUP111
Locator	TCS004010
Collect Date:	31-MAY-95

	VALUE	QUAL	UNITS	DL
Safrole	1800	UJ	ug/kg	1800
Isosafrole	1800	U	ug/kg	1800
1,4-Naphthoquinone	37000	R	ug/kg	37000
1,3-Dinitrobenzene	370	U	ug/kg	370
5-Nitro-o-toluidine	370	U	ug/kg	370
1,3,5-Trinitrobenzene	370	U	ug/kg	370
4-Nitroquinoline-1-oxide	18000	U	ug/kg	18000
Methapyrilene	1800	UJ	ug/kg	1800
3,3-Dimethylbenzidine	370	UJ	ug/kg	370
Hexachlorophene	18000	UJ	ug/kg	18000
Aramite	1800	U	ug/kg	1800
2-Chlorophenol	370	U	ug/kg	370
3- & 4-Methylphenol (2)	370	U	ug/kg	370
Hexachloropropene	1800	U	ug/kg	1800
2-Acetylaminofluorene	370	UJ	ug/kg	370

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:		R9971003				R9971005				R9971007				R9971009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCS00101				TCS00201				TCS00301				TCS00401			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/kg																
alpha-BHC		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
beta-BHC		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
delta-BHC		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
gamma-BHC (Lindane)		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
Heptachlor		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.3	J	ug/kg	1.5
Aldrin		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
Heptachlor epoxide		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	8.7		ug/kg	1.5
Endosulfan I		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
Dieldrin		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
4,4-DDE		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	2.3		ug/kg	1.5
Endrin		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
Endosulfan II		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
4,4-DDD		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
Endosulfan sulfate		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
4,4-DDT		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
Methoxychlor		3	U	ug/kg	3	3.1	U	ug/kg	3.1	2.8	U	ug/kg	2.8	6.1	U	ug/kg	6.1
Endrin aldehyde		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
Endrin ketone		1.4	U	ug/kg	1.4	1.5	U	ug/kg	1.5	1.4	U	ug/kg	1.4	3	U	ug/kg	3
Chlordane		12		ug/kg	7.4	7.8	U	ug/kg	7.8	7	U	ug/kg	7	93		ug/kg	15
Chlorobenzilate		22	U	ug/kg	22	23	U	ug/kg	23	21	U	ug/kg	21	45	U	ug/kg	45
Dialiate		44	U	ug/kg	44	47	U	ug/kg	47	42	U	ug/kg	42	91	U	ug/kg	91
Toxaphene		36	U	ug/kg	36	38	U	ug/kg	38	34	U	ug/kg	34	75	U	ug/kg	75
Isodrin		.74	U	ug/kg	.74	.78	U	ug/kg	.78	.7	U	ug/kg	.7	1.5	U	ug/kg	1.5
Kepone		44	U	ug/kg	44	46	U	ug/kg	46	42	U	ug/kg	42	91	U	ug/kg	91
Aroclor-1016		36	U	ug/kg	36	38	U	ug/kg	38	34	U	ug/kg	34	75	U	ug/kg	75
Aroclor-1221		74	U	ug/kg	74	78	U	ug/kg	78	70	U	ug/kg	70	150	U	ug/kg	150
Aroclor-1232		74	U	ug/kg	74	78	U	ug/kg	78	70	U	ug/kg	70	150	U	ug/kg	150
Aroclor-1242		36	U	ug/kg	36	38	U	ug/kg	38	34	U	ug/kg	34	75	U	ug/kg	75
Aroclor-1248		36	U	ug/kg	36	38	U	ug/kg	38	34	U	ug/kg	34	75	U	ug/kg	75
Aroclor-1254		19	U	ug/kg	19	20	U	ug/kg	20	18	U	ug/kg	18	39	U	ug/kg	39
Aroclor-1260		160		ug/kg	19	20	U	ug/kg	20	25	J	ug/kg	18	170		ug/kg	39

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971010
Site	GROUP111
Locator	TCS00401D
Collect Date:	31-MAY-95

		VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/kg				
alpha-BHC		1.5	U	ug/kg	1.5
beta-BHC		2.9	U	ug/kg	2.9
delta-BHC		1.5	U	ug/kg	1.5
gamma-BHC (Lindane)		1.5	U	ug/kg	1.5
Heptachlor		1.2	J	ug/kg	1.5
Aldrin		1.5	U	ug/kg	1.5
Heptachlor epoxide		8.9		ug/kg	1.5
Endosulfan I		1.5	U	ug/kg	1.5
Dieldrin		1.5	U	ug/kg	1.5
4,4-DDE		2		ug/kg	1.5
Endrin		2.9	U	ug/kg	2.9
Endosulfan II		2.9	U	ug/kg	2.9
4,4-DDD		2.9	U	ug/kg	2.9
Endosulfan sulfate		2.9	U	ug/kg	2.9
4,4-DDT		2.9	U	ug/kg	2.9
Methoxychlor		6.1	U	ug/kg	6.1
Endrin aldehyde		2.9	U	ug/kg	2.9
Endrin ketone		2.9	U	ug/kg	2.9
Chlordane		91		ug/kg	15
Chlorobenzilate		45	U	ug/kg	45
Diallate		90	U	ug/kg	90
Toxaphene		74	U	ug/kg	74
Isodrin		1.5	U	ug/kg	1.5
Kepone		90	U	ug/kg	90
Aroclor-1016		74	U	ug/kg	74
Aroclor-1221		150	U	ug/kg	150
Aroclor-1232		150	U	ug/kg	150
Aroclor-1242		74	U	ug/kg	74
Aroclor-1248		74	U	ug/kg	74
Aroclor-1254		38	U	ug/kg	38
Aroclor-1260		150		ug/kg	38

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Buil...g 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971003				R9971005				R9971007				R9971009			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCS00101				TCS00201				TCS00301				TCS00401			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (WATER)	mg/kg															
Antimony	1.1	U	mg/kg	1.1	1.2	U	mg/kg	1.2	1	U	mg/kg	1	1.2	U	mg/kg	1.2
Arsenic	1.6	J	mg/kg	.6	.58	UJ	mg/kg	.58	1	UJ	mg/kg	1	.58	UJ	mg/kg	.58
Barium	56.7		mg/kg	.24	4.4	J	mg/kg	.25	7.7	J	mg/kg	.23	4.2	J	mg/kg	.25
Beryllium	.08	J	mg/kg	.066	.09	J	mg/kg	.069	.1	J	mg/kg	.062	.12	J	mg/kg	.069
Cadmium	.44	J	mg/kg	.26	.28	U	mg/kg	.28	.25	U	mg/kg	.25	.28	U	mg/kg	.28
Calcium	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Chromium	12.8		mg/kg	.37	3		mg/kg	.39	2.4		mg/kg	.35	3.3		mg/kg	.39
Cobalt	.76	J	mg/kg	.68	.72	U	mg/kg	.72	.64	U	mg/kg	.64	.71	U	mg/kg	.71
Copper	8.9		mg/kg	.22	3.3	J	mg/kg	.23	4.3	J	mg/kg	.21	2.8	J	mg/kg	.23
Cyanide	.11	J	mg/kg	1.5	.09	J	mg/kg	1.5	.14	J	mg/kg	1.5	.12	J	mg/kg	1.5
Iron	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Lead	21.5		mg/kg	2	3.6		mg/kg	.4	16.4		mg/kg	2	7.2		mg/kg	.4
Magnesium	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Manganese	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Mercury	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03	.03	U	mg/kg	.03
Nickel	3.6	J	mg/kg	1.2	1.3	U	mg/kg	1.3	2.1	J	mg/kg	1.2	1.3	U	mg/kg	1.3
Selenium	.11	U	mg/kg	.11	.12	U	mg/kg	.12	.1	U	mg/kg	.1	.2	J	mg/kg	.5
Silver	.31	UJ	mg/kg	.31	.32	UJ	mg/kg	.32	.29	UJ	mg/kg	.29	.32	UJ	mg/kg	.32
Sodium	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Thallium	.13	U	mg/kg	.13	.14	U	mg/kg	.14	.12	U	mg/kg	.12	.14	U	mg/kg	.14
Tin	3	U	mg/kg	3	3.1	U	mg/kg	3.1	2.8	U	mg/kg	2.8	5.7	J	mg/kg	3.1
Vanadium	5.4	J	mg/kg	.26	3.3	J	mg/kg	.28	4.3	J	mg/kg	.25	2.9	J	mg/kg	.28
Zinc	48.2		mg/kg	.46	10.7		mg/kg	.48	15.3		mg/kg	.44	10.6		mg/kg	.48

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Surface Soil Data

Lab Sample Number:	R9971010
Site	GROUP111
Locator	TCS00401D
Collect Date:	31-MAY-95

		VALUE	QUAL	UNITS	DL
INORGANICS (WATER)	mg/kg				
Antimony		1.1	UJ	mg/kg	1.1
Arsenic		.34	UJ	mg/kg	.34
Barium		3.4	J	mg/kg	.25
Beryllium		.07	U	mg/kg	.07
Cadmium		.27	U	mg/kg	.27
Calcium		-		mg/kg	
Chromium		2.1	J	mg/kg	.38
Cobalt		.7	U	mg/kg	.7
Copper		1.9	J	mg/kg	.23
Cyanide		.15	J	mg/kg	1.5
Iron		-		mg/kg	
Lead		9.3		mg/kg	.4
Magnesium		-		mg/kg	
Manganese		-		mg/kg	
Mercury		.03	J	mg/kg	.1
Nickel		1.8	J	mg/kg	1.3
Selenium		.11	U	mg/kg	.11
Silver		.32	UJ	mg/kg	.32
Sodium		-		mg/kg	
Thallium		.14	U	mg/kg	.14
Tin		3.1	U	mg/kg	3.1
Vanadium		2.7	J	mg/kg	.27
Zinc		9.7		mg/kg	.47

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971004			R9971004			R9971006			R9971006				
Site		GROUP111			GROUP111			GROUP111			GROUP111				
Locator		TCB00103			TCB00103			TCB00203			TCB00203				
Collect Date:		31-MAY-95			31-MAY-95			31-MAY-95			31-MAY-95				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/kg															
Chloromethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Bromomethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Vinyl chloride		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Chloroethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Methylene chloride		2	J	ug/kg	6	-		ug/kg		4	J	ug/kg	6	-		ug/kg	
Acetone		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Carbon disulfide		1	J	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethene (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chloroform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
2-Butanone		12	R	ug/kg	12	-		ug/kg		13	R	ug/kg	13	-		ug/kg	
1,1,1-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Carbon tetrachloride		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromodichloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloropropane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
cis-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Trichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dibromochloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Benzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromoform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
4-Methyl-2-pentanone		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
2-Hexanone		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Tetrachloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2,2-Tetrachloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Toluene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chlorobenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Ethylbenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Styrene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Xylenes (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dichlorodifluoromethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Trichlorofluoromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,3-Dichlorobenzene		6	U	ug/kg	6	380	U	ug/kg	380	6	U	ug/kg	6	430	U	ug/kg	430
Acrolein		120	UJ	ug/kg	120	-		ug/kg		130	UJ	ug/kg	130	-		ug/kg	
Iodomethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
1,4-Dichlorobenzene		6	U	ug/kg	6	380	U	ug/kg	380	6	U	ug/kg	6	430	U	ug/kg	430
Acrylonitrile		120	U	ug/kg	120	-		ug/kg		130	U	ug/kg	130	-		ug/kg	
Dibromomethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichlorobenzene		6	U	ug/kg	6	380	U	ug/kg	380	6	U	ug/kg	6	430	U	ug/kg	430
2-Chloroethylvinyl ether		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Ethyl methacrylate		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2,3-Trichloropropane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,4-Dichloro-2-butene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Isobutyl alcohol		230	R	ug/kg	230	-		ug/kg		260	R	ug/kg	260	-		ug/kg	
1,1,1,2-Tetrachloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dibromo-3-chloropropane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
1,2-Dibromoethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:	R9971004				R9971004				R9971006				R9971006			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00103				TCB00103				TCB00203				TCB00203			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,4-Dioxane	230	R	ug/kg	230	-		ug/kg		260	R	ug/kg	260	-		ug/kg	
3-Chloropropene	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetonitrile	120	U	ug/kg	120	-		ug/kg		130	U	ug/kg	130	-		ug/kg	
Chloroprene	230	U	ug/kg	230	-		ug/kg		260	U	ug/kg	260	-		ug/kg	
Methacrylonitrile	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Methyl methacrylate	12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Pentachloroethane	12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Propionitrile	120	U	ug/kg	120	-		ug/kg		130	U	ug/kg	130	-		ug/kg	
Vinyl acetate	12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971008				R9971008				R9971011				R9971011		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCB00303				TCB00303				TCB00403				TCB00403		
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/kg																
Chloromethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Bromomethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Vinyl chloride		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Chloroethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Methylene chloride		4	J	ug/kg	6	-		ug/kg		1	J	ug/kg	6	-		ug/kg	
Acetone		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Carbon disulfide		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethene (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chloroform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
2-Butanone		12	R	ug/kg	12	-		ug/kg		11	R	ug/kg	11	-		ug/kg	
1,1,1-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Carbon tetrachloride		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromodichloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloropropane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
cis-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Trichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dibromochloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Benzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromoform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
4-Methyl-2-pentanone		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
2-Hexanone		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Tetrachloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2,2-Tetrachloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Toluene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chlorobenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Ethylbenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Styrene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Xylenes (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dichlorodifluoromethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Trichlorofluoromethane		6	U	ug/kg	6	-		ug/kg		2	J	ug/kg	6	-		ug/kg	
1,3-Dichlorobenzene		6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	370	U	ug/kg	370
Acrolein		120	UJ	ug/kg	120	-		ug/kg		110	UJ	ug/kg	110	-		ug/kg	
Iodomethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,4-Dichlorobenzene		6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	370	U	ug/kg	370
Acrylonitrile		120	U	ug/kg	120	-		ug/kg		110	U	ug/kg	110	-		ug/kg	

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Lab Sample Number:	R9971008				R9971008				R9971011				R9971011			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00303				TCB00303				TCB00403				TCB00403			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Dibromomethane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichlorobenzene	6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	370	U	ug/kg	370
2-Chloroethylvinyl ether	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Ethyl methacrylate	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2,3-Trichloropropane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Isobutyl alcohol	250	R	ug/kg	250	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dibromo-3-chloropropane	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,2-Dibromoethane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,4-Dioxane	250	R	ug/kg	250	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
3-Chloropropene	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetonitrile	120	U	ug/kg	120	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Chloroprene	250	U	ug/kg	250	-		ug/kg		230	U	ug/kg	230	-		ug/kg	
Methacrylonitrile	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Methyl methacrylate	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Pentachloroethane	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Propionitrile	120	U	ug/kg	120	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Vinyl acetate	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

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Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971006				R9971008				R9971011			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/kg																
N-Nitrosodimethylamine		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Phenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Aniline		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
bis(2-Chloroethyl) ether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzyl Alcohol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Methylphenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
bis(2-Chloroisopropyl) ether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitroso-di-n-propylamine		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachloroethane		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Nitrobenzene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Isophorone		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Nitrophenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dimethylphenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzoic acid		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
bis(2-Chloroethoxy) methane		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dichlorophenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
1,2,4-Trichlorobenzene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Naphthalene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Chloroaniline		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachlorobutadiene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Chloro-3-methylphenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Methylnaphthalene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachlorocyclopentadiene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4,6-Trichlorophenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Dimethylphthalate		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4,5-Trichlorophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
2-Chloronaphthalene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Nitroaniline		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Acenaphthylene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,6-Dinitrotoluene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3-Nitroaniline		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Acenaphthene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dinitrophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
4-Nitrophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Dibenzofuran		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dinitrotoluene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Diethylphthalate		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Chlorophenyl-phenylether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Fluorene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Nitroaniline		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
4,6-Dinitro-2-methylphenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
N-Nitrosodiphenylamine (1)		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
1,2-Diphenylhydrazine		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Bromophenyl-phenylether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachlorobenzene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Pentachlorophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Phenanthrene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Anthracene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Di-n-Butylphthalate		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Fluoranthene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370

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Sub-Surface Soil Data

Lab Sample Number:	R9971004				R9971006				R9971008				R9971011			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Pyrene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Butylbenzylphthalate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3,3-Dichlorobenzidine	770	U	ug/kg	770	860	U	ug/kg	860	810	U	ug/kg	810	750	U	ug/kg	750
Benzo (a) anthracene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Chrysene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Di-n-octylphthalate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzo (b) fluoranthene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzo (k) fluoranthene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzo (a) pyrene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Indeno (1,2,3-cd) pyrene	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Dibenz (a,h) anthracene	380	U	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Benzo (g,h,i) perylene	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
2-Picoline	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Methyl methanesulfonate	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Ethyl methanesulfonate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Acetophenone	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosopiperidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Phenyl-tert-butylamine	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
2,6-Dichlorophenol	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
N-Nitroso-di-n-butylamine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosodiethylamine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosopyrrolidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzidine	1900	UJ	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
1,2,4,5-Tetrachlorobenzene	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Pentachlorobenzene	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
1-Naphthylamine	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
2-Naphthylamine	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
2,3,4,6-Tetrachlorophenol	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Phenacetin	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Aminobiphenyl	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
Pentachloronitrobenzene	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Pronamide	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
p-(Dimethylamino)azobenzene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
7,12-Dimethylbenz(A)Anthracene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3-Methylcholanthrene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Pyridine	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
N-Nitrosomethylethylamine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosomorpholine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
o-Toluidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachloropropene	1900	UJ	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
p-Phenylenediamine	19000	UJ	ug/kg	19000	21000	UJ	ug/kg	21000	20000	UJ	ug/kg	20000	18000	UJ	ug/kg	18000
Safrole	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
Isosafrole	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
1,4-Naphthoquinone	38000	U	ug/kg	38000	43000	R	ug/kg	43000	40000	R	ug/kg	40000	37000	R	ug/kg	37000
1,3-Dinitrobenzene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
5-Nitro-o-toluidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
1,3,5-Trinitrobenzene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Nitroquinoline-1-oxide	19000	R	ug/kg	19000	21000	U	ug/kg	21000	20000	U	ug/kg	20000	18000	U	ug/kg	18000
Methapyrilene	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
3,3-Dimethylbenzidine	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Hexachlorophene	19000	R	ug/kg	19000	21000	UJ	ug/kg	21000	20000	UJ	ug/kg	20000	18000	UJ	ug/kg	18000

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Sub-Surface Soil Data

Lab Sample Number:	R9971004				R9971006				R9971008				R9971011			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aramite	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
2-Chlorophenol	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3- & 4-Methylphenol (2)	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachloropropene	1900	UJ	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
2-Acetylaminofluorene	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971006				R9971008				R9971011			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/kg																
alpha-BHC		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
beta-BHC		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
delta-BHC		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
gamma-BHC (Lindane)		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Heptachlor		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Aldrin		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Heptachlor epoxide		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Endosulfan I		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Dieldrin		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
4,4-DDE		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Endrin		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Endosulfan II		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
4,4-DDD		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Endosulfan sulfate		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
4,4-DDT		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Methoxychlor		3.3	U	ug/kg	3.3	3.5	U	ug/kg	3.5	3.3	U	ug/kg	3.3	3	U	ug/kg	3
Endrin aldehyde		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Endrin ketone		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Chlordane		8.3	U	ug/kg	8.3	8.6	U	ug/kg	8.6	8.2	U	ug/kg	8.2	19		ug/kg	7.5
Chlorobenzilate		25	U	ug/kg	25	26	U	ug/kg	26	24	U	ug/kg	24	22	U	ug/kg	22
Diallate		49	U	ug/kg	49	51	U	ug/kg	51	49	U	ug/kg	49	45	U	ug/kg	45
Toxaphene		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Isodrin		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Kepone		49	U	ug/kg	49	51	U	ug/kg	51	49	U	ug/kg	49	45	U	ug/kg	45
Aroclor-1016		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Aroclor-1221		83	U	ug/kg	83	86	U	ug/kg	86	82	U	ug/kg	82	75	U	ug/kg	75
Aroclor-1232		83	U	ug/kg	83	86	U	ug/kg	86	82	U	ug/kg	82	75	U	ug/kg	75
Aroclor-1242		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Aroclor-1248		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Aroclor-1254		21	U	ug/kg	21	22	U	ug/kg	22	21	U	ug/kg	21	19	U	ug/kg	19
Aroclor-1260		21	U	ug/kg	21	22	U	ug/kg	22	21	U	ug/kg	21	19	U	ug/kg	19

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THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971006				R9971008				R9971011		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCB00103				TCB00203				TCB00303				TCB00403		
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (WATER)	mg/kg															
Antimony	1.2	U	mg/kg	1.2	1.3	U	mg/kg	1.3	1.2	U	mg/kg	1.2	1.1	U	mg/kg	1.1
Arsenic	.42	UJ	mg/kg	.42	.39	UJ	mg/kg	.39	.88	UJ	mg/kg	.88	.2	UJ	mg/kg	.2
Barium	4.1	J	mg/kg	.26	2.2	J	mg/kg	.28	2.7	J	mg/kg	.27	1.9	J	mg/kg	.25
Beryllium	.07	J	mg/kg	.07	.14	J	mg/kg	.078	.15	J	mg/kg	.074	.07	U	mg/kg	.07
Cadmium	.28	U	mg/kg	.28	.31	U	mg/kg	.31	.29	U	mg/kg	.29	.27	U	mg/kg	.27
Calcium	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Chromium	.4	U	mg/kg	.4	2.1	J	mg/kg	.44	1.9	J	mg/kg	.42	1.7	J	mg/kg	.38
Cobalt	.72	U	mg/kg	.72	.8	U	mg/kg	.8	.76	U	mg/kg	.76	.7	U	mg/kg	.7
Copper	2.2	J	mg/kg	.23	2.1	J	mg/kg	.26	1.4	J	mg/kg	.25	1	J	mg/kg	.23
Cyanide	.09	J	mg/kg	1.5	.13	J	mg/kg	1.5	.17	J	mg/kg	1.5	.15	J	mg/kg	1.5
Iron	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Lead	.63	J	mg/kg	.4	.67	J	mg/kg	.4	1.3		mg/kg	.4	1.1		mg/kg	.4
Magnesium	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Manganese	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Mercury	.03	U	mg/kg	.03	.04	U	mg/kg	.04	.03	U	mg/kg	.03	.03	U	mg/kg	.03
Nickel	1.3	U	mg/kg	1.3	1.5	U	mg/kg	1.5	1.4	U	mg/kg	1.4	1.3	U	mg/kg	1.3
Selenium	.12	U	mg/kg	.12	.13	U	mg/kg	.13	.12	U	mg/kg	.12	.11	U	mg/kg	.11
Silver	.33	UJ	mg/kg	.33	.36	UJ	mg/kg	.36	.34	UJ	mg/kg	.34	.32	UJ	mg/kg	.32
Sodium	-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Thallium	.14	U	mg/kg	.14	.16	U	mg/kg	.16	.15	U	mg/kg	.15	.14	U	mg/kg	.14
Tin	3.2	U	mg/kg	3.2	4.4	J	mg/kg	3.5	3.3	U	mg/kg	3.3	4.8	J	mg/kg	3.1
Vanadium	1.8	J	mg/kg	.28	1.4	J	mg/kg	.31	1.9	J	mg/kg	.29	1.8	J	mg/kg	.27
Zinc	2.4	UJ	mg/kg	2.4	2.8	J	mg/kg	.54	3.3	J	mg/kg	.52	3.4	J	mg/kg	.48

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THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/l																
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	1	J	ug/l	5
Chloroform		5	U	ug/l	5	11		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone		10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,1,1-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	9		ug/l	5
Dibromochloromethane		5	U	ug/l	5	1	J	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	26		ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acrolein		100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Iodomethane		10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
1,4-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5
Acrylonitrile		100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Dibromomethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	10	U	ug/l	10
2-Chloroethylvinyl ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethyl methacrylate		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol		200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200
1,1,1,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane		10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,2-Dibromoethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5

US Naval Station, Mayport, Buil[illegible]g 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:	RA077007				RA077010				RA077011				RA077009			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:	26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,4-Dioxane	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200
3-Chloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetonitrile	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Chloroprene	200	UJ	ug/l	200	200	UJ	ug/l	200	200	UJ	ug/l	200	200	UJ	ug/l	200
Methacrylonitrile	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Methyl methacrylate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Pentachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Propionitrile	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Vinyl acetate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004				RA077005				RA077006			
Site		GROUP111				GROUP111				GROUP111			
Locator		TCG00501				TCG00501D				TCG00601			
Collect Date:		26-JUN-95				26-JUN-95				26-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/l												
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane		10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone		10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)		1	J	ug/l	5	1	J	ug/l	5	5	U	ug/l	5
Chloroform		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone		10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,1,1-Trichloroethane		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene		10		ug/l	5	8		ug/l	5	5	U	ug/l	5
Dibromochloromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		100		ug/l	5	73		ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrolein		100	U	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Iodomethane		10	U	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
1,4-Dichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acrylonitrile		100	U	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100

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Groundwater Data

Lab Sample Number:		RA077004				RA077005				RA077006			
Site		GROUP111				GROUP111				GROUP111			
Locator		TCG00501				TCG00501D				TCG00601			
Collect Date:		26-JUN-95				26-JUN-95				26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
Dibromomethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,2-Dichlorobenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
2-Chloroethylvinyl ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Ethyl methacrylate	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,2,3-Trichloropropene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
Isobutyl alcohol	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,2-Dibromo-3-chloropropane	10	UJ	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	
1,2-Dibromoethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,4-Dioxane	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	
3-Chloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
Acetonitrile	100	UJ	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	
Chloroprene	200	U	ug/l	200	200	UJ	ug/l	200	200	UJ	ug/l	200	
Methacrylonitrile	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	
Methyl methacrylate	10	U	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	
Pentachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Propionitrile	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	
Vinyl acetate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/l																
N-Nitrosodimethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
bis(2-Chloroethoxy) methane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chloronaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthylene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
4-Nitrophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosodiphenylamine (1)		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Diphenylhydrazine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Phenanthrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

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Groundwater Data

Lab Sample Number:	RA077007				RA077010				RA077011				RA077009			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:	26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Methyl methanesulfonate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenyl-tert-butylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosodiethylamine	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1-Naphthylamine	50	UJ	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
p-Phenylenediamine	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Isosafrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,4-Naphthoquinone	1000	R	ug/l	1000	1000	R	ug/l	1000	1000	R	ug/l	1000	1000	R	ug/l	1000
1,3-Dinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
5-Nitro-o-toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroquinoline-1-oxide	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500
Methapyrilene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
3,3-Dimethylbenzidine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Hexachlorophene	500	R	ug/l	500	500	R	ug/l	500	500	R	ug/l	500	500	R	ug/l	500

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009				
Site		GROUP111				GROUP111				GROUP111				GROUP111				
Locator		TCG00101				TCG00201				TCG00301				TCG00401				
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
Aramite	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3- & 4-Methylphenol (2)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50		
2-Acetylaminofluorene	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10		

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Buil...g 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004				RA077005				RA077006			
Site		GROUP111				GROUP111				GROUP111			
Locator		TCG00501				TCG00501D				TCG00601			
Collect Date:		26-JUN-95				26-JUN-95				26-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/l												
N-Nitrosodimethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
bis(2-Chloroethoxy) methane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chloronaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthylene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
4-Nitrophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:	RA077004				RA077005				RA077006			
Site	GROUP111				GROUP111				GROUP111			
Locator	TCG00501				TCG00501D				TCG00601			
Collect Date:	26-JUN-95				26-JUN-95				26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Methyl methanesulfonate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenyl-tert-butylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosodiethylamine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1-Naphthylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
p-Phenylenediamine	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500

US Naval Station, Mayport, Building 191 SWMU Assessment Report
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Lab Sample Number:	RA077004				RA077005				RA077006			
Site	GROUP111				GROUP111				GROUP111			
Locator	TCG00501				TCG00501D				TCG00601			
Collect Date:	26-JUN-95				26-JUN-95				26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Isosafrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,4-Naphthoquinone	1000	R	ug/l	1000	1000	R	ug/l	1000	1000	R	ug/l	1000
1,3-Dinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
5-Nitro-o-toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroquinoline-1-oxide	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500
Methapyrilene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
3,3-Dimethylbenzidine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Hexachlorophene	500	R	ug/l	500	500	R	ug/l	500	500	R	ug/l	500
Aramite	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3- & 4-Methylphenol (2)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2-Acetylaminofluorene	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/l																
alpha-BHC		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
beta-BHC		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
delta-BHC		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
gamma-BHC (Lindane)		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Aldrin		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor epoxide		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endosulfan I		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Dieldrin		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
4,4-DDE		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endrin		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan II		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDD		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan sulfate		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDT		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Methoxychlor		.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08
Endrin aldehyde		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endrin ketone		.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Chlordane		.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Chlorobenzilate		.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Diallate		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toxaphene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Isodrin		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Kepone		1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1016		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1242		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254		.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Aroclor-1260		.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5

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J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004			RA077005			RA077006			
Site		GROUP111			GROUP111			GROUP111			
Locator		TCG00501			TCG00501D			TCG00601			
Collect Date:		26-JUN-95			26-JUN-95			26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/l											
alpha-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
beta-BHC	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
delta-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
gamma-BHC (Lindane)	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Aldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor epoxide	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endosulfan I	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Dieldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
4,4-DDE	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endrin	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan II	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDD	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan sulfate	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDT	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Methoxychlor	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08
Endrin aldehyde	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endrin ketone	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Chlordane	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Chlorobenzilate	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Diallate	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toxaphene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Isodrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Kepone	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Aroclor-1260	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCG00101				TCG00201				TCG00301				TCG00401		
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (WATER)	ug/l																
Antimony		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Arsenic		62.4		ug/l	.6	1.2	J	ug/l	.6	.9	J	ug/l	.6	6	J	ug/l	.6
Barium		9.8	J	ug/l	1.1	8.7	J	ug/l	1.1	2.8	J	ug/l	1.1	2.8	J	ug/l	1.1
Beryllium		.3	U	ug/l	.3	.3	U	ug/l	.3	.3	U	ug/l	.3	.36	J	ug/l	.3
Cadmium		1.2	U	ug/l	1.2	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2
Calcium		167000		ug/l	34.8	61200		ug/l	34.8	79100		ug/l	34.8	77000		ug/l	34.8
Chromium		1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7
Cobalt		3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1
Copper		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Cyanide		1.5	U	ug/l	1.5	2	J	ug/l	1.5	2.6	J	ug/l	1.5	1.5	U	ug/l	1.5
Iron		4950		ug/l	1.9	14.8	UJ	ug/l	14.8	27.2	UJ	ug/l	27.2	299		ug/l	1.9
Lead		.4	U	ug/l	.4	.4	U	ug/l	.4	.4	U	ug/l	.4	.4	U	ug/l	.4
Magnesium		11300		ug/l	19.8	22700		ug/l	19.8	23500		ug/l	19.8	6530		ug/l	19.8
Manganese		543		ug/l	.5	.84	J	ug/l	.5	1.5	J	ug/l	.5	142		ug/l	.5
Mercury		.11	UJ	ug/l	.11	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11
Nickel		5.7	U	ug/l	5.7	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7
Selenium		.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Silver		1.7	J	ug/l	1.4	1.4	U	ug/l	1.4	1.4	U	ug/l	1.4	1.4	U	ug/l	1.4
Sodium		16800		ug/l	19.5	17200		ug/l	19.5	19800		ug/l	19.5	7450		ug/l	19.5
Thallium		.6	U	ug/l	.6	.6	U	ug/l	.6	.6	U	ug/l	.6	.6	U	ug/l	.6
Tin		14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4
Vanadium		6.3	J	ug/l	1.2	8.4	J	ug/l	1.2	5.3	J	ug/l	1.2	6.7	J	ug/l	1.2
Zinc		4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004			RA077005			RA077006			
Site		GROUP111			GROUP111			GROUP111			
Locator		TCG00501			TCG00501D			TCG00601			
Collect Date:		26-JUN-95			26-JUN-95			26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (WATER)			ug/l									
Antimony	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Arsenic	5.6	J	ug/l	.6	6.1	J	ug/l	.6	1.6	J	ug/l	.6
Barium	4.7	J	ug/l	1.1	4.5	J	ug/l	1.1	7.8	J	ug/l	1.1
Beryllium	.3	U	ug/l	.3	.3	U	ug/l	.3	.3	U	ug/l	.3
Cadmium	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2
Calcium	106000		ug/l	34.8	105000		ug/l	34.8	100000		ug/l	34.8
Chromium	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7
Cobalt	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1
Copper	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Cyanide	1.5	U	ug/l	1.5	1.5	U	ug/l	1.5	2	J	ug/l	1.5
Iron	98.2	J	ug/l	1.9	99.5	J	ug/l	1.9	280		ug/l	1.9
Lead	.4	U	ug/l	.4	.4	U	ug/l	.4	.4	U	ug/l	.4
Magnesium	13500		ug/l	19.8	13300		ug/l	19.8	13500		ug/l	19.8
Manganese	4	J	ug/l	.5	3.9	J	ug/l	.5	80.8		ug/l	.5
Mercury	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11
Nickel	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7
Selenium	.79	J	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Silver	1.4	U	ug/l	1.4	1.4	U	ug/l	1.4	1.4	U	ug/l	1.4
Sodium	12700		ug/l	19.5	12600		ug/l	19.5	15500		ug/l	19.5
Thallium	.6	U	ug/l	.6	.6	U	ug/l	.6	.6	U	ug/l	.6
Tin	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4
Vanadium	8.8	J	ug/l	1.2	8.4	J	ug/l	1.2	3.4	J	ug/l	1.2
Zinc	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GROUND WATER QUALITY	mg/l																
Alkalinity as CaCO3		460		mg/l	2	147		mg/l	2	200		mg/l	2	196		mg/l	2
Ammonia-N		1.1		mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3
Chloride		18.5		mg/l	10	30		mg/l	10	27.4		mg/l	10	10.9		mg/l	1
Hardness as CaCO3		505		mg/l	15	253		mg/l	6	301		mg/l	6	224		mg/l	6
Nitrate/Nitrite-N		.27		mg/l	.1	.29		mg/l	.1	.1	U	mg/l	.1	.24		mg/l	.1
Oil and Grease		5	U	mg/l	5	5	U	mg/l	5	5	U	mg/l	5	5	U	mg/l	5
Phosphorous-P, Total		.61		mg/l	.1	.63		mg/l	.1	.48		mg/l	.1	.1		mg/l	.1
Sulfate		60.2		mg/l	10	98.1		mg/l	10	96.6		mg/l	10	33.1		mg/l	1
Sulfide		1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids		631		mg/l	10	340		mg/l	10	381		mg/l	10	280		mg/l	10
Total Kjeldahl Nitrogen		1.5		mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3	.4		mg/l	.3
Total Organic Carbon		19.5		mg/l	1	4.8		mg/l	1	3.9		mg/l	1	5.6		mg/l	1
COLOR	units																
Color		100		units	10	20		units	5	15		units	5	30		units	5
pH	units																
pH		6.91		units		7.48		units		7.37		units		7.95		units	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004			RA077006			
Site		GROUP111			GROUP111			
Locator		TCG00501			TCG00601			
Collect Date:		26-JUN-95			26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GROUND WATER QUALITY	mg/l							
Alkalinity as CaCO3		258	mg/l	2	280		mg/l	2
Ammonia-N		.3	mg/l	.3	.3	U	mg/l	.3
Chloride		23.1	mg/l	10	19.8		mg/l	10
Hardness as CaCO3		309	mg/l	3	327		mg/l	6
Nitrate/Nitrite-N		2.28	mg/l	1	.32		mg/l	.1
Oil and Grease		5	mg/l	5	5	U	mg/l	5
Phosphorous-P, Total		.34	mg/l	.1	.21		mg/l	.1
Sulfate		64.6	mg/l	10	45.7		mg/l	10
Sulfide		1	mg/l	1	1	U	mg/l	1
Total Dissolved Solids		425	mg/l	10	410		mg/l	10
Total Kjeldahl Nitrogen		.4	mg/l	.3	.6		mg/l	.3
Total Organic Carbon		6.5	mg/l	1	6.9		mg/l	1
COLOR	units							
Color		20	units	5	20		units	5
pH	units							
pH		7.33	units		7.48		units	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

ATTACHMENT F

REFERENCES

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971004				R9971006				R9971006		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCB00103				TCB00103				TCB00203				TCB00203		
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/kg																
Chloromethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Bromomethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Vinyl chloride		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Chloroethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Methylene chloride		2	J	ug/kg	6	-		ug/kg		4	J	ug/kg	6	-		ug/kg	
Acetone		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Carbon disulfide		1	J	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethene (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chloroform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
2-Butanone		12	R	ug/kg	12	-		ug/kg		13	R	ug/kg	13	-		ug/kg	
1,1,1-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Carbon tetrachloride		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromodichloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloropropane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
cis-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Trichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dibromochloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Benzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromoform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
4-Methyl-2-pentanone		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
2-Hexanone		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Tetrachloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2,2-Tetrachloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Toluene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chlorobenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Ethylbenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Styrene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Xylenes (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dichlorodifluoromethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Trichlorofluoromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,3-Dichlorobenzene		6	U	ug/kg	6	380	U	ug/kg	380	6	U	ug/kg	6	430	U	ug/kg	430
Acrolein		120	UJ	ug/kg	120	-		ug/kg		130	UJ	ug/kg	130	-		ug/kg	
Iodomethane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
1,4-Dichlorobenzene		6	U	ug/kg	6	380	U	ug/kg	380	6	U	ug/kg	6	430	U	ug/kg	430
Acrylonitrile		120	U	ug/kg	120	-		ug/kg		130	U	ug/kg	130	-		ug/kg	
Dibromomethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichlorobenzene		6	U	ug/kg	6	380	U	ug/kg	380	6	U	ug/kg	6	430	U	ug/kg	430
2-Chloroethylvinyl ether		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Ethyl methacrylate		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2,3-Trichloropropane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,4-Dichloro-2-butene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Isobutyl alcohol		230	R	ug/kg	230	-		ug/kg		260	R	ug/kg	260	-		ug/kg	
1,1,1,2-Tetrachloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dibromo-3-chloropropane		12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
1,2-Dibromoethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:	R9971004				R9971004				R9971006				R9971006		
Site	GROUP111				GROUP111				GROUP111				GROUP111		
Locator	TCB00103				TCB00103				TCB00203				TCB00203		
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,4-Dioxane	230	R	ug/kg	230	-		ug/kg		260	R	ug/kg	260	-		ug/kg	
3-Chloropropene	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetonitrile	120	U	ug/kg	120	-		ug/kg		130	U	ug/kg	130	-		ug/kg	
Chloroprene	230	U	ug/kg	230	-		ug/kg		260	U	ug/kg	260	-		ug/kg	
Methacrylonitrile	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Methyl methacrylate	12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Pentachloroethane	12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	
Propionitrile	120	U	ug/kg	120	-		ug/kg		130	U	ug/kg	130	-		ug/kg	
Vinyl acetate	12	U	ug/kg	12	-		ug/kg		13	U	ug/kg	13	-		ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971008				R9971008				R9971011				R9971011			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCB00303				TCB00303				TCB00403				TCB00403			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/kg																
Chloromethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Bromomethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Vinyl chloride		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Chloroethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Methylene chloride		4	J	ug/kg	6	-		ug/kg		1	J	ug/kg	6	-		ug/kg	
Acetone		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Carbon disulfide		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1-Dichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethene (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chloroform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
2-Butanone		12	R	ug/kg	12	-		ug/kg		11	R	ug/kg	11	-		ug/kg	
1,1,1-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Carbon tetrachloride		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromodichloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichloropropane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
cis-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Trichloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dibromochloromethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2-Trichloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Benzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,3-Dichloropropene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Bromoform		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
4-Methyl-2-pentanone		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
2-Hexanone		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Tetrachloroethene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,1,2,2-Tetrachloroethane		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Toluene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Chlorobenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Ethylbenzene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Styrene		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Xylenes (total)		6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Dichlorodifluoromethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Trichlorofluoromethane		6	U	ug/kg	6	-		ug/kg		2	J	ug/kg	6	-		ug/kg	
1,3-Dichlorobenzene		6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	370	U	ug/kg	370
Acrolein		120	UJ	ug/kg	120	-		ug/kg		110	UJ	ug/kg	110	-		ug/kg	
Iodomethane		12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,4-Dichlorobenzene		6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	370	U	ug/kg	370
Acrylonitrile		120	U	ug/kg	120	-		ug/kg		110	U	ug/kg	110	-		ug/kg	

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Lab Sample Number:	R9971008				R9971008				R9971011				R9971011			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00303				TCB00303				TCB00403				TCB00403			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Dibromomethane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dichlorobenzene	6	U	ug/kg	6	400	U	ug/kg	400	6	U	ug/kg	6	370	U	ug/kg	370
2-Chloroethylvinyl ether	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Ethyl methacrylate	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2,3-Trichloropropane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
trans-1,4-Dichloro-2-butene	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Isobutyl alcohol	250	R	ug/kg	250	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
1,1,1,2-Tetrachloroethane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,2-Dibromo-3-chloropropane	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
1,2-Dibromoethane	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
1,4-Dioxane	250	R	ug/kg	250	-		ug/kg		230	R	ug/kg	230	-		ug/kg	
3-Chloropropene	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Acetonitrile	120	U	ug/kg	120	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Chloroprene	250	U	ug/kg	250	-		ug/kg		230	U	ug/kg	230	-		ug/kg	
Methacrylonitrile	6	U	ug/kg	6	-		ug/kg		6	U	ug/kg	6	-		ug/kg	
Methyl methacrylate	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Pentachloroethane	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	
Propionitrile	120	U	ug/kg	120	-		ug/kg		110	U	ug/kg	110	-		ug/kg	
Vinyl acetate	12	U	ug/kg	12	-		ug/kg		11	U	ug/kg	11	-		ug/kg	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

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Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971006				R9971008				R9971011		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCB00103				TCB00203				TCB00303				TCB00403		
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/kg																
N-Nitrosodimethylamine		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Phenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Aniline		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
bis(2-Chloroethyl) ether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzyl Alcohol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Methylphenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
bis(2-Chloroisopropyl) ether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitroso-di-n-propylamine		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachloroethene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Nitrobenzene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Isophorone		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Nitrophenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dimethylphenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzoic acid		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
bis(2-Chloroethoxy) methane		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dichlorophenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
1,2,4-Trichlorobenzene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Naphthalene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Chloroaniline		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachlorobutadiene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Chloro-3-methylphenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Methylnaphthalene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachlorocyclopentadiene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4,6-Trichlorophenol		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Dimethylphthalate		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4,5-Trichlorophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
2-Chloronaphthalene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2-Nitroaniline		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Acenaphthylene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,6-Dinitrotoluene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3-Nitroaniline		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Acenaphthene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dinitrophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
4-Nitrophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Dibenzofuran		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
2,4-Dinitrotoluene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Diethylphthalate		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Chlorophenyl-phenylether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Fluorene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Nitroaniline		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
4,6-Dinitro-2-methylphenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
N-Nitrosodiphenylamine (1)		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
1,2-Diphenylhydrazine		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Bromophenyl-phenylether		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachlorobenzene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Pentachlorophenol		1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Phenanthrene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Anthracene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Di-n-Butylphthalate		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Fluoranthene		380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370

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Lab Sample Number:	R9971004				R9971006				R9971008				R9971011			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Pyrene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Butylbenzylphthalate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3,3-Dichlorobenzidine	770	U	ug/kg	770	860	U	ug/kg	860	810	U	ug/kg	810	750	U	ug/kg	750
Benzo (a) anthracene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Chrysene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
bis(2-Ethylhexyl) phthalate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Di-n-octylphthalate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzo (b) fluoranthene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzo (k) fluoranthene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzo (a) pyrene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Indeno (1,2,3-cd) pyrene	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Dibenz (a,h) anthracene	380	U	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Benzo (g,h,i) perylene	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
2-Picoline	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Methyl methanesulfonate	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Ethyl methanesulfonate	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Acetophenone	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosopiperidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Phenyl-tert-butylamine	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
2,6-Dichlorophenol	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
N-Nitroso-di-n-butylamine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosodiethylamine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosopyrrolidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Benzidine	1900	UJ	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
1,2,4,5-Tetrachlorobenzene	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Pentachlorobenzene	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
1-Naphthylamine	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
2-Naphthylamine	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
2,3,4,6-Tetrachlorophenol	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Phenacetin	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Aminobiphenyl	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
Pentachloronitrobenzene	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
Pronamide	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
p-(Dimethylamino)azobenzene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
7,12-Dimethylbenz(A)Anthracene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3-Methylcholanthrene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Pyridine	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
N-Nitrosomethylethylamine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
N-Nitrosomorpholine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
o-Toluidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachloropropene	1900	UJ	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
p-Phenylenediamine	19000	UJ	ug/kg	19000	21000	UJ	ug/kg	21000	20000	UJ	ug/kg	20000	18000	UJ	ug/kg	18000
Safrole	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
Isosafrole	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
1,4-Naphthoquinone	38000	U	ug/kg	38000	43000	R	ug/kg	43000	40000	R	ug/kg	40000	37000	R	ug/kg	37000
1,3-Dinitrobenzene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
5-Nitro-o-toluidine	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
1,3,5-Trinitrobenzene	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
4-Nitroquinoline-1-oxide	19000	R	ug/kg	19000	21000	U	ug/kg	21000	20000	U	ug/kg	20000	18000	U	ug/kg	18000
Methapyrilene	1900	UJ	ug/kg	1900	2100	UJ	ug/kg	2100	2000	UJ	ug/kg	2000	1800	UJ	ug/kg	1800
3,3-Dimethylbenzidine	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370
Hexachlorophene	19000	R	ug/kg	19000	21000	UJ	ug/kg	21000	20000	UJ	ug/kg	20000	18000	UJ	ug/kg	18000

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Sub-Surface Soil Data

Lab Sample Number:	R9971004				R9971006				R9971008				R9971011			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:	31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aramite	1900	U	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
2-Chlorophenol	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
3- & 4-Methylphenol (2)	380	U	ug/kg	380	430	U	ug/kg	430	400	U	ug/kg	400	370	U	ug/kg	370
Hexachloropropene	1900	UJ	ug/kg	1900	2100	U	ug/kg	2100	2000	U	ug/kg	2000	1800	U	ug/kg	1800
2-Acetylaminofluorene	380	UJ	ug/kg	380	430	UJ	ug/kg	430	400	UJ	ug/kg	400	370	UJ	ug/kg	370

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Meyport, Building 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971006				R9971008				R9971011			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/kg																
alpha-BHC		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
beta-BHC		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
delta-BHC		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
gamma-BHC (Lindane)		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Heptachlor		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Aldrin		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Heptachlor epoxide		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Endosulfan I		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Dieldrin		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
4,4-DDE		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Endrin		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Endosulfan II		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
4,4-DDD		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Endosulfan sulfate		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
4,4-DDT		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Methoxychlor		3.3	U	ug/kg	3.3	3.5	U	ug/kg	3.5	3.3	U	ug/kg	3.3	3	U	ug/kg	3
Endrin aldehyde		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Endrin ketone		1.6	U	ug/kg	1.6	1.7	U	ug/kg	1.7	1.6	U	ug/kg	1.6	1.5	U	ug/kg	1.5
Chlordane		8.3	U	ug/kg	8.3	8.6	U	ug/kg	8.6	8.2	U	ug/kg	8.2	19		ug/kg	7.5
Chlorobenzilate		25	U	ug/kg	25	26	U	ug/kg	26	24	U	ug/kg	24	22	U	ug/kg	22
Diallate		49	U	ug/kg	49	51	U	ug/kg	51	49	U	ug/kg	49	45	U	ug/kg	45
Toxaphene		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Isodrin		.83	U	ug/kg	.83	.86	U	ug/kg	.86	.82	U	ug/kg	.82	.75	U	ug/kg	.75
Kepone		49	U	ug/kg	49	51	U	ug/kg	51	49	U	ug/kg	49	45	U	ug/kg	45
Aroclor-1016		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Aroclor-1221		83	U	ug/kg	83	86	U	ug/kg	86	82	U	ug/kg	82	75	U	ug/kg	75
Aroclor-1232		83	U	ug/kg	83	86	U	ug/kg	86	82	U	ug/kg	82	75	U	ug/kg	75
Aroclor-1242		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Aroclor-1248		41	U	ug/kg	41	42	U	ug/kg	42	40	U	ug/kg	40	37	U	ug/kg	37
Aroclor-1254		21	U	ug/kg	21	22	U	ug/kg	22	21	U	ug/kg	21	19	U	ug/kg	19
Aroclor-1260		21	U	ug/kg	21	22	U	ug/kg	22	21	U	ug/kg	21	19	U	ug/kg	19

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THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Buildi..g 191 SWMU Assessment Report
Sub-Surface Soil Data

Lab Sample Number:		R9971004				R9971006				R9971008				R9971011			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCB00103				TCB00203				TCB00303				TCB00403			
Collect Date:		31-MAY-95				31-MAY-95				31-MAY-95				31-MAY-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
INORGANICS (WATER)	mg/kg																
Antimony		1.2	U	mg/kg	1.2	1.3	U	mg/kg	1.3	1.2	U	mg/kg	1.2	1.1	U	mg/kg	1.1
Arsenic		.42	UJ	mg/kg	.42	.39	UJ	mg/kg	.39	.88	UJ	mg/kg	.88	.2	UJ	mg/kg	.2
Barium		4.1	J	mg/kg	.26	2.2	J	mg/kg	.28	2.7	J	mg/kg	.27	1.9	J	mg/kg	.25
Beryllium		.07	J	mg/kg	.07	.14	J	mg/kg	.078	.15	J	mg/kg	.076	.07	U	mg/kg	.07
Cadmium		.28	U	mg/kg	.28	.31	U	mg/kg	.31	.29	U	mg/kg	.29	.27	U	mg/kg	.27
Calcium		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Chromium		.4	U	mg/kg	.4	2.1	J	mg/kg	.44	1.9	J	mg/kg	.42	1.7	J	mg/kg	.38
Cobalt		.72	U	mg/kg	.72	.8	U	mg/kg	.8	.76	U	mg/kg	.76	.7	U	mg/kg	.7
Copper		2.2	J	mg/kg	.23	2.1	J	mg/kg	.26	1.4	J	mg/kg	.25	1	J	mg/kg	.23
Cyanide		.09	J	mg/kg	1.5	.13	J	mg/kg	1.5	.17	J	mg/kg	1.5	.15	J	mg/kg	1.5
Iron		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Lead		.63	J	mg/kg	.4	.67	J	mg/kg	.4	1.3		mg/kg	.4	1.1		mg/kg	.4
Magnesium		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Manganese		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Mercury		.03	U	mg/kg	.03	.04	U	mg/kg	.04	.03	U	mg/kg	.03	.03	U	mg/kg	.03
Nickel		1.3	U	mg/kg	1.3	1.5	U	mg/kg	1.5	1.4	U	mg/kg	1.4	1.3	U	mg/kg	1.3
Selenium		.12	U	mg/kg	.12	.13	U	mg/kg	.13	.12	U	mg/kg	.12	.11	U	mg/kg	.11
Silver		.33	UJ	mg/kg	.33	.36	UJ	mg/kg	.36	.34	UJ	mg/kg	.34	.32	UJ	mg/kg	.32
Sodium		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Thallium		.14	U	mg/kg	.14	.16	U	mg/kg	.16	.15	U	mg/kg	.15	.14	U	mg/kg	.14
Tin		3.2	U	mg/kg	3.2	4.4	J	mg/kg	3.5	3.3	U	mg/kg	3.3	4.8	J	mg/kg	3.1
Vanadium		1.8	J	mg/kg	.28	1.4	J	mg/kg	.31	1.9	J	mg/kg	.29	1.8	J	mg/kg	.27
Zinc		2.4	UJ	mg/kg	2.4	2.8	J	mg/kg	.54	3.3	J	mg/kg	.52	3.4	J	mg/kg	.48

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THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007			RA077010			RA077011			RA077009					
Site		GROUP111			GROUP111			GROUP111			GROUP111					
Locator		TCG00101			TCG00201			TCG00301			TCG00401					
Collect Date:		26-JUN-95			27-JUN-95			27-JUN-95			27-JUN-95					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/l																
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	1	J	ug/l	5
Chloroform		5	U	ug/l	5	11		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone		10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,1,1-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	9		ug/l	5
Dibromochloromethane		5	U	ug/l	5	1	J	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	26		ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acrolein		100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Iodomethane		10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
1,4-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10	5	U	ug/l	5
Acrylonitrile		100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Dibromomethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	10	U	ug/l	10
2-Chloroethylvinyl ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethyl methacrylate		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2,3-Trichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,4-Dichloro-2-butene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Isobutyl alcohol		200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200
1,1,1,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dibromo-3-chloropropane		10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,2-Dibromoethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5

US Naval Station, Mayport, Buil[illegible] 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:	RA077007				RA077010				RA077011				RA077009			
Site	GROUP111				GROUP111				GROUP111				GROUP111			
Locator	TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:	26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,4-Dioxane	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200
3-Chloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetonitrile	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	100	U	ug/l	100
Chloroprene	200	UJ	ug/l	200	200	UJ	ug/l	200	200	UJ	ug/l	200	200	UJ	ug/l	200
Methacrylonitrile	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5
Methyl methacrylate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Pentachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Propionitrile	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Vinyl acetate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004				RA077005				RA077006			
Site		GROUP111				GROUP111				GROUP111			
Locator		TCG00501				TCG00501D				TCG00601			
Collect Date:		26-JUN-95				26-JUN-95				26-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
VOLATILES	ug/l												
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane		10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Acetone		10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1-Dichloroethene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethene (total)		1	J	ug/l	5	1	J	ug/l	5	5	U	ug/l	5
Chloroform		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
2-Butanone		10	R	ug/l	10	10	R	ug/l	10	10	R	ug/l	10
1,1,1-Trichloroethane		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Carbon tetrachloride		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromodichloromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,2-Dichloropropane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
cis-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Trichloroethene		10		ug/l	5	8		ug/l	5	5	U	ug/l	5
Dibromochloromethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,1,2-Trichloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Benzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
trans-1,3-Dichloropropene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Bromoform		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		100		ug/l	5	73		ug/l	5	5	U	ug/l	5
1,1,2,2-Tetrachloroethane		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Toluene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Chlorobenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Ethylbenzene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Styrene		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Xylenes (total)		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Dichlorodifluoromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichlorofluoromethane		5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
1,3-Dichlorobenzene		10	U	ug/l	10	5	U	ug/l	5	10	U	ug/l	10
Acrolein		100	U	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100
Iodomethane		10	U	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
1,4-Dichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acrylonitrile		100	U	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004				RA077005				RA077006			
Site		GROUP111				GROUP111				GROUP111			
Locator		TCG00501				TCG00501D				TCG00601			
Collect Date:		26-JUN-95				26-JUN-95				26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
Dibromomethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,2-Dichlorobenzene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
2-Chloroethylvinyl ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Ethyl methacrylate	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,2,3-Trichloropropene	5	UJ	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
trans-1,4-Dichloro-2-butene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
Isobutyl alcohol	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	
1,1,1,2-Tetrachloroethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,2-Dibromo-3-chloropropane	10	UJ	ug/l	10	10	R	ug/l	10	10	R	ug/l	10	
1,2-Dibromoethane	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
1,4-Dioxane	200	R	ug/l	200	200	R	ug/l	200	200	R	ug/l	200	
3-Chloropropene	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	
Acetonitrile	100	UJ	ug/l	100	100	U	ug/l	100	100	U	ug/l	100	
Chloroprene	200	U	ug/l	200	200	UJ	ug/l	200	200	UJ	ug/l	200	
Methacrylonitrile	5	U	ug/l	5	5	UJ	ug/l	5	5	UJ	ug/l	5	
Methyl methacrylate	10	U	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	
Pentachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	
Propionitrile	100	UJ	ug/l	100	100	UJ	ug/l	100	100	UJ	ug/l	100	
Vinyl acetate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/l																
N-Nitrosodimethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
bis(2-Chloroethoxy) methane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chloronaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthylene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
4-Nitrophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
4,6-Dinitro-2-methylphenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosodiphenylamine (1)		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Diphenylhydrazine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Phenanthrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-Butylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009			
Site		GROUP111				GROUP111				GROUP111				GROUP111			
Locator		TCG00101				TCG00201				TCG00301				TCG00401			
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Methyl methanesulfonate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenyl-tert-butylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosodiethylamine	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1-Naphthylamine	50	UJ	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
p-Phenylenediamine	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Isosafrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,4-Naphthoquinone	1000	R	ug/l	1000	1000	R	ug/l	1000	1000	R	ug/l	1000	1000	R	ug/l	1000
1,3-Dinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
5-Nitro-o-toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroquinoline-1-oxide	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500
Methapyrilene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
3,3-Dimethylbenzidine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Hexachlorophene	500	R	ug/l	500	500	R	ug/l	500	500	R	ug/l	500	500	R	ug/l	500

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009		
Site		GROUP111				GROUP111				GROUP111				GROUP111		
Locator		TCG00101				TCG00201				TCG00301				TCG00401		
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Aramite	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3- & 4-Methylphenol (2)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2-Acetylaminofluorene	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

Lab Sample Number:		RA077004			RA077005			RA077006			
Site		GROUP111			GROUP111			GROUP111			
Locator		TCG00501			TCG00501D			TCG00601			
Collect Date:		26-JUN-95			26-JUN-95			26-JUN-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
SEMIVOLATILES	ug/l												
N-Nitrosodimethylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Phenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Aniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzyl Alcohol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroisopropyl) ether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzoic acid		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
bis(2-Chloroethoxy) methane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dimethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chloronaphthalene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthylene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Acenaphthene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol		50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
4-Nitrophenol		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Dibenzofuran		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline		50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50

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Groundwater Data

Lab Sample Number:		RA077004				RA077005				RA077006				
Site		GROUP111				GROUP111				GROUP111				
Locator		TCG00501				TCG00501D				TCG00601				
Collect Date:		26-JUN-95				26-JUN-95				26-JUN-95				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
1,2-Diphenylhydrazine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pentachlorophenol	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Di-n-Butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3,3-Dichlorobenzidine	20	U	ug/l	20	20	U	ug/l	20	20	U	ug/l	20		
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
2-Picoline	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Methyl methanesulfonate	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10		
Ethyl methanesulfonate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Acetophenone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosopiperidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenyl-tert-butylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50		
2,6-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitroso-di-n-butylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosodiethylamine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10		
N-Nitrosopyrrolidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Benzidine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
1,2,4,5-Tetrachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pentachlorobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
1-Naphthylamine	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50		
2-Naphthylamine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
2,3,4,6-Tetrachlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Phenacetin	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
4-Aminobiphenyl	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pentachloronitrobenzene	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
Pronamide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
p-(Dimethylamino)azobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
7,12-Dimethylbenz(A)Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
3-Methylcholanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Pyridine	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50		
N-Nitrosomethylethylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
N-Nitrosomorpholine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
o-Toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10		
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50		
p-Phenylenediamine	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500		

Lab Sample Number:	RA077004				RA077005				RA077006			
Site	GROUP111				GROUP111				GROUP111			
Locator	TCG00501				TCG00501D				TCG00601			
Collect Date:	26-JUN-95				26-JUN-95				26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Safrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
Isosafrole	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
1,4-Naphthoquinone	1000	R	ug/l	1000	1000	R	ug/l	1000	1000	R	ug/l	1000
1,3-Dinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
5-Nitro-o-toluidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3,5-Trinitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroquinoline-1-oxide	500	UJ	ug/l	500	500	UJ	ug/l	500	500	UJ	ug/l	500
Methapyrilene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
3,3-Dimethylbenzidine	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Hexachlorophene	500	R	ug/l	500	500	R	ug/l	500	500	R	ug/l	500
Aramite	50	U	ug/l	50	50	U	ug/l	50	50	U	ug/l	50
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3- & 4-Methylphenol (2)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloropropene	50	UJ	ug/l	50	50	UJ	ug/l	50	50	UJ	ug/l	50
2-Acetylaminofluorene	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Meyport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007			RA077010			RA077011			RA077009		
Site		GROUP111			GROUP111			GROUP111			GROUP111		
Locator		TCG00101			TCG00201			TCG00301			TCG00401		
Collect Date:		26-JUN-95			27-JUN-95			27-JUN-95			27-JUN-95		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
PESTICIDES/PCBs	ug/l												
alpha-BHC		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
beta-BHC		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
delta-BHC		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
gamma-BHC (Lindane)		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Heptachlor		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Aldrin		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Heptachlor epoxide		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endosulfan I		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Dieldrin		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
4,4-DDE		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Endrin		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan II		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDD		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endosulfan sulfate		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
4,4-DDT		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Methoxychlor		.08 U	ug/l	.08	.08 U	ug/l	.08	.08 U	ug/l	.08	.08 U	ug/l	.08
Endrin aldehyde		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Endrin ketone		.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04	.04 U	ug/l	.04
Chlordane		.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Chlorobenzilate		.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Diallate		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Toxaphene		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Isodrin		.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02	.02 U	ug/l	.02
Kepone		1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1016		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1221		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1232		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1242		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1248		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1254		.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Aroclor-1260		.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5

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THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004			RA077005			RA077006			
Site		GROUP111			GROUP111			GROUP111			
Locator		TCG00501			TCG00501D			TCG00601			
Collect Date:		26-JUN-95			26-JUN-95			26-JUN-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
PESTICIDES/PCBs	ug/l											
alpha-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
beta-BHC	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
delta-BHC	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
gamma-BHC (Lindane)	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Aldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Heptachlor epoxide	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endosulfan I	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Dieldrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
4,4-DDE	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Endrin	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan II	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDD	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endosulfan sulfate	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
4,4-DDT	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Methoxychlor	.08	U	ug/l	.08	.08	U	ug/l	.08	.08	U	ug/l	.08
Endrin aldehyde	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Endrin ketone	.04	U	ug/l	.04	.04	U	ug/l	.04	.04	U	ug/l	.04
Chlordane	.2	U	ug/l	.2	.2	U	ug/l	.2	.2	U	ug/l	.2
Chlorobenzilate	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Dialiate	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toxaphene	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Isodrin	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
Kepone	1	UJ	ug/l	1	1	UJ	ug/l	1	1	UJ	ug/l	1
Aroclor-1016	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1232	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Aroclor-1242	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Aroclor-1254	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5
Aroclor-1260	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5

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US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007				RA077010				RA077011				RA077009					
Site		GROUP111				GROUP111				GROUP111				GROUP111					
Locator		TCG00101				TCG00201				TCG00301				TCG00401					
Collect Date:		26-JUN-95				27-JUN-95				27-JUN-95				27-JUN-95					
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
INORGANICS (WATER)	ug/l																		
Antimony		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5		
Arsenic		62.4		ug/l	.6	1.2	J	ug/l	.6	.9	J	ug/l	.6	6	J	ug/l	.6		
Barium		9.8	J	ug/l	1.1	8.7	J	ug/l	1.1	2.8	J	ug/l	1.1	2.8	J	ug/l	1.1		
Beryllium		.3	U	ug/l	.3	.3	U	ug/l	.3	.3	U	ug/l	.3	.36	J	ug/l	.3		
Cadmium		1.2	U	ug/l	1.2	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2	1.2	U	ug/l	1.2		
Calcium		167000		ug/l	34.8	61200		ug/l	34.8	79100		ug/l	34.8	77000		ug/l	34.8		
Chromium		1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7	1.7	U	ug/l	1.7		
Cobalt		3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1	3.1	U	ug/l	3.1		
Copper		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1		
Cyanide		1.5	U	ug/l	1.5	2	J	ug/l	1.5	2.6	J	ug/l	1.5	1.5	U	ug/l	1.5		
Iron		4950		ug/l	1.9	14.8	UJ	ug/l	14.8	27.2	UJ	ug/l	27.2	299		ug/l	1.9		
Lead		.4	U	ug/l	.4	.4	U	ug/l	.4	.4	U	ug/l	.4	.4	U	ug/l	.4		
Magnesium		11300		ug/l	19.8	22700		ug/l	19.8	23500		ug/l	19.8	6530		ug/l	19.8		
Manganese		543		ug/l	.5	.84	J	ug/l	.5	1.5	J	ug/l	.5	142		ug/l	.5		
Mercury		.11	UJ	ug/l	.11	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11	.11	UJ	ug/l	.11		
Nickel		5.7	U	ug/l	5.7	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7	5.7	U	ug/l	5.7		
Selenium		.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5	.5	U	ug/l	.5		
Silver		1.7	J	ug/l	1.4	1.4	U	ug/l	1.4	1.4	U	ug/l	1.4	1.4	U	ug/l	1.4		
Sodium		16800		ug/l	19.5	17200		ug/l	19.5	19800		ug/l	19.5	7450		ug/l	19.5		
Thallium		.6	U	ug/l	.6	.6	U	ug/l	.6	.6	U	ug/l	.6	.6	U	ug/l	.6		
Tin		14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4	14.4	UJ	ug/l	14.4		
Vanadium		6.3	J	ug/l	1.2	8.4	J	ug/l	1.2	5.3	J	ug/l	1.2	6.7	J	ug/l	1.2		
Zinc		4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9	4.9	UJ	ug/l	4.9		

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

		RA077004			RA077005			RA077006		
Lab Sample Number:										
Site		GROUP111			GROUP111			GROUP111		
Locator		TCG00501			TCG00501D			TCG00601		
Collect Date:		26-JUN-95			26-JUN-95			26-JUN-95		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
INORGANICS (WATER)	ug/l									
Antimony		5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Arsenic		5.6 J	ug/l	.6	6.1 J	ug/l	.6	1.6 J	ug/l	.6
Barium		4.7 J	ug/l	1.1	4.5 J	ug/l	1.1	7.8 J	ug/l	1.1
Beryllium		.3 U	ug/l	.3	.3 U	ug/l	.3	.3 U	ug/l	.3
Cadmium		1.2 U	ug/l	1.2	1.2 U	ug/l	1.2	1.2 U	ug/l	1.2
Calcium		106000	ug/l	34.8	105000	ug/l	34.8	100000	ug/l	34.8
Chromium		1.7 U	ug/l	1.7	1.7 U	ug/l	1.7	1.7 U	ug/l	1.7
Cobalt		3.1 U	ug/l	3.1	3.1 U	ug/l	3.1	3.1 U	ug/l	3.1
Copper		1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Cyanide		1.5 U	ug/l	1.5	1.5 U	ug/l	1.5	2 J	ug/l	1.5
Iron		98.2 J	ug/l	1.9	99.5 J	ug/l	1.9	280	ug/l	1.9
Lead		.4 U	ug/l	.4	.4 U	ug/l	.4	.4 U	ug/l	.4
Magnesium		13500	ug/l	19.8	13300	ug/l	19.8	13500	ug/l	19.8
Manganese		4 J	ug/l	.5	3.9 J	ug/l	.5	80.8	ug/l	.5
Mercury		.11 UJ	ug/l	.11	.11 UJ	ug/l	.11	.11 UJ	ug/l	.11
Nickel		5.7 U	ug/l	5.7	5.7 U	ug/l	5.7	5.7 U	ug/l	5.7
Selenium		.79 J	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Silver		1.4 U	ug/l	1.4	1.4 U	ug/l	1.4	1.4 U	ug/l	1.4
Sodium		12700	ug/l	19.5	12600	ug/l	19.5	15500	ug/l	19.5
Thallium		.6 U	ug/l	.6	.6 U	ug/l	.6	.6 U	ug/l	.6
Tin		14.4 UJ	ug/l	14.4	14.4 UJ	ug/l	14.4	14.4 UJ	ug/l	14.4
Vanadium		8.8 J	ug/l	1.2	8.4 J	ug/l	1.2	3.4 J	ug/l	1.2
Zinc		4.9 UJ	ug/l	4.9	4.9 UJ	ug/l	4.9	4.9 UJ	ug/l	4.9

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077007			RA077010			RA077011			RA077009		
Site		GROUP111			GROUP111			GROUP111			GROUP111		
Locator		TCG00101			TCG00201			TCG00301			TCG00401		
Collect Date:		26-JUN-95			27-JUN-95			27-JUN-95			27-JUN-95		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GROUND WATER QUALITY	mg/l																
Alkalinity as CaCO3		460		mg/l	2	147		mg/l	2	200		mg/l	2	196		mg/l	2
Ammonia-N		1.1		mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3
Chloride		18.5		mg/l	10	30		mg/l	10	27.4		mg/l	10	10.9		mg/l	1
Hardness as CaCO3		505		mg/l	15	253		mg/l	6	301		mg/l	6	224		mg/l	6
Nitrate/Nitrite-N		.27		mg/l	.1	.29		mg/l	.1	.1	U	mg/l	.1	.24		mg/l	.1
Oil and Grease		5	U	mg/l	5	5	U	mg/l	5	5	U	mg/l	5	5	U	mg/l	5
Phosphorous-P, Total		.61		mg/l	.1	.63		mg/l	.1	.48		mg/l	.1	.1		mg/l	.1
Sulfate		60.2		mg/l	10	98.1		mg/l	10	96.6		mg/l	10	33.1		mg/l	1
Sulfide		1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1	1	U	mg/l	1
Total Dissolved Solids		631		mg/l	10	340		mg/l	10	381		mg/l	10	280		mg/l	10
Total Kjeldahl Nitrogen		1.5		mg/l	.3	.3	U	mg/l	.3	.3	U	mg/l	.3	.4		mg/l	.3
Total Organic Carbon		19.5		mg/l	1	4.8		mg/l	1	3.9		mg/l	1	5.6		mg/l	1
COLOR	units																
Color		100		units	10	20		units	5	15		units	5	30		units	5
pH	units																
pH		6.91		units		7.48		units		7.37		units		7.95		units	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

US Naval Station, Mayport, Building 191 SWMU Assessment Report
Groundwater Data

Lab Sample Number:		RA077004				RA077006		
Site		GROUP111				GROUP111		
Locator		TCG00501				TCG00601		
Collect Date:		26-JUN-95				26-JUN-95		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GROUND WATER QUALITY	mg/l							
Alkalinity as CaCO3		258	mg/l	2	280		mg/l	2
Ammonia-N		.3	mg/l	.3	.3	U	mg/l	.3
Chloride		23.1	mg/l	10	19.8		mg/l	10
Hardness as CaCO3		309	mg/l	3	327		mg/l	6
Nitrate/Nitrite-N		2.28	mg/l	1	.32		mg/l	.1
Oil and Grease		5	mg/l	5	5	U	mg/l	5
Phosphorous-P, Total		.34	mg/l	.1	.21		mg/l	.1
Sulfate		64.6	mg/l	10	45.7		mg/l	10
Sulfide		1	mg/l	1	1	U	mg/l	1
Total Dissolved Solids		425	mg/l	10	410		mg/l	10
Total Kjeldahl Nitrogen		.4	mg/l	.3	.6		mg/l	.3
Total Organic Carbon		6.5	mg/l	1	6.9		mg/l	1
COLOR	units							
Color		20	units	5	20		units	5
pH	units							
pH		7.33	units		7.48		units	

U = NOT DETECTED R = RESULT IS REJECTED
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
THE ADDITIONAL LISTINGS OF RESULTS FOR 1,2-; 1,3-; AND 1,4-DICHLOROBENZENE WERE GENERATED FROM THE SVOC (8270) ANALYTICAL RUN.

ATTACHMENT F

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REFERENCES

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APPENDIX D

CONTAMINATION ASSESSMENT REPORT FOR BUILDING 191

CONTAMINATION ASSESSMENT REPORT
FOR
NAVAL STATION MAYPORT
BUILDING 191
JACKSONVILLE, FLORIDA

Prepared for:

NAVY PUBLIC WORKS CENTER
Jacksonville, Florida

Prepared for:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
Gainesville, Florida

ESE Project No. 3945020G

August 1994

This contamination assessment report (CAR) for Naval Station Mayport, Building 191 has been reviewed by Mr. Paul Locascio of Environmental Science & Engineering, Inc. (ESE), Gainesville, Florida, and appears to comply with the current standards and practices in the field of geology in the State of Florida. Our professional services have been performed using the degree of care and skill ordinarily exercised under similar circumstances by other professionals practicing in this field. No other warranty, expressed or implied, is made as to the professional advice in this report.

Paul A. Locascio

Paul A. Locascio, P.G. #1501

8-11-94

Date

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F	GROUNDWATER SAMPLING LOGS
G	GROUNDWATER ANALYTICAL RESULTS

LIST OF ACRONYMS

BTEX	total benzene, toluene, ethylene, and xylene
CAR	Contamination Assessment Report
°C	degrees Celsius
cm/s	centimeters per second
DI	deionized
EDB	1,2-Dibromoethane
ESE	Environmental Science & Engineering, Inc.
FAC	Florida Administrative Code
FBG	Florida Bureau of Geology
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
ft	foot/feet
ft-bls	feet-below land surface
ft-msl	feet-mean sea level
ft/ft	feet per foot
ft/min	feet per minute
ft/yr	feet per year
ft^2/day	square feet per day
gal	gallon
IN	inches
µg/L	micrograms per liter
ppb	parts per billion
ppm	parts per million
GC	gas chromatograph
MTBE	Methyl Tert-Butyl Ether
MW	monitor well
PVC	polyvinyl chloride
QA	Quality Assurance
RAP	Remedial Action Plan
SB	soil boring
SCS	U.S. Soil Conservation Service
SJRWMD	St. Johns River Water Management District
SRL	Site Rehabilitation Level
USGS	U.S. Geological Survey
VOA	volatile organic aromatic
VOC	volatile organic compound

1.0 INTRODUCTION

1.1 SITE LOCATION

The Naval Station Mayport, Building 191 site is located approximately 300 feet (ft) south of the Mayport basin at the southeast intersection of Massey Avenue and Bryce Canyon Drive in Jacksonville, Florida within Duval County (Figure 1-1).

1.2 SITE HISTORY AND OPERATIONS

In February 1994, Environmental Science & Engineering, Inc. (ESE) was contracted by the Navy Public Works Center Jacksonville to perform an assessment of a diesel fuel spill at Building 191, located at Naval Station, Mayport, Florida (Figure 1-2). Building 191 consists of a warehouse of approximately 250 by 400 feet which is used for the storage of non-hazardous materials.

Two areas of contamination have been identified at the Building 191 site. The cause of the contamination was from leaking underground fuel lines which serviced a 300-gallon aboveground storage tank. Specifically, the lines were leaking from the vicinity of two underground, in-line splices. The locations of these in-line splices are identified as Contamination Area One and Contamination Area Two (a more detailed diagram of the site is presented in Figure 3-1). The estimated leakage from the two in-line splices was 170 gallons, based on liquid level measurements of the 300 gallon aboveground tank.

Soil remediation in the vicinity of Contamination Area One was completed by Environmental Recovery Incorporated (ERI) on August 13, 1993. One area of suspected contamination within Contamination Area One was not removed because the area was directly under a section of concrete curb and a one foot thick concrete slab which supports the aboveground storage tank.

In Contamination Area Two, ERI found suspected contamination down to the water table, encountered at approximately seven feet below land surface (ft-bls), in the area directly under the respective in-line splice. Based on ERI's investigation, the

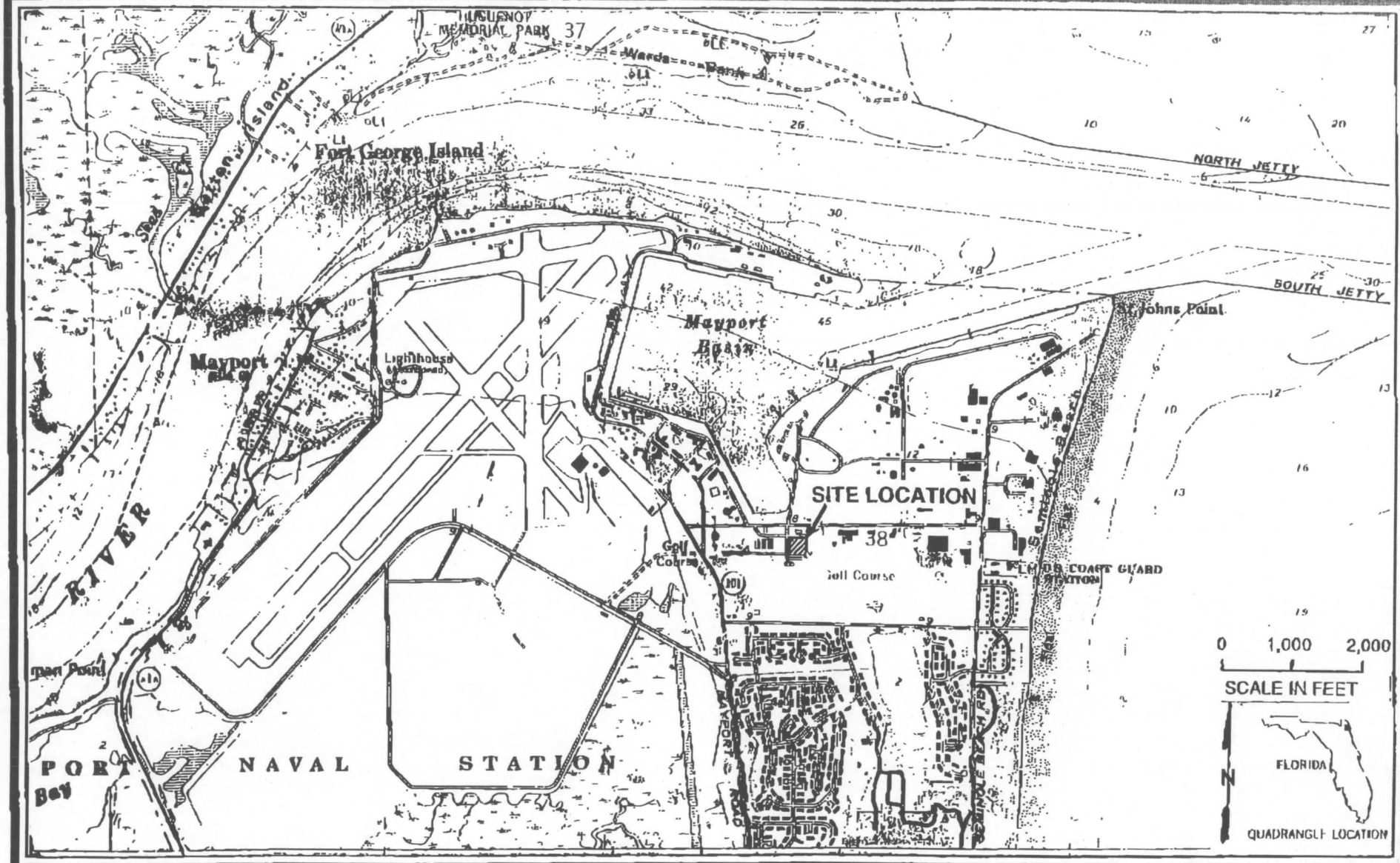

Figure 1-1
SITE LOCATION MAP
NAVAL STATION MAYPORT, BULIDING 191

SOURCES: MAYPORT, FL USGS, 1982; ESE.

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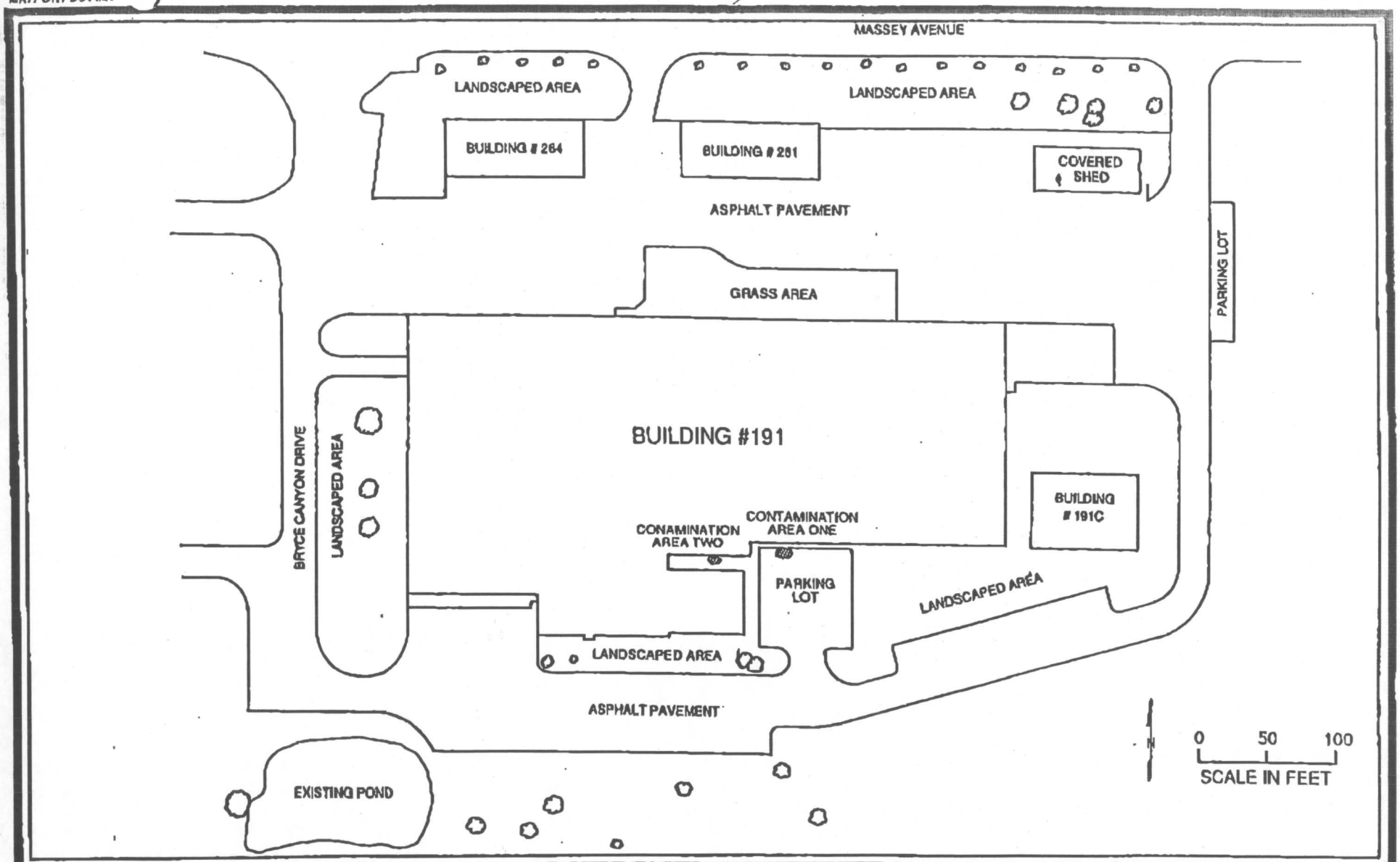

Figure 1-2
SITE MAP
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

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horizontal extent of suspected contamination appeared to extend under an adjacent sidewalk to the west of the contaminated area and alongside Building 191, extending approximately 15 feet east of the sidewalk. The area to the south of the in-line splice did not show contamination on the OVA during ERI's investigation. A building footer precluded further soil removal to the groundwater because of possible structural damage which might be caused without proper shoring. A total of ten and one-half, 55-gallon drums of contaminated soil were removed from Contamination Area One and Contamination Area Two by ERI on August 13, 1993.

1.3 OBJECTIVES OF THE CURRENT INVESTIGATION

The objectives of the contamination assessment investigation conducted at the Building 191 site were to meet the criteria of Chapter 17-770.600 FAC. Specifically, the objectives of the investigation included:

1. Establishment of a monitor well network at the site;
2. Evaluation of the site specific hydrogeology;
3. Determination of the lateral and vertical extent of elevated petroleum constituent concentrations, if present, in groundwater and/or soil; and
4. Identification of potential receptors that might be affected by elevated petroleum constituent concentrations in groundwater or soil, if these conditions are present at the site.

2.0 ENVIRONMENTAL SETTING

2.1 PHYSIOGRAPHY AND TOPOGRAPHY

The Building 191 site is located approximately one-half mile inland from the Atlantic Ocean in east central Duval County, Florida, within the Atlantic Coastal Plain Physiographic Province. The topography in Duval County is mostly low, gentle to flat, and composed of a series of ancient marine terraces. The highest altitude is about 190 feet above mean sea level (msl) in the extreme southwest corner of the county, along the eastern slope of a prominent topographic feature known as "Trail Ridge". The terraces play a significant role in determining the configuration of the potentiometric surface of the shallow-aquifer system. The potentiometric surface based on water levels in wells that penetrate the shallow-aquifer system roughly follows the contour of the land surface. As a result, the potentiometric surface is highest where the terraces are highest and lowest where they are lowest. A review of the USGS Mayport Florida 7.5-minute topographic map indicates that the site has an elevation of approximately 10 ft above msl.

2.2 REGIONAL GEOLOGY

The shallow stratigraphy in Duval County consists of undifferentiated sediments of Pleistocene and Holocene age. In the central and eastern portions of the county, Pleistocene and Holocene deposits consist predominantly of unconsolidated sands and green to grey clayey sand. The western edge of the county is underlain by deposits of fine- to medium-grained sand and clayey sand.

Underlying the Pleistocene and Holocene sediments are deposits of interbedded grey-green calcareous silty clay, fine-grained clayey sand, shell, and soft, slightly phosphatic limestone or marl of Upper Miocene and Pliocene age.

The Hawthorn Group of middle Miocene age underlies the Upper Miocene and Pliocene deposits. The Hawthorn Group was deposited in shallow to moderately deep marine waters in a structural basin that received large quantities of clastic sediments.

The sediments of the Hawthorn Group consist of varying amounts of clay, sand, carbonates, and phosphate. The most frequently encountered lithologies in the Hawthorn Group are dolomitic, clayey sands, and clayey, sandy dolomites. Phosphate pebbles occur throughout the Hawthorn Group and serve as the major identification feature of the unit. The Hawthorn Group is present from approximately 70-400 feet below sea level (ft-bsl) in the vicinity of the site (Spechler, R.M., 1994).

The Hawthorn Group overlies the Eocene limestones of the Ocala Group. The limestone units of the Ocala Group in descending sequence include the Crystal River Formation, the Williston Formation, and the Inglis Formation. The Ocala Group consists predominantly of light-colored, massive to granular marine limestones, and grades downward to alternating layers of hard and soft crystalline limestone and dolomitic limestone.

Underlying the Ocala Group are the Avon Park, Lake City, and Oldsmar limestones in descending sequence. The Avon Park Limestone is characterized by alternating beds of crystalline dolomite and granular calcitic limestone. The Lake City Limestone is characterized by massive dolomite and beds of lignite and coquina. The Oldsmar Limestone is characterized by massive granular limestone and fine crystalline dolomite.

2.3 REGIONAL HYDROGEOLOGY

Three distinct water-bearing hydrogeologic divisions can be defined within the geologic units underlying the site: the surficial, the intermediate, and the Floridan aquifers. The surficial aquifer consists of the Holocene and Pleistocene sediments, as well as the more permeable units of the Pliocene and Upper Miocene deposits. This aquifer extends from the water table to a depth between 50 and 150 feet below land surface throughout most of Duval County (Leve, 1966). The basal units of the Pliocene and Upper Miocene deposits function as the upper boundary of the principal aquiclude.

The intermediate aquifer consists of thin discontinuous lenses of sand and shell that occur in the Pliocene and Upper Miocene deposits and the Miocene Hawthorn Formation. The low permeability marls, clays, and dolomitic beds in the Pliocene and Upper Miocene deposits and the Miocene Hawthorn Formation serve as the principal aquiclude beneath the site restricting the vertical movement of water to and from the intermediate aquifer and the Floridan Aquifer.

The artesian Floridan Aquifer consists of the Eocene Age Ocala Group, the Avon Park Limestone, and the Lake City Limestone and permeable beds of the Hawthorn Formation that are in hydrologic contact with the rest of the aquifer. This hydrogeologic unit is the major source of water for irrigation, public supply, and industry in Northeast Florida (Leve, 1966).

2.4 CLIMATE

The climate of the area is classified as humid subtropical. Characteristics of this type of climate include high annual rainfall, moderate annual temperatures with low diurnal and seasonal extremes, and high humidity. According to records of the National Weather Service in Jacksonville, Florida, the mean temperature was 67.9°F during the years 1957 through 1986. The average annual rainfall was about 51.5 inches. Rainfall, however, is unevenly distributed throughout the year (Heath et al., 1981). The driest month is typically November with a mean of 1.5 inches, whereas August, with a mean precipitation of 7.1 inches, is the wettest month.

3.0 INVESTIGATIVE PROCEDURES

3.1 RECORDS SEARCH AND WELL INVENTORY

A records search was conducted to develop a data base of available references in the vicinity of the Building 191 site. Geological and hydrogeological references were obtained from the Naval Station Mayport, United States Geological Survey (USGS), Florida Bureau of Geology (FBG), and St. Johns River Water Management District (SJRWMD) to develop the regional geological setting for the area.

Naval Station Mayport and SJRWMD records were reviewed to compile a well inventory of public and private wells in the vicinity of the site. In accordance with Chapter 17-770 FAC criteria, all permitted private wells within a ¼-mile radius of the site and all public wells within a ½-mile radius of the site were identified. Additionally, well depths, construction details, and well uses were ascertained when available. Well records obtained from Naval Station Mayport and SJRWMD are discussed in Section 4.0.

3.2 SOIL BORINGS AND HEADSPACE ANALYSIS

During the current investigation, 16 soil borings were advanced to the water table at the locations presented in Figure 3-1. In general, the boring locations were placed around the perimeter of the two underground splice areas (Contamination Area One and Contamination Area Two) to define the areal extent of elevated volatile organic compounds (VOC) concentrations in soil, if present, underlying the site.

Soil borings were installed using a stainless steel hand auger to define the horizontal and vertical extent of elevated headspace readings in the soils at these locations. The soil borings and the associated headspace readings were performed in accordance with the procedures detailed in FDEP's Guidelines for Assessment and Remediation of Petroleum Contaminated Soils dated May, 1992. Headspace analysis were performed using a Foxboro Model No. 128 OVA equipped with a flame ionization detector (FID) to determine the concentration of VOCs in the soil headspace. Between each sample

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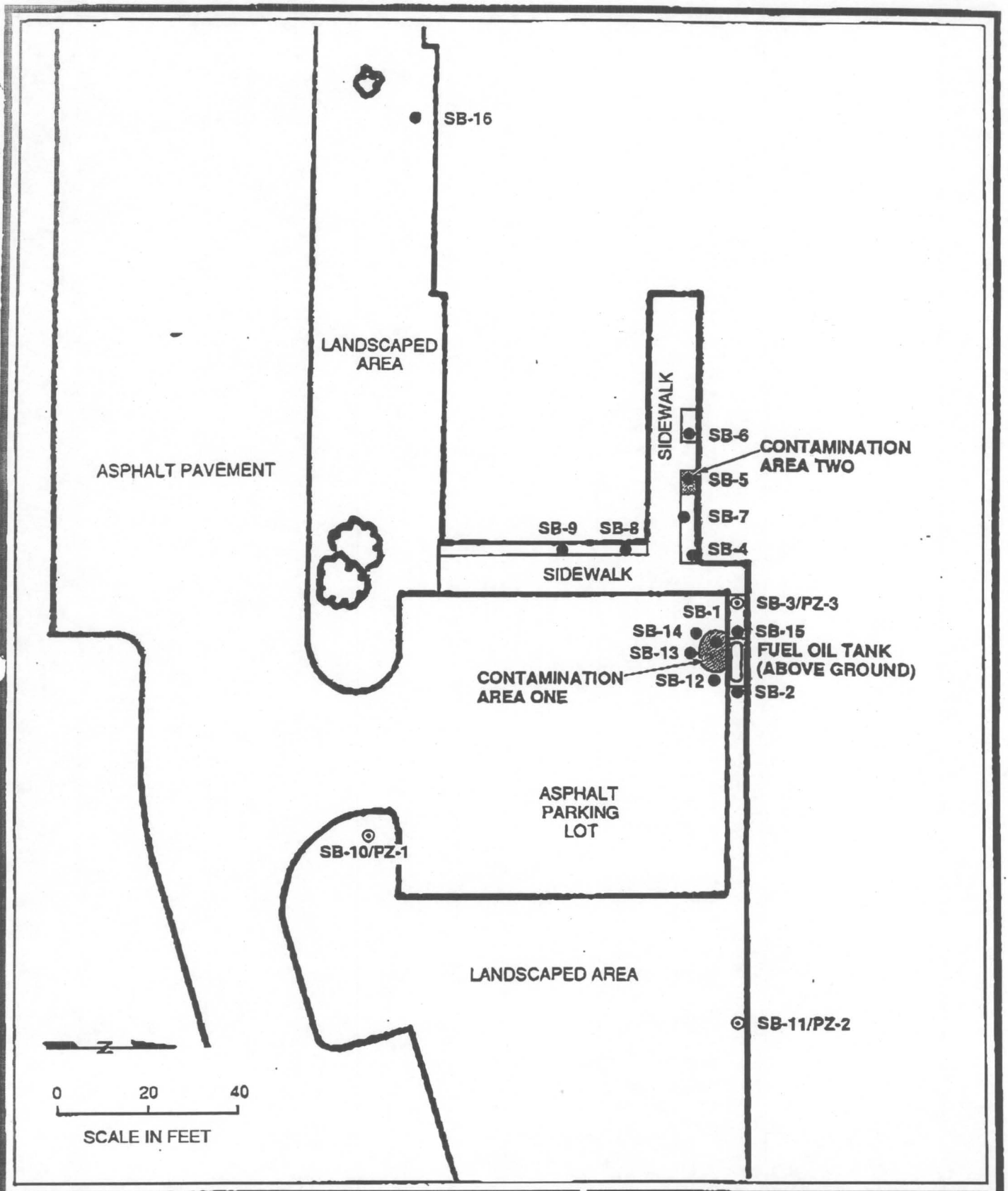

Figure 3-1
SOIL BORING LOCATION MAP
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

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collection point, the hand augers were decontaminated as outlined in Section 6.4 of ESE's Comprehensive Quality Assurance (QA) Plan (#860054).

The potential existed for naturally occurring organic compounds to be present in surficial soils underlying the site. Methane, a naturally occurring decay product of native organic debris, could potentially have contributed to the total VOCs measured in soil headspace from each sample. Therefore, each sample interval was analyzed with two types of probes: a nonspecific probe that allows passage of all VOCs, and an activated carbon-filter which allows passage of methane only. The soil samples were analyzed with the nonspecific probe, resealed, then analyzed with the carbon-filter probe. The actual non-methane component of the soil headspace concentration was then calculated by subtracting the methane concentration from the total VOC concentration.

The water table was encountered at a depth of approximately six to seven feet below land surface (ft-bls). Each soil boring was sampled at two foot intervals to the top of the water table for headspace analysis (eg. 0-2, 2-4 ft-bls, etc.). Copies of the original soil boring logs, headspace tables and calibration logs for the headspace analysis are provided in Appendix A. The soil boring results are described in Section 4.0.

3.3 TEMPORARY PIEZOMETER WELL INSTALLATION

Three soil borings were converted to temporary piezometers during the soil boring program completed on April 14, 1994. The piezometers were constructed by placing a 5-ft length of slotted polyvinyl chloride (PVC) piping in the existing boring and backfilling with the formation material. Each new piezometer was surveyed to establish their respective elevations. After allowing the piezometers to reach static liquid levels, the liquid levels were measured with an electric tape (see Table 4-2), and a preliminary potentiometric map of the site was developed.

3.4 MONITOR WELL INSTALLATION

ESE installed four shallow monitor wells (MW-1 through MW-4), and one deep monitor well (MW-1D) during the contamination assessment investigation at the Building 191 site. Monitor well locations are presented in Figure 3-2. Monitor well construction details are presented in Table 3-1. Monitor well boring and construction logs are presented in Appendix B.

The shallow monitor wells, which extend to a depth of approximately 13 ft-bls, were located to delineate the lateral extent of dissolved petroleum constituents in the surficial aquifer underlying the site. The deep monitor well (MW-1D) is located in the central portion of Contamination Area One (adjacent to the aboveground storage tank) and is nested with shallow monitor well MW-1. The deep monitor well, which is screened from 35 to 40 ft-bls, was located to delineate the vertical extent of dissolved petroleum constituents in the surficial aquifer underlying the site.

Prior to initiation of the drilling program, the drill rig, hollow-stem augers, drill rod, wrenches, and other miscellaneous equipment used in the performance of drilling activities were decontaminated by pressure steam cleaning. Additionally, all well casing and screen materials used to construct the monitor wells were decontaminated by steam cleaning immediately prior to installation into the borehole.

The shallow monitor wells were constructed of 4-inch diameter, Schedule 40 polyvinyl chloride (PVC) casing with threaded joints and a 10-ft section of 0.010-inch slot size screen. The top of the screen was set above the water table to intercept phase-separated hydrocarbons on the water table, if present. The annular space surrounding the screen was back-filled with clean, 20/30 silica sand to a depth approximately 1.0 ft above the screened interval. A bentonite clay seal was then placed above the sand pack, and the remaining annular space filled to the surface with a portland cement grout. The deep monitor well (MW-1D) was constructed in the same fashion as the shallow monitor wells, however, a 5-ft section of screen was used.

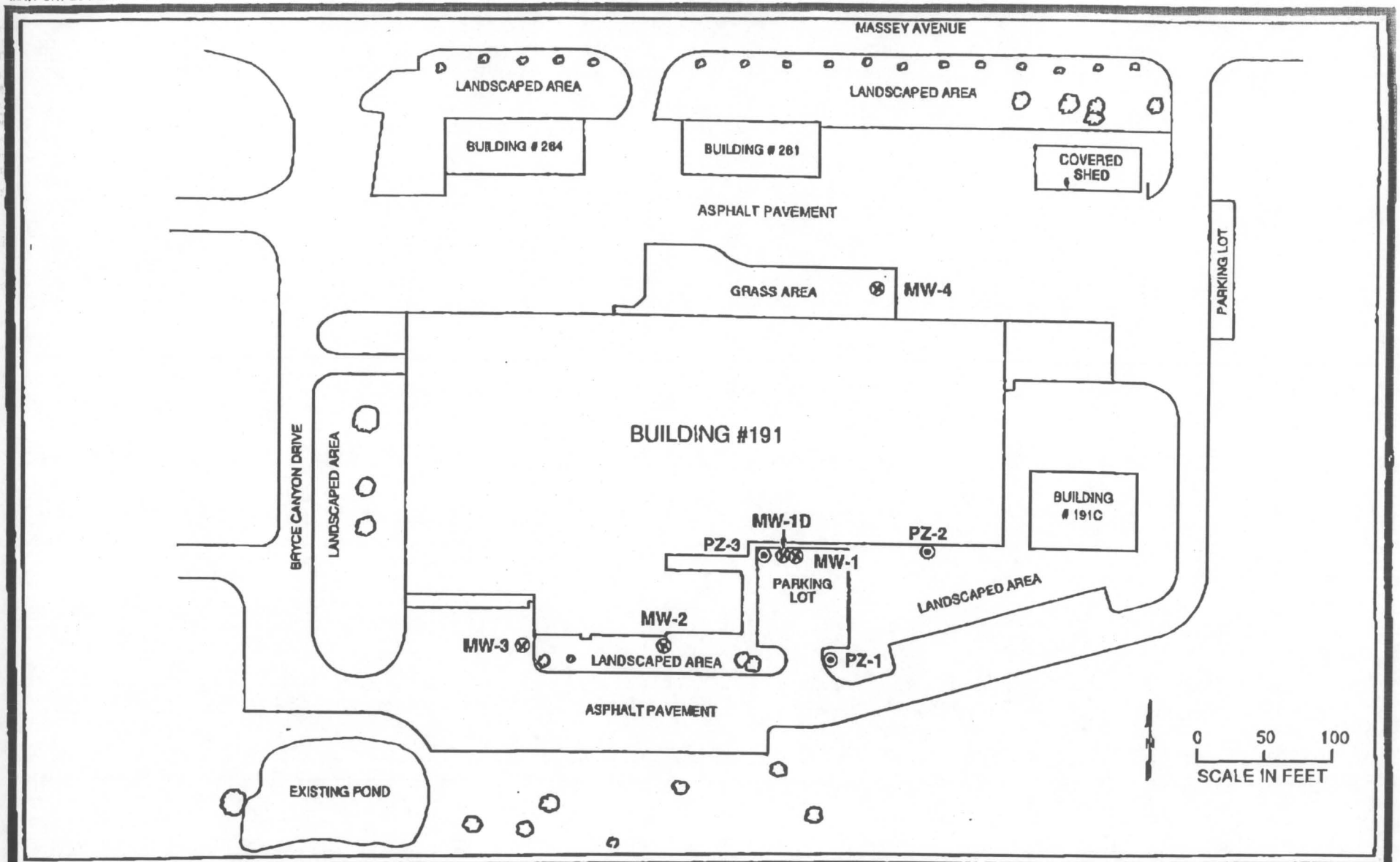

Figure 3-2
MONITOR WELL AND PIEZOMETER LOCATION MAP
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

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TABLE 3-1. MONITOR WELL CONSTRUCTION DETAILS

WELL ID	DATE COMPLETED	WELL DEPTH (FT-BLS)	WELL DIA (IN)	CASING MATERIAL	SCREEN LENGTH (FT)	SCREEN SLOT (IN)	ELEV. OF TOC-FEET (RELATIVE TO MSL)
MW-1	05/19/94	13	4	SCH 40 PVC	10	0.010	9.63
MW-1D	05/20/94	40	4	SCH 40 PVC	5	0.010	9.57
MW-2	05/19/94	14	4	SCH 40 PVC	10	0.010	10.91
MW-3	05/19/94	13	4	SCH 40 PVC	10	0.010	8.70
MW-4	05/20/94	13	4	SCH 40 PVC	10	0.010	8.80

Note: ID = Identification
FT = Feet
BLS = Below Land Surface
IN = Inches
PVC = Poly Vinyl Chloride
TOC = Top of Casing

Source: ESE, 1994.

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The monitor wells were completed sub-grade with a concrete 2-ft by 2-ft anti-percolation pad, an 8-inch manhole casing and cover, and a locking, water-tight cap. A typical diagram of monitor wells installed during the site investigation is presented in Figure 3-3.

The newly installed monitor wells were developed by purging with a centrifugal pump. Development was discontinued when fine sand and silt were no longer present in the discharge water. Monitor well development records are presented in Appendix C. The elevation of the monitor wells and piezometer at the site were then surveyed by a state certified land surveyor to 0.01-ft accuracy. Additionally, the vertical and horizontal locations of the monitor wells and piezometers were tied into the established Mayport Naval Station base grid system.

3.5 HYDROGEOLOGICAL CHARACTERIZATION

Following groundwater stabilization in the monitor wells, ESE conducted single well aquifer tests (slug tests) on three of the monitor wells to estimate the hydraulic conductivity of the surficial aquifer underlying the site. Slug tests were performed on shallow monitor wells MW-1 and MW-2, and on deep monitor well MW-1D.

Performance of the slug tests required instantaneously changing the water level in the well by introducing (slug-in) and subsequently removing (slug-out) a solid cylinder (the slug) to displace a volume of water. The rate at which the water level in the well recovered to the static level was recorded with the use of a pressure-sensitive transducer and computerized data logger. The data logger was programmed to record the water level at specific time intervals (initially multiple readings per second) during the test.

Following the tests, the data were downloaded from the data logger to a micro-computer for analysis. The raw data were configured into a specific format, then loaded into a computer program which calculates the value of hydraulic conductivity.

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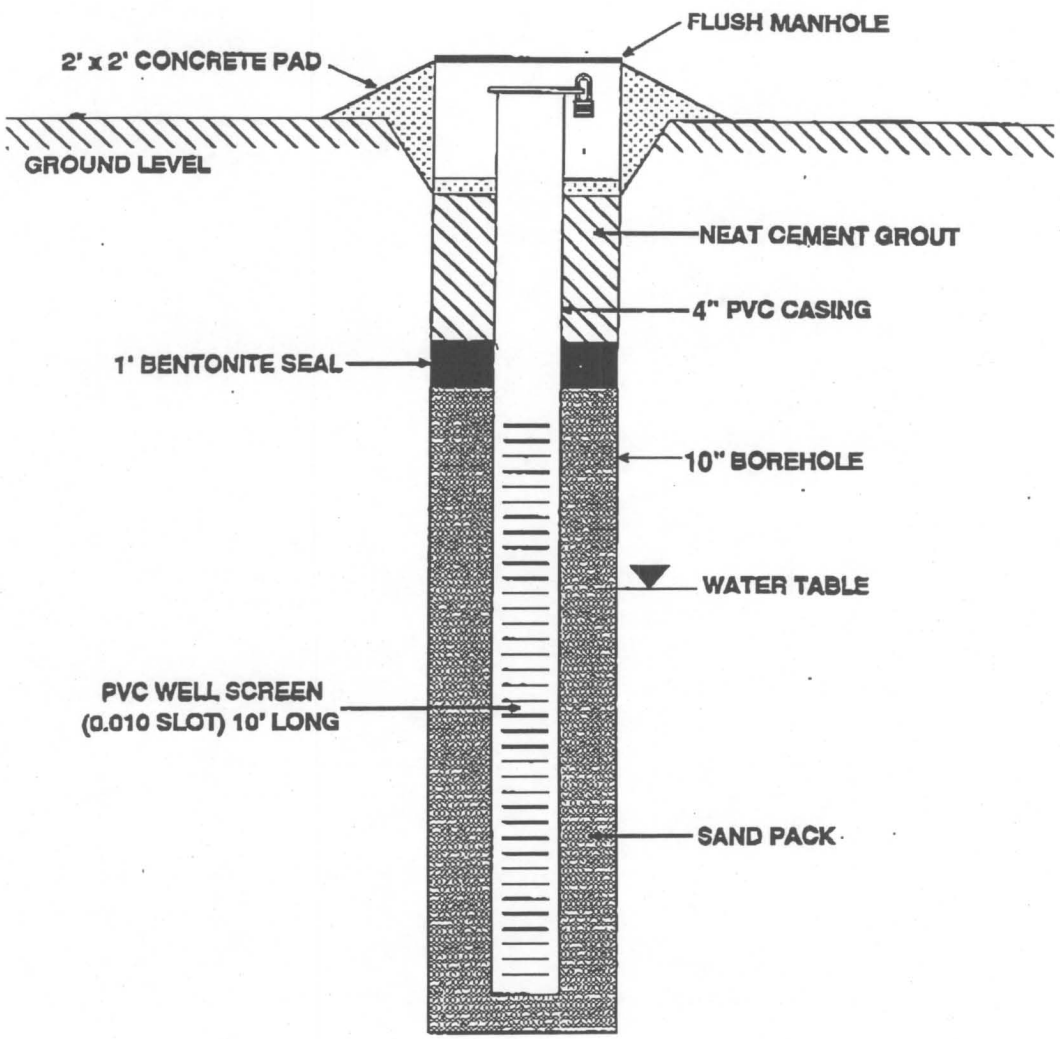

Figure 3-3
MONITOR WELL DIAGRAM, UNCONFINED AQUIFER

SOURCE: ESE.

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Slug test data were analyzed according to the methods developed by Bouwer and Rice (1976). Bouwer has since re-evaluated the slug test analysis (Bouwer, 1989) and determined that the slug-in portion of the test is invalid if the equilibrium water level is within the screened interval. The shallow monitor wells installed at the site were designed so the equilibrium water level would be within the screened interval, therefore, only the slug-out portion of the data was analyzed.

The software program allows the user to select a best fit straight line through the plotted data indicative of an idealized aquifer response using the Theis (1935) equation. From this comparison and a series of calculations, a value for the hydraulic conductivity of the aquifer in the vicinity of the well was determined. Semi-log plots of data and the results of the analysis are provided in Appendix E. Slug test analyses results are described in Section 4.0.

Hydraulic conductivity and hydraulic gradient data were used in conjunction with aquifer lithology characteristics and porosity to estimate groundwater flow velocity in the surficial aquifer underlying the site.

3.6 GROUNDWATER QUALITY SAMPLING AND ANALYSIS

Following sufficient time for the newly installed monitor wells to equilibrate after completion of well development, fluid levels were measured in each of the monitor wells.

All sampling equipment was decontaminated prior to introduction into monitor wells, and sampling procedures were performed in accordance with the FDEP approved ESE Comprehensive QA Plan. During sample collection, duplicate samples, equipment blank samples, and trip blank samples (for VOCs only) were collected and analyzed in accordance with the ESE Comprehensive QA Plan.

Groundwater samples were collected from the monitor wells to define water quality in the vicinity of "Contamination Area One" (adjacent to the aboveground storage tank)

and to define the upgradient and downgradient water quality in the surficial aquifer. Contamination Area Two was not accessible to a drilling rig as it is located within a narrow corridor between two sections of Building 191. A complete set of water level measurements were collected on May 26, 1994, prior to sampling the wells.

Preceding sample collection, 3 to 5 well volumes were purged from the well casing. Prior to introducing any equipment into the wells, all purging and sampling equipment was decontaminated using a Liquinox and tap water wash, followed by a tap water rinse, deionized (DI) water rinse, and a final isopropanol rinse. The sampling equipment was allowed to air dry prior to usage. Laboratory-cleaned and sealed Teflon® bailers were used to sample the monitor wells. Individual Teflon® bailers were dedicated to each well during the sampling effort.

During the purging of each monitor well, in-situ water quality parameters of evacuated groundwater were monitored and recorded on the sample log sheets. Groundwater samples were collected following stabilization of temperature, pH, and conductivity, and after a minimum of three well volumes had been evacuated. Groundwater samples were placed in laboratory-prepared sample containers. The sample containers were labeled for identification, preserved when required, and placed into a cooler and chilled to approximately 4° Celsius (°C). At the completion of groundwater sample collection, the sample coolers were shipped to a FDEP state certified laboratory for analysis. Chain-of-custody documentation accompanied groundwater samples from the point of collection to the analytical laboratory. Groundwater sampling logs are presented in Appendix F.

Groundwater and QA samples collected from the Building 191 site were analyzed for the Kerosene Analytical Group as defined in Chapter 17-770.600(8)(b) FAC (Table 3-2). Detailed analytical data for groundwater analyses are presented in Appendix G. The chemical analysis results for the groundwater and QA samples are described in Section 4.0.

TABLE 3-2. Kerosene Analytical Parameter Group in Accordance with Chapter 17-770.600(8)(b) Florida Administrative Code

1,2-Dichloroethane
Benzene
Toluene
Total Xylenes
Ethylbenzene
1,2-Dibromoethane (EDB)
Methyl Tert-Butyl Ether (MTBE)
Total Volatile Organic Aromatics (VOA)
Volatile Organic Halocarbons
Polynuclear Aromatic Hydrocarbons (PAH)
Total Recoverable Petroleum Hydrocarbons (TRPH)
Lead

4.0 INVESTIGATIVE RESULTS

4.1 WELL INVENTORY

Permitted well records on file with SJRWMD and Naval Station Mayport indicate there are four water supply wells within a one-half mile radius of the Building 191 site. A map showing the well locations is illustrated in Figure 4-1. Table 4-1 presents the details of these wells including owners, usage, map identification as illustrated in Figure 4-1, casing depth, and completion depth.

4.2 SITE HYDROGEOLOGY

Shallow soils underlying the site consist predominantly of fine-grained sand and silty fine-grained sand, extending from the ground surface to a depth of approximately 20 ft-bls. Thin lenses of shell fragments were encountered in MW-1D from approximately 20 ft-bls to 40 ft-bls (the total depth of the soil boring). Groundwater was encountered at approximately 6 ft-bls. Figure 4-2 illustrates the west to east trending geologic conditions underlying the site. The upper confining clay unit of the Hawthorn Formation is reportedly present at a depth of approximately 70 ft-bsl, extending to a depth of approximately 400 ft-bls in the vicinity of the site (Spechler, R.M., 1994).

4.2.1 WATER LEVEL MEASUREMENTS

Prior to installation of the monitor wells, water levels in the three piezometers were measured to define the horizontal hydraulic gradient in the surficial aquifer. Potentiometric maps illustrating the water-table configuration on April 15, 1994 and May 19, 1994 are presented in Figure 4-3 and 4-4, respectively. Prior to sampling the monitor wells, ESE collected a full round of water level measurements in the piezometers and monitor wells to further define the horizontal hydraulic gradient in the surficial aquifer. Water level measurements and groundwater elevations are provided in Table 4-2. A potentiometric map illustrating the water-table configuration on May 26, 1994 (following installation of the monitor wells) is presented in Figure 4-5.

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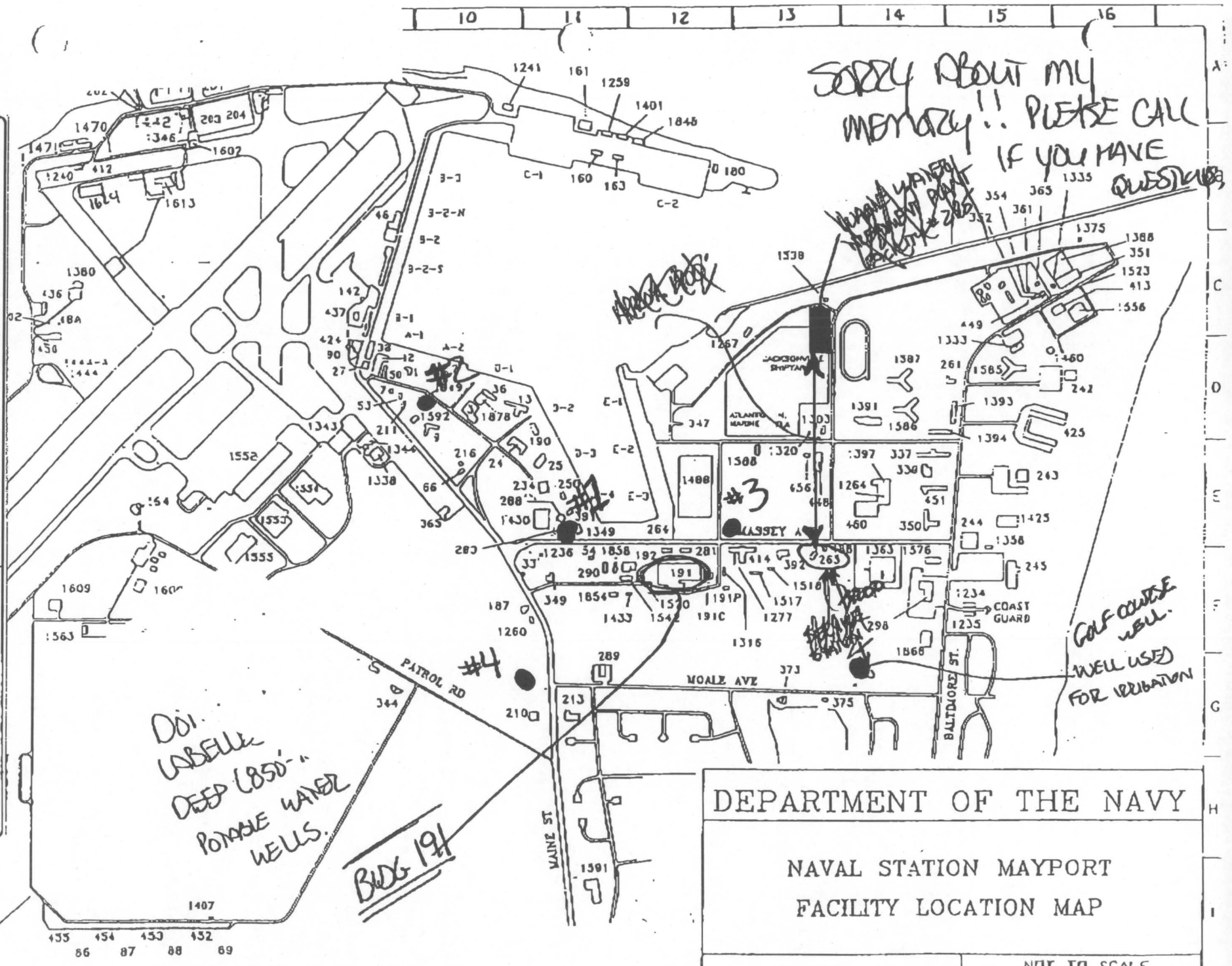

DEPARTMENT OF THE NAVY

NAVAL STATION MAYPORT
FACILITY LOCATION MAP

NOT TO SCALE

TABLE 7

POTABLE WATER WELL SURVEY

BUILDING 1601 - CLASSIFIED INCINERATOR
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

Well No.	Usage	Total Depth (feet)	Casing Depth (feet)	Notes
1	Potable	1001	435	Completed 10/06/61
2	Potable	1000	435	Completed 04/03/58
3	Potable	1000	433	Completed 07/20/79
4	Potable	500	419	Completed 05/29/79

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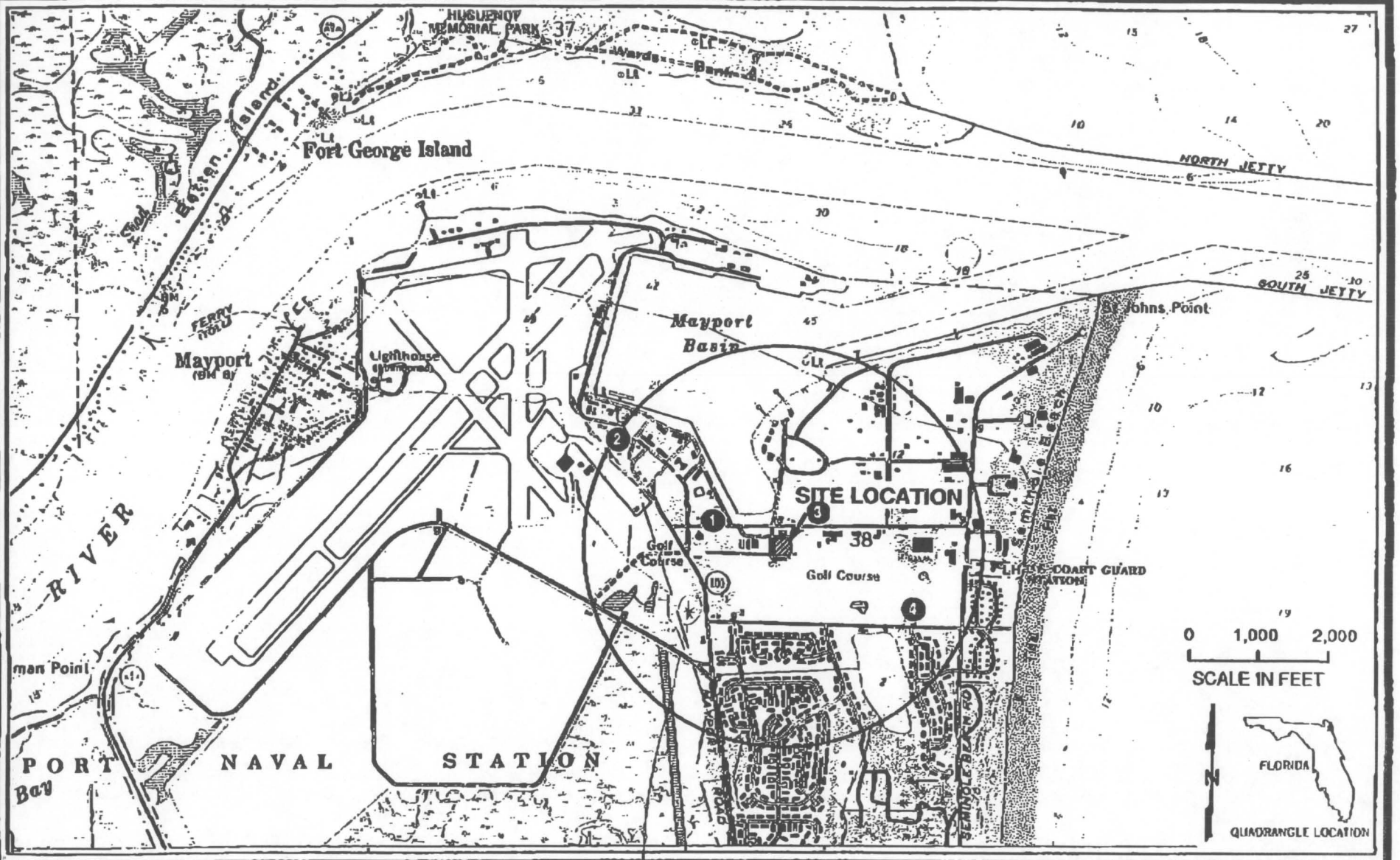

Figure 4-1
LOCATION OF WELLS WITHIN 0.5 MILE RADIUS OF NAVAL STATION MAYPORT, BUILDING 191

SOURCES: MAYPORT, FL USGS, 1982; ESE.

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TABLE 4-1. INVENTORY OF WATER SUPPLY WELLS WITHIN 0.5 MILES OF THE BUILDING 191 SITE

OWNER	USAGE	MAP NUMBER (FIGURE 4-1)	CASING DEPTH (FT)	TOTAL DEPTH (FT)
NAVAL STATION MAYPORT	POTABLE	1	435	1001
NAVAL STATION MAYPORT	POTABLE	2	435	1000
NAVAL STATION MAYPORT	POTABLE	3	433	1000
NAVAL STATION MAYPORT	IRRIGATION	4	419	500

Source: Naval Station Mayport, 1994: personal communication with Cheryl Mitchel.

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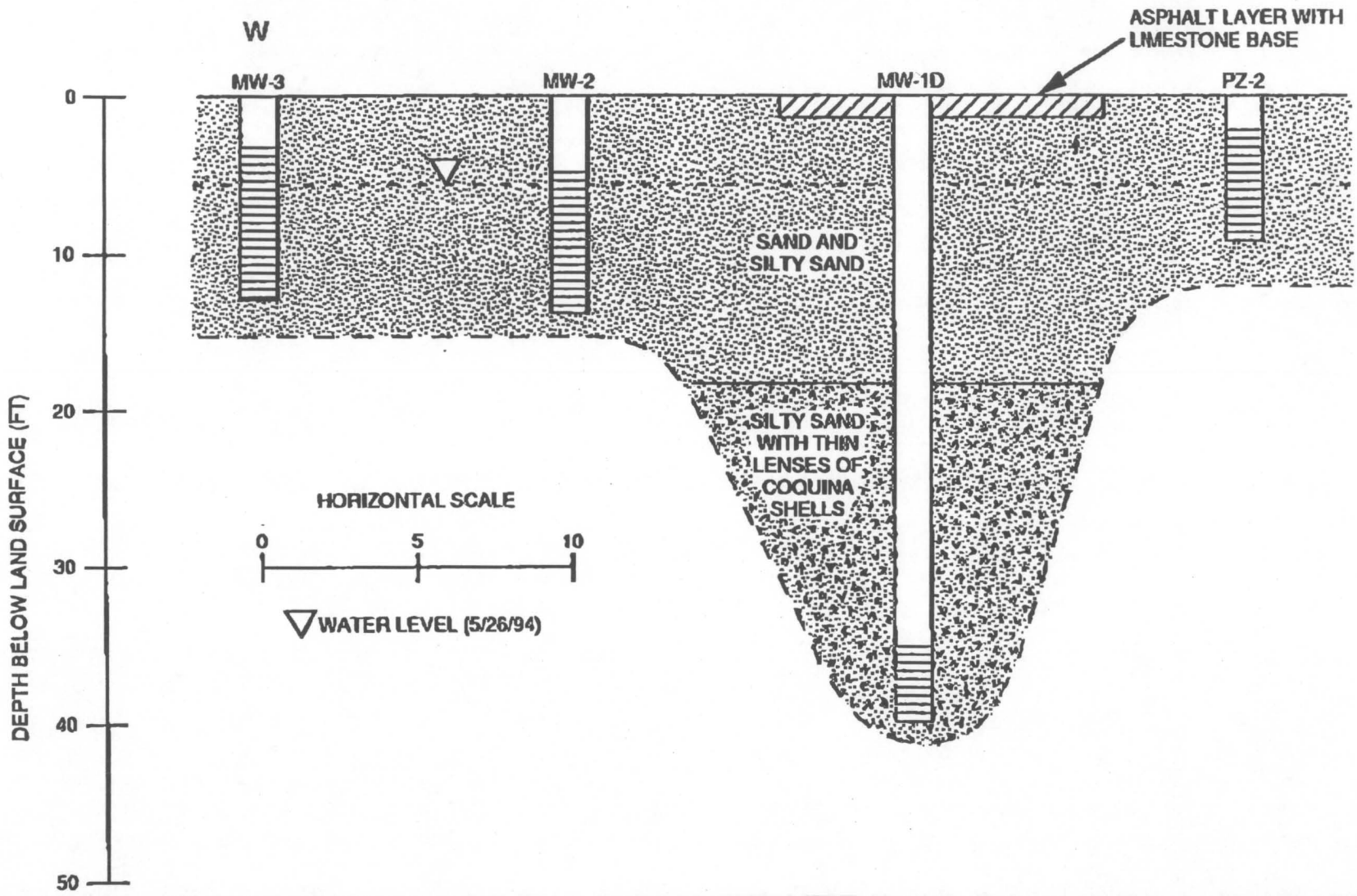

Figure 4-2
GENERALIZED GEOLOGIC CROSS SECTION
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

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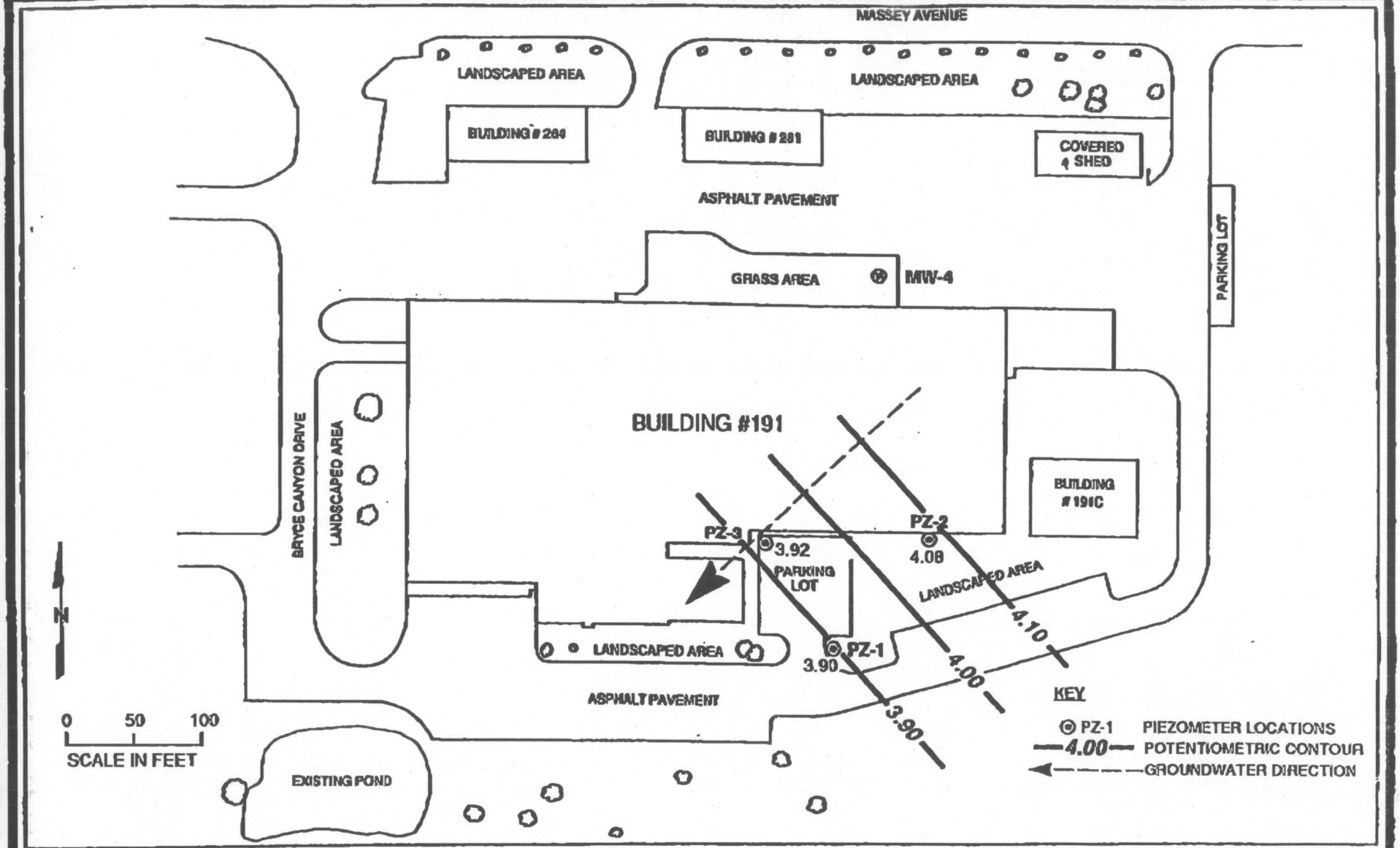

Figure 4-3
POTENTIOMETRIC SURFACE – APRIL 15, 1994
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

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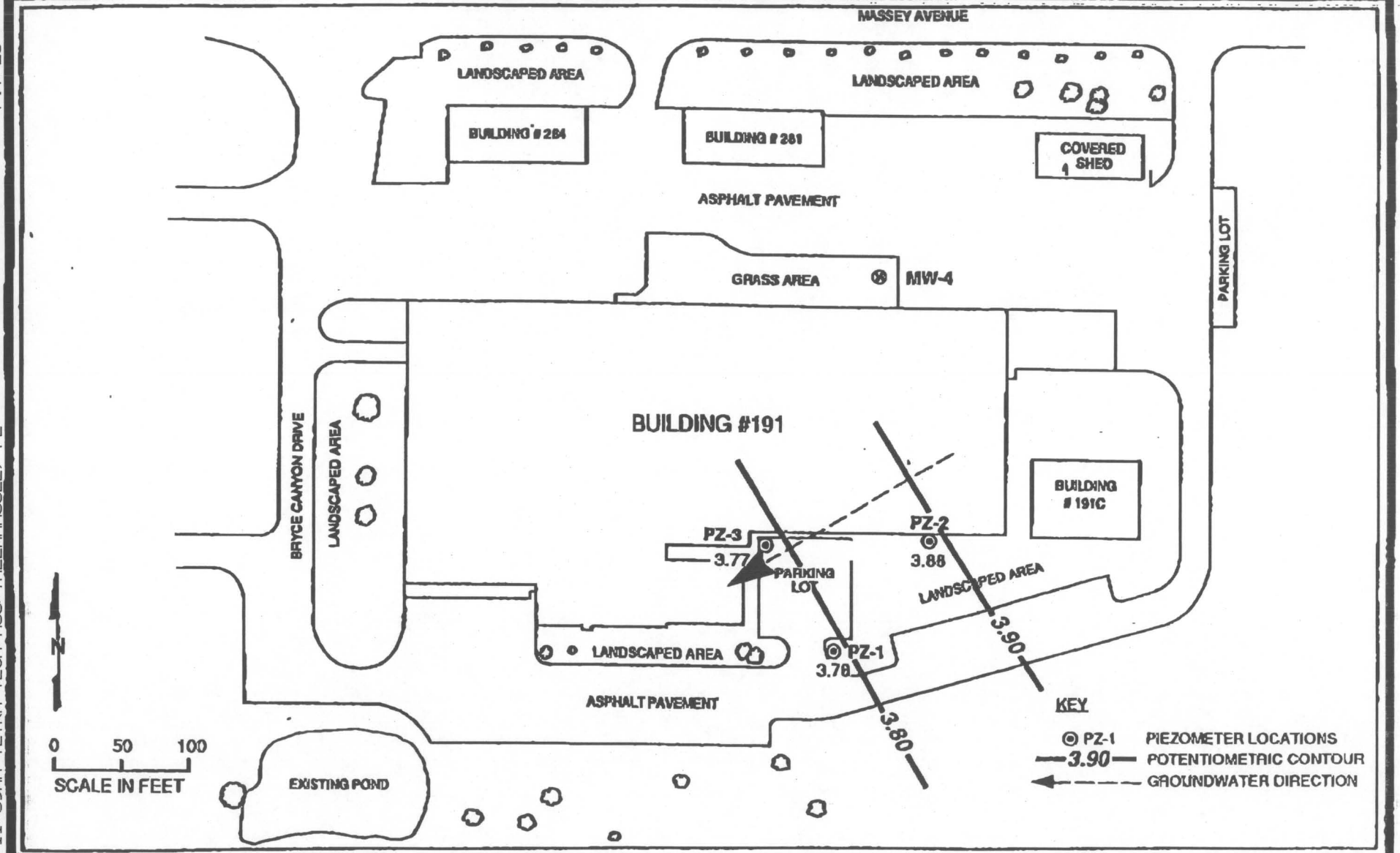

Figure 4-4
POTENTIOMETRIC SURFACE – MAY 19, 1994
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

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TABLE 4-2. MONITOR WELL/PIEZOMETER AND GROUNDWATER ELEVATIONS AT THE BUILDING 191 SITE

MONITOR WELL/ PIEZOMETER NUMBER	TOP OF CASING ELEVATION (FT)	APRIL 15, 1994		MAY 19, 1994		MAY 26, 1994	
		Depth to Groundwater (ft)	Groundwater Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
PZ-1	11.52	7.62	3.90	7.74	3.78	7.78	3.74
PZ-2	11.77	7.69	4.08	7.89	3.88	7.96	3.81
PZ-3	13.11	9.19	3.92	9.34	3.77	9.38	3.73
MW-1	9.63	NI	NI	NI	NI	5.84	3.79
MW-2	10.91	NI	NI	NI	NI	7.25	3.66
MW-3	8.70	NI	NI	NI	NI	5.12	3.58
MW-4	8.80	NI	NI	NI	NI	4.84	3.96
MW-ID	9.57	NI	NI	NI	NI	5.92	3.65

Note: All elevation data reported in feet relative to Mayport Naval Station Bench Mark.
Piezometer elevations include stick-up height.

NI = Well was not yet installed on the date the water level measurements were taken.
ft = feet

Source: ESE, 1994.

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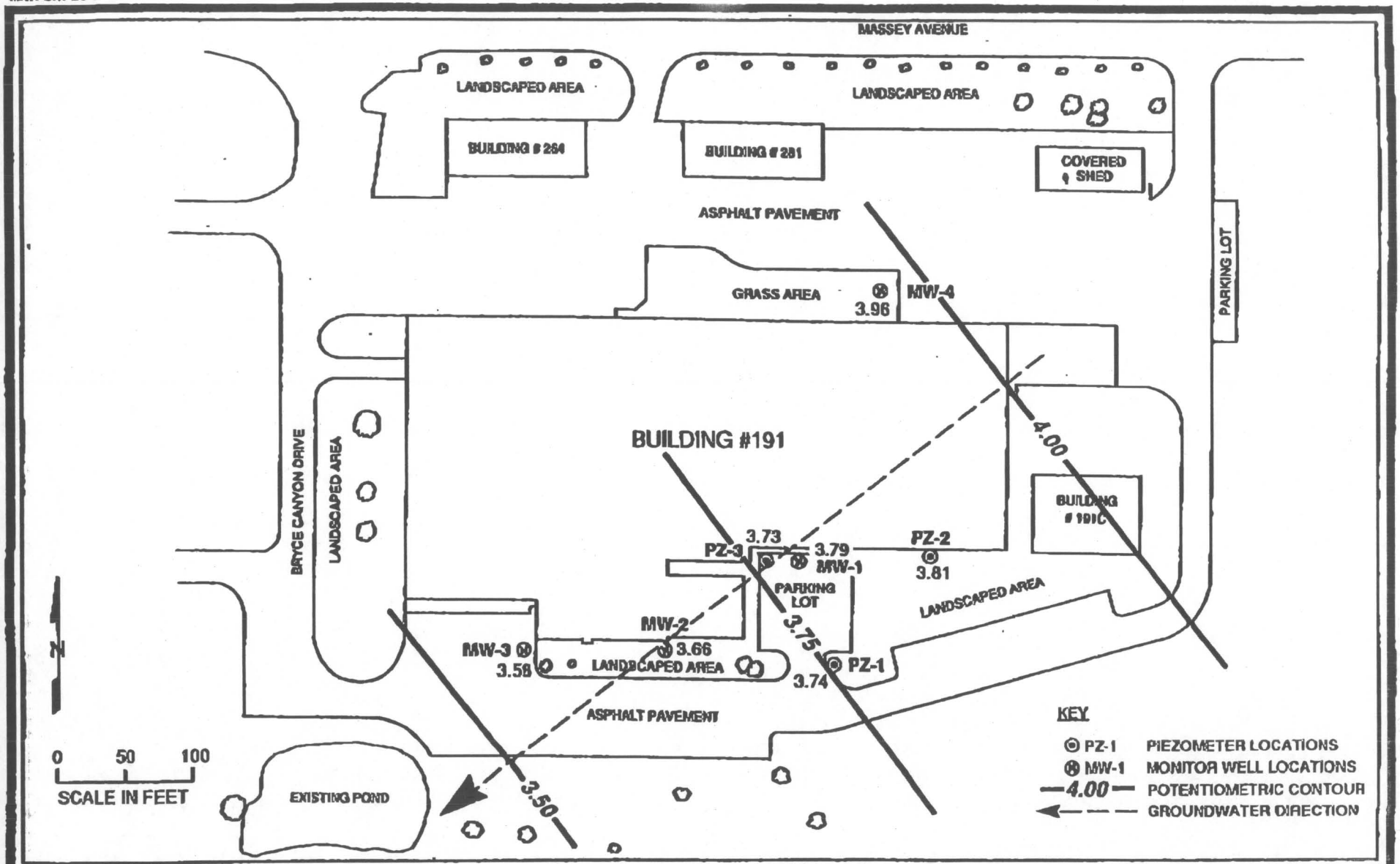

Figure 4-5
POTENTIOMETRIC SURFACE – MAY 26, 1994
NAVAL STATION MAYPORT, BUILDING 191

SOURCE: ESE.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

The hydrogeologic conditions exhibited in the upper surficial aquifer were similar during the three water level survey events, with groundwater flow toward the southwest (toward an existing pond).

4.2.2 HYDRAULIC GRADIENT

The hydraulic gradient for the site was derived from water level measurements collected during the May 26, 1994 survey event. The average hydraulic gradient during May 1994 was approximately 1.1×10^{-3} feet per foot (ft/ft). The direction of groundwater flow in the site vicinity is southwest.

4.2.3 HYDRAULIC CONDUCTIVITY

Single well aquifer tests (slug tests) were conducted on two shallow surficial monitor wells (MW-1 and MW-2) and the one deep surficial monitor well (MW-1D) at the Building 191 site. Hydraulic conductivity values were calculated for the slug-out portion of the tests on each well using the methods described by Bouwer and Rice (1976), as previously described in Section 3.2. These values are shown in Table 4-3 and were used to obtain an average hydraulic conductivity value of 6.10×10^{-3} feet per minute (ft/min) for the shallow surficial aquifer. The deep surficial hydraulic conductivity value, as estimated from MW-1D, was 1.28×10^{-3} ft/min.. A value of 70 ft for the aquifer thickness was used to obtain an aquifer transmissivity value of 614 square feet per day (ft^2/day) for the shallow surficial aquifer and 129 ft^2/day for the deep surficial aquifer.

4.2.4 GROUNDWATER FLOW CALCULATION

The average linear flow velocity of shallow groundwater underlying the site was calculated using the average hydraulic gradient of 1.1×10^{-3} ft/ft and the average hydraulic conductivity value of 6.10×10^{-3} ft/min. An estimated porosity of 30 percent was assumed for the water-table aquifer underlying the site, based on the

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TABLE 4-3. AQUIFER CHARACTERISTICS

WELL NUMBER	HYDRAULIC CONDUCTIVITY (ft/min)	TRANSMISSIVITY* (ft^2/day)
MW-1D	1.28×10^{-3}	129
MW-1	8.34×10^{-3}	840
MW-2	3.85×10^{-3}	388
Average (MW-1 and MW-2)	6.10×10^{-3}	614

* Assumes an aquifer thickness of 70 ft.

Source: ESE, 1994.

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presence of silt in the predominantly sand aquifer. The horizontal groundwater flow velocity was calculated using the following formula:

$$v = K \times I/n$$

where: v = horizontal groundwater flow velocity,
K = horizontal hydraulic conductivity,
I = hydraulic gradient, and
n = estimated porosity.

Using the site average hydraulic conductivity, hydraulic gradient value, and an assumed effective porosity of 30 percent, the horizontal groundwater flow velocity of the upper water-table aquifer was calculated to be an average of 2.2×10^{-5} ft/min or 12 feet per year (ft/yr) across the site.

4.3 SOIL BORING RESULTS

Soil samples collected during the soil boring program were screened for total volatile organics with an FID. The samples were initially screened using the FID without a filter and the value recorded. An activated carbon filter was then attached to the FID and a second reading was obtained. The activated carbon removes methane from the soil headspace, eliminating false hits.

Headspace analysis of soil collected during the soil boring program indicated excessive soil contamination in only one boring, SB-5, located within Contamination Area Two (see Figure 3-1). When the suspected contaminant is from the Kerosene Group, excess soil contamination is defined as those soils yielding a value of over 50 parts per million (ppm) on an OVA when using an FID in accordance with the method prescribed in Chapter 17-770, FAC. The 2-4 ft interval and the 4-6 ft intervals in SB-5 had slightly elevated FID headspace values of 14 and 8 ppm, respectively. The 6-8 ft interval had an elevated FID value of 92 ppm. The water table was encountered at

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approximately 7 ft-bls in SB-5. Results of the headspace analysis of soil collected during the site investigation are presented in Table 4-4.

In using the hand auger during the soil boring phase of the investigation, a depth of greater than 3 ft-bls was not obtainable in soil boring SB-1, located in the central portion of Contamination Area One, due to an obstruction (ie. buried asphalt or concrete). After several attempts to advance the hand auger below 3 ft, the boring was terminated. During the monitor well installation program, MW-1 was constructed in the vicinity of SB-1, allowing for the collection of headspace samples to the water table (approximately 6 ft-bls). Data for soil sample headspace analysis collected from SB-1 had FID readings of 34 ppm in the 0-2 ft interval and 24 ppm in the 2-4 ft interval. However, the 4-6 ft interval of MW-1 was only 18 ppm, all of which were below the 50 ppm FID value which defines excess soil contamination. An attempt was made to advance SB-14, located approximately 5 ft southwest of SB-1, to the water table. However, as in SB-1, an obstruction was again encountered at approximately 3.5 ft-bls, and after several attempts, the boring was terminated.

Soil boring SB-8, located approximately 30 ft southwest of Contamination Area One, exhibited a slightly elevated FID reading of 28 ppm in the 4-6 ft interval and 22 ppm in the 6-8 ft interval. Soil boring SB-13, located approximately 5 ft southeast of SB-1, had a slightly elevated FID reading of 20 ppm in the 4-6 ft interval of the boring. Based on the soil boring program, ESE feels the extent of "excessive soil contamination" at the Building 191 site has been defined.

4.4 GROUNDWATER ANALYTICAL RESULTS

The water quality data for the Building 191 site are presented in Table 4-5. The FDEP target level criteria for site remediation under Chapter 17-770 F.A.C are included in the table for comparison. Complete analytical results are provided in Appendix G.

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TABLE 4-4. SOIL HEADSPACE RESULTS

BORING NUMBER	SAMPLE INTERVAL (FT)	FID VALUE (PPM)		NON-METHANE COMPONENT (PPM)
		unfiltered	filtered	
SB-1	0.5-2	34	0	34
SB-1	2-3	24	0	24
SB-2	0-2	0	0	0
SB-2	2-4	0	0	0
SB-2	4-6	4	0	4
SB-3	0-2	0	0	0
SB-3	2-4	0	0	0
SB-3	4-6	0	0	0
SB-3	6-8	22	0	22
SB-4	0-2	0	0	0
SB-4	2-4	0	0	0
SB-4	4-6	0	0	0
SB-5	0-2	0	0	0
SB-5	2-4	14	0	14
SB-5	4-6	8	0	8
SB-5	6-8	92	0	92
SB-6	0-2	0	0	0
SB-6	2-4	0	0	0

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TABLE 4-4. SOIL HEADSPACE RESULTS (page 2 of 4)

BORING NUMBER	SAMPLE INTERVAL (FT)	FID VALUE (PPM)		NON-METHANE COMPONENT (PPM)
		unfiltered	filtered	
SB-6	4-6	0	0	0
SB-6	6-8	0	0	0
SB-7	0-2	0	0	0
SB-7	2-4	0	0	0
SB-7	4-6	0	0	0
SB-7	6-8	0	0	0
SB-8	0-2	0	0	0
SB-8	2-4	0	0	0
SB-8	4-6	28	0	28
SB-8	6-8	22	0	22
SB-9	0-2	0	0	0
SB-9	2-4	0	0	0
SB-9	4-6	0	0	0
SB-9	6-8	0	0	0
SB-10	0-2	0	0	0
SB-10	2-4	0	0	0
SB-10	4-6	160	160	0
SB-10	6-8	480	480	0

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TABLE 4-4. SOIL HEADSPACE RESULTS (page 3 of 4)

BORING NUMBER	SAMPLE INTERVAL (FT)	FID VALUE (PPM)		NON-METHANE COMPONENT (PPM)
		unfiltered	filtered	
SB-11	0-2	0	0	0
SB-11	2-4	0	0	0
SB-11	4-6	0	0	0
SB-11	6-8	0	0	0
SB-12	0-2	0	0	0
SB-12	2-4	0	0	0
SB-12	4-6	0	0	0
SB-12	6-8	0	0	0
SB-13	0-2	0	0	0
SB-13	2-4	0	0	0
SB-13	4-6	22	2	20
SB-13	6-8	26	0	26
SB-14	0-2	0	0	0
SB-14	2-3.5	0	0	0
SB-15	0-2	0	0	0
SB-15	2-4	0	0	0
SB-15	4-6	0	0	0
SB-15	6-8	0	0	0

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TABLE 4-4. SOIL HEADSPACE RESULTS (page 4 of 4)

BORING NUMBER	SAMPLE INTERVAL (FT)	FID VALUE (PPM)		NON-METHANE COMPONENT (PPM)
		unfiltered	filtered	
SB-16	0-2	0	0	0
SB-16	2-4	0	0	0
SB-16	4-6	0	0	0
SB-16	6-8	0	0	0
MW-1	0-2	26	0	26
MW-1	2-4	28	0	28
MW-1	4-6	18	0	18

Note: FID = Flame Ionization Detector
PPM = Parts Per Million

Source: ESE, 1994.

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TABLE 4-5. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

ANALYTE	GUIDANCE CONCENTRATIONS	MW-1	MW-2	MW-3	MW-4	MW-1D
Benzene	1 ug/L •	<1	<1	<1	<1	<1
1,2-Dibromoethane (EDB)	0.02 ug/L •	<0.02	<0.02	<0.02	<0.02	<0.02
Total Volatile Organic Aromatics (BTEX)	50 ug/L •	1	<6	<6	<6	<6
PAHs (excluding Naphthalenes)	10 ug/L •	<10	<10	<10	<10	<10
Total Naphthalenes	100 ug/L •	<10	<10	<10	<10	<10
Lead	15 ug/L •	<5	<5	<5	<5	<5
Methyl Tert-Butyl Ether (MTBE)	50 ug/L •	<2	<2	<2	<2	<2
Total Recoverable Petroleum Hydrocarbons	5 mg/L •	<1	<1	<1	<1	<1
Tetrachloroethene	3 ••	<1	<1	<1	22	<1
Trichloroethene TCE	3 ••	<1	<1	<1	5	<1
Total Xylenes (Primary Drinking Water Standard)	10,000 ug/L ••	1	<1	<1	<1	<1
Total Trihalomethanes †	100 ••	<1	4	2	<1	12

• FDEP 17-770 FAC Target Cleanup Level

•• Florida Groundwater Guidance Concentrations (current as of June 1994).

† Total Trihalomethanes (Bromoform, Dibromochloromethane, Chloroform and Bromodichloromethane). No Florida Groundwater Guidance Concentration available.

NA = Not Available

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None of the FDEP target levels for the Kerosene Analytical Group were exceeded at the Building 191 site. Xylene, detected in MW-1 at a concentration of 1.0 ug/L, was the only analyte detected of those listed for the FDEP target levels (hence, a total volatile organic aromatics value of 1.0 ug/L). The Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) for total xylenes is 10,000 ug/L.

Tetrachloroethene, which has a Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) of 3 ug/L, was detected at a concentration of 22 ug/L in MW-4 (background well). The remaining wells were below the detection limit (BDL) for tetrachloroethene. Trichloroethene, with a Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) of 3 ug/L, was detected at a concentration of 5 ug/L in the background well, MW-4.

Total trihalomethanes were detected in MW-2, MW-3, and MW-1D at concentrations of 4 ug/L, 2 ug/L, and 12 ug/L, respectively. FDEP 17-770 FAC target cleanup levels and/or Florida Groundwater Guidance Concentrations are not available for total trihalomethanes. However, the Federal Groundwater Guidance Concentrations (Primary Drinking Water Standard) for total trihalomethanes is 100 ug/L. The total trihalomethane concentrations detected in MW-2, MW-3 and MW-1D are well below the Federal Guidance Concentrations.

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5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Shallow soils underlying the site consist predominantly of fine-grained sand and silty fine-grained sand, extending from the ground surface to a depth of approximately 20 ft-bls. Thin lenses of shell fragments were encountered in MW-1D from approximately 20 ft-bls to 40 ft-bls (the total depth of the soil boring). Groundwater was encountered at approximately 6 ft-bls. The upper confining clay unit of the Hawthorn Formation is reportedly present at a depth of approximately 70 ft-bsl, extending to a depth of approximately 400 ft-bls in the vicinity of the site (Spechler, R.M., 1994).

Permitted well records supplied by Naval Station Mayport indicate there are three potable wells and one irrigation well within a one-half mile radius of the Building 191 site, all of which are located within the boundaries of the Naval Station. The potable wells are all cased into the underlying Hawthorn confining unit at depths ranging from 433 ft-bls to 435 ft-bls. The completion depths of these wells are approximately 1,000 ft-bls. The irrigation well, which supplies irrigation water for the base's golf course, is cased to 419 ft-bls with a completion depth of 500 ft-bls.

The hydraulic gradient at the Building 191 site was calculated to be 1.1×10^{-3} ft/ft during May 1994. The direction of groundwater flow has consistently been to the southwest, toward a pond located approximately 300 ft downgradient of source areas. The average hydraulic conductivity value for the upper surficial aquifer was estimated to be approximately 6.10×10^{-3} ft/min. The average hydraulic conductivity value for the lower surficial aquifer (35-to-40 ft-bls) was estimated to be approximately 1.28×10^{-3} ft/min.

The average linear flow velocity of the shallow groundwater underlying the site was calculated to be approximately 12 feet per year (ft/yr).

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Based on headspace analysis of soil samples collected during the soil boring program, SB-5 (central portion of Contamination Area Two) was the only boring with a soil headspace concentration which exceeded FDEP criteria to be classified as contaminated or excessively contaminated soil (greater than 50 ppm on an FID). Soil remediation in the vicinities of Contamination Area One and Contamination Area Two was completed by ERI on August 13, 1993 during which time ten and one-half 55-gallon drums of contaminated soil were removed. A building footer precluded further soil removal to the groundwater in the vicinity of Contamination Area Two because of possible structural damage which might be caused.

The groundwater analytical data for the Building 191 site indicates that there is no groundwater contamination exceeding Groundwater Guidance Concentrations associated with Contamination Area One and Contamination Area Two. Xylene, detected in MW-1 at a concentration of 1.0 ug/L, was the only analyte detected of those listed in the FDEP target levels, resulting in a total volatile organic aromatics value of 1.0 ug/L. The Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) for total xylenes is 10,000 ug/L.

Tetrachloroethene, which has a Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) of 3 ug/L, was detected at a concentration of 22 ug/L in MW-4 (background well). The remaining wells were below the detection limit (BDL) for tetrachloroethene. Trichloroethene, which has a Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) of 3 ug/L, was detected at a concentration of 5 ug/L in MW-4.

Total trihalomethanes (bromoform, dibromochloromethane, chloroform, and bromodichloromethane) were detected in MW-2, MW-3, and MW-1D at concentrations of 4 ug/L, 2 ug/L, and 12 ug/L, respectively. The Florida Groundwater Guidance Concentration (Primary Drinking Water Standard) for total trihalomethanes is 100 ug/L. The total trihalomethane concentrations detected in MW-2, MW-3 and MW-1D are well below the Florida Groundwater Guidance Concentration.

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5.2 RECOMMENDATIONS

Based on soil and groundwater quality data obtained during the site investigation, the Building 191 site qualifies for "No Further Action" as outlined in Chapter 17-770 FAC. This conclusion is based on the following results:

- a Quality Assurance Project Plan has been approved pursuant to Rule 17-770.400 FAC;
- free-product is not present at the site;
- the petroleum contamination site is located in an area of G-II groundwater, the total volatile organic aromatics concentration in the groundwater is less than 50 ug/L, and potable wells are located within one-quarter mile radius of the site;
- With the exception of one soil boring (SB-5) located within Contamination Area Two, the soil boring program conducted during the site investigation determined that soil headspace VOC concentrations at the site are below the Chapter 17-770 FAC criteria. Soil remediation in the vicinity of Contamination Area Two was conducted on August 13, 1993. However, a building footer precluded soil removal to the groundwater, encountered at approximately 7 ft-bls. Based on the FID headspace value determined for the 6-to-8 ft interval of SB-5 (92 ppm), and because no groundwater contamination was detected in monitor wells MW-2 and MW-3, ESE does not feel that further soil remediation is warranted.
- None of the FDEP target levels for the Kerosene Analytical Group as identified in Chapter 17-770.730(5)(a)(2) were exceeded; and
- The vertical extent of dissolved hydrocarbon constituents has been determined to be below the detection limit.

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APPENDIX E

CONTAMINATION ASSESSMENT REPORT FOR SIMA

DRAFT

CONTAMINATION ASSESSMENT REPORT

MAYPORT NAVAL STATION
BUILDING 1490 - SIMA SHOP

MAYPORT, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

MAY 1992

EXECUTIVE SUMMARY

The Shore Intermediate Maintenance Activity (SIMA) Shop is located approximately 300 feet east of the ship basin and Pier Echo, on Massey Ave. at Mayport Naval Station, Mayport, Florida. In October of 1989, while installing compliance monitoring wells around a 1,000-gallon underground storage tank containing waste oil, petroleum odors were detected in the soil around the tank.

A contamination assessment was performed by the U.S. Army Corps of Engineers, Savannah District during February through April 1991. The purpose of the assessment was to determine the degree and extent of contamination to soil and ground water caused by petroleum products suspected of leaking from the underground storage tank (UST).

Twelve soil borings and five monitoring wells were installed at the site during contamination assessment. Soil samples were analyzed using the OVA headspace method. Ground-water samples were collected and analyzed for petroleum constituents of the Florida kerosene analytical group. The following Executive Summary Map indicates the locations of monitoring wells and the results of laboratory analyses. The findings, conclusions, and recommendations of the enclosed Contamination Assessment Report (CAR) are summarized below:

Findings

- The source of contamination has been abated. The contents of the UST have been removed, and the tank was taken out of service.

- Free product petroleum was found in two existing compliance monitoring wells near the UST. The maximum thickness of free product measured in the wells was approximately 0.17 foot.

- The only constituent of the Florida kerosene analytical group found in additional monitoring wells installed during contamination assessment was lead. Total lead concentrations ranged from .005 to .017 ppm, which is below the regulatory standard of .05 ppm.

- The contamination on the site remains entirely on Navy property.

Conclusions

- OVA headspace analyses at the site indicate that soil contamination is located predominantly within the tank backfill and soil immediately adjacent to the backfill.

- The configuration of the ground-water contamination suggests that the contaminant plume is approximately 20 by 30 feet in area, and is moving generally down-gradient to the west-southwest, away from the source area.

Recommendations

- Because monitoring wells at the site indicated that free product petroleum exists in the immediate area of the UST backfill and adjacent soil, it is recommended that a Remedial Action Plan (RAP) be prepared to address the contamination.

FOREWORD

Subtitle I of the Hazardous and Solid Waste Amendments (HSWA) of 1984 to the Solid Waste Disposal Act (SWDA) of 1965 established a national regulatory program for managing underground storage tanks (UST's) containing hazardous materials, especially petroleum products. Hazardous wastes stored in UST's were already regulated under the Resource Conservation and Recovery Act (RCRA) of 1976, which was also an amendment to SWDA. Subtitle I requires that the U.S. Environmental Protection Agency (USEPA) promulgate UST regulations. The program was designed to be administered by the individual states, who were allowed to develop more stringent standards, but not less stringent standards. Local governments were permitted to establish regulatory programs and standards that are more stringent, but not less stringent than either State or Federal regulations. The USEPA UST regulations are found in the Code of Federal Regulations, Title 40, Part 280 (40 CFR 280) (Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks) and Title 40 CFR 281 (Approval of State Underground Storage Tank Programs). Title 40 CFR 280 was revised and published on 23 September 1988 and became effective 22 December 1988.

The Navy's UST Program policy is to comply with all Federal, State, and local regulations pertaining to UST's. This report was prepared to satisfy the requirements of the Florida Department of Environmental Regulation (FDER) Chapter 17-770, Florida Administrative Code (FAC) (State Underground Petroleum Environmental Response) regulations on petroleum contamination in Florida's environment as a result of spills or leaking tanks or piping.

Questions regarding this report should be addressed to the Commanding Officer, Mayport Naval Station, Jacksonville, Florida, or to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Code 1823, at AUTOVON 563-0528 or 803-743-0528.

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ACRONYMS AND ABBREVIATIONS

The following list contains many of the acronyms, abbreviations, and units of measure used in this report.

BDL	below detection limits
BETX	benzene, ethyl benzene, toluene, and xylenes
bls	below land surface
CA	Contamination Assessment
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CESAS	Corps of Engineers, South Atlantic Division, Savannah District
CFR	Code of Federal Regulations
CH	High plasticity clay (Unified Soil Classification System)
CL	Low plasticity clay (Unified Soil Classification System)
COE	Corps of Engineers
CompQAP	Comprehensive Quality Assurance Plan
°C	degrees Celsius
EDB	ethylene dibromide
FAC	Florida Administrative Code
FDER	Florida Department of Environmental Regulation
ft/day	feet per day
GC	gas chromatograph
gpd/ft	gallons per day per foot
HSWA	Hazardous and Solid Waste Amendments of 1984
K	hydraulic conductivity
MH	High plasticity silt (Unified Soil Classification System)
ML	Low plasticity silt (Unified Soil Classification System)
mlw	mean low water
msl	mean sea level
MGD	Million gallons per day
MTBE	methyl-tert-butyl-ether
OH	High plasticity organic clay (Unified Soil Classification System)
OL	Low plasticity organic silt or clayey silt (Unified Soil Classification System)
OVA	organic vapor analyzer
OVM	organic vapor monitor (see PID)
PAH	polynuclear aromatic hydrocarbons
PCA	Preliminary Contamination Assessment
PCAR	Preliminary Contamination Assessment Report
PID	Photo-ionization Detector
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
SC	Clayey sand (Unified Soil Classification System)
SM	Silty sand (Unified Soil Classification System)
SP	Poorly graded sand (Unified Soil Classification System)
SOUTHNAVFACENGCOM	Southern Division Naval Facilities Engineering Command
SPT	standard penetration test
SWDA	Solid Waste Disposal Act of 1965

ACRONYMS AND ABBREVIATIONS (cont'd.)

T	transmissivity
TRPH	total recoverable petroleum hydrocarbons
µg/l	micrograms per liter
µmhos/cm	micromhos per centimeter
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
V	pore water velocity
VOA	volatile organic aromatic

1.0 INTRODUCTION

The U.S. Army Corps of Engineers, Savannah District was contracted by Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina, to perform a contamination assessment at the Shore Intermediate Maintenance Activity (SIMA) Shop, Mayport Naval Station, Mayport, Florida..

The purpose of the assessment was to determine the degree and extent of contamination to soil and ground water caused by petroleum products suspected of originating from an underground storage tank at the site. The assessment of the site was conducted in several phases, from February through April 1991 and included:

- Performing headspace analysis of soils to determine the extent of soil contamination;
- The installation and sampling of monitoring wells to determine the vertical and horizontal extent of petroleum contamination of ground water;
- The collection of water level data to determine direction of ground-water flow;
- Performing recovery testing on selected monitoring wells to estimate aquifer characteristics; and
- Performing a survey of potable water wells in the vicinity of the site.

The work presented in this contamination assessment report (CAR) was performed in compliance with Chapter 17-770, Florida Administrative Code (FAC), State Underground Petroleum Environmental Response, and Florida Department of Environmental Regulation (FDER) "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils."

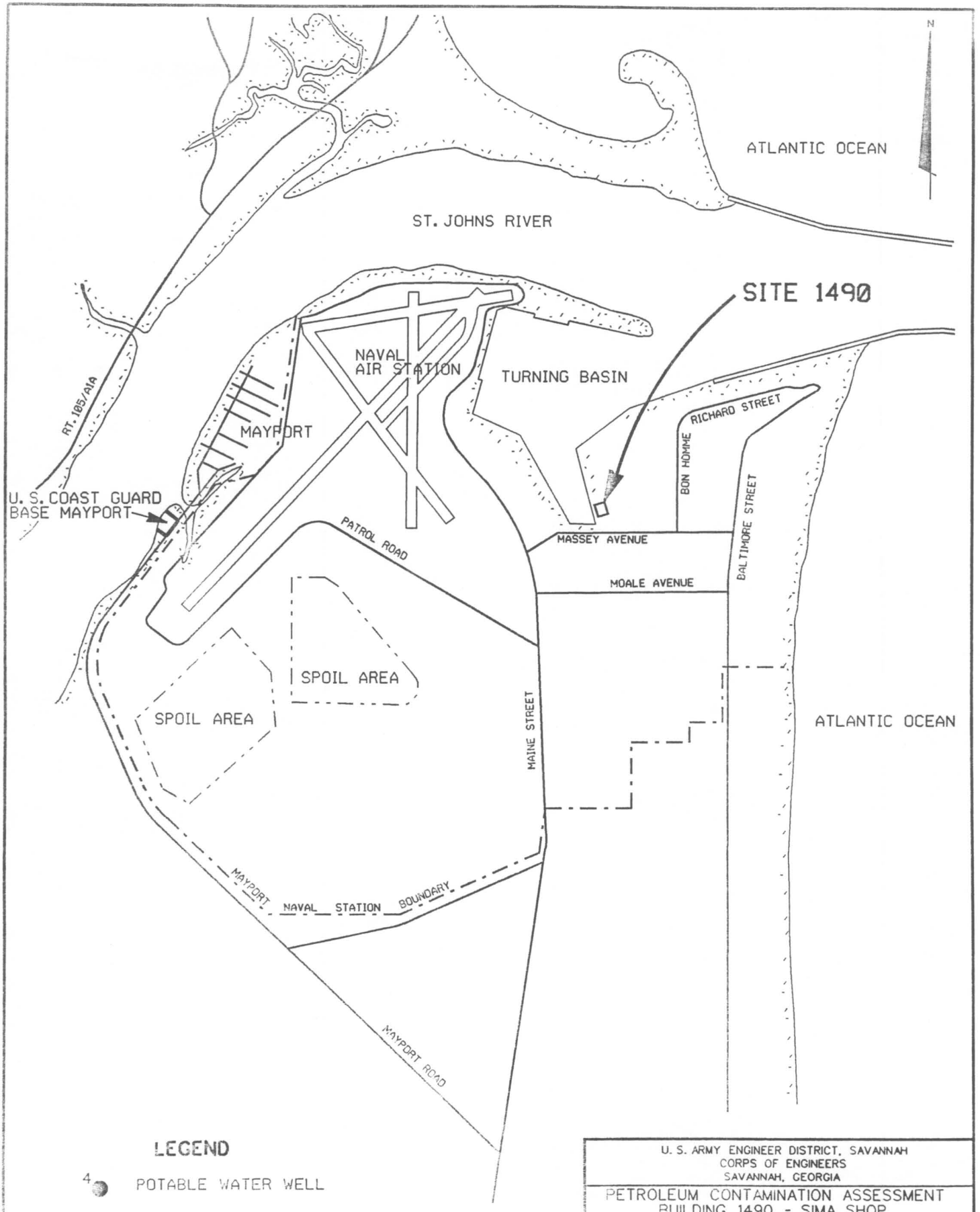
2.0 BACKGROUND

2.1 Site Description

Mayport Naval Station is located approximately 16 miles northeast of Jacksonville, Florida, at the mouth of the St. Johns River (see figure 1). The SIMA Shop (Building 1488) site is located approximately 300 feet east of the ship basin and Pier Echo, on Massey Ave. The SIMA Shop is a full service machine shop and repair/refit facility which provides services and materials to ships at the Naval Station. The site of this investigation is an area around an underground storage tank (tank 1490-A) located immediately to the west of the SIMA shop, between the shop and Pier Echo. Building 1490, for which this investigation is designated, no longer exists. Building 1490 was located on a concrete slab (still existing) immediately to the north of tank 1490-A.

2.2 Site History

Tank 1490-A is a 1,000-gallon steel, underground waste oil storage tank, which is part of an oil/water separator system connected to floor drains in the SIMA Shop. Three compliance wells (MPT-1490-1, MPT-1490-2, and MPT-1490-3) were installed around the tank in October of 1989 (MPT-1490-3 was later destroyed). While installing the wells, petroleum odors were detected in the soil. As a result of these findings, the tank contents were removed, and the tank was taken out of service. A contamination assessment was begun at the site in February 1991 to determine the nature and extent of any petroleum contamination as required by Chapter 17-770, FAC.



U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490 - SIMA SHOP

FIGURE 1

SITE LOCATION MAP

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1"=2,500'

3.0 SITE CONDITIONS

3.1 Physiography

Regional physiography is discussed in appendix A. The site lies within the Coastal Lowland physiographic division of northeastern Florida, which runs roughly parallel to the coastline and extends from the Atlantic Ocean to just west of downtown Jacksonville. Site elevations range from approximately 6 to 9 feet above msl. Site surface drainage is controlled by the Ship Basin (St. Johns River) to the west, and shallow drainage ditches to the west between Pier Echo and the site.

3.2 Regional Hydrogeology

The southeast Georgia and northeast Florida area is underlain by two main aquifer systems: the Surficial aquifer system and the Floridan aquifer system. A third aquifer system, the Southeastern Coastal Plain aquifer system, underlies the Floridan aquifer system in southeast Georgia, portions of northeast Florida, and the Florida panhandle. These systems are further discussed in appendix A.

3.3 Site Hydrogeology

Mayport Naval Station is underlain by three water-bearing zones; the surficial aquifer, a shallow rock aquifer, and the Floridan aquifer system.

The surficial aquifer consists generally of unconsolidated sands and silty sands to an approximate depth of 30 feet below land surface (bls). Figure 3 depicts the generalized geology encountered during drilling activities at the site (see appendix C for lithologic logs). Soil borings indicate the near-surface geology, to a depth of approximately 30 feet bls, consists of brown fine grained silty sand (SM), and fine grained, poorly graded sand (SP), with occasional shell fragments. No confining units were encountered during drilling activities at the site.

The depth to the water table at the site varied from approximately 2.5 feet to 4.5 below land surface. The general direction of ground-water flow at the site, as determined from water level measurements obtained from monitor wells during the investigation, appears to be to the west-southwest.

Although the shallow rock aquifer was not encountered during drilling at the site, it is described as consisting of permeable deposits of sand, shell, and limestone within and below the Hawthorn Formation (Fairchild, 1972). A

boring taken to 51 feet bls at another site on the Naval Station (Building 265), approximately 1,600 feet to the southeast, encountered a soft, light gray, sandy limestone at approximately 50 feet bls. This limestone is believed to be the top of the shallow rock aquifer in the area. The general direction of ground-water flow in the shallow rock aquifer is believed to be to the southeast.

The Floridan aquifer system is the principal source of fresh water in northeast Florida. It is confined from above by clay units within the Hawthorn Formation. Several water supply wells drilled to approximately 1,000 feet in depth on the Naval Station indicate a consistent clayey marl and sandy clay zone from about 200 feet bls to the top of the Floridan at about 400 to 420 feet bls. The top of the Floridan is indicated on logs of these wells by a dark gray to greenish gray surface of hard, weathered limestone (indicated to be the top of the Ocala Formation) capping softer white limestone. The logs indicate that the sediments from the top of the aquifer down to about 1,000 feet where the wells bottom out, consist of soft to hard, white to brown limestone of varying porosity. Ground-water flow in the Floridan is thought to be generally toward areas of heavy pumping in Jacksonville. However, a severe depression in the potentiometric surface due to pumping makes it difficult to predict the direction of local flow in the aquifer (Geraghty & Miller, 1985). Very little recharge to the Floridan occurs in the Duval County area. Recharge to the aquifer is from up-dip areas to the west where units of the aquifer are nearer to the surface. The potentiometric surface of the upper Floridan in the Mayport area was approximately 40 feet above mean sea level in 1980 (Krause and Randolph, 1989), indicating an upward gradient from the Floridan to the overlying shallower aquifers.

4.0 SITE ASSESSMENT METHODS

4.1 Soil Sampling

A series of 11 shallow soil borings (1490-1 through 1490-8, 1490-11 and 1490-12), ranging from approximately 4 feet to 7 feet deep, were drilled at the site (see figure 2) to determine the horizontal and vertical extent of petroleum contamination in the soil. In addition to the shallow borings, one boring (1490-9) was drilled using mud-rotary equipment, and sampled continuously using a splitspoon sampler, to 30 feet bls to obtain information on site stratigraphy. The log for boring 1490-9 is contained in appendix C. Appendix B contains additional information on soil boring methods.

4.2 Monitoring Well Installation

Five temporary monitoring wells were installed in soil borings 1490-1 through 1490-4 and 1490-11 during soil contamination assessment. These wells were set to approximate depths of 8 to 10 feet, depending on the depth to the water table, and were used to determine ground-water gradient and flow direction during site investigations and to help guide the location and depth of permanent wells installed later.

Based on the findings of the soil borings and headspace analyses, five permanent monitoring wells (MAY-1490-1 through MAY-1490-5) were installed to detect and characterize ground-water contamination at the site. Monitor well installation procedures are discussed in appendix B, and monitor well installation reports are contained in appendix C. Pertinent data on these permanent monitor wells can also be found in table 1.

4.3 Ground-water Elevation Survey

The elevation and gradient of the water table was determined by referencing the top of the temporary monitor well casings to a U.S. Naval Station bench mark, number 21. This bench mark is located in front of the Naval Supply Center, on Massey Avenue approximately one block east of the SIMA Shop. The bench mark has a mean sea level (msl) elevation of 10.14 feet.

A water table contour map based on ground-water elevation measurements (see table 1) from the permanent monitor wells, taken on 22 May 1991, is depicted in figure 4. Procedures for ground-water level measurements are contained in appendix B.

TABLE 1

MONITOR WELL
WATER LEVEL DATA

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

22 MAY 1991

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (msl)	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (msl)
MAY-1490-1	11.00	Flush	7.70	3.26	4.44
MAY-1490-2	11.90	"	7.00	2.89	4.11
MAY-1490-3	12.21	"	7.89	3.46	4.43
MAY-1490-4	12.82	"	8.93	4.33	4.60
MAY-1490-5	22.96	"	7.06	2.74	4.32

Notes: - BLS = Below Land Suurface
- flush = Level with ground surface

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pwlevdat.tbl

4.4 Ground-water Sampling

On 5 March 1991, a composite ground-water sample (with some floating free product petroleum) was collected from existing compliance monitoring wells MPT-1490-1 and MPT-1490-2 and analyzed for aliphatic solvents (8015), along with an IR fingerprint scan for total petroleum hydrocarbons (TPH). Since wells MPT-1490-1 and MPT-1490-2 had at times indicated up to 0.05 and 0.17 foot respectively, of free product petroleum, and because the underground tank at the site had been used for storage of waste oil, this sample was collected to better define the site contaminants.

A ground-water sample was later collected (26 June 1991) from existing compliance well MPT-1490-2, and analyzed for priority pollutant organics (EPA methods 624/625, without pesticides), arsenic, cadmium, chromium and lead, and total petroleum hydrocarbons (EPA method 418.1).

Ground-water samples were collected on 11 January 1992 from the five additional permanent monitor wells (MAY-1490-1 through MAY-1490-5) installed during this contamination assessment. These samples were analyzed for the Florida Kerosene Group (FDER 17-770).

All samples were properly preserved, stored on ice, and delivered to the laboratory for analysis. Chain of custody was maintained on the samples throughout the sampling period. Procedures for monitor well sampling are contained in appendix B.

4.5 Ground-water Hydraulic Conductivity Testing

Slug tests were conducted on monitoring wells MAY-1490-1 and MAY-1490-2 to determine of the hydraulic conductivity of the surficial aquifer surrounding the wells. Procedures for conducting slug tests are further discussed in appendix B.

4.6 Tidal Influence Monitoring

Two of the ground-water monitoring wells at the site were monitored over a 24-hour period (9-10 December 1991) to determine the influence on the surficial aquifer at the site from tidal changes in the ship basin (St. Johns River), which is approximately 300 feet to the west. A Hermit data logger transducer was placed in monitor wells MAY-1490-1 and MAY-1490-5 to measure water level changes during two complete tide cycles. The data logger was set

to log data at 15-minute intervals. The response of the water level in the wells, plotted against time, was compared with the predicted tidal changes for the Mayport area on the dates of data gathering.

5.0 RESULTS OF CONTAMINATION ASSESSMENT

5.1 Contaminant Plume Delineation and Characterization

The results of the Organic Vapor Analyzer (OVA) analyses of soil samples taken during contamination assessment are shown in table 2. These analyses indicated very little, if any, soil contamination outside the area of the tank backfill. None of the soil samples obtained from the headspace borings exceeded the criterion for "excessively contaminated soil" (OVA results > 50 ppm for kerosene group contaminants) as defined in Chapter 17-770.200(2).

Up to 0.05 foot and 0.17 foot of free product petroleum was found in existing compliance wells MPT-1490-1 and MPT-1490-2, respectively; however, since no other wells indicated free product or a petroleum sheen, the area of free product or residual petroleum is believed to be limited to the tank backfill and an area immediately down-gradient of the west end of the tank (see figure 5).

The composite ground-water/free product sample collected from existing compliance wells MPT-1490-1 and MPT-1490-2, which was analyzed for aliphatic solvents (EPA 8015), along with an infra-red (IR) fingerprint scan for total petroleum hydrocarbons (TPH), indicated the sample was below detection limit (BDL) for acetone, ethanol, isopropanol, methanol and n-butyl acetate. The IR scan, which was performed on a thin, floating lens of petroleum in the sample, detected 532 ppm of total petroleum hydrocarbons (TPH). This lens of petroleum consisted of no. 2 fuel oil and lube oil, and comprised less than 1% of the entire ground-water/free product sample.

The analyses for priority pollutant organics (EPA 624/625) and metals, and TPH on the sample from compliance well MPT-1490-2, indicated that arsenic, which was detected at a concentration of 0.028 ppm, was the only identified compound above detection limit. The regulatory limit for arsenic, under the State of Florida Primary Drinking Water Standards, is 50 ppb. Ten unidentified organic compounds were also indicated in the analysis, at concentrations ranging from 4 to 13 ppb. The absence of petroleum compounds in the priority pollutant analyses is believed to be due to the fact that the well was bailed before sampling, which effectively removed any floating petroleum constituents.

A summary of laboratory results of analyses for the Florida Kerosene Group (DER 17-770) for ground-water samples is presented in table 3. These analyses indicated all of the permanent monitor wells (MAY-1490-1 through MAY-1490-5) installed during contamination assessment were below detection limits (BDL) for volatile organic halocarbons (VOH's), volatile organic aromatics (VOA's), and polynuclear aromatic hydrocarbons (PAH's). Analyses for total lead indicated no samples above the regulatory limit of 0.05 ppm.

A complete copy of all laboratory analytical results and chain-of-custody documentation is contained in appendix E.

The approximate horizontal extent of ground-water contamination, based on laboratory analyses of monitor well samples, is indicated on figure 5. The approximate vertical extent of contamination, as defined by laboratory analyses of ground water from deep well MAY-1490-5, appears to be no deeper than 18.0 feet bls.

TABLE 2

SUMMARY OF SOIL HEADSPACE ANALYSIS

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

Sample No.	Depth (feet)	OVA Headspace Reading	OVA Headspace Reading With Carbon Filter	Corrected OVA Headspace Reading (*)	PID Reading
1490-1	1.0-1.5	0	NR	--	NR
	3.0-3.5	0	NR	--	NR
1490-2	1.0-1.5	0	NR	--	NR
	2.5-3.0	0	NR	--	NR
1490-3	1.0-1.5	0	NR	--	NR
	2.5-3.0	0	NR	--	NR
1490-4	1.0-1.5	0	NR	--	NR
	2.5-3.0	1.0	NR	--	NR
	3.0-3.5	0.2	NR	--	NR
1490-5	1.0-1.5	0	NR	--	NR
	2.5-3.0	0	NR	--	NR
1490-6	1.0-1.5	0	NR	--	NR
	2.0-2.5	0	NR	--	NR
1490-7	1.0-1.5	0	NR	--	NR
	2.0-2.5	0	NR	--	NR
1490-8	1.0-1.5	0	NR	--	NR
	2.5-3.0	0.2	NR	--	NR
1490-9	NR	NR	NR	--	NR
1490-10	1.0-1.5	0.1	NR	--	NR
	2.5-3.0	0	NR	--	NR
1490-11	1.5-2.0	0.2	NR	--	NR
	3.0-3.5	0	NR	--	NR
1490-12	1.0-1.5	0	NR	--	NR
	2.5-3.0	0.1	NR	--	NR
MAY-1490-1	1.0-1.5	1.0	NR	--	NR
	3.5-4.0	0.8	NR	--	NR
MAY-1490-2	1.0-1.5	0	NR	--	NR
MAY-1490-3	1.0-1.5	0	NR	--	NR
	3.5-4.0	0.2	NR	--	NR
MAY-1490-4	1.5-2.0	0	NR	--	NR
	3.5-4.0	0	NR	--	NR
MAY-1490-5	NR	NR	NR	--	NR

Notes: - All units in parts per million (ppm)
- NR = Not Recorded
- OVA = Organic Vapor Analyzer (Century OVA-128)
- (*) = Difference between OVA reading without carbon filter and OVA reading with carbon filter
- PID = Photo-ionizing Device (Thermo-Ennvironmental OVM or Photo-vac Micro-tip)

TABLE 3

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

11 JANUARY 1992

PARAMETER	MONITOR WELL NUMBER									
	MAY 1490-1	MAY 1490-2	MAY 1490-3	MAY 1490-3 DUPLICATE	MAY 1490-4	MAY 1490-5	MAY 1490 (MW-2) *	RINSATE BLANK	TRIP BLANK	Regulatory Standard
Purgeable Halocarbons (601/8010)										
Bromodichloromethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Bromoform, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Bromoethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Carbon Tetrachloride, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
2-Chloroethylvinyl Ether, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chloroform, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chloromethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Dibromochloromethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,3-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,4-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Dichlorodifluoromethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,1-Dichloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3
1,1-Dichloroethene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
cis/trans-1,2-Dichloroethylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichloropropane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Cis-1,3-Dichloropropene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Trans-1,3-Dichloropropene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Methyline Chloride, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,1,2,2-Tetrachloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Tetrachloroethene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,1,1-Trichloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,1,2-Trichloroethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Trichloroethene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Trichlorofluoromethane, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	

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TABLE 3

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490

MAYPORT NAVAL STATION

MAYPORT, FLORIDA

11 JANUARY 1992

PARAMETER	MONITOR WELL NUMBER									
	MAY 1490-1	MAY 1490-2	MAY 1490-3	MAY 1490-3 DUPLICATE	MAY 1490-4	MAY 1490-5	MAY 1490 (MW-2) *	RINSATE BLANK	TRIP BLANK	Regulatory Standard
Vinyl Chloride, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Purgeable Aromatics (602/8020)										
Benzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1
Ethylbenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Toluene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Xylenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Methyl-Tert-Butyl-Ether (MTBE), ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	50
Total Volatile Organic Aromatics, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	50
1,2-Dibromoethane (EDB), ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
Lead, mg/l	0.017	0.012	0.005	0.012	0.007	BDL	BDL	BDL	BDL	0.05
Polynuclear Aromatic Hydrocarbons (8100)										
Acenaphthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Acenaphthylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (a) pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (g,h,i) perylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (b,k) fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chrysene + Benzo (a) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluorene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Naphthalene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Phenanthrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
2-Methylnaphthalene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1-Methylnaphthalene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Total Naphthalenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	

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TABLE 3

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

11 JANUARY 1992

PARAMETER	MONITOR WELL NUMBER									
	MAY 1490-1	MAY 1490-2	MAY 1490-3	MAY 1490-3 DUPLICATE	MAY 1490-4	MAY 1490-5	MAY 1490 (MW-2) *	RINSATE BLANK	TRIP BLANK	Regulatory Standard
Petroleum Hydrocarbons (418.1), mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5
Total Dissolved Solids, mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chloride (325.2), mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes: - BDL = Below Detection Limit

- NA = Not Analyzed

- * Existing compliance monitoring well - shown as MPT-1490-2 on drawings and MAY-1490-MW-2 in lab analytical results.

5.3 Ground-water Hydraulic Conductivity Testing Results

The results of slug test analyses indicate an average shallow subsurface horizontal hydraulic conductivity of 14.3 ft/day. The hydraulic gradient at the site was determined to be 0.009 ft/ft. The average pore water velocity (V) was calculated to be 0.43 ft/day. Transmissivity (T) was calculated to be 107.3 ft^2/day. Slug test data, as well as equations and calculations used to determine these values, are contained in appendix D.

5.4 Tidal Influence Monitoring

The effect of tidal fluctuation in the nearby ship basin (St. Johns River) on the water level in monitor wells MAY-1490-1 and MAY-1490-5 was measured over a 24-hour period. The maximum change in water level in either of the wells was less than 0.23 foot. This minor fluctuation does not appear to significantly affect the ground-water flow direction.

5.5 Potable Water Well Survey

Mayport Naval Station presently provides all of its own potable water. Raw water supply is obtained from two 12-inch and two 16-inch diameter wells located on the station which draw water from the Floridan aquifer at depths that range from approximately 400 to 1,000 feet. Individual well capacities range between 2.1 and 2.9 MGD with a combined total capacity of 10.0 MGD and an effective capacity of 7.1 MGD.

Since all of the area within a ½-mile radius of the Building 1490 site is within the Naval Station boundary, a potable water well survey of the area was conducted using data supplied by the Mayport Naval Station Public Works Department, as well as data supplied by the City of Jacksonville Department of Health, Welfare, and Bio-Environmental Services. All known potable wells on the Naval Station were researched for applicable information and are included in table 4. The locations of these wells are shown on figure 6, which indicates that all four of the Naval Station water supply wells are within ½-mile of the Building 1490 site. The closest of these wells to the site is well no. 3, which is approximately 700 feet to the southeast; however, well no. 3 is up-gradient from the site. Well no. 1 is approximately 1,200 feet to the southwest, and wells 2 and 4 are approximately 2,300 feet to the northwest and 2,200 to the southwest, respectively. The fact that these wells are cased to depths over 400 feet, and are some distance away from the site, should preclude any effects on them from the shallow contaminants at the Building 1490 site.

TABLE 4

FIELD WATER QUALITY PARAMETERS

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

11 JANUARY 1992

Well No.	pH	Specific Conductance (umhos/cm)	Temperature (Degrees Celsius)
MAY-1490-1	6.94	748	18.0
MAY-1490-2	6.74	610	17.8
MAY-1490-3	6.75	820	16.7
MAY-1490-4	6.56	984	18.9
MAY-1490-5	6.80	650	18.4
MAY-1490-MW-2 *	6.86	747	19.0

* Existing compliance monitoring well - shown as MPT-1490-2 on drawings and MAY-1490-MW-2 in lab analytical results.

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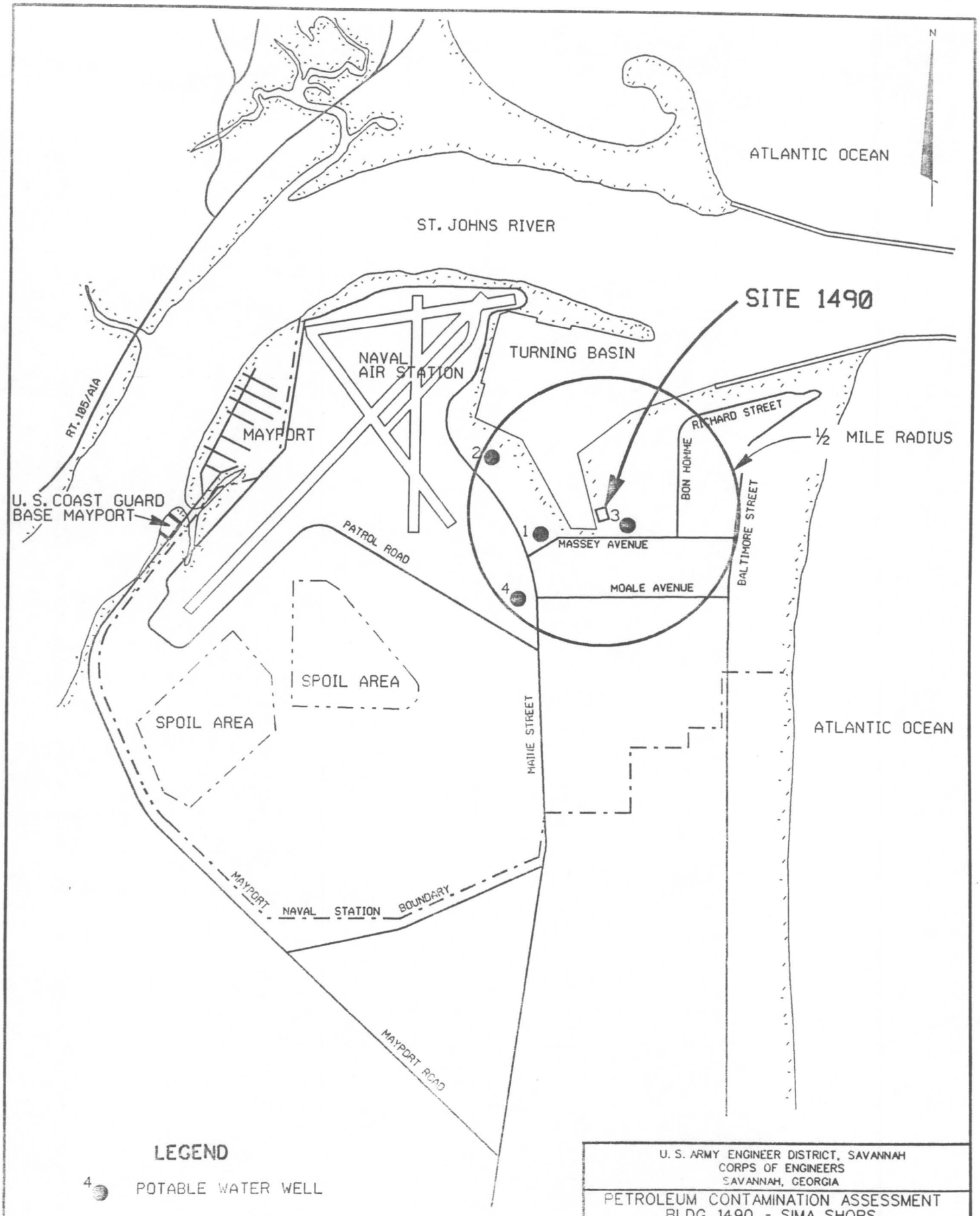
TABLE 5

POTABLE WATER WELL SURVEY

BLDG. 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

Well No.	Usage	Total Depth (feet)	Casing Depth (feet)	Notes
1	Potable	1000	435	Completed 10/06/61
2	Potable	1000	435	Completed 04/03/58
3	Potable	1000	433	Completed 07/20/79
4	Potable	500	419	Completed 05/29/79



U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BLDG. 1490 - SIMA SHOPS

FIGURE 6

POTABLE WATER WELL LOCATIONS

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1"=2,500'

6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Summary

The following is a summary of site conditions based on the results of field and laboratory investigations made during contamination assessment:

1. Three water bearing zones apparently exist beneath the site. These consist of a surficial aquifer, a shallow rock aquifer, and the deeper Floridan aquifer. The surficial aquifer in the Mayport area is classified as a Class G-II ground-water source.

2. Soil borings indicate the sediments beneath the site consist generally of unconsolidated, brown, tan and gray, fine grained sands and silty sands, with occasional shell fragments, to an approximate depth of 30 feet below land surface (bls). No confining units were encountered during drilling activities at the site.

3. Ground water at the site was encountered at a depth of approximately 2.5 to 4.5 feet bls. The direction of flow in the surficial aquifer appears to be generally to the west-southwest. Tidal effects on the site do not appear to significantly change the ground-water flow direction.

4. Free product petroleum was found in two existing compliance monitoring wells near the underground storage tank during contamination assessment at the site. The maximum thickness of product measured in the wells was approximately 0.17 foot.

5. Priority pollutant analysis of ground water from one of the existing compliance wells found that arsenic, at a concentration of .028 ppm, was the only identified compound above detection limit. This concentration of arsenic is below the USEPA and Florida drinking water standard of .050 ppb. Ten unknown organic compounds were also indicated in this analysis, at concentrations ranging from 4 to 13 ppb.

6. Lead was the only Florida Kerosene Group contaminant found above detection limits in any of the monitor wells installed during contamination assessment. Total lead concentrations ranged from .005 to .017 ppm, which is below the regulatory standard of .05 ppm.

7. The vertical extent of contamination, as defined by the deep well, does not exceed 18 feet bls.

8. The calculated hydraulic conductivity in the surficial aquifer is 14.3 ft/day.

9. The average hydraulic gradient is approximately .009 ft/ft.

10. Four potable water supply wells located on the Naval Station are within ½-mile of the site. The closest of these wells, down-gradient from site, is approximately 1,200 feet away; however, all of these wells are cased to a depth of 400 feet or more, where they draw from the Floridan aquifer.

6.2 Conclusions

1. OVA headspace analyses at the site indicate that soil contamination is located predominantly within the tank backfill and soil immediately adjacent to the backfill.

2. The configuration of the ground-water contamination suggests that the contaminant plume is approximately 20 by 30 feet in area, and is moving generally down-gradient to the west-southwest, away from the source area.

3. Information obtained from the Naval Station Public Works Department, SIMA Shop personnel, as well as field observations during contamination assessment, indicate that the petroleum contamination at the site is due to a cumulative effect of past piping leaks, and spills resulting from periodic removal of the tank contents.

6.3 Recommendations

Although the extent of contamination of soil and ground water at the site is limited to a small area around the underground storage tank, the presence of free product petroleum in monitoring wells requires that a Remedial Action Plan be prepared to address the contamination.

7.0 PROFESSIONAL REVIEW

The contamination assessment contained in this report was prepared by an employee of the U.S. Army Corps of Engineers, Savannah District, who is a registered Professional Geologist in the state of Florida. Current Corps of Engineers policy does not support the signing and sealing of documents for work performed on projects for the Federal Government by its registered professional employees. This Contamination Assessment Report was prepared for the Naval Facilities Engineering Command , Building 1490 site at Mayport Naval Station, Mayport, Florida.

H. Cardwell Smith
Professional Geologist
P.G. No. 748

APPENDIX A

SITE CONDITIONS

Physiography

The topography of northeast Florida is controlled by a series of ancient marine terraces, generally indicated by low seaward sloping scarps trending more or less parallel to the present shoreline (Cooke, 1945). Seven of these terraces are recognized in northeast Florida; in descending order they are the Coharie, Sunderland, Wicomico, Penholoway, Talbot, Pamlico, and Silver Bluff terraces. The terraces have been modified by stream erosion to the point that only remnants of the original terraces remain. The areal distribution of the terraces has generally been determined by their elevation above mean sea level (Leve, 1966). The Mayport Naval Station lies within the Pamlico terrace (10-25 feet above msl).

Surface drainage of the eastern area of Duval County is primarily by numerous small brackish-water streams which empty either into the Intracoastal Waterway or directly into the ocean.

Mayport Naval Station lies on the south bank of the St. Johns River at its confluence with the Atlantic ocean. The Naval Station lies within the Coastal Lowland physiographic division of northeastern Florida, which runs roughly parallel to the coastline and extends from the Atlantic Ocean to just west of downtown Jacksonville. Elevations range from approximately 6 to 12 feet above msl. Surface drainage for the area is controlled by the St. Johns River to the north, marsh and wetlands areas to the west, and the ocean to the east.

Regional Hydrogeology

The southeast Georgia and northeast Florida area is underlain by two main aquifer systems: the Surficial aquifer system and the Floridan aquifer system. A third aquifer system, the Southeastern Coastal Plain aquifer system, underlies the Floridan aquifer system in southeast Georgia, portions of northeast Florida, and the Florida panhandle (Miller, 1990).

The Surficial aquifer system is comprised of Holocene through Miocene deposits and contains water mostly under unconfined (water table) conditions. These deposits consist of a thin, widespread layer of unconsolidated sand beds that commonly contain a few beds of shell and limestone. This aquifer system generally yields small volumes of water, and primarily is used for domestic water supplies.

The Floridan aquifer system consists of a thick sequence of Tertiary carbonate rocks and is the most productive aquifer in the southeastern U.S. The Floridan supplied more than 3 billion gallons of water per day during 1985, primarily for municipal and agricultural purposes (Miller, 1990). The Floridan underlies the Surficial aquifer system and is separated from it by a clayey confining unit which is thick in some places and thin (or absent) in others. The formations that comprise the Floridan, from oldest to youngest, are the Oldsmar Limestone, the Lake

City Limestone, the Avon Park Limestone, the Ocala Limestone, and several thin discontinuous aquifers in the Hawthorne Formation which are hydraulically connected to the rest of the system (Leve, 1966).

The Floridan aquifer system can generally be divided into an Upper Floridan aquifer and a Lower Floridan aquifer, separated by a less permeable unit in most places and bounded above and below by confining units that are much less permeable. The Lower Floridan aquifer locally contains zones that are extremely permeable.

The Southeastern Coastal Plain aquifer system underlies the Floridan aquifer system in some places and grades laterally into the Floridan in other places. There is no confining unit separating the two aquifer systems, and the major difference between them is that the Floridan aquifer system tends to be more permeable.

Two of the above mentioned aquifer systems, the shallow Surficial aquifer and the Floridan aquifer, are known to underlie Duval County (Leve, 1966).

APPENDIX B

SITE ASSESSMENT METHODS

Soil Sampling

A series of shallow soil borings were drilled at the site to determine the horizontal and vertical extent of petroleum contamination in the soil. These borings were drilled using a 3-inch stainless steel hand auger with samples taken at approximate depth intervals of 2 feet, until the water table was encountered. During drilling, soils from each boring were visually inspected for petroleum contamination, and petroleum odors were noted where encountered. The soil samples were analyzed using an Organic Vapor Analyzer (OVA) to perform the headspace technique described in Chapter 17-770.200, FAC and FDER "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils." Carbon filters were used on the OVA to aid in the distinction of naturally occurring methane from hydrocarbon vapors. A photo-ionizing meter was also used with the OVA at times to further identify suspected methane influences, since the photo-ionizing detector (PID) will not detect methane because the ionization potential of methane is higher than the ionization potential of the detector.

In addition to the shallow hand auger borings, a deeper boring was drilled using mud-rotary equipment, and sampled continuously using a splitspoon sampler to obtain information on site stratigraphy.

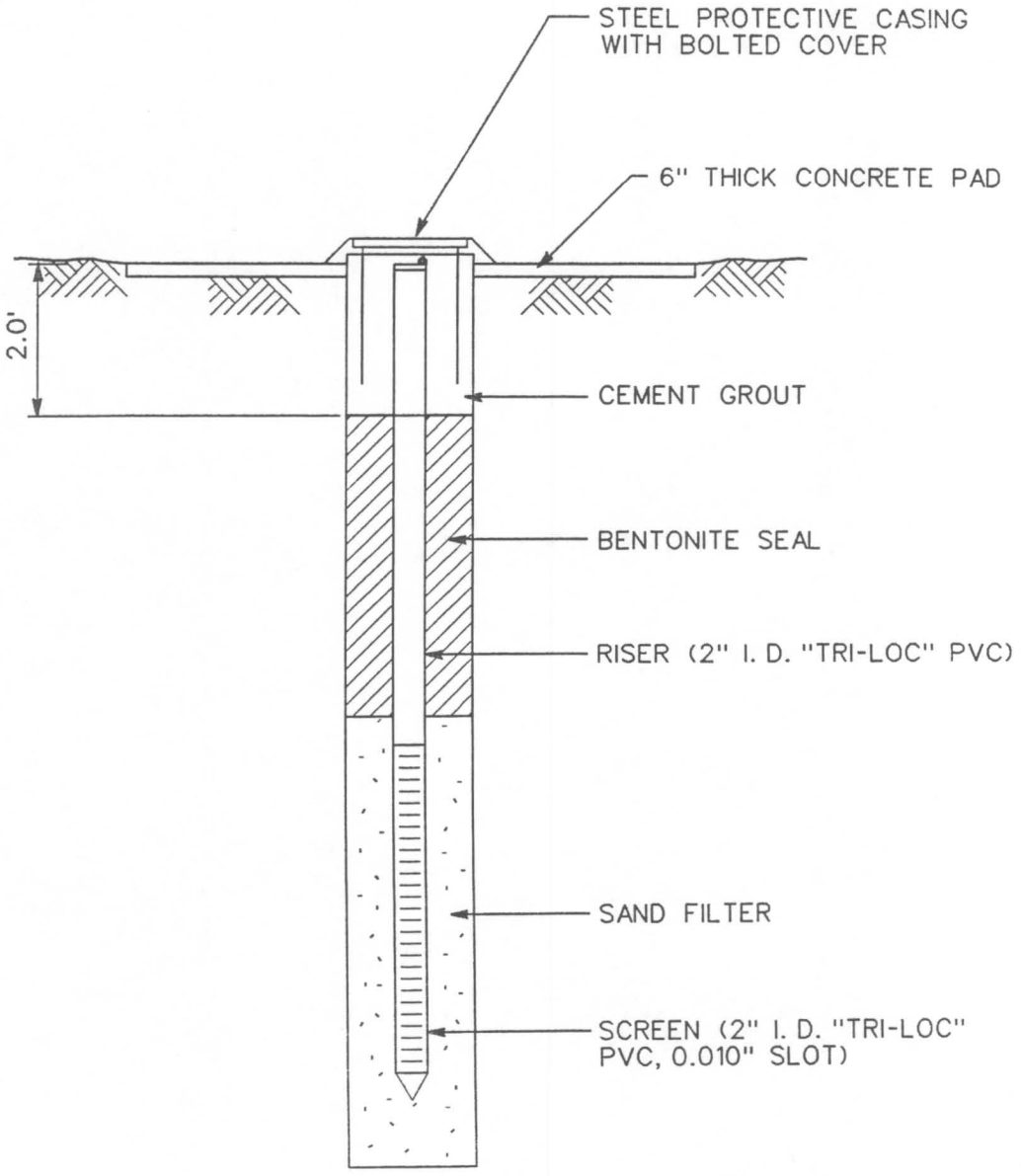
Monitoring Well Installation

Temporary monitoring wells were installed in soil borings during soil contamination assessment. These wells were set to approximate depths of 8 to 10 feet, depending on the depth to the water table. The wells were constructed of 2-inch i.d. flush threaded, schedule 40 PVC pipe, with 5 feet of 0.010-inch slotted screen. Well screens were set to allow at least 1 foot of screen to be above the water table. Formation sands were allowed to fill in around the screens, and a bentonite plug was placed around the upper riser at ground surface. After installation, the monitor wells were developed using a Teflon bailer to remove approximately five well volumes of ground water. These wells were used to determine ground-water gradient and flow direction during site investigations and to help guide the location and depth of permanent wells installed later.

Based on the findings of the soil borings and headspace analyses, permanent monitoring wells were installed within and adjacent to areas of elevated OVA readings to detect and characterize ground-water contamination at the site. All permanent shallow wells were installed using a drill rig with hollow stem auger and were constructed of 2-inch i.d. flush threaded, schedule 40 PVC pipe, with a 0.010-inch slotted screen (see figure 7). Shallow wells were constructed with a 10-foot section of screen placed such that a minimum of 1 foot of screen was above the existing water table, to allow for water table fluctuations. A deep monitoring well was constructed using a double-casing method, by first installing 8-inch, schedule 40 PVC pipe to a depth of 15 feet, using mud-rotary drilling. The annulus around the 8-inch PVC pipe was then grouted with cement-bentonite grout. After the grout had set, the remaining portion of the boring was advanced by wash boring 6-inch aluminum casing to a total depth of 22

feet. Two-inch PVC pipe with 5 feet of 0.010-inch slotted screen was then installed. The risers in all wells extend from the top of the screens to the ground surface. A filter of 20/30 silica sand was placed in the annular space around screens up to 0.5 to 1 foot above the top of the screens. A 1- to 2-foot bentonite seal was placed above the filter sand. The remaining annular space above the bentonite seal was then grouted with a cement-bentonite grout to the surface. An 8-inch diameter steel protective vault with bolt-down cover was flush-mounted at the ground surface, within a 3-foot square, wire reinforced concrete pad. A 2-inch locking cap was installed at the top of the well riser.

Upon completion of the monitoring well installations, the wells were developed using a centrifugal pump or bailer (properly decontaminated between wells) until the ground water was relatively sediment-free, or as clear as conditions allowed in a reasonable period of time.



NOT TO SCALE

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BLDG. 1490-SIMA SHOPS

FIGURE 7

TYPICAL MONITOR WELL

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: N/A

Ground-water Elevation Survey

The depth to water in each monitor well was measured from a reference point established on the top of the well casing. Measurements were taken to the nearest 0.01 foot with an electric water level meter. After water level measurements were taken, a bailer was used to check for any free product in wells. Ground-water elevations were plotted on a scaled map, and water elevation contours were constructed. Flow directions were estimated based on flow lines drawn perpendicular to the elevation contours. The hydraulic gradient of the ground water was determined by calculating the differences in elevation between two data points on the map and dividing the elevation difference by the distance between the two points.

Ground-water Sampling

Each monitor well was purged of a minimum of three volumes using a Teflon bailer. Well purging continued until field parameters (pH, specific conductance, and temperature) stabilized. Specific conductance and pH were measured using a Davis, DspH-3 meter. Temperature was measured with a Davis digital thermometer. Ground-water samples were collected using a Teflon bailer and placed in appropriate containers. The samples were properly preserved, stored on ice, and delivered to the laboratory for analysis.

All monitor well samples taken from wells installed during this contamination assessment were analyzed for the Florida Kerosene Group (FDER 17-770). Chain of custody was maintained on the samples throughout the sampling period (see appendix E). Sampling procedures were conducted according to U.S. Army Corps of Engineers, Savannah District's FDER-approved Comprehensive Quality Assurance Plan No. 910026G. Laboratory analyses were performed according to the laboratories' FDER-approved Generic Quality Assurance Plan.

Ground-water Hydraulic Conductivity Testing

Slug tests were conducted on monitoring wells to allow estimation of the hydraulic conductivity of the surficial aquifer surrounding the wells. A 5-foot section of 1-inch diameter PVC pipe filled with sand and capped on the ends was used as a slug. A pressure transducer from an In-Situ, Inc., Hermit data logger was placed just above the bottom of the well to record water level changes with time. The slug was placed in the well and the water level allowed to recover to its normal static head. The slug was then quickly removed and the well allowed to recover to static conditions as the data logger recorded water level changes. Aquifer hydraulic conductivity characteristics were calculated from the well recovery data using AQTESOLV, a computer program which applies methods developed by Bouwer and Rice (1976) for characterizing hydraulic conductivity from slug test data. The slug test recovery curves generated by AQTESOLV are shown in appendix D.

APPENDIX C

WELL INSTALLATION REPORTS AND BORING LOGS

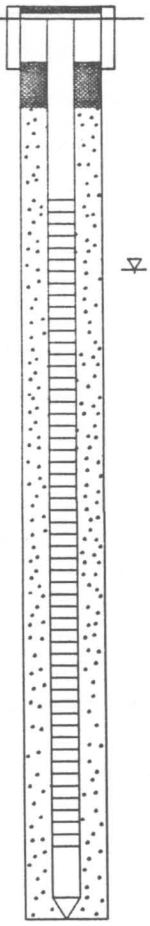
SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Mayport Naval Station Bldg. 1490-SIMA Shops		LOG of WELL: MAY-1490-1	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO:
CONTRACTOR: USACE - Sav. District		DATE STARTED: 19 APR 91	COMPLTD: 19 APR 91
METHOD: 7" O.D. HSA	CASE SIZE: 2" PVC	SCREEN INT.: 2.6'-11.6'	PROTECTION LEVEL: D
TOC ELEV.: 7.70'	MONITOR INST.: OVA	TOT. DEPTH: 12.6'	DEPTH TO ▽ 3.5'
LOGGED BY: C. GRIFFIN	WELL DEVELOPMENT DATE: 24 APR 91		SITE: Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
0					(SP) Brown, fine grained, poorly graded sand, no odor.		SP	
					With some small clay balls and shell fragments.			
					Light brown and light gray.			
					Light gray, saturated.			
5					Brown, organic odor.			
					Gray and brown.			
					(SM) Brown, fine grained, silty sand, organic odor.		SM	
10					Light brown, odor of H_2S.			
15								

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

WELL DATA



SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Mayport Naval Station Bldg. 1490-SIMA Shops		LOG of WELL: MAY-1490-2	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO:
CONTRACTOR: USACE - Sav. District		DATE STARTED: 19 APR 91	COMPLTD: 19 APR 91
METHOD: 7" O.D. HSA	CASE SIZE: 2" PVC	SCREEN INT.: 2.4'-11.4'	PROTECTION LEVEL: D
TOC ELEV.: 7.00'	MONITOR INST.: OVA	TOT. DEPTH: 12.4'	DEPTH TO ▽ 2.5'
LOGGED BY: C. GRIFFIN	WELL DEVELOPMENT DATE: 24 APR 91		SITE: Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					(SP) Brown, fine grained, poorly graded sand, no odor.		SP		
					Wet.				
					Tan with some shell fragments.				
					Brown.				
5					With odor of H_2S.				
					(SM) Brown, fine grained, silty sand, odor of H_2S.		SM		
10									
15									
20									

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

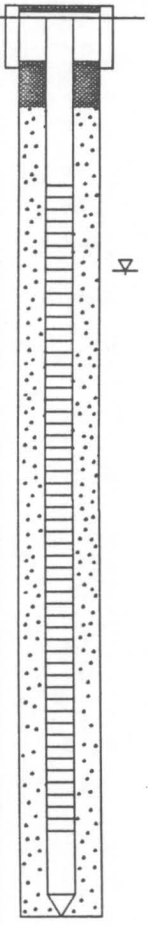
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Mayport Naval Station Bldg. 1490-SIMA Shops		LOG of WELL: MAY-1490-3	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO:
CONTRACTOR: USACE - Sav. District		DATE STARTED: 22 APR 91	COMPLTD: 22 APR 91
METHOD: 7" O.D. HSA	CASE SIZE: 2" PVC	SCREEN INT.: 2.4'-11.4'	PROTECTION LEVEL: D
TOC ELEV.: 7.89'	MONITOR INST.: OVA	TOT. DEPTH: 12.5'	DEPTH TO ▽ 3.5'
LOGGED BY: C. GRIFFIN	WELL DEVELOPMENT DATE: 24 APR 91		SITE: Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					(SM) Gray, fine grained, silty sand, no odor.		SM	
					(SP) Light brown, fine grained, poorly graded sand.		SP	
					Brown, very damp.			
5					(SM) Brown, fine grained, silty sand with some clay balls.		SM	
					Organic odor.			
					Odor of H_2S.			
10					Strong odor of H_2S.			
15								
0								

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

WELL DATA



SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

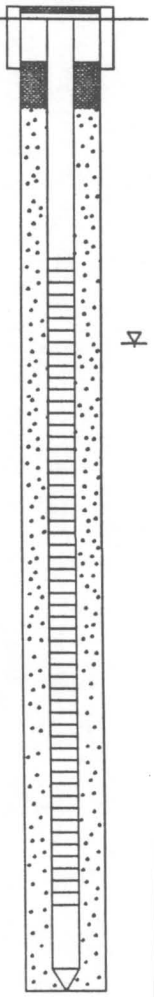
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Mayport Naval Station Bldg. 1490-SIMA Shops		**LOG of WELL:** MAY-1490-4	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 22 APR 91	**COMPLTD:** 22 APR 91
METHOD: 7" O.D. HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 3.4'-12.4'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.93'	**MONITOR INST.:** OVA	**TOT. DEPTH:** 13.5'	**DEPTH TO ▽** 4.5'
LOGGED BY: C. GRIFFIN	**WELL DEVELOPMENT DATE:** 24 APR 91		**SITE:** Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					Concrete.			
					Crushed limestone.			
					(SP) Tan, fine grained, poorly graded sand, no odor.		SP	
5					With some clay seams.			
					(SM) Dark brown, fine grained, silty sand, organic odor.		SM	
10					(SP) Brown, fine grained, poorly graded sand.		SP	
					(SM) Brown, fine grained, silty sand, H_2S odor.		SM	
15								
0								

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

WELL DATA

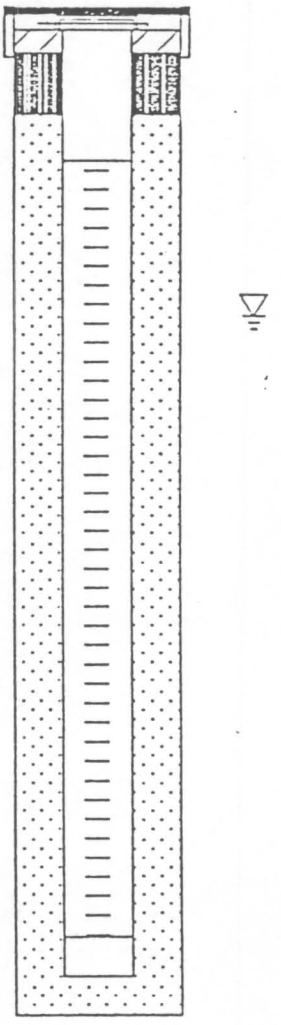


Southern Division Naval FAC. Eng. Com.

Monitoring Well Diagram

LOCATION Naval Station, Mayport, Florida

LOG OF BORING NO. MPT-1490-1 LOG OF WELL NO. MPT-1490-1

DEPTH IN FEET	SYMBOL	SAMPLES	MATERIAL DESCRIPTION	WELL CONSTRUCTION
0			Dark brown topsoil	
			Dark brown fine sand with some shells, moist	
5			Grey fine sand with trace shells, strong petroleum odor, saturated	
10			Grey fine sand with trace shells, strong petroleum odor and film	
15			TD = 12.5' BLS NOTE: soils have been stockpiled on visqueen to aerate	

Boring Completion Date: 10-18-89
Well Completion Date: 10-18-89
Well Development Date: 10-18-89
Drilling Method: HSA
Depth to Water: 4.0 FT.

Boring Diameter: 8 in
Ground Elevation:
Top of Casing Elevation:
Driller: NPTC

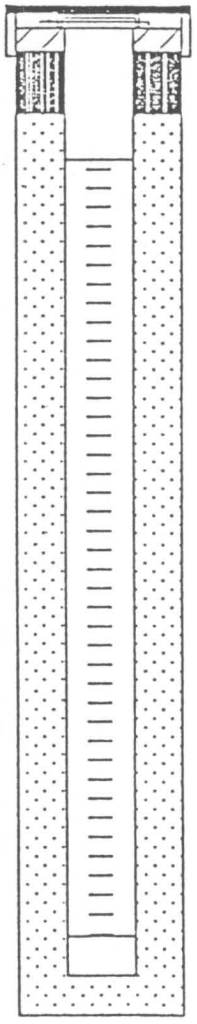
C-E ENVIRONMENTAL, INC.

Southern Division Naval FAC. Eng. Com.

Monitoring Well Diagram

LOCATION Naval Station, Mayport, Florida

LOG OF BORING NO. MPT-1490-2 LOG OF WELL NO. MPT-1490-2

DEPTH IN FEET	SYMBOL	SAMPLES	MATERIAL DESCRIPTION	WELL CONSTRUCTION
0			Dark brown topsoil	
			Brown fine sand with some shells	
5			Brown fine sand with trace shells, strong petroleum odor, moist	
10			Brown fine sand with trace shells, strong petroleum odor, saturated	
15			TD = 12.5' BLS NOTE: soils have been stockpiled on visqueen to aerate	

Boring Completion Date: 10-18-89
Well Completion Date: 10-18-89
Well Development Date: 10-18-89
Drilling Method: HSA
Depth to Water: 4.0 FT.

Boring Diameter: 8 in
Ground Elevation:
Top of Casing Elevation:
Driller: NPTC

C-E ENVIRONMENTAL, INC.

Hole No. 1490-9

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION MAYPORT NAVAL STATION, FL.	SHEET 1 OF 1 SHEETS

1. PROJECT BLDG. 1490-SIMA SHOPS	10. SIZE AND TYPE OF BIT 1 3/8" ID SPLITSPOON, 7" FISHTAIL BIT
2. LOCATION (Coordinates or Station) SEE PLAN	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
3. DRILLING AGENCY SAVANNAH DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL CME 55
4. HOLE NO. (As shown on drawing title and file number) 1490-9	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 5; UNDISTURBED 0
5. NAME OF DRILLER PERRY ROUNTREE	14. TOTAL NUMBER CORE BOXES
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER
	16. DATE HOLE STARTED 28-FEB-90 COMPLETED 1-MAR-91
7. THICKNESS OF OVERBURDEN 30.0'	17. ELEVATION TOP OF HOLE 7.49
8. DEPTH DRILLED INTO ROCK 0.0'	18. TOTAL CORE RECOVERY FOR BORING %
9. TOTAL DEPTH OF HOLE 30.0'	19. SIGNATURE OF INSPECTOR CHARLES D. GRIFFIN

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	OVA COLLAR (ppm) e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
7.5	0		(SM) Brown, fine grained, silty SAND.		1	W. L. 3.5', DEPTH TO WATER DURING DRILLING. 24 HR. W.L. NOT RECORDED.	15
			Saturated, with some shell fragments.				13
	5						5
			Gravel.				4
					2		4
	10						10
-3.0			(SP) Tan, fine grained, poorly graded SAND.		3		13
			Brown and tan.				12
	15						18
			Light tan and gray.				17
			Light gray, very fine grained.				21
			Fine grained.		4		59
	20						37
							49
							87
			Tan and gray.		5		89
	25						100
			Gray.				90
			With some shell fragments.				34
-22.5	30		BOTTOM OF HOLE AT 30.0'				21

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT:
NUMBER REQUIRED TO DRIVE 1 3/8" ID SPLITSPOON W/140 LB. HAMMER FALLING 30".

APPENDIX D

AQUIFER TEST CALCULATIONS AND DATA

Ground-water Hydraulic Conductivity Testing Results

An estimate of the average linear pore water velocity was derived employing the following variation of Darcy's Law:

$$V = (K * I)/n$$

where

V = discharge (velocity),

K = hydraulic conductivity in feet/day,

I = hydraulic gradient, and

n = estimated porosity

Assuming an average porosity of 30 percent, a hydraulic gradient across the site of 0.009, and an approximate average shallow subsurface horizontal hydraulic conductivity of 14.3 ft/day, the calculated pore water velocity would be:

$$V = (14.3 * 0.009)/.30$$

$$V = .43 \text{ feet/day}$$

Transmissivity was calculated using the following formula:

$$T = K * b$$

where

T = transmissivity in ft^2/day,

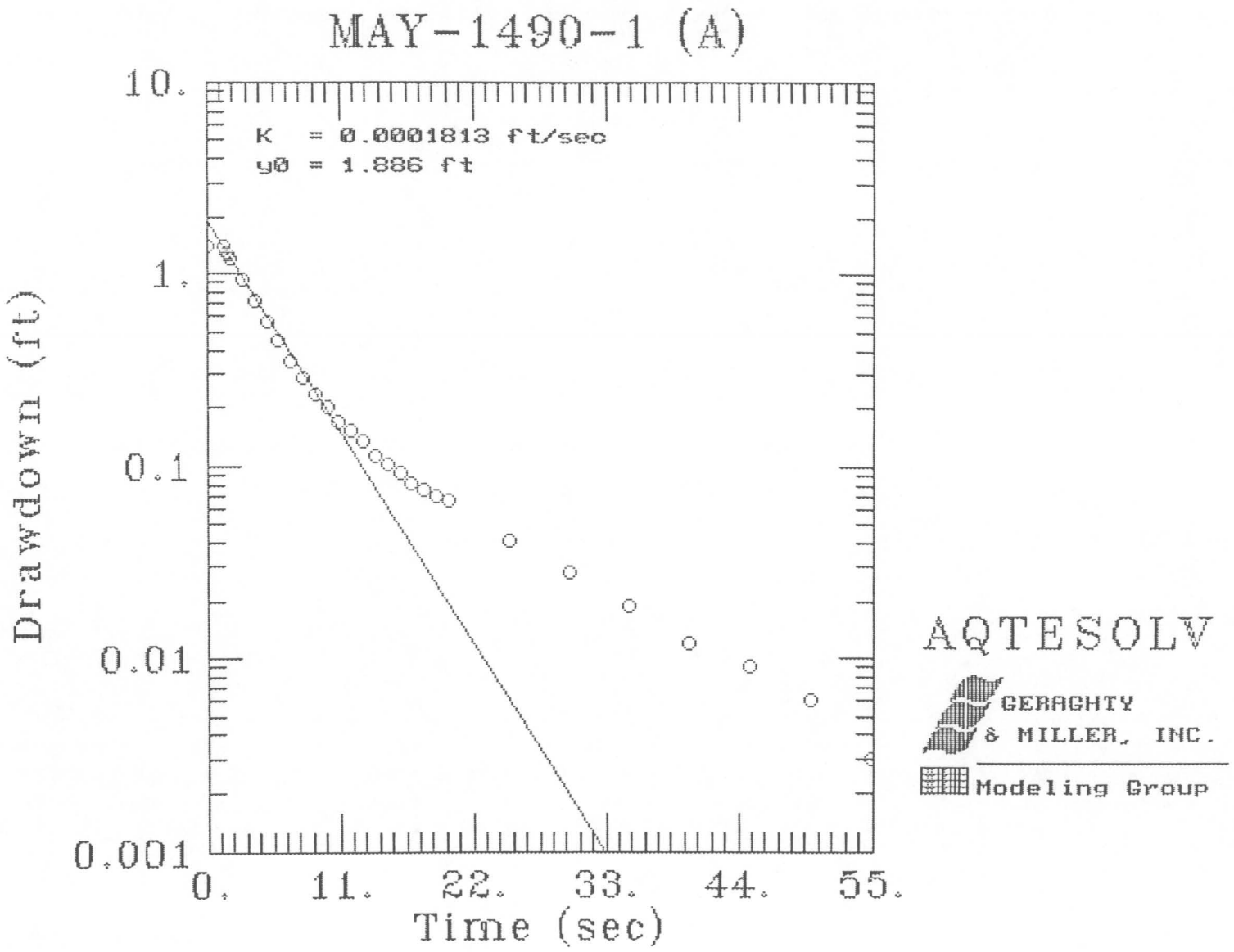
K = hydraulic conductivity in ft/day, and

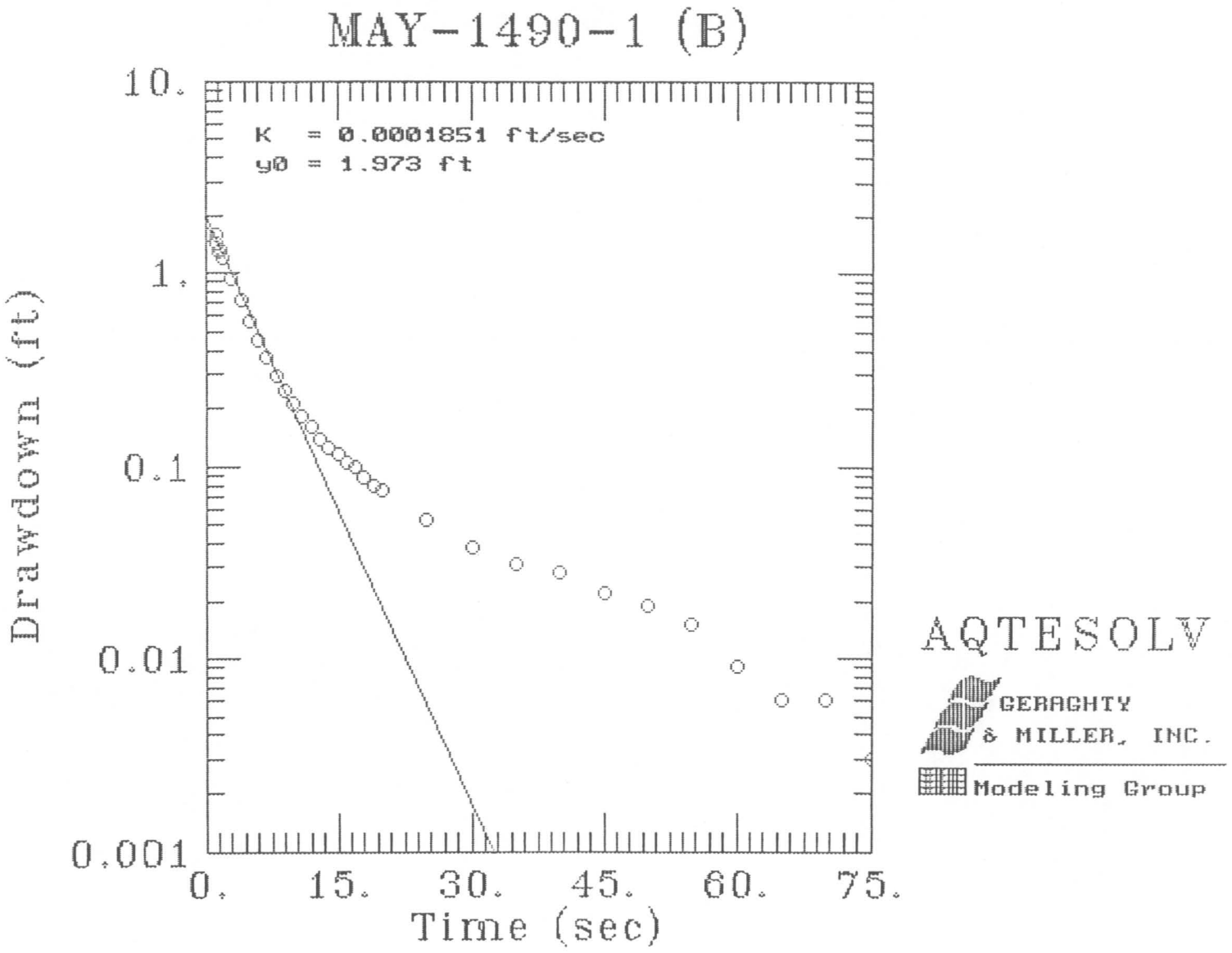
b = aquifer test interval (thickness in feet)

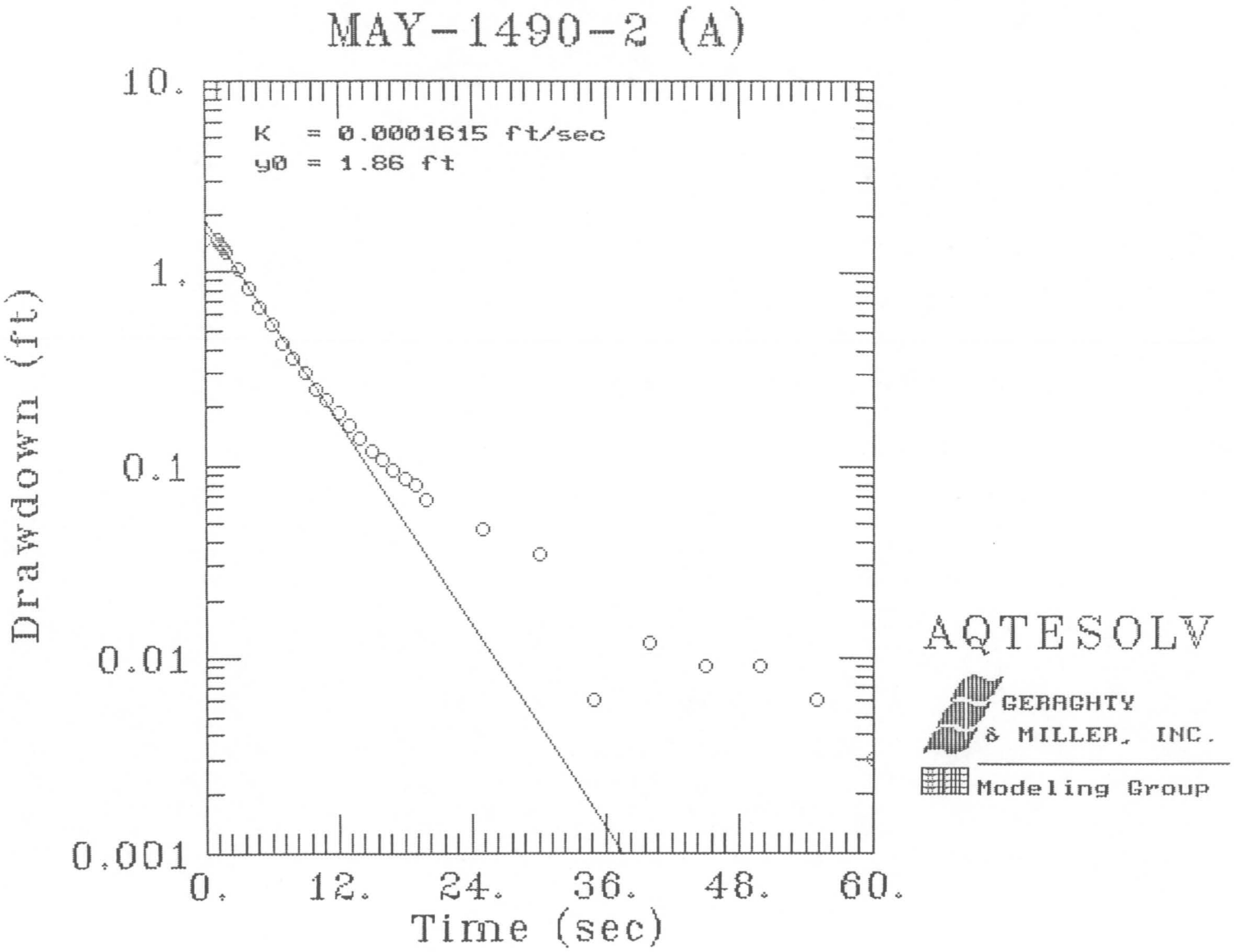
Therefore:

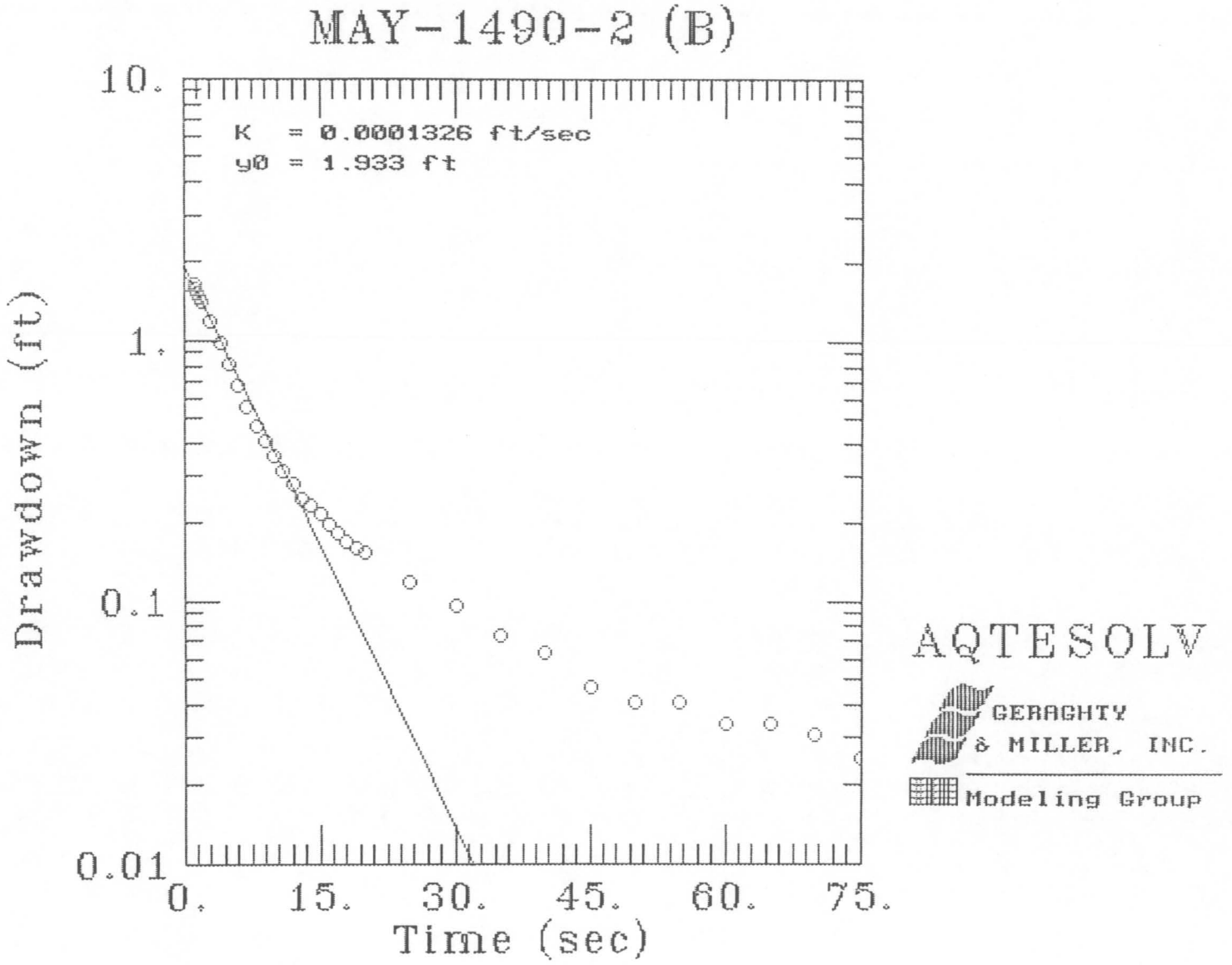
$$T = 14.3 * 7.5$$

$$T = 107.3 \text{ } ft^2/day$$


MAY-1490-1 (A)
K = 0.0001813 ft/sec
y0 = 1.886 ft
Drawdown (ft)
10.
1.
0.1
0.01
0.001
0.
11.
22.
33.
44.
55.
Time (sec)
AQTESOLV
GERAGHTY
& MILLER, INC.
Modeling Group


MAY-1490-1 (B)
K = 0.0001851 ft/sec
y0 = 1.973 ft
10.
1.
0.1
0.01
0.001
Drawdown (ft)
0.
15.
30.
45.
60.
75.
Time (sec)
AQTESOLV
GERAGHTY
& MILLER, INC.
Modeling Group


MAY-1490-2 (A)
K = 0.0001615 ft/sec
y0 = 1.86 ft
10.
1.
0.1
0.01
0.001
Drawdown (ft)
0.
12.
24.
36.
48.
60.
Time (sec)
AQTESOLV
GERAGHTY
& MILLER, INC.
Modeling Group


MAY-1490-2 (B)
K = 0.0001326 ft/sec
y0 = 1.933 ft
10.
1.
0.1
0.01
Drawdown (ft)
0.
15.
30.
45.
60.
75.
Time (sec)
AQTESOLV
GERAGHTY
& MILLER, INC.
Modeling Group

APPENDIX E

LABORATORY ANALYTICAL RESULTS

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S2-40176

Received: 11 JAN 92

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACA21-92-M0181

Project: BLDG 1490 Mayport Naval Station
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40176-1	MAY-1490-1	01-11-92
40176-2	MAY-1490-2	01-11-92
40176-3	MAY-1490-3	01-11-92
40176-4	MAY-1490-4	01-11-92
40176-5	MAY-1490-5	01-11-92

PARAMETER	40176-1	40176-2	40176-3	40176-4	40176-5
Purgeable Halocarbons (601/8010)					
Bromodichloromethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon Tetrachloride, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chloroethylvinyl Ether, ug/l	<10	<10	<10	<10	<10
Chloroform, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorodifluoromethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
cis/trans-1,2-Dichloroethyl ene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0

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Sampled By: Client

REPORT OF RESULTS

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40176-2	MAY-1490-2	01-11-92
40176-3	MAY-1490-3	01-11-92
40176-4	MAY-1490-4	01-11-92
40176-5	MAY-1490-5	01-11-92

PARAMETER	40176-1	40176-2	40176-3	40176-4	40176-5
1,2-Dichloropropane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,3-Dichloropropene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,3-Dichloropropene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate - Bromochloromethane (70-130) % Rec	86 %	87 %	88 %	78 %	86 %

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40176-2	MAY-1490-2	01-11-92
40176-3	MAY-1490-3	01-11-92
40176-4	MAY-1490-4	01-11-92
40176-5	MAY-1490-5	01-11-92

PARAMETER	40176-1	40176-2	40176-3	40176-4	40176-5
Purgeable Aromatics (602/8020)					
Benzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<10
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Total Volatile Organic Aromatics, ug/l	BDL	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB) , ug/l	<0.020	<0.020	<0.020	<0.020	<0.020
Surrogate - Trifluoro-toluene (70-130 % Rec)	93 %	93 %	98 %	95 %	90 %
Lead, mg/l	0.017	0.012	0.0048	0.0074	<0.0050

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40176-2	MAY-1490-2	01-11-92
40176-3	MAY-1490-3	01-11-92
40176-4	MAY-1490-4	01-11-92
40176-5	MAY-1490-5	01-11-92

PARAMETER	40176-1	40176-2	40176-3	40176-4	40176-5
Polynuclear Aromatic Hydrocarbons (610/8100)					
Acenaphthene, ug/l	<10	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	<10	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10	<10
2-Methylnaphthalene, ug/l	<10	<10	<10	<10	<10
1-Methylnaphthalene, ug/l	<10	<10	<10	<10	<10
Petroleum Hydrocarbons (418.1), mg/l	<1.0	<1.0	<1.0	<1.0	<1.0

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40176-6	MAY-1490-MW-2	01-11-92
40176-7	MAY-1490-RINSATE	01-11-92
40176-8	MAY-1490-3-DUP	01-11-92

PARAMETER	40176-6	40176-7	40176-8
Purgeable Halocarbons (601/8010)			
Bromodichloromethane, ug/l	<1.0	<1.0	<1.0
Bromoform, ug/l	<5.0	<5.0	<5.0
Bromomethane, ug/l	<1.0	<1.0	<1.0
Carbon Tetrachloride, ug/l	<1.0	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0
Chloroethane, ug/l	<1.0	<1.0	<1.0
2-Chloroethylvinyl Ether, ug/l	<10	<10	<10
Chloroform, ug/l	<1.0	<1.0	<1.0
Chloromethane, ug/l	<1.0	<1.0	<1.0
Dibromochloromethane, ug/l	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0
Dichlorodifluoromethane, ug/l	<1.0	<1.0	<1.0
1,1-Dichloroethane, ug/l	<1.0	<1.0	<1.0
1,2-Dichloroethane, ug/l	<1.0	<1.0	<1.0
1,1-Dichloroethene, ug/l	<1.0	<1.0	<1.0
cis/trans-1,2-Dichloroethylene, ug/l	<1.0	<1.0	<1.0
1,2-Dichloropropane, ug/l	<1.0	<1.0	<1.0
Cis-1,3-Dichloropropene, ug/l	<1.0	<1.0	<1.0
Trans-1,3-Dichloropropene, ug/l	<1.0	<1.0	<1.0

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40176-6	MAY-1490-MW-2	01-11-92
40176-7	MAY-1490-RINSATE	01-11-92
40176-8	MAY-1490-3-DUP	01-11-92

PARAMETER	40176-6	40176-7	40176-8
Methylene Chloride, ug/l	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane, ug/l	<1.0	<1.0	<1.0
Tetrachloroethene, ug/l	<1.0	<1.0	<1.0
1,1,1-Trichloroethane, ug/l	<1.0	<1.0	<1.0
1,1,2-Trichloroethane, ug/l	<1.0	<1.0	<1.0
Trichloroethene, ug/l	<1.0	<1.0	<1.0
Trichlorofluoromethane, ug/l	<1.0	<1.0	<1.0
Vinyl Chloride, ug/l	<1.0	<1.0	<1.0
Surrogate - Bromochloromethane (70-130) % Rec	87 %	75 %	82 %
Purgeable Aromatics (602/8020)			
Benzene, ug/l	<1.0	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0	<1.0
Toluene, ug/l	<1.0	<1.0	<1.0
Xylenes, ug/l	<1.0	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10
Total Volatile Organic Aromatics, ug/l	BDL	BDL	BDL
1,2-Dibromoethane (EDB) , ug/l	<0.020	<0.020	<0.020
Surrogate - Trifluoro- toluene (70-130 % Rec)	94 %	93 %	99 %
Lead, mg/l	<0.0050	<0.0050	0.012

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
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40176-7	MAY-1490-RINSATE	01-11-92
40176-8	MAY-1490-3-DUP	01-11-92

PARAMETER	40176-6	40176-7	40176-8
Polynuclear Aromatic Hydrocarbons (610/8100)			
Acenaphthene, ug/l	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10
Fluorene, ug/l	<10	<10	<10
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10
Pyrene, ug/l	<10	<10	<10
2-Methylnaphthalene, ug/l	<10	<10	<10
1-Methylnaphthalene, ug/l	<10	<10	<10
Petroleum Hydrocarbons (418.1), mg/l	<1.0	<1.0	<1.0

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
40176-9	Method Blank-Water
40176-10	Lab Control Standard (% Recovery)
40176-11	Precision (RPD)-Water
40176-12	Date Extracted-Water
40176-13	Date Analyzed-Water

PARAMETER	40176-9	40176-10	40176-11	40176-12	40176-13
Purgeable Halocarbons (601/8010)					
Bromodichloromethane, ug/l	<1.0	---	---	---	01.17.92
Bromoform, ug/l	<5.0	---	---	---	01.17.92
Bromomethane, ug/l	<1.0	---	---	---	01.17.92
Carbon Tetrachloride, ug/l	<1.0	---	---	---	01.17.92
Chlorobenzene, ug/l	<1.0	92 %	9.8 %	---	01.17.92
Chloroethane, ug/l	<1.0	---	---	---	01.17.92
2-Chloroethylvinyl Ether, ug/l	<10	---	---	---	01.17.92
Chloroform, ug/l	<1.0	---	---	---	01.17.92
Chloromethane, ug/l	<1.0	---	---	---	01.17.92
Dibromochloromethane, ug/l	<1.0	---	---	---	01.17.92
1,2-Dichlorobenzene, ug/l	<1.0	---	---	---	01.17.92
1,3-Dichlorobenzene, ug/l	<1.0	---	---	---	01.17.92
1,4-Dichlorobenzene, ug/l	<1.0	---	---	---	01.17.92
Dichlorodifluoromethane, ug/l	<1.0	---	---	---	01.17.92
1,1-Dichloroethane, ug/l	<1.0	---	---	---	01.17.92
1,2-Dichloroethane, ug/l	<1.0	---	---	---	01.17.92
1,1-Dichloroethene, ug/l	<1.0	83 %	12 %	---	01.17.92
cis/trans-1,2-Dichloroethyl ene, ug/l	<1.0	---	---	---	01.17.92

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40176-9	Method Blank-Water
40176-10	Lab Control Standard (% Recovery)
40176-11	Precision (RPD)-Water
40176-12	Date Extracted-Water
40176-13	Date Analyzed-Water

PARAMETER	40176-9	40176-10	40176-11	40176-12	40176-13
1,2-Dichloropropane, ug/l	<1.0	---	---	---	01.17.92
Cis-1,3-Dichloropropene, ug/l	<1.0	---	---	---	01.17.92
Trans-1,3-Dichloropropene, ug/l	<1.0	---	---	---	01.17.92
Methylene Chloride, ug/l	<1.0	---	---	---	01.17.92
1,1,2,2-Tetrachloroethane, ug/l	<1.0	---	---	---	01.17.92
Tetrachloroethene, ug/l	<1.0	---	---	---	01.17.92
1,1,1-Trichloroethane, ug/l	<1.0	---	---	---	01.17.92
1,1,2-Trichloroethane, ug/l	<1.0	---	---	---	01.17.92
Trichloroethene, ug/l	<1.0	92 %	9.8 %	---	01.17.92
Trichlorofluoromethane, ug/l	<1.0	---	---	---	01.17.92
Vinyl Chloride, ug/l	<1.0	---	---	---	01.17.92
Purgeable Aromatics (602/8020)					
Benzene, ug/l	<1.0	87 %	4.6 %	---	01.17.92
Chlorobenzene, ug/l	<1.0	123 %	28 %	---	01.17.92
1,2-Dichlorobenzene, ug/l	<1.0	---	---	---	01.17.92
1,3-Dichlorobenzene, ug/l	<1.0	---	---	---	01.17.92
1,4-Dichlorobenzene, ug/l	<1.0	---	---	---	01.17.92
Ethylbenzene, ug/l	<1.0	---	---	---	01.17.92
Toluene, ug/l	<1.0	108 %	6.5 %	---	01.17.92
Xylenes, ug/l	<1.0	---	---	---	01.17.92
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	---	---	---	01.17.92

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40176-9	Method Blank-Water
40176-10	Lab Control Standard (% Recovery)
40176-11	Precision (RPD)-Water
40176-12	Date Extracted-Water
40176-13	Date Analyzed-Water

PARAMETER	40176-9	40176-10	40176-11	40176-12	40176-13
Total Volatile Organic Aromatics, ug/l	BDL	---	---	---	01.17.92
1,2-Dibromoethane (EDB) , ug/l	<0.020	97 %	0 %	01.15.92	01.16.92
Lead, mg/l	<0.0050	97 %	2.1 %	---	01.28.92
Polynuclear Aromatic Hydrocarbons (610/8100)					
Acenaphthene, ug/l	<10	74 %	5.4 %	01.15.92	01.23-24
Acenaphthylene, ug/l	<10	---	---	01.15.92	01.23-24
Benzo(a)pyrene, ug/l	<10	67 %	9.0 %	01.15.92	01.23-24
Benzo(g,h,i)perylene, ug/l	<10	---	---	01.15.92	01.23-24
Benzo(b,k)fluoranthene, ug/l	<10	---	---	01.15.92	01.23-24
Chrysene + Benzo(a)anthracene, ug/l	<10	---	---	01.15.92	01.23-24
Fluoranthene, ug/l	<10	---	---	01.15.92	01.23-24
Fluorene, ug/l	<10	74 %	11 %	01.15.92	01.23-24
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	<10	---	---	01.15.92	01.23-24
Naphthalene, ug/l	<10	77 %	2.6 %	01.15.92	01.23-24
Phenanthrene + Anthracene, ug/l	<10	---	---	01.15.92	01.23-24
Pyrene, ug/l	<10	72 %	11 %	01.15.92	01.23-24
2-Methylnaphthalene, ug/l	<10	---	---	01.15.92	01.23-24
1-Methylnaphthalene, ug/l	<10	---	---	01.15.92	01.23-24
Petroleum Hydrocarbons (418.1), mg/l	<1.0	113 %	3.5 %	01.21.92	01.21.92

SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S2-40176

Received: 11 JAN 92

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACA21-92-M0181

Project: BLDG 1490 Mayport Naval Station
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40176-15	TRIP BLANK	01-11-92

PARAMETER	40176-15
Purgeable Halocarbons (601/8010)	
Bromodichloromethane, ug/l	<1.0
Bromoform, ug/l	<5.0
Bromomethane, ug/l	<1.0
Carbon Tetrachloride, ug/l	<1.0
Chlorobenzene, ug/l	<1.0
Chloroethane, ug/l	<1.0
2-Chloroethylvinyl Ether, ug/l	<10
Chloroform, ug/l	<1.0
Chloromethane, ug/l	<1.0
Dibromochloromethane, ug/l	<1.0
1,2-Dichlorobenzene, ug/l	<1.0
1,3-Dichlorobenzene, ug/l	<1.0
1,4-Dichlorobenzene, ug/l	<1.0
Dichlorodifluoromethane, ug/l	<1.0
1,1-Dichloroethane, ug/l	<1.0
1,2-Dichloroethane, ug/l	<1.0
1,1-Dichloroethene, ug/l	<1.0
cis/trans-1,2-Dichloroethylene, ug/l	<1.0
1,2-Dichloropropane, ug/l	<1.0
Cis-1,3-Dichloropropene, ug/l	<1.0
Trans-1,3-Dichloropropene, ug/l	<1.0
Methylene Chloride, ug/l	<1.0
1,1,2,2-Tetrachloroethane, ug/l	<1.0

SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue, Savannah, GA 31404 Phone: (912) 354-7858 Fax (912) 352-0165
2846 Industrial Plaza Drive, Tallahassee, FL 32301 Phone: (904) 878-3994 Fax (904) 878-9504
414 Southwest 12th Avenue, Deerfield Beach, FL 33442 Phone: (305) 421-7400 Fax (305) 421-2584
900 Lakeside Drive, Mobile, AL 36693 Phone: (205) 666-6633 Fax (205) 666-6696
6712 Benjamin Road, Suite 100, Tampa, FL 33634 Phone: (813) 885-7427 Fax (813) 885-7049

NALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

O. NUMBER	PROJECT NUMBER	PROJECT NAME
		Bldg 1490 MAYPORT NAVAL Station

LIENT NAME	TELEPHONE/FAX NO.
U.S. ARMY Corps of ENGINEERS - SAVANNAH Dist	912-944-5674

LIENT ADDRESS	CITY, STATE, ZIP CODE
P.O. BOX 889	Savannah, GA 31402

AMPLER(S) NAME(S)	CLIENT PROJECT MANAGER
M. FIEE	Cardwell Smith

MATRIX TYPE: AQUEOUS MATRIX; NONAQUEOUS MATRIX; OIL MATRIX; AIR MATRIX

REQUIRED ANALYSES: Fla KEROSENE Grp; TPH; LEAD; 601/602/608; 610

PAGE 1 OF

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE _____
* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	NUMBER OF CONTAINERS SUBMITTED										
1-9-92	1045	MAY 1490-1	X				1	1	5	2						9	Containers
"	1000	MAY 1490-2	X				1	1	5	2						9	"
"	0915	MAY 1490-3	X				1	1	5	2						9	"
"	1110	MAY 1490-4	X				1	1	5	2						9	"
"	1025	MAY 1490-5	X				1	1	5	2						9	"
"	1130	MAY 1490-MW-2	X				1	1	5	2						9	"
"	—	TRIP BLANK	X						5							5	"
"	0845	MAY 1490 RINSATE	X				1	1	5	2						9	"
"	0915	MAY 1490-3 DUP	X													/	TOTAL
																68	
							NOTE: REQUEST LEVEL II REPORTING.										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	01/07	9:00	Martin S-[illegible]	01/07	0830			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
						Angela Zealy	1/11/92	3:50 pm

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
L. Johnson	1/11/92	3:50	☑ YES ☐ NO		40176	

ORIGINAL

SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S1-34330

Received: 27 JUN 91

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
34330-1	MPT-1490-2 (06.26.91)	06-26-91

PARAMETER	34330-1
BN-A Extractables (625)	
Acenaphthene, ug/l	<10
Acenaphthylene, ug/l	<10
Anthracene, ug/l	<10
Benzo(a)Anthracene, ug/l	<10
Benzo(b)fluoranthene, ug/l	<10
Benzo (k) Fluoranthene, ug/l	<10
Benzo(a)pyrene, ug/l	<10
Benzo(g,h,i)perylene, ug/l	<10
Benzyl butyl phthalate, ug/l	<10
bis(2-Chloroethyl) ether, ug/l	<10
bis(2-Chloroethoxy) methane, ug/l	<10
bis(2-Ethylhexyl) phthalate, ug/l	<10
Bis(2-chloroisopropyl)ether, ug/l	<10
4-Bromophenyl-phenyl-ether, ug/l	<10
2-Chloronaphthalene, ug/l	<10
4-Chlorophenyl-phenyl ether, ug/l	<10
Chrysene, ug/l	<10
Dibenzo(a,h)anthracene, ug/l	<10
Di-n-butylphthalate, ug/l	<10
1,3-Dichlorobenzene, ug/l	<10
1,2-Dichlorobenzene, ug/l	<10
1,4-Dichlorobenzene, ug/l	<10
3,3'-Dichlorobenzidine, ug/l	<20
Diethylphthalate, ug/l	<10
Dimethyl phthalate, ug/l	<10

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

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LOG NO: S1-34330

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Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
34330-1	MPT-1490-2 (06.26.91)	06-26-91

PARAMETER	34330-1
2,4-Dinitrotoluene, ug/l	<10
2,6-Dinitrotoluene, ug/l	<10
Di-n-octylphthalate, ug/l	<10
Fluoranthene, ug/l	<10
Fluorene, ug/l	<10
Hexachlorobenzene, ug/l	<10
Hexachlorobutadiene, ug/l	<10
Hexachloroethane, ug/l	<10
Indeno (1,2,3-cd)pyrene, ug/l	<10
Isophorone, ug/l	<10
Naphthalene, ug/l	<10
Nitrobenzene, ug/l	<10
N-Nitrosodi-N-Propylamine, ug/l	<10
Phenanthrene, ug/l	<10
Pyrene, ug/l	<10
1,2,4-Trichlorobenzene, ug/l	<10
4-Chloro-3-methylphenol, ug/l	<10
2-Chlorophenol, ug/l	<10
2,4-Dichlorophenol, ug/l	<10
2,4-Dimethylphenol, ug/l	<10
2,4-Dinitrophenol, ug/l	<50
2-Methyl-4,6-dinitrophenol, ug/l	<50
2-Nitrophenol, ug/l	<10
4-Nitrophenol, ug/l	<50
Pentachlorophenol, ug/l	<50
Phenol, ug/l	<10
2,4,6-Trichlorophenol, ug/l	<10

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& ENVIRONMENTAL SERVICES, INC.

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LOG NO: S1-34330

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U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
34330-1	MPT-1490-2 (06.26.91)	06-26-91

PARAMETER	34330-1
Purgeables (624)	
Benzene, ug/l	<5.0
Bromodichloromethane, ug/l	<5.0
Bromoform, ug/l	<5.0
Bromomethane, ug/l	<10
Carbon Tetrachloride, ug/l	<5.0
Chlorobenzene, ug/l	<5.0
Chloroethane, ug/l	<10
2-Chloroethylvinyl Ether, ug/l	<10
Chloroform, ug/l	<5.0
Chloromethane, ug/l	<10
Dibromochloromethane, ug/l	<5.0
1,2-Dichlorobenzene, ug/l	<5.0
1,3-Dichlorobenzene, ug/l	<5.0
1,4-Dichlorobenzene, ug/l	<5.0
1,1-Dichloroethane, ug/l	<5.0
1,2-Dichloroethane, ug/l	<5.0
1,1-Dichloroethene, ug/l	<5.0
cis/trans-1,2-Dichloroethylene, ug/l	<5.0
1,2-Dichloropropane, ug/l	<5.0
Cis-1,3-Dichloropropene, ug/l	<5.0
Trans-1,3-Dichloropropene, ug/l	<5.0
Ethylbenzene, ug/l	<5.0
Methylene Chloride, ug/l	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0
Tetrachloroethene, ug/l	<5.0

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LOG NO: S1-34330

Received: 27 JUN 91

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
34330-1	MPT-1490-2 (06.26.91)	06-26-91

PARAMETER	34330-1				
Toluene, ug/l	<5.0				
1,1,1-Trichloroethane, ug/l	<5.0				
1,1,2-Trichloroethane, ug/l	<5.0				
Trichloroethene, ug/l	<5.0				
Trichlorofluoromethane, ug/l	<10				
Vinyl Chloride, ug/l	<10				
Xylenes, ug/l	<5.0				
Chloride (325.2), mg/l	15				
Total Dissolved Solids, mg/l	430				
Arsenic, mg/l	0.028				
Cadmium, mg/l	<0.010				
Chromium, mg/l	<0.010				
Lead, mg/l	<0.0050				
Petroleum Hydrocarbons (418.1), mg/l	<1.0				
NBS Library Search (VOC-TIC)	*				
NBS Library Search (BN/A-TIC)	*				
Surrogates - Volatiles					
Toluene-d8, % Rec.	111 %				
4-Bromofluorobenzene, % Rec.	87 %				
Surrogate - 1,2-Dichloroethane-d4, % Rec.	113 %				
Surrogates - Semivolatiles					
Surrogate - Phenol d 5, % Rec.	36 %				
Surrogate - 2-Fluorophenol, % Rec.	51 %				
Surrogate - 2,4,6-Tribromophenol, % Rec.	67 %				
Surrogate - Nitrobenzene d-5, % Rec.	81 %				
Surrogate - 2-Fluorobiphenyl, % Rec.	74 %				
Surrogate - Terphenyl, % Rec.	78 %				

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LOG NO: S1-34330

Received: 27 JUN 91

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE SAMPLED
34330-2	Method Blank-Liquid	06-26-91
34330-3	Laboratory Control Standard (% Recovery)	06-26-91
34330-4	Precision (% RPD)	06-26-91
34330-5	Date Extracted	06-26-91
34330-6	Date Analyzed	06-26-91

PARAMETER	34330-2	34330-3	34330-4	34330-5	34330-6
BN-A Extractables (625)					
Acenaphthene, ug/l	<10	90 %	4.4 %	07.01.91	07.03.91
Acenaphthylene, ug/l	<10	---	---	07.01.91	07.03.91
Anthracene, ug/l	<10	---	---	07.01.91	07.03.91
Benzo(a)Anthracene, ug/l	<10	---	---	07.01.91	07.03.91
Benzo(b)fluoranthene, ug/l	<10	---	---	07.01.91	07.03.91
Benzo (k) Fluoranthene, ug/l	<10	---	---	07.01.91	07.03.91
Benzo(a)pyrene, ug/l	<10	---	---	07.01.91	07.03.91
Benzo(g,h,i)perylene, ug/l	<10	---	---	07.01.91	07.03.91
Benzyl butyl phthalate, ug/l	<10	---	---	07.01.91	07.03.91
bis(2-Chloroethyl) ether, ug/l	<10	---	---	07.01.91	07.03.91
bis(2-Chloroethoxy) methane, ug/l	<10	---	---	07.01.91	07.03.91
bis(2-Ethylhexyl) phthalate, ug/l	<10	---	---	07.01.91	07.03.91
Bis(2-chloroisopropyl)ether, ug/l	<10	---	---	07.01.91	07.03.91
4-Bromophenyl-phenyl-ether, ug/l	<10	---	---	07.01.91	07.03.91
2-Chloronaphthalene, ug/l	<10	---	---	07.01.91	07.03.91
4-Chlorophenyl-phenyl ether, ug/l	<10	---	---	07.01.91	07.03.91
Chrysene, ug/l	<10	---	---	07.01.91	07.03.91
Dibenzo(a,h)anthracene, ug/l	<10	---	---	07.01.91	07.03.91
Di-n-butylphthalate, ug/l	<10	---	---	07.01.91	07.03.91
1,3-Dichlorobenzene, ug/l	<10	---	---	07.01.91	07.03.91
1,2-Dichlorobenzene, ug/l	<10	---	---	07.01.91	07.03.91

SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S1-34330

Received: 27 JUN 91

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE SAMPLED
34330-2	Method Blank-Liquid	06-26-91
34330-3	Laboratory Control Standard (% Recovery)	06-26-91
34330-4	Precision (% RPD)	06-26-91
34330-5	Date Extracted	06-26-91
34330-6	Date Analyzed	06-26-91

PARAMETER	34330-2	34330-3	34330-4	34330-5	34330-6
1,4-Dichlorobenzene, ug/l	<10	77 %	5.2 %	07.01.91	07.03.91
3,3'-Dichlorobenzidine, ug/l	<20	---	---	07.01.91	07.03.91
Diethylphthalate, ug/l	<10	---	---	07.01.91	07.03.91
Dimethyl phthalate, ug/l	<10	---	---	07.01.91	07.03.91
2,4-Dinitrotoluene, ug/l	<10	87 %	6.9 %	07.01.91	07.03.91
2,6-Dinitrotoluene, ug/l	<10	---	---	07.01.91	07.03.91
Di-n-octylphthalate, ug/l	<10	---	---	07.01.91	07.03.91
Fluoranthene, ug/l	<10	---	---	07.01.91	07.03.91
Fluorene, ug/l	<10	---	---	07.01.91	07.03.91
Hexachlorobenzene, ug/l	<10	---	---	07.01.91	07.03.91
Hexachlorobutadiene, ug/l	<10	---	---	07.01.91	07.03.91
Hexachloroethane, ug/l	<10	---	---	07.01.91	07.03.91
Indeno (1,2,3-cd)pyrene, ug/l	<10	---	---	07.01.91	07.03.91
Isophorone, ug/l	<10	---	---	07.01.91	07.03.91
Naphthalene, ug/l	<10	---	---	07.01.91	07.03.91
Nitrobenzene, ug/l	<10	---	---	07.01.91	07.03.91
N-Nitrosodi-N-Propylamine, ug/l	<10	92 %	5.5 %	07.01.91	07.03.91
Phenanthrene, ug/l	<10	---	---	07.01.91	07.03.91
Pyrene, ug/l	<10	78 %	5.1 %	07.01.91	07.03.91
1,2,4-Trichlorobenzene, ug/l	<10	77 %	5.2 %	07.01.91	07.03.91
4-Chloro-3-methylphenol, ug/l	<10	83 %	8.5 %	07.01.91	07.03.91
2-Chlorophenol, ug/l	<10	81 %	3.7 %	07.01.91	07.03.91

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S1-34330

Received: 27 JUN 91

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE SAMPLED
34330-2	Method Blank-Liquid	06-26-91
34330-3	Laboratory Control Standard (% Recovery)	06-26-91
34330-4	Precision (% RPD)	06-26-91
34330-5	Date Extracted	06-26-91
34330-6	Date Analyzed	06-26-91

PARAMETER	34330-2	34330-3	34330-4	34330-5	34330-6
2,4-Dichlorophenol, ug/l	<10	---	---	07.01.91	07.03.91
2,4-Dimethylphenol, ug/l	<10	---	---	07.01.91	07.03.91
2,4-Dinitrophenol, ug/l	<50	---	---	---	07.03.91
2-Methyl-4,6-dinitrophenol, ug/l	<50	---	---	07.01.91	07.03.91
2-Nitrophenol, ug/l	<10	---	---	07.01.91	07.03.91
4-Nitrophenol, ug/l	<50	35 %	8.7 %	07.01.91	07.03.91
Pentachlorophenol, ug/l	<50	77 %	7.8 %	07.01.91	07.03.91
Phenol, ug/l	<10	37 %	8.2 %	07.01.91	07.03.91
2,4,6-Trichlorophenol, ug/l	<10	---	---	07.01.91	07.03.91

SL SAVANNAH LABORATORIES
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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE SAMPLED
34330-2	Method Blank-Liquid	06-26-91
34330-3	Laboratory Control Standard (% Recovery)	06-26-91
34330-4	Precision (% RPD)	06-26-91
34330-5	Date Extracted	06-26-91
34330-6	Date Analyzed	06-26-91

PARAMETER	34330-2	34330-3	34330-4	34330-5	34330-6
Purgeables (624)					
Benzene, ug/l	<5.0	113 %	3.5 %	07.08.91	07.08.91
Bromodichloromethane, ug/l	<5.0	---	---	07.08.91	07.08.91
Bromoform, ug/l	<5.0	---	---	07.08.91	07.08.91
Bromomethane, ug/l	<10	---	---	07.08.91	07.08.91
Carbon Tetrachloride, ug/l	<5.0	---	---	07.08.91	07.08.91
Chlorobenzene, ug/l	<5.0	92 %	1.1 %	07.08.91	07.08.91
Chloroethane, ug/l	<10	---	---	07.08.91	07.08.91
2-Chloroethylvinyl Ether, ug/l	<10	---	---	07.08.91	07.08.91
Chloroform, ug/l	<5.0	---	---	07.08.91	07.08.91
Chloromethane, ug/l	<10	---	---	07.08.91	07.08.91
Dibromochloromethane, ug/l	<5.0	---	---	07.08.91	07.08.91
1,2-Dichlorobenzene, ug/l	<5.0	---	---	07.08.91	07.08.91
1,3-Dichlorobenzene, ug/l	<5.0	---	---	07.08.91	07.08.91
1,4-Dichlorobenzene, ug/l	<5.0	---	---	07.08.91	07.08.91
1,1-Dichloroethane, ug/l	<5.0	---	---	07.08.91	07.08.91
1,2-Dichloroethane, ug/l	<5.0	---	---	07.08.91	07.08.91
1,1-Dichloroethene, ug/l	<5.0	93 %	0 %	07.08.91	07.08.91
cis/trans-1,2-Dichloroethyl ene, ug/l	<5.0	---	---	07.08.91	07.08.91
1,2-Dichloropropane, ug/l	<5.0	---	---	07.08.91	07.08.91
Cis-1,3-Dichloropropene, ug/l	<5.0	---	---	07.08.91	07.08.91

SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S1-34330

Received: 27 JUN 91

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Project: Naval Station Mayport,Fl
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE SAMPLED
34330-2	Method Blank-Liquid	06-26-91
34330-3	Laboratory Control Standard (% Recovery)	06-26-91
34330-4	Precision (% RPD)	06-26-91
34330-5	Date Extracted	06-26-91
34330-6	Date Analyzed	06-26-91

PARAMETER	34330-2	34330-3	34330-4	34330-5	34330-6
Trans-1,3-Dichloropropene, ug/l	<5.0	---	---	07.08.91	07.08.91
Ethylbenzene, ug/l	<5.0	---	---	07.08.91	07.08.91
Methylene Chloride, ug/l	<5.0	---	---	07.08.91	07.08.91
1,1,2,2-Tetrachloroethane, ug/l	<5.0	---	---	07.08.91	07.08.91
Tetrachloroethene, ug/l	<5.0	---	---	07.08.91	07.08.91
Toluene, ug/l	<5.0	106 %	2.8 %	07.08.91	07.08.91
1,1,1-Trichloroethane, ug/l	<5.0	---	---	07.08.91	07.08.91
1,1,2-Trichloroethane, ug/l	<5.0	---	---	07.08.91	07.08.91
Trichloroethene, ug/l	<5.0	82 %	1.2 %	07.08.91	07.08.91
Trichlorofluoromethane, ug/l	<10	---	---	07.08.91	07.08.91
Vinyl Chloride, ug/l	<10	---	---	07.08.91	07.08.91
Xylenes, ug/l	<5.0	---	---	07.08.91	07.08.91
Chloride (325.2), mg/l	<1.0	99 %	4.0 %	---	07.01.91
Total Dissolved Solids, mg/l	<5.0	112	11 %	---	07.02.91
Arsenic, mg/l	<0.010	117 %	6.0 %	---	07.11.91
Cadmium, mg/l	<0.010	98 %	1.0 %	---	07.12.91
Chromium, mg/l	<0.010	100 %	1.0 %	---	07.12.91
Lead, mg/l	<0.0050	110 %	0.91 %	---	07.08.91
Petroleum Hydrocarbons (418.1), mg/l	<1.0	93 %	0 %	07.01.91	07.01.91
Surrogates - Volatiles					
Toluene-d8, % Rec.	108 %	---	---	---	---
4-Bromofluorobenzene, % Rec.	86 %	---	---	---	---
Surrogate - 1,2-Dichloroethane-d4, % Rec.	100 %	---	---	---	---

QB 0712

Laboratory Name: Savannah Laboratories & Environmental Services, Inc.

Case No: MPT- 1490-2

Sample Number
34330

ORGANICS ANALYSIS DATA SHEET

	CAS Number	Compound Name	Fraction	(RT) or Scan Number	Estimated Concentration ((ug/l) or ug/kg)
1.		UNKNOWN	BN/A	9.74	13.0
2.		UNKNOWN	BN/A	11.49	7.0
3.		UNKNOWN	BN/A	11.91	4.0
4.		UNKNOWN	BN/A	11.96	6.0
5.		UNKNOWN	BN/A	12.08	10.0
6.		UNKNOWN	BN/A	12.25	8.0
7.		UNKNOWN	BN/A	12.62	6.0
8.		UNKNOWN	BN/A	13.51	6.0
9.		UNKNOWN	BN/A	14.24	5.0
10.		UNKNOWN	BN/A	14.57	5.0
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

Laboratory Name: Savannah Laboratories & Environmental Services, Inc.

Case No: MPT-1490-2

Sample Number
34330

ORGANICS ANALYSIS DATA SHEET

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.		NO PEAKS FOUND	VOA		
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

SL SAVANNAH LABORATORIES AND ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Savannah Division
5102 LaRoche Avenue
Savannah, GA. 31404
Phone: (912) 354-7858

JOB NO. | P.O. NO | PROJECT NAME: NAVAL STATION MAYPORT FL

CLIENT NAME: U.S. ARMY CORPS OF ENGINEERS | TELEPHONE: 9445674

CLIENT ADDRESS: 100 W OGLETHORPE AVE SAVANNAH GA 31402-0889

CLIENT PROJECT MANAGER: CARDWELL SMITH

PAGE 1 OF 1

STANDARD ☒ RUSH ☐

DATE REPORT REQUESTED _____

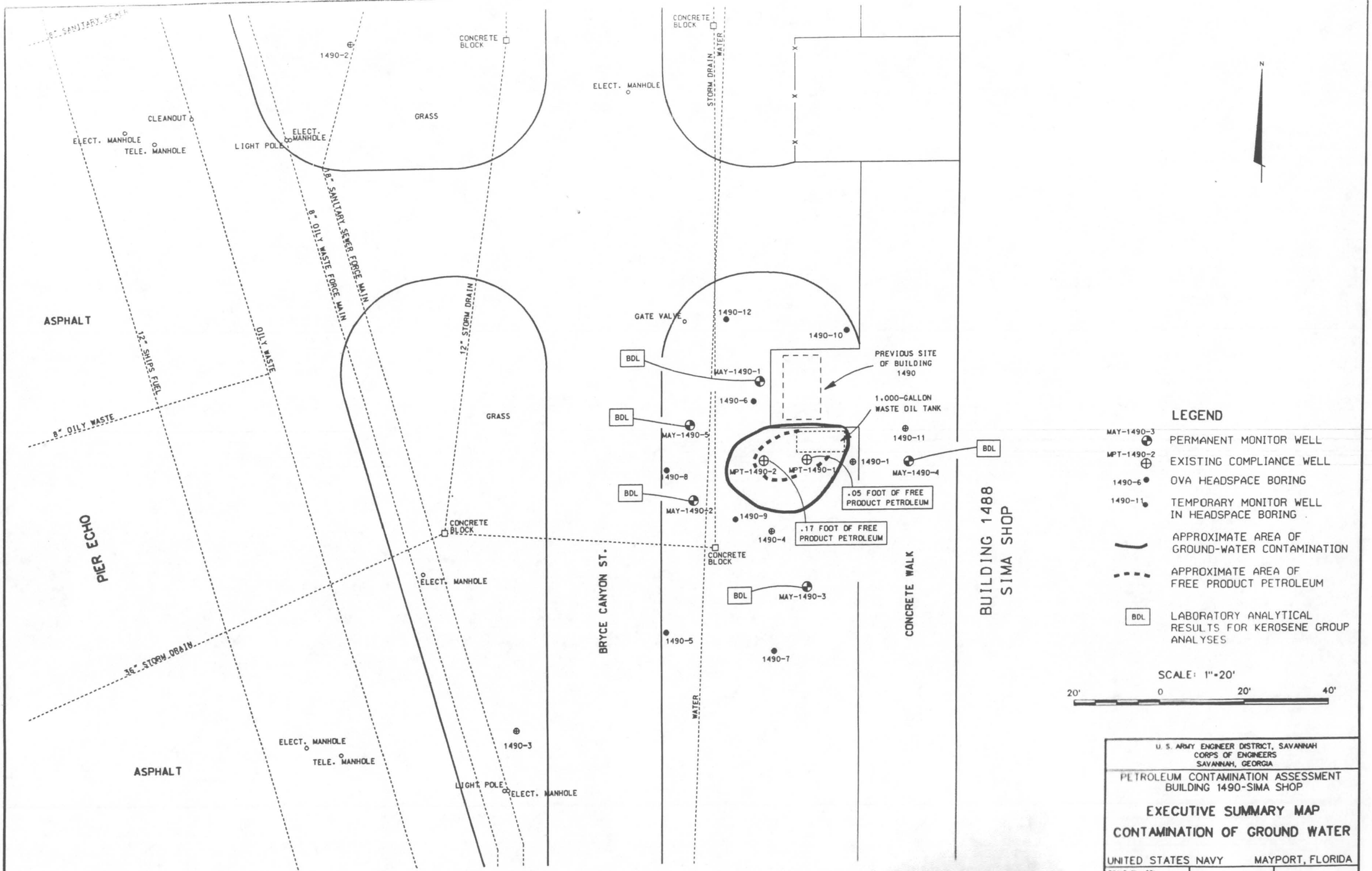
SAMPLING DATE	SAMPLING TIME	SAMPLE ID	AQUEOUS MATRIX	NONAQUEOUS MATRIX	REQUIRED ANALYSES: 625	Cl/TDS	Cd Cr Pb	624	TPH					SAMPLE REMARKS: CONTAINERS
6/26/91	0930	MPT-1490-2	X		X	X	X	X	X					9

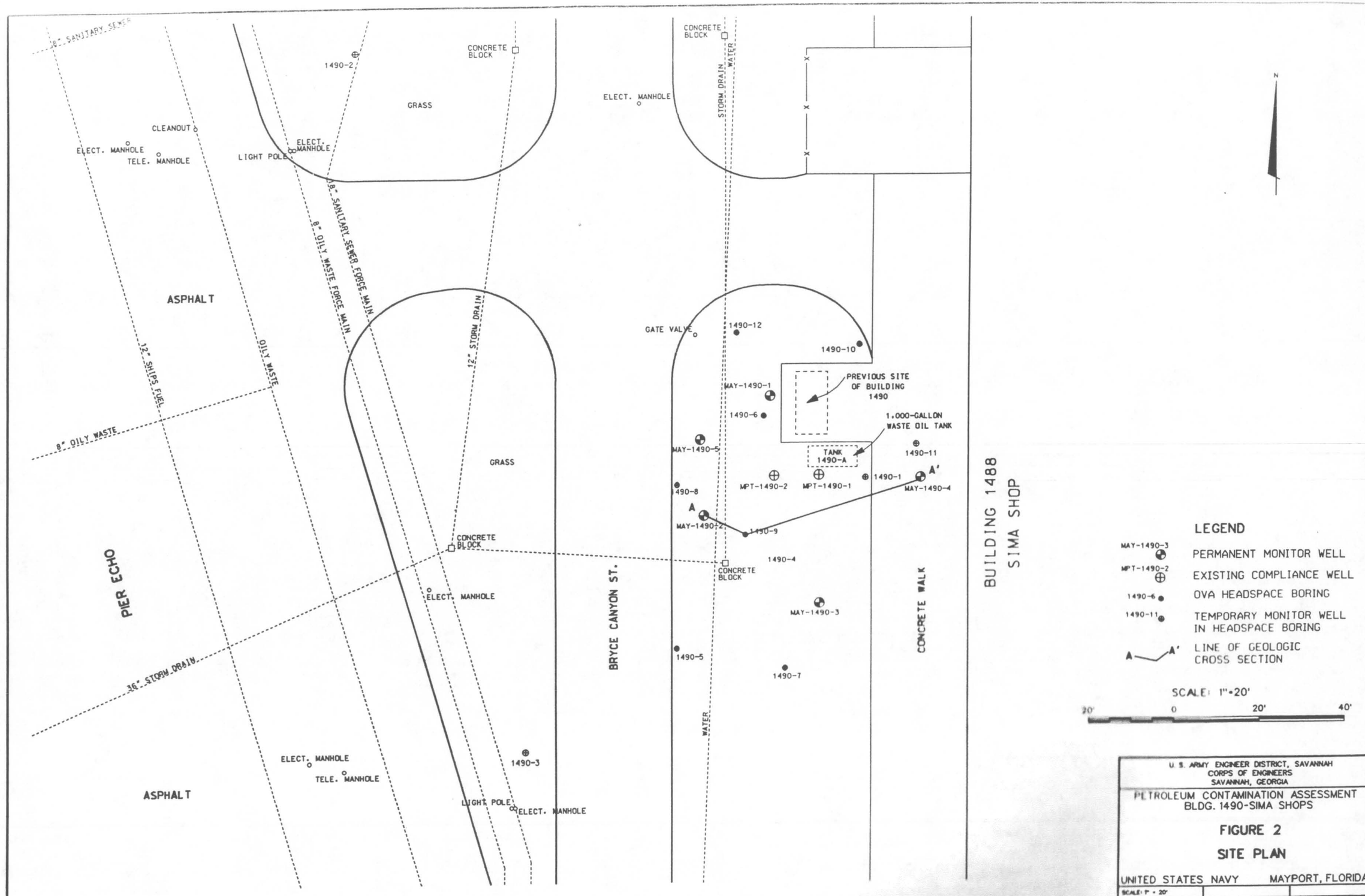
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME	RELINQUISHED BY: (SIGNATURE)	DATE/TIME
S. Samuel	6/24 11:30				
G.W. Andrews	6/26/91 1400				

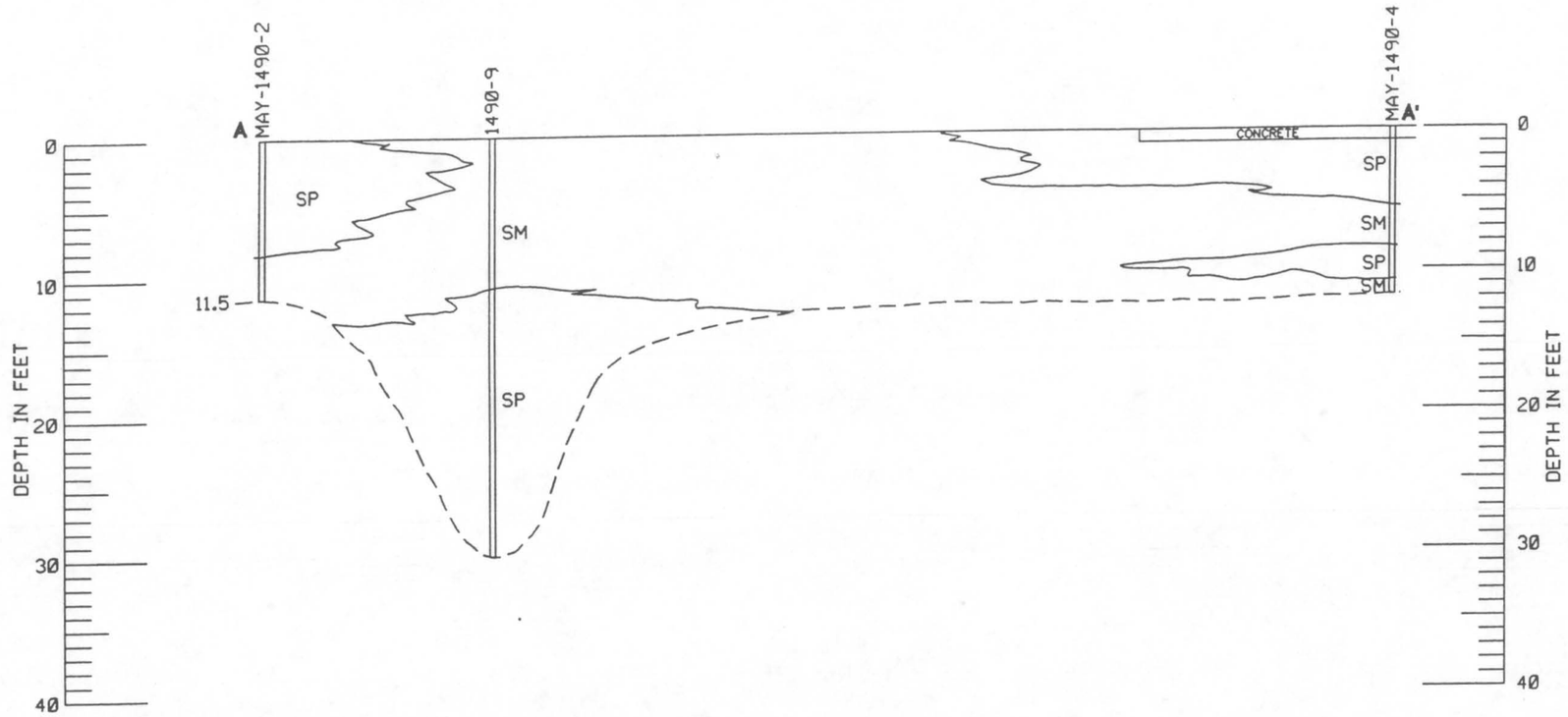
LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE/TIME	CUSTODY INTACT (YES) NO	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
L. Johnson	6/26/91 2:00			34330	

NOTE: PLEASE PROVIDE LEVEL II REPORTING.


8" SANITARY SEWER
1490-2
CONCRETE BLOCK
CLEANOUT
ELECT. MANHOLE
TELE. MANHOLE
LIGHT POLE
ELECT. MANHOLE
GRASS
8" SANITARY SEWER FORCE MAIN
8" OILY WASTE FORCE MAIN
12" STORM DRAIN
ASPHALT
12" SHIPS FUEL
OILY WASTE
8" OILY WASTE
GRASS
PIER ECHO
CONCRETE BLOCK
ELECT. MANHOLE
36" STORM DRAIN
ELECT. MANHOLE
TELE. MANHOLE
ASPHALT
1490-3
LIGHT POLE
ELECT. MANHOLE
BRYCE CANYON ST.
WATER
1490-5
1490-7
CONCRETE WALK
BUILDING 1488
SIMA SHOP
CONCRETE BLOCK
ELECT. MANHOLE
STORM DRAIN
WATER
GATE VALVE
1490-12
1490-10
BDL
MAY-1490-1
PREVIOUS SITE OF BUILDING 1490
1490-6
1,000-GALLON WASTE OIL TANK
BDL
MAY-1490-5
1490-11
1490-8
MPT-1490-2
MPT-1490-1
1490-1
BDL
MAY-1490-4
.05 FOOT OF FREE PRODUCT PETROLEUM
BDL
MAY-1490-2
1490-9
1490-4
.17 FOOT OF FREE PRODUCT PETROLEUM
BDL
MAY-1490-3
N
LEGEND
MAY-1490-3 PERMANENT MONITOR WELL
MPT-1490-2 EXISTING COMPLIANCE WELL
1490-6 OVA HEADSPACE BORING
1490-11 TEMPORARY MONITOR WELL IN HEADSPACE BORING
APPROXIMATE AREA OF GROUND-WATER CONTAMINATION
APPROXIMATE AREA OF FREE PRODUCT PETROLEUM
BDL LABORATORY ANALYTICAL RESULTS FOR KEROSENE GROUP ANALYSES
SCALE: 1"=20'
20' 0 20' 40'
U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA
PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490-SIMA SHOP
EXECUTIVE SUMMARY MAP
CONTAMINATION OF GROUND WATER
UNITED STATES NAVY MAYPORT, FLORIDA
SCALE: 1" = 20'


8" SANITARY SEWER
1490-2
CONCRETE BLOCK
GRASS
CLEANOUT
ELECT. MANHOLE
TELE. MANHOLE
LIGHT POLE
ELECT. MANHOLE
18" SANITARY SEWER FORCE MAIN
8" OILY WASTE FORCE MAIN
12" STORM DRAIN
ASPHALT
12" SHIPS FUEL
OILY WASTE
8" OILY WASTE
GRASS
CONCRETE BLOCK
ELECT. MANHOLE
STORM DRAIN
WATER
GATE VALVE
1490-12
1490-10
MAY-1490-1
PREVIOUS SITE OF BUILDING 1490
1490-6
1,000-GALLON WASTE OIL TANK
MAY-1490-5
TANK 1490-A
1490-11
MPT-1490-2
MPT-1490-1
1490-1
A'
MAY-1490-4
1490-8
A
MAY-1490-2
1490-9
CONCRETE BLOCK
1490-4
MAY-1490-3
PIER ECHO
BRYCE CANYON ST.
CONCRETE WALK
1490-5
1490-7
WATER
36" STORM DRAIN
ELECT. MANHOLE
1490-3
TELE. MANHOLE
ASPHALT
LIGHT POLE
ELECT. MANHOLE
N
BUILDING 1490
SIMA SHOPS
LEGEND
MAY-1490-3
PERMANENT MONITOR WELL
MPT-1490-2
EXISTING COMPLIANCE WELL
1490-6
OVA HEADSPACE BORING
1490-11
TEMPORARY MONITOR WELL IN HEADSPACE BORING
A A'
LINE OF GEOLOGIC CROSS SECTION
SCALE: 1"=20'
20' 0 20' 40'
U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA
PETROLEUM CONTAMINATION ASSESSMENT
BLDG. 1490-SIMA SHOPS
FIGURE 2
SITE PLAN
UNITED STATES NAVY MAYPORT, FLORIDA
SCALE: 1" = 20'



SCALE: 1"=10' VERT.
1"=7' HORIZ.

LEGEND

SM	SILTY SAND
SP	POORLY GRADED SAND

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490 - SIMA SHOP

FIGURE 3

GEOLOGIC CROSS SECTION

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: AS SHOWN

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

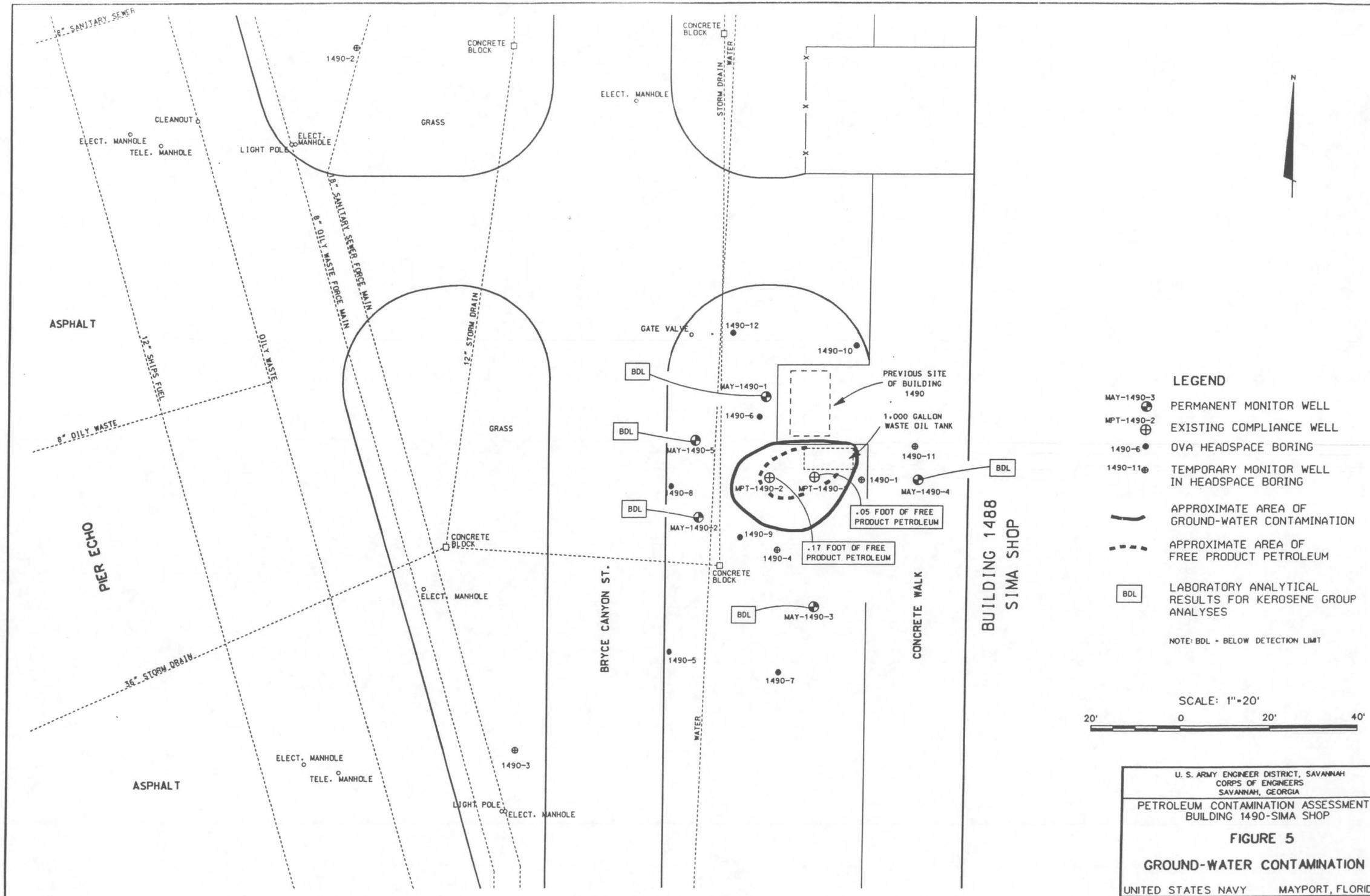
PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490 - SIMA SHOP

FIGURE 4

WATER TABLE CONTOURS

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1" = 20'



U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490-SIMA SHOP

FIGURE 5

GROUND-WATER CONTAMINATION

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1" = 20'

RECD 9/29

ADDENDUM 1
TO
CONTAMINATION ASSESSMENT REPORT

MAYPORT NAVAL STATION
BUILDING 1490 - SIMA SHOPS

MAYPORT, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

SEPTEMBER 1993

BACKGROUND

This addendum to the Contamination Assessment Report (CAR) for Building 1490 (adjacent to SIMA Building) at Mayport Naval Air Station, Mayport, Florida is a result of a request from the Florida Department of Environmental Regulation (FDER) to perform supplemental assessment work at the site. A copy of the FDER request and comments based on their review of the CAR can be found in attachment 1.

RESULTS OF SUPPLEMENTAL ASSESSMENT

The following findings of supplemental assessment at the site follow the numbered FDER comments shown in attachment 1.

1. Environmental compliance personnel at Mayport Naval Air Station implemented a program in February 1993 to measure and recover any free product, if needed, at the Building 1490 waste oil storage tank site. Although no free product has been observed in the monitoring wells during the monthly monitoring program, a minor amount of product (0.06 feet) was detected in well MPT-1490-1 at the time of the latest sampling event on 24 June 1993. The scheduled monthly monitoring check performed several days after the sampling event, found no accumulated product in the well. Subsequent monitoring of wells on the site has detected no additional accumulations of product.

2. To further define the horizontal and vertical extent of any potential ground-water contamination in the downgradient direction, an intermediate, supplemental, assessment well (MAY-1490-6) was installed near well MAY-1490-2 (see attachment 2). Well MAY-1490-6 was installed with the screen set between 17.0 and 22.0 feet below land surface (see well log in attachment 3).

Upon review of the original CAR dated May 1992, it appears the well log for intermediate, assessment well MAY-1490-5 may have been inadvertently, omitted. This well was also screened between 17.0 and 22.0 feet below land surface. The log of this well can also be found in attachment 3.

3. After the installation of supplemental assessment well MAY-1490-6, the ground water within this well and six other wells was sampled and analyzed for Xylenes, MTBE, and EPA Method 608, 624, and 625 compounds (see table 3-A, attachment 4). Due to the presence of free product (0.06 feet) in compliance well MPT-1490-1, no ground-water sample was collected for analysis during the most recent sampling event (24 June 93).

As summarized in Table 3-A, from the laboratory report provided in attachment 5, all of the chemicals analyzed from the most recent sampling event were reported as below detection limit (BDL) or less than the practical quantitation limit (PQL).

SUMMARY OF SUPPLEMENTAL ASSESSMENT

In comparing the results of the previous sampling event (11 January 92) for EDB, TRPH, MTBE, Lead, Xylenes, and EPA Method 601, 602, and 610 compounds to the results of the most recent sampling event on 24 June 1993 for MTBE, Xylenes, and EPA Method 608, 624, and 625 compounds, the extent of free product and ground-water contamination appears to be confined to the area adjacent to and slightly downgradient of the waste oil tank, just south of former Building 1490 (attachment 2).

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FDER COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT
- ATTACHMENT 2 - SUPPLEMENTAL EXECUTIVE SUMMARY MAP
- ATTACHMENT 3 - MONITORING WELL LOGS
- ATTACHMENT 4 - TABLE 3-A, SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
- ATTACHMENT 5 - SUPPLEMENTAL LABORATORY ANALYTICAL DATA

ATTACHMENT 1

FDER COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

December 14, 1992

Rec 22 Dec CAC

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Carl Loop
Code 18237
Department of the Navy
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Post Office Box 10068
Charleston, South Carolina 26411

Dear Mr. Loop:

Department personnel have completed the technical review of the Contamination Assessment Report for Building 1490-SIMA shop, NS Mayport. I have enclosed a memorandum addressed to me from Mr. Jorge Caspary. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-0190.

Sincerely,

Eric S. Nuzie

Eric S. Nuzie
Federal Facilities Coordinator

ESN/bb

Enclosure

cc: Jorge Caspary
Brian Cheary
Lynn Griffin
John Mitchell
Jerry Young
James Hudson
Cheryl Mitchell

Recycled Paper
Printed with Soy Based Inks

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To: Location:
To: Location:
To: Location:
From: Date:

Interoffice Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: Dr. James J. Crane, ~~PGIII/Administrator~~ JJC
Technical Review Section

FROM: Jorge R. Caspary, PGI/Base Coordinator
Technical Review Section J.R.C.

DATE: December 1, 1992

SUBJECT: Review of Contamination Assessment Report for Building 1490-SIMA Shop. Mayport Naval Air Station.

I have reviewed the above referenced Contamination Assessment Report (CAR) dated May, 1992 (received May 22, 1992), submitted for this site. In order to meet the requirements of Chapter 17-770, Florida Administrative Code (F.A.C.), the following comments need to be addressed:

Please include an update of the recovery efforts conducted in accordance with Rule 17-770.300(1), F.A.C., particularly on free product thicknesses measured and volumes recovered to date.

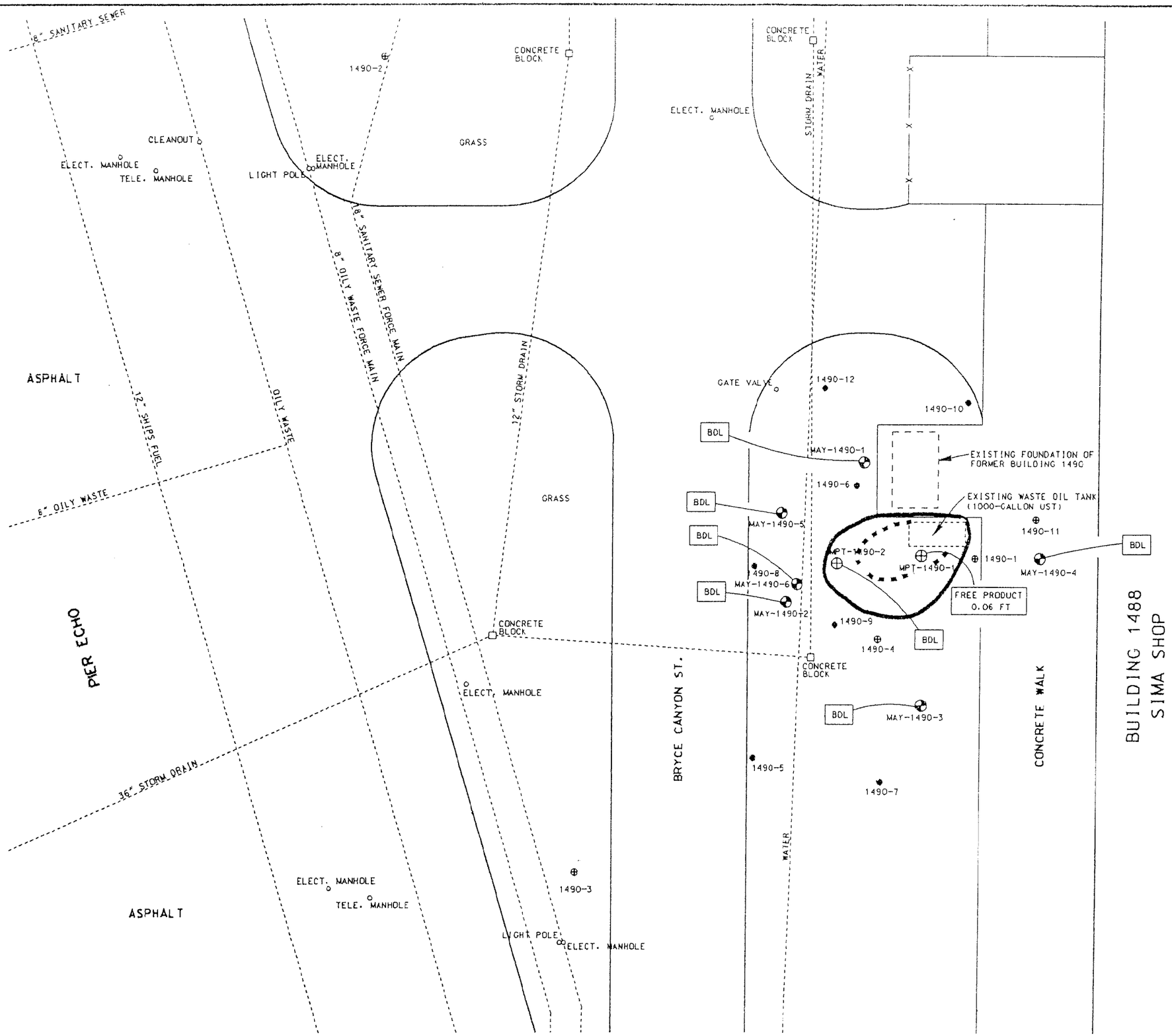
Due to the undefined vertical extent of groundwater contamination, an intermediate depth monitoring well (screened from 17 to 22 feet below land surface) should be installed approximately 15 feet southwest of MPT-1490-2 to define the horizontal and vertical extent of the groundwater contamination in the downgradient direction.

Following installation of the supplemental monitoring well, a complete round of sampling and analysis for EPA Methods 624 (including MTBE) and 625 should be performed (including compliance monitoring wells), so that this review can be completed and a Remedial Action Plan (RAP) can be prepared based on current data. Note, additional monitoring wells should be installed if significant contaminant concentrations are detected at perimeter monitoring wells of any affected stratum or at the vertical extent well.

The Navy should provide the results of the supplemental assessment to this section within sixty (60) days of receipt of this request. If additional time is needed, a time extension request should be submitted, in accordance with the Navy's Petroleum Contamination Agreement Site Management Plan. If there are any questions concerning this review, please contact Jorge R. Caspary at (904) 488-0190

ATTACHMENT 2

SUPPLEMENTAL EXECUTIVE SUMMARY MAP



U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490-SIMA SHOP

EXECUTIVE SUMMARY MAP (SUPPLEMENTAL) CONTAMINATION OF GROUND WATER

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1" = 20' | REVISED 9/22/93

ATTACHMENT 3

MONITORING WELL LOGS

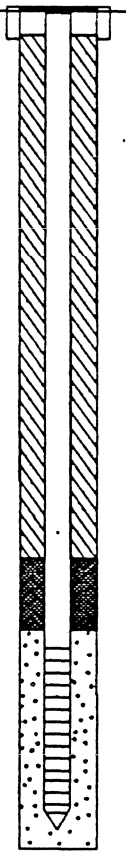
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Mayport Naval Station Bldg. 1490, SIMA Shops		**LOG of WELL:** MAY-1490-5	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 24 APR 91	**COMPLTD:** 24 APR 91
METHOD: 7" O.D.	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 17.9' to 21.9'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.06'	**MONITOR INST.:** OVA	**TOT. DEPTH:** 23.0'	**DEPTH TO ▽** 3.5'
LOGGED BY: M. FIFE	**WELL DEVELOPMENT DATE:** 24 APR 91		**SITE:** Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMEOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					(SM) Brown, fine grained, silty sand.		SM		
					Saturated, with some shell fragments.				
5					Gravel.				
10					(SP) Tan, fine grained, poorly graded sand.		SP		
					Brown and tan.				
15					Light tan and gray.				
					Light gray, very fine grained.				
					Fine grained.				
20									
25					NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.				
30					DRILLED TO 15.0' WITH 12" FISHTAIL BIT. SET 8". PVC OUTER SURFACE CASING TO 15'. GROUTED ANNULAR SPACE WITH CEMENT. INNER 2" PVC SCREEN AND RISER TELESCOPED THROUGH TO DEPTH.				
35									
40									

TITLE: Mayport Naval Station Bldg. 1490, SIMA Shops		**LOG of WELL:** MAY-1490-6	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 4 FEB 93	**COMPLTD:** 4 FEB 93
METHOD: 7" O.D.	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 17.0' to 22.0'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.10'	**MONITOR INST.:** OVA	**TOT. DEPTH:** 22.5'	**DEPTH TO ▽** 3.5'
LOGGED BY: M. FIFE	**WELL DEVELOPMENT DATE:**		**SITE:** Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0.0 0.0 0.2	(SM) Tan, fine, silty sand, no odor.		SM		
5					Brownish gray with shell fragments, no odor.				
10				12.0	Brown, no odor.			23	
15				0.0	(SP) Gray, fine, poorly graded sand, no odor.		SP	31	
20				1.7				60	
25					NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM. HEADSPACE READINGS NOTED AS DIFFERENCE BETWEEN FILTERED AND UNFILTERED VALUES. DRILLED TO 23.0' WITH 10.5" O. D. HSA. SET 2" PVC CASING AND SCREENED BETWEEN 17.0' AND 22.0' BLS. AFTER FILTER PACKED ABOVE SCREEN, SEALED WITH BENTONITE AND GROUTED WITH CEMENT TO SURFACE..				
30									
35									
40									



ATTACHMENT 4

TABLE 3-A, SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

TABLE 3-A (SUPPLEMENTAL)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

24 JUNE 93

MONITORING WELL MONTH-YEAR SAMPLED	MAY 1490-1-6-93	MAY 1490-2-6-93	MAY 1490-2-6-93 DUPLICATE	MAY 1490-3-6-93	MAY 1490-4-6-93	MAY 1490-5-6-93	MAY 1490-6-6-93	MPT 1490-2-6-93	MAY 1490-6-93 EQP BLANK	1490-6-93 TRIP BLANK
CHEMICAL NAME	PURGEABLES, EPA METHOD 624 VOLATILE ORGANICS									
Benzene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoethane **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroethane **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Chloroethylvinyl Ether #	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trans-1,2-Dichloroethylene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cis-1,2-Dichloroethylene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloropropane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cis-1,3-Dichloropropene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trans-1,3-Dichloropropene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methyline Chloride *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL = Below Detection Limit (ug/l), PQL = Practical Quantitation Limit (ug/l) - DL, * = DL 5, ** = DL 10, *** = DL 20, # = DL 50, ## = DL 500, ### = DL 2000, Ground-Water Samples Collected 6/24/93, Bldg 1490, Mayport Naval Station, MPLABADM.XLS

TABLE 3-A (CONT.)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

24 JUNE 93

MONITORING WELL MONTH-YEAR SAMPLED	MAY 1490-1-6-93	MAY 1490-2-6-93	MAY 1490-2-6-93 DUPLICATE	MAY 1490-3-6-93	MAY 1490-4-6-93	MAY 1490-5-6-93	MAY 1490-6-6-93	MPT 1490-2-6-93	MAY 1490-6-93 EQP BLANK	1490-6-93 TRIP BLANK
CHEMICAL NAME	BASE NUETRALS, EPA METHOD 625 SEMIVOLATILE ORGANICS									
Acenaphthene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Acenaphthylene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Anthracene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aldrin **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Benzo (a) Anthracene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Benzo (b) fluoranthene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Benzo (k) fluoranthene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Benzo (a) pyrene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Benzo (g,h,i) perylene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Benzyl butyl phthalate **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
bis(2-Chloroethyl) ether **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
bis(2-Chloroethoxy) methane **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
bis(2-Ethylhexyl) phthalate **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
bis(2-Chloroisopropyl) ether **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
4-Bromophenyl-phenyl-ether **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2-Chloronaphthalene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
4-Chlorophenyl-phenyl ether **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Chrysene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Dibenzo (a,h) anthracene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Di-n-butylphthalate **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
1,3-Dichlorobenzene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
1,2-Dichlorobenzene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
1,4-Dichlorobenzene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
3,3'-Dichlorobenzidine ***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Diethyl phthalate **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Dimethyl phthalate **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2,4-Dinitrotoluene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A

Note: BDL = Below Detection Limit (ug/l), PQL = Practical Quantitation Limit (ug/l) - DL, * - DL 5, ** - DL 10, *** - DL 20, # - DL 50, ## - DL 500, ### - DL 2000, Ground-Water Samples Collected 6/24/93, Bldg 1490, Mayport Naval Station,

TABLE 3-A (CONT.)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

24 JUNE 93

MONITORING WELL MONTH-YEAR SAMPLED	MAY 1490-1-6-93	MAY 1490-2-6-93	MAY 1490-2-6-93 DUPLICATE	MAY 1490-3-6-93	MAY 1490-4-6-93	MAY 1490-5-6-93	MAY 1490-6-6-93	MPT 1490-2-6-93	MAY 1490-6-93 EQP BLANK	1490-6-93 TRIP BLANK
CHEMICAL NAME	BASE NUETRALS, EPA METHOD 625 SEMIVOLATILE ORGANICS (CONT.)									
2,6-Dinitrotoluene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Di-n-octylphthalate **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Fluoranthene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Fluorene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Hexachlorobenzene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Hexachlorobutadiene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Hexachloroethane **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Indeno (1,2,3-cd) pyrene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Isophorone **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Naphthalene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Nitrobenzene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
N-Nitrosodi-N-Propylamine **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Phenanthrene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Pyrene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
1,2,4-Trichlorobenzene **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
CHEMICAL NAME	ACID EXTRACTABLES, EPA METHOD 625 SEMIVOLATILE ORGANICS									
4-Chloro-3-methylphenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2-Chlorophenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2,4-Dichlorophenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2,4-Dimethylphenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2,4-Dinitrophenol #	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2-Methyl-4,6-dinitrophenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2-Nitrophenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
4-Nitrophenol #	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Pentachlorophenol #	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Phenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
2,4,6-Trichlorophenol **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A

Note: BDL - Below Detection Limit (ug/l), PQL - Practical Quantitation Limit (ug/l) - DL, * - DL 5, ** - DL 10, *** - DL 20, # - DL 50, ## - DL 500, ### - DL 2000, Ground-Water Samples Collected 6/24/93, Bldg 1490, Mayport Naval Station, MPLABADM.XLS

TABLE 3-A (CONT.)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

24 JUNE 93

MONITORING WELL MONTH-YEAR SAMPLED	MAY 1490-1-6-93	MAY 1490-2-6-93	MAY 1490-2-6-93 DUPLICATE	MAY 1490-3-6-93	MAY 1490-4-6-93	MAY 1490-5-6-93	MAY 1490-6-6-93	MPT 1490-2-6-93	MAY 1490-6-93 EQP BLANK	1490-6-93 TRIP BLANK
CHEMICAL NAME	XYLENES, MTBE, "TOXAPHENE, ORGANOCHLORINE PESTICIDES, & PCBs, EPA METHOD 608 SEMIVOLATILE ORGANICS"									
Xylenes *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Methyl-Tert-Butyl-Ether (MTBE) *	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Toxaphene ###	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
beta-BHC **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
delta-BHC **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Chlordane #	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
4,4'-DDD **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
4,4'-DDE **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
4,4'-DDT **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Dieldrin **	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Endosulfan sulfate ***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Endrin aldehyde #	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Heptachlor ***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Heptachlor epoxide ***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1016 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1221 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1232 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1242 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1248 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1254 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A
Aroclor-1260 ##	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	N/A

Note: BDL = Below Detection Limit (ug/l), PQL = Practical Quantitation Limit (ug/l) = DL, * = DL 5, ** = DL 10, *** = DL 20, # = DL 50, ## = DL 500, ### = DL 2000, Ground-Water Samples Collected 6/24/93, Bldg 1490, Mayport Naval Station, MPLABADM.XLS

ATTACHMENT

SUPPLEMENTAL LABORATORY ANALYTICAL DATA

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-43674

Received: 26 JUN 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-1	Trip Blank	06-24-93

PARAMETER	43674-1
Purgeables (624)	
Benzene, ug/l	<5.0
Bromodichloromethane, ug/l	<5.0
Bromoform, ug/l	<5.0
Bromomethane, ug/l	<10
Carbon Tetrachloride, ug/l	<5.0
Chlorobenzene, ug/l	<5.0
Chloroethane, ug/l	<10
2-Chloroethylvinyl Ether, ug/l	<50
Chloroform, ug/l	<5.0
Chloromethane, ug/l	<10
Dibromochloromethane, ug/l	<5.0
1,2-Dichlorobenzene, ug/l	<5.0
1,3-Dichlorobenzene, ug/l	<5.0
1,4-Dichlorobenzene, ug/l	<5.0
1,1-Dichloroethane, ug/l	<5.0
1,2-Dichloroethane, ug/l	<5.0
1,1-Dichloroethene, ug/l	<5.0
Trans-1,2-Dichloroethene, ug/l	<5.0
Cis-1,2-Dichloroethene, ug/l	<5.0
1,2-Dichloropropane, ug/l	<5.0
Cis-1,3-Dichloropropene, ug/l	<5.0
Trans-1,3-Dichloropropene, ug/l	<5.0
Ethylbenzene, ug/l	<5.0

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-1	Trip Blank	06-24-93

PARAMETER	43674-1
Methylene Chloride, ug/l	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0
Tetrachloroethene, ug/l	<5.0
Toluene, ug/l	<5.0
1,1,1-Trichloroethane, ug/l	<5.0
1,1,2-Trichloroethane, ug/l	<5.0
Trichloroethylene, ug/l	<5.0
Trichlorofluoromethane, ug/l	<5.0
Vinyl Chloride, ug/l	<10
Xylenes, ug/l	<5.0
Surrogate - Toluene-d8	111 %
Surrogate - 4-Bromofluorobenzene	114 %
Surrogate - 1,2-Dichloroethane-d4	119 %
Date Analyzed	07.02.93
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10

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Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-2	MAY-1490-1-6-93	06-24-93
43674-3	MAY-1490-5-6-93	06-24-93
43674-4	MAY-1490-2-6-93	06-24-93
43674-5	MAY-1490-3-6-93	06-24-93
43674-6	MAY-1490-4-6-93	06-24-93

PARAMETER	43674-2	43674-3	43674-4	43674-5	43674-6
Purgeables (624)					
Benzene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane, ug/l	<10	<10	<10	<10	<10
Carbon Tetrachloride, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane, ug/l	<10	<10	<10	<10	<10
2-Chloroethylvinyl Ether, ug/l	<50	<50	<50	<50	<50
Chloroform, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane, ug/l	<10	<10	<10	<10	<10
Dibromochloromethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,2-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Cis-1,2-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

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LOG NO: S3-43674

Received: 26 JUN 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-2	MAY-1490-1-6-93	06-24-93
43674-3	MAY-1490-5-6-93	06-24-93
43674-4	MAY-1490-2-6-93	06-24-93
43674-5	MAY-1490-3-6-93	06-24-93
43674-6	MAY-1490-4-6-93	06-24-93

PARAMETER	43674-2	43674-3	43674-4	43674-5	43674-6
1,2-Dichloropropane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Cis-1,3-Dichloropropene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,3-Dichloropropene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Ethylbenzene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene Chloride, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethylene, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride, ug/l	<10	<10	<10	<10	<10
Xylenes, ug/l	<5.0	<5.0	<5.0	<5.0	<5.0
Surrogate - Toluene-d8	104 %	96 %	103 %	108 %	105 %
Surrogate - 4-Bromofluorobenzene	123 %	119 %	114 %	115 %	114 %
Surrogate - 1,2-Dichloroethane-d4	115 %	108 %	115 %	123 %	118 %
Date Analyzed	07.02.93	07.02.93	07.03.93	07.03.93	07.03.93
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<10

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-43674

Received: 26 JUN 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-2	MAY-1490-1-6-93	06-24-93
43674-3	MAY-1490-5-6-93	06-24-93
43674-4	MAY-1490-2-6-93	06-24-93
43674-5	MAY-1490-3-6-93	06-24-93
43674-6	MAY-1490-4-6-93	06-24-93

PARAMETER	43674-2	43674-3	43674-4	43674-5	43674-6
BN-A Extractables (625)					
Acenaphthene, ug/l	<10	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10	<10
Anthracene, ug/l	<10	<10	<10	<10	<10
Aldrin, ug/l	<10	<10	<10	<10	<10
Benzo(a)Anthracene, ug/l	<10	<10	<10	<10	<10
Benzo(b)fluoranthene, ug/l	<10	<10	<10	<10	<10
Benzo(k)fluoranthene, ug/l	<10	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<10
Benzyl butyl phthalate, ug/l	<10	<10	<10	<10	<10
beta-BHC, ug/l	<10	<10	<10	<10	<10
delta-BHC, ug/l	<10	<10	<10	<10	<10
bis(2-Chloroethyl)ether, ug/l	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane, ug/l	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate, ug/l	<10	<10	<10	<10	<10
Bis(2-chloroisopropyl)ether, ug/l	<10	<10	<10	<10	<10
4-Bromophenyl-phenyl-ether, ug/l	<10	<10	<10	<10	<10
Chlordane, ug/l	<50	<50	<50	<50	<50
2-Chloronaphthalene, ug/l	<10	<10	<10	<10	<10

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43674-3	MAY-1490-5-6-93	06-24-93
43674-4	MAY-1490-2-6-93	06-24-93
43674-5	MAY-1490-3-6-93	06-24-93
43674-6	MAY-1490-4-6-93	06-24-93

PARAMETER	43674-2	43674-3	43674-4	43674-5	43674-6
4-Chlorophenyl-phenyl ether, ug/l	<10	<10	<10	<10	<10
Chrysene, ug/l	<10	<10	<10	<10	<10
4,4'-DDD, ug/l	<10	<10	<10	<10	<10
4,4'-DDE, ug/l	<10	<10	<10	<10	<10
4,4'-DDT, ug/l	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene, ug/l	<10	<10	<10	<10	<10
Di-n-butylphthalate, ug/l	<10	<10	<10	<10	<10
1,3-Dichlorobenzene, ug/l	<10	<10	<10	<10	<10
1,2-Dichlorobenzene, ug/l	<10	<10	<10	<10	<10
1,4-Dichlorobenzene, ug/l	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine, ug/l	<20	<20	<20	<20	<20
Dieldrin, ug/l	<10	<10	<10	<10	<10
Diethylphthalate, ug/l	<10	<10	<10	<10	<10
Dimethylphthalate, ug/l	<10	<10	<10	<10	<10
2,4-Dinitrotoluene, ug/l	<10	<10	<10	<10	<10
2,6-Dinitrotoluene, ug/l	<10	<10	<10	<10	<10
Di-n-octylphthalate, ug/l	<10	<10	<10	<10	<10
Endosulfan sulfate, ug/l	<20	<20	<20	<20	<20
Endrin Aldehyde, ug/l	<50	<50	<50	<50	<50
Fluoranthene, ug/l	<10	<10	<10	<10	<10

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43674-4	MAY-1490-2-6-93	06-24-93
43674-5	MAY-1490-3-6-93	06-24-93
43674-6	MAY-1490-4-6-93	06-24-93

PARAMETER	43674-2	43674-3	43674-4	43674-5	43674-6
Fluorene, ug/l	<10	<10	<10	<10	<10
Heptachlor, ug/l	<20	<20	<20	<20	<20
Heptachlor epoxide, ug/l	<20	<20	<20	<20	<20
Hexachlorobenzene, ug/l	<10	<10	<10	<10	<10
Hexachlorobutadiene, ug/l	<10	<10	<10	<10	<10
Hexachloroethane, ug/l	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene, ug/l	<10	<10	<10	<10	<10
Isophorone, ug/l	<10	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10	<10
Nitrobenzene, ug/l	<10	<10	<10	<10	<10
N-Nitrosodi-N-Propylamine, ug/l	<10	<10	<10	<10	<10
Aroclor-1016, ug/l	<500	<500	<500	<500	<500
Aroclor-1221, ug/l	<500	<500	<500	<500	<500
Aroclor-1232, ug/l	<500	<500	<500	<500	<500
Aroclor-1242, ug/l	<500	<500	<500	<500	<500
Aroclor-1248, ug/l	<500	<500	<500	<500	<500
Aroclor-1254, ug/l	<500	<500	<500	<500	<500
Aroclor-1260, ug/l	<500	<500	<500	<500	<500
Phenanthrene, ug/l	<10	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10	<10

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43674-4	MAY-1490-2-6-93	06-24-93
43674-5	MAY-1490-3-6-93	06-24-93
43674-6	MAY-1490-4-6-93	06-24-93

PARAMETER	43674-2	43674-3	43674-4	43674-5	43674-6
Toxaphene, ug/l	<2000	<2000	<2000	<2000	<2000
1,2,4-Trichlorobenzene, ug/l	<10	<10	<10	<10	<10
4-Chloro-3-methylphenol, ug/l	<10	<10	<10	<10	<10
2-Chlorophenol, ug/l	<10	<10	<10	<10	<10
2,4-Dichlorophenol, ug/l	<10	<10	<10	<10	<10
2,4-Dimethylphenol, ug/l	<10	<10	<10	<10	<10
2,4-Dinitrophenol, ug/l	<50	<50	<50	<50	<50
2-Methyl-4,6-dinitrophenol, ug/l	<10	<10	<10	<10	<10
2-Nitrophenol, ug/l	<10	<10	<10	<10	<10
4-Nitrophenol, ug/l	<50	<50	<50	<50	<50
Pentachlorophenol, ug/l	<50	<50	<50	<50	<50
Phenol, ug/l	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol, ug/l	<10	<10	<10	<10	<10
Surrogate-PHL	83 %	92 %	81 %	86 %	89 %
Surrogate-2FP	65 %	62 %	60 %	66 %	67 %
Surrogate-TBP	86 %	103 %	104 %	103 %	106 %
Surrogate-NBZ	80 %	76 %	78 %	85 %	89 %
Surrogate-2FBP	69 %	68 %	68 %	69 %	73 %
Surrogate-TPH	67 %	81 %	61 %	61 %	63 %
Date Extracted	06.29.93	06.29.93	06.29.93	06.29.93	06.29.93
Date Analyzed	07.01.93	07.01.93	07.01.93	07.01.93	07.01.93

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-7	MPT-1490-2-6-93	06-24-93
43674-8	MAY-1490-EQP-BLK-6-93	06-24-93
43674-9	MAY-1490-2-DUP-6-93	06-24-93
43674-10	MAY-1490-6-6-93	06-24-93

PARAMETER	43674-7	43674-8	43674-9	43674-10
Purgeables (624)				
Benzene, ug/l	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane, ug/l	<5.0	<5.0	<5.0	<5.0
Bromoform, ug/l	<5.0	<5.0	<5.0	<5.0
Bromomethane, ug/l	<10	<10	<10	<10
Carbon Tetrachloride, ug/l	<5.0	<5.0	<5.0	<5.0
Chlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
Chloroethane, ug/l	<10	<10	<10	<10
2-Chloroethylvinyl Ether, ug/l	<50	<50	<50	<50
Chloroform, ug/l	<5.0	<5.0	<5.0	<5.0
Chloromethane, ug/l	<10	<10	<10	<10
Dibromochloromethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
Trans-1,2-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
Cis-1,2-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane, ug/l	<5.0	<5.0	<5.0	<5.0

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Project: CALL#005 Mayport Bld.1490
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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-7	MPT-1490-2-6-93	06-24-93
43674-8	MAY-1490-EQP-BLK-6-93	06-24-93
43674-9	MAY-1490-2-DUP-6-93	06-24-93
43674-10	MAY-1490-6-6-93	06-24-93

PARAMETER	43674-7	43674-8	43674-9	43674-10
Cis-1,3-Dichloropropene, ug/l	<5.0	<5.0	<5.0	<5.0
Trans-1,3-Dichloropropene, ug/l	<5.0	<5.0	<5.0	<5.0
Ethylbenzene, ug/l	<5.0	<5.0	<5.0	<5.0
Methylene Chloride, ug/l	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
Toluene, ug/l	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
Trichloroethylene, ug/l	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane, ug/l	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride, ug/l	<10	<10	<10	<10
Xylenes, ug/l	<5.0	<5.0	<5.0	<5.0
Surrogate - Toluene-d8	107 %	109 %	112 %	108 %
Surrogate - 4-Bromofluorobenzene	113 %	112 %	119 %	115 %
Surrogate - 1,2-Dichloroethane-d4	120 %	114 %	117 %	123 %
Date Analyzed	07.03.93	07.07.93	07.03.93	07.05.93
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10

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43674-9	MAY-1490-2-DUP-6-93	06-24-93
43674-10	MAY-1490-6-6-93	06-24-93

PARAMETER	43674-7	43674-8	43674-9	43674-10
BN-A Extractables (625)				
Acenaphthene, ug/l	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10
Anthracene, ug/l	<10	<10	<10	<10
Aldrin, ug/l	<10	<10	<10	<10
Benzo(a)Anthracene, ug/l	<10	<10	<10	<10
Benzo(b)fluoranthene, ug/l	<10	<10	<10	<10
Benzo(k)fluoranthene, ug/l	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10
Benzyl butyl phthalate, ug/l	<10	<10	<10	<10
beta-BHC, ug/l	<10	<10	<10	<10
delta-BHC, ug/l	<10	<10	<10	<10
bis(2-Chloroethyl)ether, ug/l	<10	<10	<10	<10
bis(2-Chloroethoxy)methane, ug/l	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate, ug/l	<10	<10	<10	<10
Bis(2-chloroisopropyl)ether, ug/l	<10	<10	<10	<10
4-Bromophenyl-phenyl-ether, ug/l	<10	<10	<10	<10
Chlordane, ug/l	<50	<50	<50	<50
2-Chloronaphthalene, ug/l	<10	<10	<10	<10
4-Chlorophenyl-phenyl ether, ug/l	<10	<10	<10	<10

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43674-9	MAY-1490-2-DUP-6-93	06-24-93
43674-10	MAY-1490-6-6-93	06-24-93

PARAMETER	43674-7	43674-8	43674-9	43674-10
Chrysene, ug/l	<10	<10	<10	<10
4,4'-DDD, ug/l	<10	<10	<10	<10
4,4'-DDE, ug/l	<10	<10	<10	<10
4,4'-DDT, ug/l	<10	<10	<10	<10
Dibenz(a,h)anthracene, ug/l	<10	<10	<10	<10
Di-n-butylphthalate, ug/l	<10	<10	<10	<10
1,3-Dichlorobenzene, ug/l	<10	<10	<10	<10
1,2-Dichlorobenzene, ug/l	<10	<10	<10	<10
1,4-Dichlorobenzene, ug/l	<10	<10	<10	<10
3,3'-Dichlorobenzidine, ug/l	<20	<20	<20	<20
Dieldrin, ug/l	<10	<10	<10	<10
Diethylphthalate, ug/l	<10	<10	<10	<10
Dimethylphthalate, ug/l	<10	<10	<10	<10
2,4-Dinitrotoluene, ug/l	<10	<10	<10	<10
2,6-Dinitrotoluene, ug/l	<10	<10	<10	<10
Di-n-octylphthalate, ug/l	<10	<10	<10	<10
Endosulfan sulfate, ug/l	<20	<20	<20	<20
Endrin Aldehyde, ug/l	<50	<50	<50	<50
Fluoranthene, ug/l	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10
Heptachlor, ug/l	<20	<20	<20	<20

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43674-10	MAY-1490-6-6-93	06-24-93

PARAMETER	43674-7	43674-8	43674-9	43674-10
Heptachlor epoxide, ug/l	<20	<20	<20	<20
Hexachlorobenzene, ug/l	<10	<10	<10	<10
Hexachlorobutadiene, ug/l	<10	<10	<10	<10
Hexachloroethane, ug/l	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene, ug/l	<10	<10	<10	<10
Isophorone, ug/l	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10
Nitrobenzene, ug/l	<10	<10	<10	<10
N-Nitrosodi-N-Propylamine, ug/l	<10	<10	<10	<10
Aroclor-1016, ug/l	<500	<500	<500	<500
Aroclor-1221, ug/l	<500	<500	<500	<500
Aroclor-1232, ug/l	<500	<500	<500	<500
Aroclor-1242, ug/l	<500	<500	<500	<500
Aroclor-1248, ug/l	<500	<500	<500	<500
Aroclor-1254, ug/l	<500	<500	<500	<500
Aroclor-1260, ug/l	<500	<500	<500	<500
Phenanthrene, ug/l	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10
Toxaphene, ug/l	<2000	<2000	<2000	<2000
1,2,4-Trichlorobenzene, ug/l	<10	<10	<10	<10
4-Chloro-3-methylphenol, ug/l	<10	<10	<10	<10

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Savannah, Georgia 31402-0889

Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
43674-7	MPT-1490-2-6-93	06-24-93
43674-8	MAY-1490-EQP-BLK-6-93	06-24-93
43674-9	MAY-1490-2-DUP-6-93	06-24-93
43674-10	MAY-1490-6-6-93	06-24-93

PARAMETER	43674-7	43674-8	43674-9	43674-10
2-Chlorophenol, ug/l	<10	<10	<10	<10
2,4-Dichlorophenol, ug/l	<10	<10	<10	<10
2,4-Dimethylphenol, ug/l	<10	<10	<10	<10
2,4-Dinitrophenol, ug/l	<50	<50	<50	<50
2-Methyl-4,6-dinitrophenol, ug/l	<10	<10	<10	<10
2-Nitrophenol, ug/l	<10	<10	<10	<10
4-Nitrophenol, ug/l	<50	<50	<50	<50
Pentachlorophenol, ug/l	<50	<50	<50	<50
Phenol, ug/l	<10	<10	<10	<10
2,4,6-Trichlorophenol, ug/l	<10	<10	<10	<10
Surrogate-PHL	79 %	88 %	91 %	99 %
Surrogate-2FP	59 %	68 %	69 %	72 %
Surrogate-TBP	108 %	99 %	109 %	102 %
Surrogate-NBZ	80 %	91 %	91 %	94 %
Surrogate-2FBP	65 %	75 %	73 %	76 %
Surrogate-TPH	65 %	97 %	69 %	77 %
Date Extracted	06.29.93	06.29.93	06.29.93	06.29.93
Date Analyzed	07.01.93	07.01.93	07.01.93	07.01.93

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-43674

Received: 26 JUN 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43674-11	Practical Quantitation Limits-Water
43674-12	Method Blank Result
43674-13	Lab Control Standard (LCS) Result/Duplicate
43674-14	LCS Expected Value
43674-15	LCS % Recovery/Duplicate

PARAMETER	43674-11	43674-12	43674-13	43674-14	43674-15
Purgeables (624)					
Benzene, ug/l	5.0	<5.0	54.7/52.7	50	115/105 %
Bromodichloromethane, ug/l	5.0	<5.0	---	---	---
Bromoform, ug/l	5.0	<5.0	---	---	---
Bromomethane, ug/l	10	<10	---	---	---
Carbon Tetrachloride, ug/l	5.0	<5.0	---	---	---
Chlorobenzene, ug/l	5.0	<5.0	57.8/53.2	50	116/106 %
Chloroethane, ug/l	10	<10	---	---	---
2-Chloroethylvinyl Ether, ug/l	50	<50	---	---	---
Chloroform, ug/l	5.0	<5.0	---	---	---
Chloromethane, ug/l	10	<10	---	---	---
Dibromochloromethane, ug/l	5.0	<5.0	---	---	---
1,2-Dichlorobenzene, ug/l	5.0	<5.0	---	---	---
1,3-Dichlorobenzene, ug/l	5.0	<5.0	---	---	---
1,4-Dichlorobenzene, ug/l	5.0	<5.0	---	---	---
1,1-Dichloroethane, ug/l	5.0	<5.0	---	---	---
1,2-Dichloroethane, ug/l	5.0	<5.0	---	---	---
1,1-Dichloroethene, ug/l	5.0	<5.0	46.1/43.6	50	92/87 %
Trans-1,2-Dichloroethene, ug/l	5.0	<5.0	---	---	---
Cis-1,2-Dichloroethene, ug/l	5.0	<5.0	---	---	---

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43674-12	Method Blank Result
43674-13	Lab Control Standard (LCS) Result/Duplicate
43674-14	LCS Expected Value
43674-15	LCS % Recovery/Duplicate

PARAMETER	43674-11	43674-12	43674-13	43674-14	43674-15
1,2-Dichloropropane, ug/l	5.0	<5.0	---	---	---
Cis-1,3-Dichloropropene, ug/l	5.0	<5.0	---	---	---
Trans-1,3-Dichloropropene, ug/l	5.0	<5.0	---	---	---
Ethylbenzene, ug/l	5.0	<5.0	---	---	---
Methylene Chloride, ug/l	5.0	<5.0	---	---	---
1,1,2,2-Tetrachloroethane, ug/l	5.0	<5.0	---	---	---
Tetrachloroethene, ug/l	5.0	<5.0	---	---	---
Toluene, ug/l	5.0	<5.0	56.5/54.1	50	113/108 %
1,1,1-Trichloroethane, ug/l	5.0	<5.0	---	---	---
1,1,2-Trichloroethane, ug/l	5.0	<5.0	---	---	---
Trichloroethylene, ug/l	5.0	<5.0	54.5/51.8	50	109/104 %
Trichlorofluoromethane, ug/l	5.0	<5.0	---	---	---
Vinyl Chloride, ug/l	10	<10	---	---	---
Xylenes, ug/l	5.0	<5.0	---	---	---
Methyl-Tert-Butyl-Ether (MTBE), ug/l	10	<10	---	---	---
Surrogate - Toluene-d8	---	---	112/103 %	---	---
Surrogate - 4-Bromofluorobenzene	---	---	124/107 %	---	---
Surrogate - 1,2-Dichloroethane-d4	---	---	116/103 %	---	---
Date Analyzed	---	---	07.01.93	---	---

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Contract: DACA2191A0009

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43674-11	Practical Quantitation Limits-Water
43674-12	Method Blank Result
43674-13	Lab Control Standard (LCS) Result/Duplicate
43674-14	LCS Expected Value
43674-15	LCS % Recovery/Duplicate

PARAMETER	43674-11	43674-12	43674-13	43674-14	43674-15
BN-A Extractables (625)					
Acenaphthene, ug/l	10	<10	44.4/40.0	50	89/80 %
Acenaphthylene, ug/l	10	<10	---	---	---
Anthracene, ug/l	10	<10	---	---	---
Aldrin, ug/l	10	<10	---	---	---
Benzo(a)Anthracene, ug/l	10	<10	---	---	---
Benzo(b)fluoranthene, ug/l	10	<10	---	---	---
Benzo(k)fluoranthene, ug/l	10	<10	---	---	---
Benzo(a)pyrene, ug/l	10	<10	---	---	---
Benzo(g,h,i)perylene, ug/l	10	<10	---	---	---
Benzyl butyl phthalate, ug/l	10	<10	---	---	---
beta-BHC, ug/l	10	<10	---	---	---
delta-BHC, ug/l	10	<10	---	---	---
bis(2-Chloroethyl)ether, ug/l	10	<10	---	---	---
bis(2-Chloroethoxy)methane, ug/l	10	<10	---	---	---
bis(2-Ethylhexyl)phthalate, ug/l	10	<10	---	---	---
Bis(2-chloroisopropyl)ether, ug/l	10	<10	---	---	---
4-Bromophenyl-phenyl-ether, ug/l	10	<10	---	---	---
Chlordane, ug/l	50	<50	---	---	---
2-Chloronaphthalene, ug/l	10	<10	---	---	---

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Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43674-11	Practical Quantitation Limits-Water
43674-12	Method Blank Result
43674-13	Lab Control Standard (LCS) Result/Duplicate
43674-14	LCS Expected Value
43674-15	LCS % Recovery/Duplicate

PARAMETER	43674-11	43674-12	43674-13	43674-14	43674-15
4-Chlorophenyl-phenyl ether, ug/l	10	<10	---	---	---
Chrysene, ug/l	10	<10	---	---	---
4,4'-DDD, ug/l	10	<10	---	---	---
4,4'-DDE, ug/l	10	<10	---	---	---
4,4'-DDT, ug/l	10	<10	---	---	---
Dibenz(a,h)anthracene, ug/l	10	<10	---	---	---
Di-n-butylphthalate, ug/l	10	<10	---	---	---
1,3-Dichlorobenzene, ug/l	10	<10	---	---	---
1,2-Dichlorobenzene, ug/l	10	<10	---	---	---
1,4-Dichlorobenzene, ug/l	10	<10	37.3/33.3	50	75/67 %
3,3'-Dichlorobenzidine, ug/l	20	<20	---	---	---
Dieldrin, ug/l	10	<10	---	---	---
Diethylphthalate, ug/l	10	<10	---	---	---
Dimethylphthalate, ug/l	10	<10	---	---	---
2,4-Dinitrotoluene, ug/l	10	<10	51.4/42.5	50	103/85 %
2,6-Dinitrotoluene, ug/l	10	<10	---	---	---
Di-n-octylphthalate, ug/l	10	<10	---	---	---
Endosulfan sulfate, ug/l	20	<20	---	---	---
Endrin Aldehyde, ug/l	50	<50	---	---	---
Fluoranthene, ug/l	10	<10	---	---	---

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Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
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REPORT OF RESULTS

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43674-11	Practical Quantitation Limits-Water
43674-12	Method Blank Result
43674-13	Lab Control Standard (LCS) Result/Duplicate
43674-14	LCS Expected Value
43674-15	LCS % Recovery/Duplicate

PARAMETER	43674-11	43674-12	43674-13	43674-14	43674-15
Fluorene, ug/l	10	<10	---	---	---
Heptachlor, ug/l	20	<20	---	---	---
Heptachlor epoxide, ug/l	20	<20	---	---	---
Hexachlorobenzene, ug/l	10	<10	---	---	---
Hexachlorobutadiene, ug/l	10	<10	---	---	---
Hexachloroethane, ug/l	10	<10	---	---	---
Indeno(1,2,3-cd)pyrene, ug/l	10	<10	---	---	---
Isophorone, ug/l	10	<10	---	---	---
Naphthalene, ug/l	10	<10	---	---	---
Nitrobenzene, ug/l	10	<10	---	---	---
N-Nitrosodi-N-Propylamine, ug/l	10	<10	64.9/61.7	50	130/123 %
Aroclor-1016, ug/l	500	<500	---	---	---
Aroclor-1221, ug/l	500	<500	---	---	---
Aroclor-1232, ug/l	500	<500	---	---	---
Aroclor-1242, ug/l	500	<500	---	---	---
Aroclor-1248, ug/l	500	<500	---	---	---
Aroclor-1254, ug/l	500	<500	---	---	---
Aroclor-1260, ug/l	500	<500	---	---	---
Phenanthrene, ug/l	10	<10	---	---	---
Pyrene, ug/l	10	<10	50.0/51.2	50	100/102 %

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43674-11	Practical Quantitation Limits-Water
43674-12	Method Blank Result
43674-13	Lab Control Standard (LCS) Result/Duplicate
43674-14	LCS Expected Value
43674-15	LCS % Recovery/Duplicate

PARAMETER	43674-11	43674-12	43674-13	43674-14	43674-15
Toxaphene, ug/l	2000	<2000	---	---	---
1,2,4-Trichlorobenzene, ug/l	10	<10	40.4/35.6	50	81/71 %
4-Chloro-3-methylphenol, ug/l	10	<10	88.1/81.6	100	88/82 %
2-Chlorophenol, ug/l	10	<10	79/73.2	100	79/73 %
2,4-Dichlorophenol, ug/l	10	<10	---	---	---
2,4-Dimethylphenol, ug/l	10	<10	---	---	---
2,4-Dinitrophenol, ug/l	50	<50	---	---	---
2-Methyl-4,6-dinitrophenol, ug/l	10	<10	---	---	---
2-Nitrophenol, ug/l	10	<10	---	---	---
4-Nitrophenol, ug/l	50	<50	91.9/74.7	100	92/75 %
Pentachlorophenol, ug/l	50	<50	86.2/75.3	100	86/75 %
Phenol, ug/l	10	<10	83.3/79.3	100	83/79 %
2,4,6-Trichlorophenol, ug/l	10	<10	---	---	---
Surrogate-PHL	---	87 %	90/85 %	---	---
Surrogate-2FP	---	79 %	76/69 %	---	---
Surrogate-TBP	---	85 %	95/84 %	---	---
Surrogate-NBZ	---	93 %	93/83 %	---	---
Surrogate-2FBP	---	81 %	85/76 %	---	---
Surrogate-TPH	---	60 %	101/91 %	---	---
Date Extracted	---	06.29.93	06.29.93	---	---
Date Analyzed	---	07.01.93	07.01.93	---	---

Methods: EPA SW-846 and 40 CFR Part 136.

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

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Contract: DACA2191A0009

Project: CALL#005 Mayport Bld.1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43674-16	LCS Control Limit
43674-17	LCS % RPD
43674-18	% RPD Control Limit
43674-19	Control Limits Source

PARAMETER	43674-16	43674-17	43674-18	43674-19
Purgeables (624)				
Benzene, %	73-144 %	5.4 %	<22 %	SL
Chlorobenzene, %	68-136 %	8.3 %	<17 %	SL
1,1-Dichloroethene, %	60-136 %	5.5 %	<19 %	SL
Toluene, %	68-138 %	4.3 %	<17 %	SL
Trichloroethylene, %	66-136 %	3.9 %	<20 %	SL
BN-A Extractables (625)				
Acenaphthene, %	65-116 %	11 %	<20 %	SL
1,4-Dichlorobenzene, %	46-110 %	11 %	<18 %	SL
2,4-Dinitrotoluene, %	39-133 %	19 %	<25 %	SL
N-Nitrosodi-N-Propylamine, %	39-142 %	5.5 %	<60 %	SL
Pyrene, %	36-153 %	2.0 %	<21 %	SL
1,2,4-Trichlorobenzene, %	49-108 %	13 %	<13 %	SL
2-Chlorophenol, %	54-99 %	7.9 %	<18 %	SL
4-Nitrophenol, %	10-112 %	20 %	<108 %	SL
Pentachlorophenol, %	15-139 %	14 %	<39 %	SL
Phenol, %	10-96 %	4.9 %	<21 %	SL

Methods: EPA SW-846 and 40 CFR Part 136.

Steven J. White

Steven J. White

Final Page Of Report

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

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☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

NALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

O. NUMBER	PROJECT NUMBER	PROJECT NAME	MATRIX TYPE	REQUIRED ANALYSES	PAGE	OF
		MAYPORT BLQ 1490				

LIENT NAME	TELEPHONE/FAX NO.
US ARMY CORPS of ENGR	912-652-5311

LIENT ADDRESS	CITY, STATE, ZIP CODE
PO Box 889	SAVANNAH, Ga 31402

AMPLER(S) NAME(S)	CLIENT PROJECT MANAGER
J SMITH	CARDWELL SMITH

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE _____
* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	624 + MTBE	625	NUMBER OF CONTAINERS SUBMITTED
5/24/93		TRIP BLANK	X				4		
5/24/93	09:59	MAY-1490-1-6-93	X				4	2	
5/24/93	12:15	MAY-1490-5-6-93	X				4	2	
5/24/93	11:15	MAY-1490-2-6-93	X				4	2	
5/24/93	16:10	MAY-1490-3-6-93	X				4	2	
5/24/93	16:55	MAY-1490-4-6-93	X				4	2	
5/24/93	14:30	MPT-1490-2-6-93	X				4	2	
5/24/93	16:15	MAY-1490-EQP.BLK-6-93	X				4	2	
5/24/93	11:15	MAY-1490-2-Dup-6-93	X				4	2	
5/24/93	15:35	MAY-1490-[illegible]-6-93	X				4	2	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
Samuel	5/26/93	1:10		5/26/93	1:10		5/26/93	12:58
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.
L Baker	6/26/93	12:57	☑ YES ☐ NO		43674

LABORATORY REMARKS

ADDENDUM 2
TO
CONTAMINATION ASSESSMENT REPORT

MAYPORT NAVAL STATION
BUILDING 1490 - SIMA SHOPS

JACKSONVILLE, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

AUGUST 1994

MEMO

To: Cheryl Mitchel - (Staff Civil Environmental, Mayport NS)

From: Cardwell Smith (U.S. Army Corps of Engineers, Savannah District)

Subject: Bldg. 1490 (SIMA Shops)- Mayport Naval Station, Mayport, Fla. - CAR Addendum 2

Date: August 30, 1994

CC:

Cheryl,

Enclosed is a copy of Addendum 2 to the CAR for Building 1490 (SIMA Shops) at Mayport Naval Station.

Please call if you have any questions or comments -

Thanks,

- Card -

08/30/94
mitchmem.doc

BACKGROUND

This addendum to the Contamination Assessment Report (CAR) for Building 1490 (SIMA Shops) at Mayport Naval Station, Mayport, Florida is a result of a request from the Florida Department of Environmental Protection (FDEP) to perform supplemental assessment work at the site. A copy of the FDEP request, and comments based on their review of the CAR can be found in attachment 1.

RESULTS OF SUPPLEMENTAL ASSESSMENT

Free product monitoring of wells MPT-1490-1 and MPT-1490-2 has indicated that no free product has been detected in the wells since January of 1994. Monitoring data from the wells for the first seven months of 1994 are included in attachment 2. The wells were re-sampled on 27 May 1994 for EPA methods 608, 624, and 625. The analytical results are contained in attachment 3. These results indicate that all parameters analyzed for in the two wells were below detection limits.

SUMMARY OF SUPPLEMENTAL ASSESSMENT

The supplemental re-sampling and laboratory analysis of these wells indicates that there is apparently very little remaining ground water contamination at the site.

Based on the findings of this supplemental work, and the results of monthly monitoring of wells for free product, it is recommended that a Monitoring Only Plan (MOP) be implemented at the site. The MOP will be implemented upon removal of the underground storage tank, at which time any excessively contaminated soil will be removed. The results of the MOP are expected to show that the limited contamination at the site will not increase or migrate substantially from present conditions. The MOP will require quarterly ground water sampling of several monitoring wells, with analyses for EPA methods 608, 624, and 625 contaminants. This quarterly monitoring should continue for a period of 1 year, at which time a No Further Action Proposal (NFAP) will be recommended.

LIST OF ATTACHMENTS

ATTACHMENT 1 - FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT

ATTACHMENT 2 - FREE PRODUCT MONITORING DATA

ATTACHMENT 3 -LABORATORY ANALYTICAL RESULTS

ATTACHMENT 1

FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT

Florida Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

December 17, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Bryan Kizer
Code 184 PDC
Southern Division
Naval Facilities Engineering Command
P.O. Box 10068
2155 Eagle Drive
North Charleston, SC 29411-0068

Dear Mr. Kizer:

Department personnel have completed the technical review of the Contamination Assessment Report, Addendum 1, Building 1490, SIMA Shops, NS Mayport. I have enclosed a memorandum addressed to me from Mr. David M. Clowes. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-0190.

Sincerely,

Eric S. Nuzie
Federal Facilities Coordinator

ESN/st

Enclosure

cc: David Clowes
Brian Cheary
John Mitchell
James Hudson
Jerry Young

Printed on recycled paper.

Florida Department of
Environmental Protection

Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: James J. Crane, P.G. III Administrator
Technical Review Section JJC

Tim J. Bahr, Professional Geologist II
Technical Review Section TB

FROM: David M. Clowes, Remedial Project Manager
Technical Review Section DMC

DATE: December 14, 1993

SUBJECT: Contamination Assessment Report (CAR) Addendum 1 for Building 1490 - SIMA Shops, Naval Station Mayport.

I have reviewed the Contamination Assessment Report (CAR) Addendum 1 dated September 1993 (received October 18, 1993), submitted for this site.

All the documents submitted to date are adequate to meet the contamination assessment requirements of Rules 17-770.600 and 17-770.630, Florida Administrative Code (F.A.C.). However, free product recovery should be implemented in accordance with Rule 17-770.300(1), F.A.C.

When all free product has been removed, then monitoring wells (MPT-1490-1 and MPT-1490-2) that have contained free product should be resampled (EPA Methods 608, 624, and 625) to determine if a Remedial Action Plan (RAP) is necessary. If laboratory analyses of these wells confirm that contaminant concentrations are below the target cleanup levels for the constituents of concern, then a RAP is not necessary.

Recycled Paper

ATTACHMENT 2

FREE PRODUCT MONITORING DATA

FORM #6
US NAVY
MONITORING WELL INSPECTION FORM
WELL ID NUMBER MPT-1490-1

Activity Name: MAYPORT NAVAL STATION

Facility Name SIMA Bldg Number 1488

DATE	TIME	PETROLEUM ODOR? (Y/N)	FLOATING PRODUCT? (Y/N)	PRODUCT THICKNESS		AMOUNT OF WATER/ PRODUCT REMOVED	TECH. NAME	COMMENTS
				FEET	IN			
20 JAN 94	10:30	N	N	Ø	Ø	N/A	Jackson	
18 Feb 94	09:45	N	N	Ø	Ø	N/A	Jackson	
29 MAR 94	09:40	N	N	Ø	Ø	N/A	Jackson	
22 APR 94	10:00	N	N	Ø	Ø	N/A	Jackson	
18 MAY 94	09:45	N	N	Ø	Ø	N/A	Jackson	
17 June 94	09:30	N	N	Ø	Ø	N/A	Jackson	
23 JUN 94	11:00	N	N	Ø	Ø	N/A	Jackson	

NOTES: Depth of product measurements to the nearest 1/8" or 0.01'.
Inspection equipment must be thoroughly cleaned between wells.
Suspected releases must be reported to EPA or state agency within 24 hours.

COMMENTS:

FORM 16
US NAVY
MONITORING WELL INSPECTION FORM
WELL ID NUMBER MPT-1490-2

Activity Name: MAYPORT NAVAL STATION

Facility Name SIMA Bldg Number 1488

DATE	TIME	PETROLEUM ODOR? (Y/N)	FLOATING PRODUCT? (Y/N)	PRODUCT THICKNESS		AMOUNT OF WATER/ PRODUCT REMOVED	TECH. NAME	COMMENTS
				FEET	IN			
20 JAN 94	10:00	N	N	Ø	Ø	N/A	Jackson	
18 Feb 94	10:16	N	N	Ø	Ø	N/A	Jackson	Need New LAP
29 MAR 94	10:05	N	N	Ø	Ø	N/A	Jackson	
22 APR 94	10:30	N	N	Ø	Ø	N/A	Jackson	
18 MAY 94	10:15	N	N	Ø	Ø	N/A	Jackson	
17 June 94	10:00	N	N	Ø	Ø	N/A	Jackson	
23 JUN 94	10:30	N	N	Ø	Ø	N/A	Jackson	

NOTES: Depth of product measurements to the nearest 1/8" or 0.01'.
Inspection equipment must be thoroughly cleaned between wells.
Suspected releases must be reported to EPA or state agency within 24 hours.

COMMENTS:

ATTACHMENT 3

LABORATORY ANALYTICAL RESULTS

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354 7858 • Fax (912) 352-0165

LOG NO: S4-42823

Received: 27 MAY 94

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
100 West Oglethorpe Avenue
Savannah GA 31401-3640

Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
42823-1	MTP-1490-1-5-94	05-27-94
42823-2	MTP-1490-1-DUP-5-94	05-27-94
42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
Purgeables (624)				
Benzene, ug/l	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane, ug/l	<5.0	<5.0	<5.0	<5.0
Bromoform, ug/l	<5.0	<5.0	<5.0	<5.0
Bromomethane, ug/l	<10	<10	<10	<10
Carbon Tetrachloride, ug/l	<5.0	<5.0	<5.0	<5.0
Chlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
Chloroethane, ug/l	<10	<10	<10	<10
2-Chloroethylvinyl Ether, ug/l	<50	<50	<50	<50
Chloroform, ug/l	<5.0	<5.0	<5.0	<5.0
Chloromethane, ug/l	<10	<10	<10	<10
Dibromochloromethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene, ug/l	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
Trans-1,2-Dichloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
cis-1,2-Dichloroethylene, ug/l	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane, ug/l	<5.0	<5.0	<5.0	<5.0

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100 West Oglethorpe Avenue
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Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
42823-1	MTP-1490-1-5-94	05-27-94
42823-2	MTP-1490-1-DUP-5-94	05-27-94
42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
cis-1,3-Dichloropropene, ug/l	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene, ug/l	<5.0	<5.0	<5.0	<5.0
Ethylbenzene, ug/l	<5.0	<5.0	<5.0	<5.0
Methylene Chloride (Dichloromethane), ug/l	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene, ug/l	<5.0	<5.0	<5.0	<5.0
Toluene, ug/l	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane, ug/l	<5.0	<5.0	<5.0	<5.0
Trichloroethylene, ug/l	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane, ug/l	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride, ug/l	<10	<10	<10	<10
Xylenes, ug/l	<5.0	<5.0	<5.0	<5.0
Surrogate - Toluene-d8	88 %	90 %	93 %	89 %
Surrogate - 4-Bromofluorobenzene	89 %	121 %	116 %	93 %
Surrogate - 1,2-Dichloroethane-d4	106 %	111 %	110 %	106 %
Date Analyzed	06.08.94	06.08.94	06.08.94	06.08.94

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42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
BN-A Extractables (625)				
Acenaphthene, ug/l	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10
Anthracene, ug/l	<10	<10	<10	<10
Benzo(a)Anthracene, ug/l	<10	<10	<10	<10
Benzo(b)fluoranthene, ug/l	<10	<10	<10	<10
Benzo(k)fluoranthene, ug/l	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10
Benzyl butyl phthalate, ug/l	<10	<10	<10	<10
bis(2-Chloroethyl)ether, ug/l	<10	<10	<10	<10
bis(2-Chloroethoxy)methane, ug/l	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate, ug/l	<10	<10	<10	<10
Bis(2-chloroisopropyl)ether, ug/l	<10	<10	<10	<10
4-Bromophenyl-phenyl-ether, ug/l	<10	<10	<10	<10
2-Chloronaphthalene, ug/l	<10	<10	<10	<10
4-Chlorophenyl-phenyl ether, ug/l	<10	<10	<10	<10
Chrysene, ug/l	<10	<10	<10	<10
Dibenz(a,h)anthracene, ug/l	<10	<10	<10	<10
Di-n-butylphthalate, ug/l	<10	<10	<10	<10
1,3-Dichlorobenzene, ug/l	<10	<10	<10	<10

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42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
1,2-Dichlorobenzene, ug/l	<10	<10	<10	<10
1,4-Dichlorobenzene, ug/l	<10	<10	<10	<10
3,3'-Dichlorobenzidine, ug/l	<20	<20	<20	<20
Diethylphthalate, ug/l	<10	<10	<10	<10
Dimethylphthalate, ug/l	<10	<10	<10	<10
2,4-Dinitrotoluene, ug/l	<10	<10	<10	<10
2,6-Dinitrotoluene, ug/l	<10	<10	<10	<10
Di-n-octylphthalate, ug/l	<10	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10
Hexachlorobenzene, ug/l	<10	<10	<10	<10
Hexachlorobutadiene, ug/l	<10	<10	<10	<10
Hexachloroethane, ug/l	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene, ug/l	<10	<10	<10	<10
Isophorone, ug/l	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10
Nitrobenzene, ug/l	<10	<10	<10	<10
N-Nitrosodi-N-Propylamine, ug/l	<10	<10	<10	<10
Phenanthrene, ug/l	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10
1,2,4-Trichlorobenzene, ug/l	<10	<10	<10	<10

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42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
4-Chloro-3-methylphenol, ug/l	<10	<10	<10	<10
2-Chlorophenol, ug/l	<10	<10	<10	<10
2,4-Dichlorophenol, ug/l	<10	<10	<10	<10
2,4-Dimethylphenol, ug/l	<10	<10	<10	<10
2,4-Dinitrophenol, ug/l	<50	<50	<50	<50
2-Methyl-4,6-dinitrophenol, ug/l	<50	<50	<50	<50
2-Nitrophenol, ug/l	<10	<10	<10	<10
4-Nitrophenol, ug/l	<50	<50	<50	<50
Pentachlorophenol, ug/l	<50	<50	<50	<50
Phenol, ug/l	<10	<10	<10	<10
2,4,6-Trichlorophenol, ug/l	<10	<10	<10	<10
Benzidine, ug/l	<80	<80	<80	<80
Hexachlorocyclopentadiene, ug/l	<10	<10	<10	<10
N-Nitrosodimethylamine, ug/l	<10	<10	<10	<10
N-Nitrosodiphenylamine/Diphenylamine, ug/l	<10	<10	<10	<10
Surrogate-PHL	76 %	80 %	70 %	70 %
Surrogate-2FP	73 %	78 %	67 %	71 %
Surrogate-TBP	96 %	106 %	81 %	83 %
Surrogate-NBZ	86 %	94 %	75 %	77 %
Surrogate-2FBP	97 %	106 %	90 %	92 %
Surrogate-TPH	70 %	61 %	94 %	45 %
Date Extracted	06.01.94	06.01.94	06.01.94	06.01.94
Date Analyzed	06.03.94	06.03.94	06.03.94	06.03.94

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Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
42823-1	MTP-1490-1-5-94	05-27-94
42823-2	MTP-1490-1-DUP-5-94	05-27-94
42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
Cl-Pesticides/PCB (608)				
Aldrin, ug/l	<0.050	<0.050	<0.050	<0.050
alpha-BHC, ug/l	<0.050	<0.050	<0.050	<0.050
beta-BHC, ug/l	<0.050	<0.050	<0.050	<0.050
gamma-BHC, ug/l	<0.050	<0.050	<0.050	<0.050
delta-BHC, ug/l	<0.050	<0.050	<0.050	<0.050
Chlordane, ug/l	<0.50	<0.50	<0.50	<0.50
4,4'-DDD, ug/l	<0.10	<0.10	<0.10	<0.10
4,4'-DDE, ug/l	<0.10	<0.10	<0.10	<0.10
4,4'-DDT, ug/l	<0.10	<0.10	<0.10	<0.10
Dieldrin, ug/l	<0.10	<0.10	<0.10	<0.10
Endosulfan I, ug/l	<0.050	<0.050	<0.050	<0.050
Endosulfan II, ug/l	<0.10	<0.10	<0.10	<0.10
Endosulfan sulfate, ug/l	<0.10	<0.10	<0.10	<0.10
Endrin, ug/l	<0.10	<0.10	<0.10	<0.10
Endrin Aldehyde, ug/l	<0.10	<0.10	<0.10	<0.10
Heptachlor, ug/l	<0.050	<0.050	<0.050	<0.050
Heptachlor epoxide, ug/l	<0.050	<0.050	<0.050	<0.050
Methoxychlor, ug/l	<0.50	<0.50	<0.50	<0.50
Toxaphene, ug/l	<5.0	<5.0	<5.0	<5.0
Aroclor-1016, ug/l	<1.0	<1.0	<1.0	<1.0

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Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
42823-1	MTP-1490-1-5-94	05-27-94
42823-2	MTP-1490-1-DUP-5-94	05-27-94
42823-3	MTP-1490-BLK-5-94	05-27-94
42823-4	MTP-1490-2-5-94	05-27-94

PARAMETER	42823-1	42823-2	42823-3	42823-4
Aroclor-1221, ug/l	<2.0	<2.0	<2.0	<2.0
Aroclor-1232, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1242, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1248, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1254, ug/l	<1.0	<1.0	<1.0	<1.0
Aroclor-1260, ug/l	<1.0	<1.0	<1.0	<1.0
Surrogate - Dibutylchlorendate % Rec	32 %	36 %	64 %	39 %
Date Extracted	05.31.94	05.31.94	05.31.94	05.31.94
Date Analyzed	06.21.94	06.21.94	06.14.94	06.14.94

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Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
42823-5	Trip Blank	05-27-94

PARAMETER	42823-5
Purgeables (624)	
Benzene, ug/l	<5.0
Bromodichloromethane, ug/l	<5.0
Bromoform, ug/l	<5.0
Bromomethane, ug/l	<10
Carbon Tetrachloride, ug/l	<5.0
Chlorobenzene, ug/l	<5.0
Chloroethane, ug/l	<10
2-Chloroethylvinyl Ether, ug/l	<5.0
Chloroform, ug/l	<5.0
Chloromethane, ug/l	<10
Dibromochloromethane, ug/l	<5.0
1,2-Dichlorobenzene, ug/l	<5.0
1,3-Dichlorobenzene, ug/l	<5.0
1,4-Dichlorobenzene, ug/l	<5.0
1,1-Dichloroethane, ug/l	<5.0
1,2-Dichloroethane, ug/l	<5.0
1,1-Dichloroethene, ug/l	<5.0
Trans-1,2-Dichloroethene, ug/l	<5.0
cis-1,2-Dichloroethylene, ug/l	<5.0
1,2-Dichloropropane, ug/l	<5.0
cis-1,3-Dichloropropene, ug/l	<5.0
trans-1,3-Dichloropropene, ug/l	<5.0
Ethylbenzene, ug/l	<5.0

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Savannah GA 31401-3640

Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
42823-5	Trip Blank	05-27-94

PARAMETER	42823-5
Methylene Chloride (Dichloromethane), ug/l	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0
Tetrachloroethene, ug/l	<5.0
Toluene, ug/l	<5.0
1,1,1-Trichloroethane, ug/l	<5.0
1,1,2-Trichloroethane, ug/l	<5.0
Trichloroethylene, ug/l	<5.0
Trichlorofluoromethane, ug/l	<5.0
Vinyl Chloride, ug/l	<10
Xylenes, ug/l	<5.0
Surrogate - Toluene-d8	87 %
Surrogate - 4-Bromofluorobenzene	90 %
Surrogate - 1,2-Dichloroethane-d4	111 %
Date Analyzed	06.08.94

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
42823-6	Practical Quantitation Limit-Water
42823-7	Method Blank Result
42823-8	Lab Control Standard (LCS) Result
42823-9	Lab Control Standard (LCS) Duplicate
42823-10	LCS Expected Value

PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
Purgeables (624)					
Benzene, ug/l	5.0	<5.0	48.2	53.0	50
Bromodichloromethane, ug/l	5.0	<5.0	---	---	---
Bromoform, ug/l	5.0	<5.0	---	---	---
Bromomethane, ug/l	10	<10	---	---	---
Carbon Tetrachloride, ug/l	5.0	<5.0	---	---	---
Chlorobenzene, ug/l	5.0	<5.0	49.8	52.5	50
Chloroethane, ug/l	10	<10	---	---	---
2-Chloroethylvinyl Ether, ug/l	50	<50	---	---	---
Chloroform, ug/l	5.0	<5.0	---	---	---
Chloromethane, ug/l	10	<10	---	---	---
Dibromochloromethane, ug/l	5.0	<5.0	---	---	---
1,2-Dichlorobenzene, ug/l	5.0	<5.0	---	---	---
1,3-Dichlorobenzene, ug/l	5.0	<5.0	---	---	---
1,4-Dichlorobenzene, ug/l	5.0	<5.0	---	---	---
1,1-Dichloroethane, ug/l	5.0	<5.0	---	---	---
1,2-Dichloroethane, ug/l	5.0	<5.0	---	---	---
1,1-Dichloroethene, ug/l	5.0	<5.0	40.0	48.7	50
Trans-1,2-Dichloroethene, ug/l	5.0	<5.0	---	---	---
cis-1,2-Dichloroethylene, ug/l	5.0	<5.0	---	---	---

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5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S4-42823

Received: 27 MAY 94

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
100 West Oglethorpe Avenue
Savannah GA 31401-3640

Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
42823-6	Practical Quantitation Limit-Water
42823-7	Method Blank Result
42823-8	Lab Control Standard (LCS) Result
42823-9	Lab Control Standard (LCS) Duplicate
42823-10	LCS Expected Value

PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
1,2-Dichloropropane, ug/l	5.0	<5.0	---	---	---
cis-1,3-Dichloropropene, ug/l	5.0	<5.0	---	---	---
trans-1,3-Dichloropropene, ug/l	5.0	<5.0	---	---	---
Ethylbenzene, ug/l	5.0	<5.0	---	---	---
Methylene Chloride (Dichloromethane), ug/l	5.0	<5.0	---	---	---
1,1,2,2-Tetrachloroethane, ug/l	5.0	<5.0	---	---	---
Tetrachloroethene, ug/l	5.0	<5.0	---	---	---
Toluene, ug/l	5.0	<5.0	49.4	51.7	50
1,1,1-Trichloroethane, ug/l	5.0	<5.0	---	---	---
1,1,2-Trichloroethane, ug/l	5.0	<5.0	---	54.1	---
Trichloroethylene, ug/l	5.0	<5.0	49.1	---	50
Trichlorofluoromethane, ug/l	5.0	<5.0	---	---	---
Vinyl Chloride, ug/l	10	<10	---	---	---
Xylenes, ug/l	5.0	<5.0	---	---	---
Surrogate - Toluene-d8	---	103 %	91 %	88 %	---
Surrogate - 4-Bromofluorobenzene	---	101 %	91 %	87 %	---
Surrogate - 1,2-Dichloroethane-d4	---	92 %	112 %	105 %	---
Date Analyzed	---	06.07.94	06.09.94	06.09.94	---

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42823-10	LCS Expected Value

PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
BN-A Extractables (625)					
Acenaphthene, ug/l	10	<10	46	51	50
Acenaphthylene, ug/l	10	<10	---	---	---
Anthracene, ug/l	10	<10	---	---	---
Benzo(a)Anthracene, ug/l	10	<10	---	---	---
Benzo(b)fluoranthene, ug/l	10	<10	---	---	---
Benzo(k)fluoranthene, ug/l	10	<10	---	---	---
Benzo(a)pyrene, ug/l	10	<10	---	---	---
Benzo(g,h,i)perylene, ug/l	10	<10	---	---	---
Benzyl butyl phthalate, ug/l	10	<10	---	---	---
bis(2-Chloroethyl)ether, ug/l	10	<10	---	---	---
bis(2-Chloroethoxy)methane, ug/l	10	<10	---	---	---
bis(2-Ethylhexyl)phthalate, ug/l	10	<10	---	---	---
Bis(2-chloroisopropyl)ether, ug/l	10	<10	---	---	---
4-Bromophenyl-phenyl-ether, ug/l	10	<10	---	---	---
2-Chloronaphthalene, ug/l	10	<10	---	---	---
4-Chlorophenyl-phenyl ether, ug/l	10	<10	---	---	---
Chrysene, ug/l	10	<10	---	---	---
Dibenz(a,h)anthracene, ug/l	10	<10	---	---	---
Di-n-butylphthalate, ug/l	10	<10	---	---	---

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42823-10	LCS Expected Value

PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
1,3-Dichlorobenzene, ug/l	10	<10	---	---	---
1,2-Dichlorobenzene, ug/l	10	<10	---	---	---
1,4-Dichlorobenzene, ug/l	10	<10	38	41	50
3,3'-Dichlorobenzidine, ug/l	20	<20	---	---	---
Diethylphthalate, ug/l	10	<10	---	---	---
Dimethylphthalate, ug/l	10	<10	---	---	---
2,4-Dinitrotoluene, ug/l	10	<10	47	52	50
2,6-Dinitrotoluene, ug/l	10	<10	---	---	---
Di-n-octylphthalate, ug/l	10	<10	---	---	---
Fluoranthene, ug/l	10	<10	---	---	---
Fluorene, ug/l	10	<10	---	---	---
Hexachlorobenzene, ug/l	10	<10	---	---	---
Hexachlorobutadiene, ug/l	10	<10	---	---	---
Hexachloroethane, ug/l	10	<10	---	---	---
Indeno(1,2,3-cd)pyrene, ug/l	10	<10	---	---	---
Isophorone, ug/l	10	<10	---	---	---
Naphthalene, ug/l	10	<10	---	---	---
Nitrobenzene, ug/l	10	<10	---	---	---
N-Nitrosodi-N-Propylamine, ug/l	10	<10	42	47	50
Phenanthrene, ug/l	10	<10	---	---	---

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PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
Pyrene, ug/l	10	<10	57	58	50
1,2,4-Trichlorobenzene, ug/l	10	<10	37	340	50
4-Chloro-3-methylphenol, ug/l	10	<10	91	100	100
2-Chlorophenol, ug/l	10	<10	83	92	100
2,4-Dichlorophenol, ug/l	10	<10	---	---	---
2,4-Dimethylphenol, ug/l	10	<10	---	---	---
2,4-Dinitrophenol, ug/l	50	<50	---	---	---
2-Methyl-4,6-dinitrophenol, ug/l	50	<50	---	---	---
2-Nitrophenol, ug/l	10	<10	---	---	---
4-Nitrophenol, ug/l	50	<50	86	92	100
Pentachlorophenol, ug/l	50	<50	87	88	100
Phenol, ug/l	10	<10	86	94	100
2,4,6-Trichlorophenol, ug/l	10	<10	---	---	---
Benzidine, ug/l	80	<80	---	---	---
Hexachlorocyclopentadiene, ug/l	10	<10	---	---	---
N-Nitrosodimethylamine, ug/l	10	<10	---	---	---
N-Nitrosodiphenylamine/Diphenylamine, ug/l	10	<10	---	---	---
Surrogate-PHL	---	82 %	82 %	92 %	---
Surrogate-2FP	---	81 %	88 %	92 %	---

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PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
Surrogate-TBP	---	102 %	98 %	105 %	---
Surrogate-NBZ	---	90 %	87 %	99 %	---
Surrogate-2FBP	---	107 %	89 %	97 %	---
Surrogate-TPH	---	100 %	106 %	108 %	---
Date Extracted	---	06.01.94	06.01.94	06.01.94	---
Date Analyzed	---	06.03.94	06.03.94	06.03.94	---

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42823-9	Lab Control Standard (LCS) Duplicate
42823-10	LCS Expected Value

PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
Cl-Pesticides/PCB (608)					
Aldrin, ug/l	0.050	<0.050	0.132	0.143	0.20
alpha-BHC, ug/l	0.050	<0.050	---	---	---
beta-BHC, ug/l	0.050	<0.050	---	---	---
gamma-BHC, ug/l	0.050	<0.050	0.116	0.122	0.20
delta-BHC, ug/l	0.050	<0.050	---	---	---
Chlordane, ug/l	0.50	<0.50	---	---	---
4,4'-DDD, ug/l	0.10	<0.10	---	---	---
4,4'-DDE, ug/l	0.10	<0.10	---	---	---
4,4'-DDT, ug/l	0.10	<0.10	0.342	0.370	0.50
Dieldrin, ug/l	0.10	<0.10	0.319	0.350	0.50
Endosulfan I, ug/l	0.050	<0.050	---	---	---
Endosulfan II, ug/l	0.10	<0.10	---	---	---
Endosulfan sulfate, ug/l	0.10	<0.10	---	---	---
Endrin, ug/l	0.10	<0.10	0.285	0.315	0.50
Endrin Aldehyde, ug/l	0.10	<0.10	---	---	---
Heptachlor, ug/l	0.050	<0.050	0.114	0.126	0.20
Heptachlor epoxide, ug/l	0.050	<0.050	---	---	---
Methoxychlor, ug/l	0.50	<0.50	---	---	---
Toxaphene, ug/l	5.0	<5.0	---	---	---

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42823-9	Lab Control Standard (LCS) Duplicate
42823-10	LCS Expected Value

PARAMETER	42823-6	42823-7	42823-8	42823-9	42823-10
Aroclor-1016, ug/l	1.0	<1.0	---	---	---
Aroclor-1221, ug/l	2.0	<2.0	---	---	---
Aroclor-1232, ug/l	1.0	<1.0	---	---	---
Aroclor-1242, ug/l	1.0	<1.0	---	---	---
Aroclor-1248, ug/l	1.0	<1.0	---	---	---
Aroclor-1254, ug/l	1.0	<1.0	---	---	---
Aroclor-1260, ug/l	1.0	<1.0	---	---	---
Surrogate - Dibutylchlorendate % Rec	---	59 %	71 %	77 %	71 %
Date Extracted	---	05.31.94	05.31.94	05.31.94	---
Date Analyzed	---	06.14.94	06.17.94	06.17.94	---

Methods: EPA SW-846
Savannah Environmental Laboratory HRS Cert. #87052
Savannah Drinking Water HRS Cert. #87279

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Project: CALL#0014Mayport BLD 1490
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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
42823-11	LCS % Recovery/Duplicate
42823-12	LCS Control Limit
42823-13	LCS % RPD
42823-14	% RPD Control Limit
42823-15	Control Limits Source

PARAMETER	42823-11	42823-12	42823-13	42823-14	42823-15
Purgeables (624)					
Benzene, %	96/106 %	73-144 %	9.9 %	<22 %	SL
Chlorobenzene, %	100/105 %	68-136 %	4.9 %	<17 %	SL
1,1-Dichloroethene, %	80/97 %	68-136 %	19 %	<19 %	SL
Toluene, %	99/103 %	68-136 %	4.0 %	<17 %	SL
Trichloroethylene, %	98/108 %	66-136 %	9.7 %	<20 %	SL
BN-A Extractables (625)					
Acenaphthene, %	92/102 %	65-116 %	8.2 %	<20 %	SL
1,4 Dichlorobenzene, %	76/82 %	46-110 %	5.8 %	<18 %	SL
2,4-Dinitrotoluene, %	94/104 %	39-133 %	10 %	<25 %	SL
N-Nitrosodi-N-Propylamine, %	84/94 %	39-142 %	17 %	<60 %	SL
Pyrene, %	114/116 %	36-153 %	4.3 %	<21 %	SL
1,2,4-Trichlorobenzene, %	74/80 %	46-108 %	7.8 %	<24 %	SL
4-Chloro-3-methylphenol, %	91/100 %	53-104 %	8.1 %	<17 %	SL
2-Chlorophenol, %	83/92 %	54-99 %	9.4 %	<18 %	SL
4-Nitrophenol, %	86/92 %	10-112 %	14 %	<108 %	SL
Pentachlorophenol, %	87/88 %	15-139 %	0 %	<39 %	SL
Phenol, %	86/94 %	10-96 %	11 %	<21 %	SL

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42823-12	LCS Control Limit
42823-13	LCS % RPD
42823-14	% RPD Control Limit
42823-15	Control Limits Source

PARAMETER	42823-11	42823-12	42823-13	42823-14	42823-15
Cl-Pesticides/PCB (608)					
Aldrin, %	66/72 %	42-116 %	8.7 %	<25 %	SL
gamma-BHC, %	58/61 %	52-136 %	5.0 %	<18 %	SL
4,4'-DDT, %	68/74 %	67-137 %	8.4 %	<28 %	SL
Dieldrin, %	64/70 %	51-143 %	9.0 %	<46 %	SL
Endrin, %	57/63 %	57-142 %	10 %	<23 %	SL
Heptachlor, %	57/63 %	42-129 %	10 %	<22 %	SL

Methods: EPA SW-846
Savannah Environmental Laboratory HRS Cert. #87052
Savannah Drinking Water HRS Cert. #87279

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Contract: DACA2191A0009

Project: CALL#0014Mayport BLD 1490
Sampled By: Client

REPORT OF RESULTS

LOG NO 42823-16 SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES

Method Blank-Liquid

PARAMETER	42823-16
Purgeables (624)	
Benzene, ug/l	<5.0
Bromodichloromethane, ug/l	<5.0
Bromoform, ug/l	<5.0
Bromomethane, ug/l	<10
Carbon Tetrachloride, ug/l	<5.0
Chlorobenzene, ug/l	<5.0
Chloroethane, ug/l	<10
2-Chloroethylvinyl Ether, ug/l	<5.0
Chloroform, ug/l	<5.0
Chloromethane, ug/l	<10
Dibromochloromethane, ug/l	<5.0
1,2-Dichlorobenzene, ug/l	<5.0
1,3-Dichlorobenzene, ug/l	<5.0
1,4-Dichlorobenzene, ug/l	<5.0
1,1-Dichloroethane, ug/l	<5.0
1,2-Dichloroethane, ug/l	<5.0
1,1-Dichloroethene, ug/l	<5.0
Trans-1,2-Dichloroethene, ug/l	<5.0
cis-1,2-Dichloroethylene, ug/l	<5.0
1,2-Dichloropropane, ug/l	<5.0
cis-1,3-Dichloropropene, ug/l	<5.0
trans-1,3-Dichloropropene, ug/l	<5.0
Ethylbenzene, ug/l	<5.0

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
42823-16	Method Blank-Liquid

PARAMETER	42823-16
Methylene Chloride (Dichloromethane), ug/l	<5.0
1,1,2,2-Tetrachloroethane, ug/l	<5.0
Tetrachloroethene, ug/l	<5.0
Toluene, ug/l	<5.0
1,1,1-Trichloroethane, ug/l	<5.0
1,1,2-Trichloroethane, ug/l	<5.0
Trichloroethylene, ug/l	<5.0
Trichlorofluoromethane, ug/l	<5.0
Vinyl Chloride, ug/l	<5.0
Xylenes, ug/l	<10
Surrogate - Toluene-d8	89 %
Surrogate - 4-Bromofluorobenzene	90 %
Surrogate - 1,2-Dichloroethane-d4	105 %
Date Analyzed	06.09.94

Methods: EPA SW-846
Savannah Environmental Laboratory HRS Cert. #87052
Savannah Drinking Water HRS Cert. #87279

Steven J. White

Steven J. White

Final Page Of Report

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

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☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

NALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

O NUMBER	PROJECT NUMBER	PROJECT NAME	PAGE	OF
		MAYPORT BLD 1490	1	1

IENT NAME	TELEPHONE/FAX NO.
ESAS	912-652-5311

IENT ADDRESS	CITY, STATE, ZIP CODE
PO Box 889	SAVANNAH GA 31402

MPLER(S) NAME(S)	CLIENT PROJECT MANAGER
JUDSON SMITH	CALDWELL SMITH

☒ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE _____
* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	MATRIX TYPE: AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	REQUIRED ANALYSES: NUMBER OF CONTAINERS SUBMITTED: 624	608, 625
5/27/94		TRIP BLANK	X				3	
5/27/94	12:30	MTP-1490-1-5-94	X				3	2
5/27/94	12:30	MTP-1490-1-DUP-5-94	X				3	2
5/27/94	12:30	MTP-1490-BLK-5-94	X				3	2
5/27/94	13:10	MTP-1490-2-5-94	X				3	2

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	5/27/94	17:45						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
Frank Mitchell	5/27/94	17:45	☑ YES ☐ NO		42823	

ADDENDUM 3
TO
CONTAMINATION ASSESSMENT REPORT

MAYPORT NAVAL STATION
BUILDING 1490 - SIMA SHOPS

JACKSONVILLE, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

JULY 1998

BACKGROUND

This addendum to the Contamination Assessment Report (CAR) for Building 1490 (SIMA Shops) at Mayport Naval Station, Mayport, Florida is a result of a request from the Florida Department of Environmental Protection (FDEP) to perform supplemental assessment work subsequent to the removal of the underground storage tank (UST) at the site. A copy of the FDEP request, and comments based on their review of the CAR can be found in attachment 1.

The UST at the site was removed in June of 1997. During the removal of the UST, five of the six existing monitoring wells at the site were destroyed. These wells were replaced approximately in their previous locations, except for offsets due to obstructions.

DO NOT INCLUDE THIS IN SOIL REMOVAL CLOSURE REPORT

RESULTS OF SUPPLEMENTAL ASSESSMENT

Figure 1 (attachment 2) is a data summary map of the site showing locations of the re-installed wells, MAY-1490-1A, MAY-1490-2A, MAY-1490-3A, MAY-1490-5D and MAY-1490-6A. Remaining well MAY-1490-4 is also shown. Monitoring well construction information is contained in table 1 (attachment 3).

The re-installed wells and remaining well MAY-1490-4 were re-sampled on 11 May 1998 for EPA methods 8260, 8310, and 418.1. A summary of the analytical results is contained in table 2 (attachment 4). Laboratory analytical data sheets are in attachment 5. These results indicate that all parameters analyzed for in the wells were below detection limits, with the exception of methylene chloride, which is believed to be due to laboratory contamination.

Ground-water level readings taken during the sampling event are shown on figure 1, and indicate that the slight gradient at the site is still somewhat to the west-southwest toward the ship basin.

SUMMARY OF SUPPLEMENTAL ASSESSMENT

The supplemental re-sampling and laboratory analysis of these wells indicates that there is apparently very little if any remaining ground-water contamination at the site.

Based on the findings of this supplemental work, a No Further Action Proposal (NFAP) is recommended for the site.

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT
- ATTACHMENT 2 – FIGURE 1 - DATA SUMMARY MAP
- ATTACHMENT 3 –TABLE 1 – MONITORING WELL DATA
- ATTACHMENT 4 –TABLE 2 – SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
- ATTACHMENT 5 -LABORATORY ANALYTICAL RESULTS

ATTACHMENT 1

FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT

FLORIDA

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

October 25, 1994

Mr. Bryan Kizer
Code 1842
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

RE: Contamination Assessment Report (CAR) Addendum 2, Monitoring Only Plan for Building 1490-Sima Shops Naval Station Mayport, Florida

Dear Mr. Kizer:

I have reviewed the referenced document dated August 1994 (received September 12, 1994). In order to meet the requirements of Chapter 62-770, Florida Administrative Code (F.A.C.), the following comments need to be addressed:

1. The new well (May-1490-6) should be surveyed, elevation acquired, and current groundwater flow map(s) provided.

2. What is the scheduled date for the tank removal?

3. Subsequent to the removal of the tank and any excessively contaminated soil (documentation of soil removal required), the following should be performed:

   a. At a minimum, samples from MPT-1490-1, MPT-1490-2, May-1490-2, and May-1490-6 should be analyzed using EPA Methods 602, 610 and 418.1.

   b. Consult groundwater flow map to confirm flow direction. Sample additional wells if the groundwater flow map indicates the need for further confirmation.

   c. If analytical results indicate levels are below regulatory standards submit a NFA for this site.

If I can be of any further assistance in this matter, please contact me at (904) 488-3935.

Sincerely,

Bruce Arnett

Bruce Arnett
Remedial Project Manager

/baa

cc: Cheryl Mitchell, Naval Station Mayport
Brian Cheary, FDEP Northeast District
Jerry Young, City of Jacksonville
John Mitchell, FDEP Natural Resource Trustee

TJB TB JJC JJC ESN ESN

Printed on recycled paper.

ATTACHMENT 2

FIGURE 1 - DATA SUMMARY MAP

LEGEND

MAY-1490-3 — PERMANENT MONITOR WELL

BDL — BELOW DETECTION LIMIT DEFINED FOR ALL COMPOUNDS ANALYZED FROM GROUND-WATER SAMPLES.

WATER LEVEL ELEVATION CONTOUR

GROUND-WATER FLOW DIRECTION

NOTE:

GROUND-WATER ANALYTICAL RESULTS FROM SAMPLING EVENT ON 11 JUNE 1998. SAMPLES ANALYZED FOR EPA METHODS 8260, 8310 AND 418J.

SCALE: 1"=20'

20' 0 20' 40'

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490-SIMA SHOP

FIGURE 1

SUPPLEMENTAL DATA SUMMARY MAP
CONTAMINATION OF GROUND WATER

UNITED STATES NAVY MAYPORT, FLORIDA

ATTACHMENT 3

TABLE [illegible]ITORING WELL DATA

TABLE 1

MONITORING WELL DATA

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

11 MAY 1998

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (msl)	Screened Interval BLS (ft.)	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (msl)
MAY-1490-1A	12.62	Flush	8.05	2.0 – 11.5	4.25	3.80
MAY-1490-2A	12.10	"	6.96	1.8 – 11.3	3.50	3.46
MAY-1490-3A	12.31	"	7.49	1.8 – 11.3	3.65	3.84
MAY-1490-4	12.82	"	8.93	3.4 – 12.4	4.95	3.98
MAY-1490-5D	22.55	"	7.14	17.2 – 21.7	3.33	3.81
MAY-1490-6A	12.44	"	7.12	1.9 – 11.4	3.43	3.69

Notes: - BLS = Below Land Suurface
- flush = Level with ground surface

ATTACHMENT 4

TABLE 2 – SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490

MAYPORT NAVAL STATION

MAYPORT, FLORIDA

11 May 1998

PARAMETER (UNITS?)	MONITOR WELL NUMBER								
	MAY 1490-1A	MAY 1490-2A	MAY 1490-3A	MAY 1490-4	MAY 1490-5D	MAY 1490-6A	MAY 1490-6A DUPLICATE	RINSATE BLANK	TRIP BLANK
VOLATILE ORGANIC COMPOUNDS (8260)									
DICHLORODIFLUOROMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CHLOROMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
VINYL CHLORIDE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BROMOMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TRICHLOROFLUOROMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-DICHLOROETHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
METHYLENE CHLORIDE	BDL	7.3	9.2	6.2	7.7	7.8	BDL	7.3	BDL
CARBON DISULFIDE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,2-DICHLOROETHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-DICHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,2-DICHLOROPROPANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CIS-1,2-DICHLOROETHENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CHLOROFORM	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CHLORODIBROMOMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-TRICHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-DICHLOROPROPENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CARBON TETRACHLORIDE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-DICHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TRICHLOROETHENE (TCE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-DICHLOROPROPANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BROMODICHLOROMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
DIBROMOMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4-METHYL-2-PENTANONE (MIBK)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-HEXANONE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CIS-1,3-DICHLOROPROPENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOLUENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TRANS-1,3-DICHLOROPROPENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-DICHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-DICHLOROPROPANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490

MAYPORT NAVAL STATION

MAYPORT, FLORIDA

11 May 1998

MONITOR WELL NUMBER

PARAMETER	MAY 1490-1A	MAY 1490-2A	MAY 1490-3A	MAY 1490-4	MAY 1490-5D	MAY 1490-6A	MAY 1490-6A DUPLICATE	RINSATE BLANK	TRIP BLANK
TETRACHLOROETHENE (PCE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-DIBROMOMETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
EHTYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1,2-TETRACHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SYTRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
ISOPROPYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BROMOFORM	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-TETRACHLOROETHANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
N-PROPYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BROMOBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-TRIMETHYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-CHLOROTOLUENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4-CHLOROTOLUENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TERT-BUTYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4-TRIMETHYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SEC-BUTYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
P-ISOPROPYTOLUENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-DICHLOROBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-DICHLOROBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
N-BUTYLBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-DICHLOROBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-DIBROMO-3-CHLOROPROPANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4-TRICHLOROBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
HEXACHLOROBUTADIENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
NAPHTHALENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-TRICHLOROBENZENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
ACETONE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-BUTANONE (MEK)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-CHLOROETHYL VINYL ETHER	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-TRICHLOROPROPANE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
XYLENES (TOTAL)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
METHYL TERT-BUTYL ETHER	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490

MAYPORT NAVAL STATION

MAYPORT, FLORIDA

11 May 1998

MONITOR WELL NUMBER

PARAMETER	MAY 1490-1A	MAY 1490-2A	MAY 1490-3A	MAY 1490-4	MAY 1490-5D	MAY 1490-6A	MAY 1490-6A DUPLICATE	RINSATE BLANK	TRIP BLANK
POLYNUCLEAR AROMATIC HYDROCARBONS (8310)									
NAPHTHALENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
ACENAPHTHYLENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
ACENAPHTHENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
FLUORENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
PHENANTHRENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
ANTHRACENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
FLUORANTHENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
PYRENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
BENZ(A)ANTHRACENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
CHRYSENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
BENZO(B)FLUORANTHENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
BENZO(K)FLUORANTHENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
BENZO(A)PYRENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
DIBENZ(A,H)ANTHRACENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
BENZO (G,H,I) PERYLENE, UG/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
INDENO(1,2,3-CD)PYRENE	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
TOTAL PETROLEUM HYDROCARBONS (418.1)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA

Notes: - BDL = Below Detection Limit

- NA = Not Analyzed

ATTACHMENT 5

LABORATORY ANALYTICAL RESULTS

A HYDROLOGIC OF GEORGIA, INC. LABORATORY

1412 Oakbrook Drive
Suite 105
Norcross, Georgia 30093
Phone (770) 368-0636
Fax (770) 368-0806

ANALYTICAL REPORT

CLIENT:
USACE-Savannah District
Mark Harvision
100 West Oglethorpe Ave
Savannah, GA 31402
P: 912-652-5151 F: 912-652-5311

Ledger Number	N801903
P.O. Number	0096
Date Received	05/13/1998
Time Received	10:30
Reporting Date	05/20/1998

Ledger Comment: Samples May-1490-BLK-1 and May-1490-6A were preserved upon receipt.

Project Name Mayport 1490

Client Sample # Trip Blanks
Sampling Date/Time 05/06/1998 :
Lab Sample ID N80190301

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
5030/8260 VOC (GC/MS) LIQUID				Batch **0514980013**			
Dichlorodifluoromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/19
Chloromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/19
Vinyl Chloride	*Below RL*	2.0	ug/L	1.0	KD	N/A	05/14/19
Bromomethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/19
Chloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Trichlorofluoromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,1-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Methylene Chloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Carbon Disulfide	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Trans-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,1-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
2,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Cis-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Chloroform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Bromochloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,1,1-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,1-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Carbon Tetrachloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Benzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Trichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Bromodichloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Dibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
4-Methyl-2-Pentanone (MIBK)	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/19
2-Hexanone	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/19
Cis-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Toluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19

Client Sample # Trip Blanks

Sampling Date/Time 05/06/1998 :

Lab Sample ID N80190301

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Trans-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,2-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
1,3-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Tetrachloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Chlorodibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dibromoethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Chlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Ethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,1,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Styrene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Isopropylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromoform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,2,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
N-Propylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
1,3,5-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
2-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
4-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/1
Tert-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2,4-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
Sec-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
P-Isopropyltoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,3-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,4-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
N-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dibromo-3-Chloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2,4-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
Hexachlorobutadiene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
Naphthalene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2,3-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
Acetone	***Below RL***	100	ug/L	1.0	KD	N/A	05/14/19
2-Butanone (MEK)	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
2-Chloroethylvinyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2,3-Trichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19
Xylenes (Total)	***Below RL***	15	ug/L	1.0	KD	N/A	05/14/19
Methyl Tert-Butyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/14/19

Client Sample # May-1490-5D

Sampling Date/Time 05/11/1998 10:38 **Lab Sample ID** N80190302

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
Chloromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
Vinyl Chloride	*Below RL*	2.0	ug/L	1.0	KD	N/A	05/14/1
Bromomethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
Chloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Trichlorofluoromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Methylene Chloride	*7.7*	5.0	ug/L	1.0	KD	N/A	05/14/1
Carbon Disulfide	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Trans-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
2,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Cis-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Chloroform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromochloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,1-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Carbon Tetrachloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Benzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Trichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromodichloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Dibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
4-Methyl-2-Pentanone (MIBK)	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
2-Hexanone	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
Cis-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Toluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Trans-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,2-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,3-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Tetrachloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Chlorodibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dibromoethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Chlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Ethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,1,2-Tetrachloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Styrene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Isopropylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromoform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,2,2-Tetrachloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
N-Propylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,3,5-Trimethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1

Client Sample # May-1490-5D

Sampling Date/Time 05/11/1998 10:38 **Lab Sample ID** N80190302

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
2-Chlorotoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
4-Chlorotoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Tert-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2,4-Trimethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Sec-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
P-Isopropyltoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,3-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,4-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
N-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dibromo-3-Chloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2,4-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Hexachlorobutadiene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Naphthalene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2,3-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Acetone	*Below RL*	100	ug/L	1.0	KD	N/A	05/14/1
2-Butanone (MEK)	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
2-Chloroethylvinyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2,3-Trichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Xylenes (Total)	*Below RL*	15	ug/L	1.0	KD	N/A	05/14/1
Methyl Tert-Butyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1

Project Name Mayport 1490

Client Sample # May-1490-6A

Sampling Date/Time 05/11/1998 10:43 **Lab Sample ID** N80190303

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analy
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/
Chloromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/
Vinyl Chloride	*Below RL*	2.0	ug/L	1.0	KD	N/A	05/14/
Bromomethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/
Chloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
Trichlorofluoromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
1,1-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
Methylene Chloride	*7.8*	5.0	ug/L	1.0	KD	N/A	05/14/
Carbon Disulfide	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
Trans-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
1,1-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
2,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/
Cis-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/

Project Name Mayport 1490

Client Sample # May-1490-6A

Sampling Date/Time 05/11/1998 10:43 **Lab Sample ID** N80190303

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Chloroform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromochloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,1-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Carbon Tetrachloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Benzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Trichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Bromodichloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Dibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
4-Methyl-2-Pentanone (MIBK)	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
2-Hexanone	*Below RL*	10	ug/L	1.0	KD	N/A	05/14/1
Cis-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Toluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Trans-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,1,2-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,3-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Tetrachloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Chlorodibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dibromoethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Chlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Ethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,1,1,2-Tetrachloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Styrene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Isopropylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Bromoform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,1,2,2-Tetrachloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
N-Propylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Bromobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,3,5-Trimethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
2-Chlorotoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
4-Chlorotoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Tert-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2,4-Trimethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Sec-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
P-Isopropyltoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,3-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,4-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
N-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2-Dibromo-3-Chloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
1,2,4-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19
Hexachlorobutadiene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/19

Project Name Mayport 1490

Client Sample # May-1490-6A
Sampling Date/Time 05/11/1998 10:43 **Lab Sample ID** N80190303

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Naphthalene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2,3-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Acetone	*Below RL*	100	ug/L	1.0	KD	N/A	05/14/1
2-Butanone (MEK)	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
2-Chloroethylvinyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
1,2,3-Trichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1
Xylenes (Total)	*Below RL*	15	ug/L	1.0	KD	N/A	05/14/1
Methyl Tert-Butyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/14/1

Project Name Mayport 1490

Client Sample # May-1490-2A
Sampling Date/Time 05/11/1998 10:50 **Lab Sample ID** N80190304

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
Chloromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
Vinyl Chloride	*Below RL*	2.0	ug/L	1.0	KD	N/A	05/15/1
Bromomethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
Chloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Trichlorofluoromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Methylene Chloride	*7.3*	5.0	ug/L	1.0	KD	N/A	05/15/1
Carbon Disulfide	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Trans-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
2,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Cis-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Chloroform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromochloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,1-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Carbon Tetrachloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Benzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Trichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromodichloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Dibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
4-Methyl-2-Pentanone (MIBK)	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
2-Hexanone	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1

Client Sample # May-1490-2A

Sampling Date/Time 05/11/1998 10:50 **Lab Sample ID** N80190304

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Cis-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Toluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Trans-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,2-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,3-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Tetrachloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Chlorodibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dibromoethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Chlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Ethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,1,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Styrene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Isopropylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromoform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,2,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
N-Propylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,3,5-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
2-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
4-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Tert-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2,4-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Sec-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
P-Isopropyltoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,3-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,4-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
N-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,2-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,2-Dibromo-3-Chloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,2,4-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Hexachlorobutadiene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Naphthalene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,2,3-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Acetone	***Below RL***	100	ug/L	1.0	KD	N/A	05/15/
2-Butanone (MEK)	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
2-Chloroethylvinyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,2,3-Trichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Xylenes (Total)	***Below RL***	15	ug/L	1.0	KD	N/A	05/15/
Methyl Tert-Butyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/

Project Name Mayport 1490

Client Sample # May-1490-Dup-1

Sampling Date/Time 05/11/1998 10:00 **Lab Sample ID** N80190305

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/19
Chloromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/19
Vinyl Chloride	*Below RL*	2.0	ug/L	1.0	KD	N/A	05/15/19
Bromomethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/19
Chloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Trichlorofluoromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Methylene Chloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Carbon Disulfide	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Trans-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
2,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Cis-1,2-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Chloroform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromochloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,1-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Carbon Tetrachloride	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Benzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Trichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromodichloromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Dibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
4-Methyl-2-Pentanone (MIBK)	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/19
2-Hexanone	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/19
Cis-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Toluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Trans-1,3-Dichloropropene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2-Trichloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3-Dichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Tetrachloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Chlorodibromomethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dibromoethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Chlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Ethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,1,2-Tetrachloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Styrene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Isopropylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromoform	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2,2-Tetrachloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Propylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3,5-Trimethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19

Project Name Mayport 1490

Client Sample # May-1490-Dup-1
Sampling Date/Time 05/11/1998 10:00 **Lab Sample ID** N80190305

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
2-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
4-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Tert-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2,4-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Sec-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
P-Isopropyltoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,3-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,4-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
N-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dibromo-3-Chloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2,4-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Hexachlorobutadiene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Naphthalene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2,3-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Acetone	***Below RL***	100	ug/L	1.0	KD	N/A	05/15/1
2-Butanone (MEK)	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
2-Chloroethylvinyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2,3-Trichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Xylenes (Total)	***Below RL***	15	ug/L	1.0	KD	N/A	05/15/1
Methyl Tert-Butyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1

Project Name Mayport 1490

Client Sample # May-1490-3A
Sampling Date/Time 05/11/1998 10:55 **Lab Sample ID** N80190306

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analy
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/
Chloromethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/
Vinyl Chloride	***Below RL***	2.0	ug/L	1.0	KD	N/A	05/15/
Bromomethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/
Chloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Trichlorofluoromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,1-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Methylene Chloride	***9.2***	5.0	ug/L	1.0	KD	N/A	05/15/
Carbon Disulfide	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Trans-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
1,1-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
2,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/
Cis-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/

Project Name Mayport 1490

Client Sample # May-1490-3A

Sampling Date/Time 05/11/1998 10:55 **Lab Sample ID** N80190306

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/8260 VOC (GC/MS) LIQUID					Batch 0514980013		
Chloroform	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromochloromethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,1-Trichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloropropene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Carbon Tetrachloride	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Benzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Trichloroethene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichloropropane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromodichloromethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Dibromomethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
4-Methyl-2-Pentanone (MIBK)	Below RL	10	ug/L	1.0	KD	N/A	05/15/1
2-Hexanone	Below RL	10	ug/L	1.0	KD	N/A	05/15/1
Cis-1,3-Dichloropropene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Toluene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Trans-1,3-Dichloropropene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,2-Trichloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,3-Dichloropropane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Tetrachloroethene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Chlorodibromomethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dibromoethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Chlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Ethylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,1,2-Tetrachloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Styrene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Isopropylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromoform	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,2,2-Tetrachloroethane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
N-Propylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,3,5-Trimethylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
2-Chlorotoluene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
4-Chlorotoluene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
Tert-Butylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,2,4-Trimethylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
Sec-Butylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
P-Isopropyltoluene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,3-Dichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,4-Dichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
N-Butylbenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,2-Dichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,2-Dibromo-3-Chloropropane	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
1,2,4-Trichlorobenzene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/
Hexachlorobutadiene	Below RL	5.0	ug/L	1.0	KD	N/A	05/15/

Project Name Mayport 1490

Client Sample # May-1490-3A
Sampling Date/Time 05/11/1998 10:55 **Lab Sample ID** N80190306

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Naphthalene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Acetone	*Below RL*	100	ug/L	1.0	KD	N/A	05/15/19
2-Butanone (MEK)	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chloroethylvinyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Xylenes (Total)	*Below RL*	15	ug/L	1.0	KD	N/A	05/15/19
Methyl Tert-Butyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19

Project Name Mayport 1490

Client Sample # May-1490-4
Sampling Date/Time 05/11/1998 11:02 **Lab Sample ID** N80190307

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthylene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Fluorene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Phenanthrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Anthracene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Pyrene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benz(A)Anthracene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
Chrysene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
Benzo(B)Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
Benzo(K)Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
Benzo(A)Pyrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
Dibenz(A,H)Anthracene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/1
Benzo(G,H,I)Perylene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/1
Indeno(1,2,3-CD)Pyrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	*Below RL*	0.51	mg/L	1.0	MK	05/14/1998	05/14/1
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
Chloromethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
Vinyl Chloride	*Below RL*	2.0	ug/L	1.0	KD	N/A	05/15/1
Bromomethane	*Below RL*	10	ug/L	1.0	KD	N/A	05/15/1
Chloroethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
Trichlorofluoromethane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloroethene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/1

Project Name Mayport

Client Sample # May-1490-4

Sampling Date/Time 05/11/1998 11:02 **Lab Sample ID** N80190307

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Methylene Chloride	***6.2***	5.0	ug/L	1.0	KD	N/A	05/15/19
Carbon Disulfide	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trans-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Cis-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Chloroform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromochloromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,1-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Carbon Tetrachloride	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Benzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromodichloromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Dibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
4-Methyl-2-Pentanone (MIBK)	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/19
2-Hexanone	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/19
Cis-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Toluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trans-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Tetrachloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Chlorodibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dibromoethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Chlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Ethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,1,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Styrene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Isopropylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromoform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Propylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3,5-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
4-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Tert-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,4-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Sec-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
P-Isopropyltoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19

Project Name Mayport 1490

Client Sample # May-1490-4

Sampling Date/Time 05/11/1998 11:02 **Lab Sample ID** N80190307

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
1,4-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dibromo-3-Chloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,4-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Hexachlorobutadiene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Naphthalene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Acetone	***Below RL***	100	ug/L	1.0	KD	N/A	05/15/19
2-Butanone (MEK)	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chloroethylvinyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Xylenes (Total)	***Below RL***	15	ug/L	1.0	KD	N/A	05/15/1
Methyl Tert-Butyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1

Project Name Mayport 1490

Client Sample # May-1490-1A

Sampling Date/Time 05/11/1998 11:06 **Lab Sample ID** N80190308

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Acenaphthylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Acenaphthene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Fluorene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Phenanthrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Pyrene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Benz(A)Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Chrysene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Benzo(B)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Benzo(K)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Benzo(A)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Dibenz(A,H)Anthracene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19
Benzo(G,H,I)Perylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19
Indeno(1,2,3-CD)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	***Below RL***	0.52	mg/L	1.0	MK	05/14/1998	05/14
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15

Project Name Mayport 1490

Client Sample # May-1490-1A
Sampling Date/Time 05/11/1998 11:06 **Lab Sample ID** N80190308

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Chloromethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/19
Vinyl Chloride	***Below RL***	2.0	ug/L	1.0	KD	N/A	05/15/19
Bromomethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/19
Chloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trichlorofluoromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Methylene Chloride	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Carbon Disulfide	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trans-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Cis-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Chloroform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromochloromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,1-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Carbon Tetrachloride	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Benzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromodichloromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Dibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
4-Methyl-2-Pentanone (MIBK)	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/19
2-Hexanone	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/19
Cis-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Toluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Trans-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Tetrachloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Chlorodibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dibromoethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Chlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Ethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,1,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Styrene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Isopropylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromoform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Propylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3,5-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19

Project Name Mayport 1490

Client Sample # May-1490-1A
Sampling Date/Time 05/11/1998 11:06 Lab Sample ID N80190308

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
4-Chlorotoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Tert-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,4-Trimethylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Sec-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
P-Isopropyltoluene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,4-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Butylbenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dibromo-3-Chloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,4-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Hexachlorobutadiene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Naphthalene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichlorobenzene	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Acetone	*Below RL*	100	ug/L	1.0	KD	N/A	05/15/19
2-Butanone (MEK)	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chloroethylvinyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichloropropane	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19
Xylenes (Total)	*Below RL*	15	ug/L	1.0	KD	N/A	05/15/19
Methyl Tert-Butyl Ether	*Below RL*	5.0	ug/L	1.0	KD	N/A	05/15/19

Project Name Mayport 1490

Client Sample # May-1490-BLK-1
Sampling Date/Time 05/11/1998 11:10 Lab Sample ID N80190309

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Acenaphthylene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Acenaphthene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Fluorene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Phenanthrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Anthracene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Pyrene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Benz(A)Anthracene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Chrysene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Benzo(B)Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Benzo(K)Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Benzo(A)Pyrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19
Dibenz(A,H)Anthracene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19

Project Name Mayport 1490

Client Sample # May-1490-BLK-1
Sampling Date/Time 05/11/1998 11:10 **Lab Sample ID** N80190309

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Benzo(G,H,I)Perylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/1
Indeno(1,2,3-CD)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	***Below RL***	0.50	mg/L	1.0	MK	05/14/1998	05/14/1
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Dichlorodifluoromethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/1
Chloromethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/1
Vinyl Chloride	***Below RL***	2.0	ug/L	1.0	KD	N/A	05/15/1
Bromomethane	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/1
Chloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Trichlorofluoromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Methylene Chloride	***7.3***	5.0	ug/L	1.0	KD	N/A	05/15/1
Carbon Disulfide	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Trans-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
2,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Cis-1,2-Dichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Chloroform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromochloromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,1-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Carbon Tetrachloride	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Benzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Trichloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Bromodichloromethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Dibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
4-Methyl-2-Pentanone (MIBK)	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/1
2-Hexanone	***Below RL***	10	ug/L	1.0	KD	N/A	05/15/1
Cis-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Toluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Trans-1,3-Dichloropropene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,2-Trichloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,3-Dichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Tetrachloroethene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Chlorodibromomethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,2-Dibromoethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Chlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Ethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
1,1,1,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Styrene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1
Isopropylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/1

Project Name Mayport 1490

Client Sample # May-1490-BLK-1
Sampling Date/Time 05/11/1998 11:10 **Lab Sample ID** N80190309

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
5030/8260 VOC (GC/MS) LIQUID					Batch **0514980013**		
Bromoform	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,1,2,2-Tetrachloroethane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Propylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Bromobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3,5-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
4-Chlorotoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Tert-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,4-Trimethylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Sec-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
P-Isopropyltoluene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,3-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,4-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
N-Butylbenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2-Dibromo-3-Chloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,4-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Hexachlorobutadiene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Naphthalene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichlorobenzene	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Acetone	***Below RL***	100	ug/L	1.0	KD	N/A	05/15/19
2-Butanone (MEK)	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
2-Chloroethylvinyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
1,2,3-Trichloropropane	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19
Xylenes (Total)	***Below RL***	15	ug/L	1.0	KD	N/A	05/15/19
Methyl Tert-Butyl Ether	***Below RL***	5.0	ug/L	1.0	KD	N/A	05/15/19

Project Name Mayport 1490

Client Sample # May-1490-5D
Sampling Date/Time 05/11/1998 10:38 **Lab Sample ID** N80190310

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Acenaphthylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Acenaphthene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/
Fluorene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Phenanthrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/
Pyrene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/

Project Name Mayport 1490

Client Sample # May-1490-5D
Sampling Date/Time 05/11/1998 10:38 **Lab Sample ID** N80190310

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Benz(A)Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Chrysene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(B)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(K)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(A)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Dibenz(A,H)Anthracene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(G,H,I)Perylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Indeno(1,2,3-CD)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	***Below RL***	0.51	mg/L	1.0	MK	05/14/1998	05/14/19

Project Name Mayport 1490

Client Sample # May-1490-6A
Sampling Date/Time 05/11/1998 10:43 **Lab Sample ID** N80190311

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Fluorene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Phenanthrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Pyrene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benz(A)Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Chrysene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(B)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(K)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(A)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Dibenz(A,H)Anthracene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(G,H,I)Perylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Indeno(1,2,3-CD)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/1
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	***Below RL***	0.52	mg/L	1.0	MK	05/14/1998	05/14/1

Client Sample # May-1490-2A

Sampling Date/Time 05/11/1998 10:50 **Lab Sample ID** N80190312

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Fluorene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Phenanthrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Pyrene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benz(A)Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Chrysene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(B)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(K)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(A)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Dibenz(A,H)Anthracene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(G,H,I)Perylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Indeno(1,2,3-CD)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	***Below RL***	0.51	mg/L	1.0	MK	05/14/1998	05/14/19

Project Name Mayport 1490

Client Sample # May-1490-Dup-1

Sampling Date/Time 05/11/1998 10:00 **Lab Sample ID** N80190313

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Fluorene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Phenanthrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Pyrene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benz(A)Anthracene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Chrysene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(B)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(K)Fluoranthene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(A)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Dibenz(A,H)Anthracene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(G,H,I)Perylene	***Below RL***	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Indeno(1,2,3-CD)Pyrene	***Below RL***	0.500	ug/L	1.00	HC	05/18/1998	05/19/19

418.1	TPH (FTIR) LIQUID					Batch 0514980018		
TPH(FTIR)	*Below RL*	0.52	mg/L	1.0	MK	05/14/1998	05/14/19

Project Name Mayport 1490

Client Sample # May-1490-3A

Sampling Date/Time 05/11/1998 10:55 **Lab Sample ID** N80190314

Prep/Method Analyte	*Result*	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysis
3510/610 610 PAH (HPLC)					Batch **0518980012**		
Naphthalene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthylene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Acenaphthene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Fluorene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Phenanthrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Anthracene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Pyrene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benz(A)Anthracene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Chrysene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(B)Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(K)Fluoranthene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(A)Pyrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
Dibenz(A,H)Anthracene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Benzo(G,H,I)Perylene	*Below RL*	2.50	ug/L	1.00	HC	05/18/1998	05/19/19
Indeno(1,2,3-CD)Pyrene	*Below RL*	0.500	ug/L	1.00	HC	05/18/1998	05/19/19
418.1 TPH (FTIR) LIQUID					Batch **0514980018**		
TPH(FTIR)	*Below RL*	0.53	mg/L	1.0	MK	05/14/1998	05/14/19

RL = Reporting Limit INIT. = (*) Analysis performed by another HydroLogic Laboratory, (#) Analysis performed by subcontracted Laboratory.

Maria Mar Hill 5/20/98
Certifying Scientist

Organics and Inorganics in Wastewater, Solids, and Wastes

NC-DEHNR 441 SC-DHEC 98013, GA -DNR-806 UT-DOH E-228 (UST), FL-DEP 940134 HRS E87194 (Water) HRS 87368 (Drinking Water),A2LA:0594-01,

EPA ID	EPA Reg Waste	US Army Corps of Engineers Validation
GA-00033	GA-0001011006	

These result(s) relate only to the item(s) tested.

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Case Narrative N801903

Date: May 20, 1998
Client: USACE Savannah District

Analysis	QC Situation	Comments
Volatile Organics by GC Batch: 0515980013	The batch MS had a detection for Methylene Chloride at 14.2µg/L.	Samples N8081903O2, 03, 04, 06, 07, and 09 each had detections for this compound consistent with those of the Method Blank. Because of this - the sample results for the noted samples for Methylene Chloride should be considered as being caused by laboratory contamination.
	One surrogate recovered outside of the established control limits for the following samples: N80190301, 02, 03, 04, 05, 08, 09, and the batch MB.	Control for these samples was based on the remaining two acceptable surrogate recoveries.
PAHs by HPLC Batch: 0518980012	Sufficient sample volume was not available for the preparation of a batch MS and MSD.	Batch control was based on the acceptable LCS and LCSD spike recoveries with the following exception: The batch LCSD spike recovery for Naphthalene was slightly below the established control limits. Control for this compound was based on the acceptable LCS recovery.
TPH by IR Batch: 0514980018	Sufficient sample volume was not available for the preparation of a batch MS and MSD.	Batch control was based on the acceptable LCS and LCSD spike recoveries.

QA/QC REPORT

Ledger #	N801903	**Prep Method**	5030
Analyzed by	KD	**Prepared by**	KD
QA/QC Batch ID	0514980013	**Analysis Method**	8260
MS/MSD Ref ID	N80187410	**Matrix**	LIQUID

NQ8134041 **MB**	Value	RL	Units
Dichlorodifluoromethane	Below RL	10.0	ug/L
Chloromethane	Below RL	10.0	ug/L
Vinyl Chloride	Below RL	2.00	ug/L
Bromomethane	Below RL	10.0	ug/L
Chloroethane	Below RL	5.00	ug/L
Trichlorofluoromethane	Below RL	5.00	ug/L
1,1-Dichloroethene	Below RL	5.00	ug/L
Methylene Chloride	14.2	5.00	ug/L
Carbon Disulfide	Below RL	5.00	ug/L
Trans-1,2-Dichloroethene	Below RL	5.00	ug/L
1,1-Dichloroethane	Below RL	5.00	ug/L
2,2-Dichloropropane	Below RL	5.00	ug/L
Cis-1,2-Dichloroethene	Below RL	5.00	ug/L
Chloroform	Below RL	5.00	ug/L
Bromochloromethane	Below RL	5.00	ug/L
1,1,1-Trichloroethane	Below RL	5.00	ug/L
1,1-Dichloropropene	Below RL	5.00	ug/L
Carbon Tetrachloride	Below RL	5.00	ug/L
1,2-Dichloroethane	Below RL	5.00	ug/L
Benzene	Below RL	5.00	ug/L
Trichloroethene	Below RL	5.00	ug/L
1,2-Dichloropropane	Below RL	5.00	ug/L
Bromodichloromethane	Below RL	5.00	ug/L
Dibromomethane	Below RL	5.00	ug/L
4-Methyl-2-Pentanone (MIBK)	Below RL	10.0	ug/L
2-Hexanone	Below RL	10.0	ug/L
Cis-1,3-Dichloropropene	Below RL	5.00	ug/L
Toluene	Below RL	5.00	ug/L
Trans-1,3-Dichloropropene	Below RL	5.00	ug/L
1,1,2-Trichloroethane	Below RL	5.00	ug/L
1,3-Dichloropropane	Below RL	5.00	ug/L
Tetrachloroethene	Below RL	5.00	ug/L
Chlorodibromomethane	Below RL	5.00	ug/L
1,2-Dibromoethane	Below RL	5.00	ug/L
Chlorobenzene	Below RL	5.00	ug/L
Ethylbenzene	Below RL	5.00	ug/L
1,1,1,2-Tetrachloroethane	Below RL	5.00	ug/L
Xylenes (Total)	Below RL	15.0	ug/L
Styrene	Below RL	5.00	ug/L
Isopropylbenzene	Below RL	5.00	ug/L
Bromoform	Below RL	5.00	ug/L
1,1,2,2-Tetrachloroethane	Below RL	5.00	ug/L
1,2,3-Trichloropropane	Below RL	5.00	ug/L
N-Propylbenzene	Below RL	5.00	ug/L
Bromobenzene	Below RL	5.00	ug/L
1,3,5-Trimethylbenzene	Below RL	5.00	ug/L

QA/QC Conventions

DV : Duplicate
DR : Duplicate Reference
MS : Matrix Spike
MSD : Matrix Spike Duplicate
LCS : Lab Control Spike
LCSD: Lab Control Spike Duplicate
MB : Method Blank
PDS : Post-Digestion Spike

2-Chlorotoluene	Below RL	5.00	ug/L
4-Chlorotoluene	Below RL	5.00	ug/L
Tert-Butylbenzene	Below RL	5.00	ug/L
1,2,4-Trimethylbenzene	Below RL	5.00	ug/L
Sec-Butylbenzene	Below RL	5.00	ug/L
P-Isopropyltoluene	Below RL	5.00	ug/L
1,3-Dichlorobenzene	Below RL	5.00	ug/L
1,4-Dichlorobenzene	Below RL	5.00	ug/L
N-Butylbenzene	Below RL	5.00	ug/L
1,2-Dichlorobenzene	Below RL	5.00	ug/L
1,2-Dibromo-3-Chloropropane	Below RL	5.00	ug/L
1,2,4-Trichlorobenzene	Below RL	5.00	ug/L
Hexachlorobutadiene	Below RL	5.00	ug/L
Naphthalene	Below RL	5.00	ug/L
1,2,3-Trichlorobenzene	Below RL	5.00	ug/L
Methyl Ethyl Ketone	Below RL	5.00	ug/L
Trans-1,4-dichloro-2-Butene	Below RL	5.00	ug/L
Acetone	Below RL	100	ug/L
2-Chloroethylvinyl Ether	Below RL	5.00	ug/L
Methyl Tert-Butyl Ether	Below RL	5.00	ug/L

NQ8134042 **MS**	Value	Spike Value	Units	REC(%)	Control Limits (%)
1,1-Dichloroethene	46.7	50.0	ug/L	93.4	80-119
Benzene	50.3	50.0	ug/L	101	82-114
Trichloroethene	46.1	50.0	ug/L	92.2	75-120
Toluene	48.0	50.0	ug/L	96.0	71-123
Chlorobenzene	48.4	50.0	ug/L	96.8	79-119

NQ8134043 **MSD**	Value	Spike Value	Units	REC(%)	Control Limits (%)	RPD	RPD Limits
1,1-Dichloroethene	47.5	50.0	ug/L	95.0	80-119	1.70	
Benzene	50.7	50.0	ug/L	101	82-114	0.792	
Trichloroethene	45.9	50.0	ug/L	91.8	75-120	0.435	
Toluene	47.8	50.0	ug/L	95.6	71-123	0.418	
Chlorobenzene	48.4	50.0	ug/L	96.8	79-119	0.0	

NQ8134040 **LCS**	Value	Spike Value	Units	REC(%)	Control Limits (%)
1,1-Dichloroethene	48.6	50.0	ug/L	97.2	80-119
Benzene	51.2	50.0	ug/L	102	82-114
Trichloroethene	45.9	50.0	ug/L	91.8	75-120
Toluene	49.0	50.0	ug/L	98.0	71-123
Chlorobenzene	49.5	50.0	ug/L	99.0	79-119

QA/QC Conventions

DV : Duplicate
DR : Duplicate Reference
MS : Matrix Spike
MSD : Matrix Spike Duplicate
LCS : Lab Control Spike
LCSD: Lab Control Spike Duplicate
MB : Method Blank
PDS : Post-Digestion Spike

Toluene-D8	49.4	50.0	1.00	ug/L	98.8	96-106
1,2-Dichloroethane-D4	44.0	50.0	1.00	ug/L	88.0 *	92-112
4-Bromofluorobenzene	46.9	50.0	1.00	ug/L	93.8	90-105

N80190302 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	49.7	50.0	1.00	ug/L	99.4	96-106
1,2-Dichloroethane-D4	45.0	50.0	1.00	ug/L	90.0 *	92-112
4-Bromofluorobenzene	46.8	50.0	1.00	ug/L	93.6	90-105

N80190303 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	49.9	50.0	1.00	ug/L	99.8	96-106
1,2-Dichloroethane-D4	45.3	50.0	1.00	ug/L	90.6 *	92-112
4-Bromofluorobenzene	46.1	50.0	1.00	ug/L	92.2	90-105

N80190304 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	49.8	50.0	1.00	ug/L	99.6	96-106
1,2-Dichloroethane-D4	45.4	50.0	1.00	ug/L	90.8 *	92-112
4-Bromofluorobenzene	45.6	50.0	1.00	ug/L	91.2	90-105

N80190305 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	50.0	50.0	1.00	ug/L	100	96-106
1,2-Dichloroethane-D4	44.9	50.0	1.00	ug/L	89.8 *	92-112
4-Bromofluorobenzene	45.6	50.0	1.00	ug/L	91.2	90-105

N80190306 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	50.2	50.0	1.00	ug/L	100	96-106
1,2-Dichloroethane-D4	46.9	50.0	1.00	ug/L	93.8	92-112
4-Bromofluorobenzene	46.1	50.0	1.00	ug/L	92.2	90-105

N80190307 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	49.6	50.0	1.00	ug/L	99.2	96-106
1,2-Dichloroethane-D4	46.5	50.0	1.00	ug/L	93.0	92-112
4-Bromofluorobenzene	45.4	50.0	1.00	ug/L	90.8	90-105

N80190308 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	49.9	50.0	1.00	ug/L	99.8	96-106
1,2-Dichloroethane-D4	45.2	50.0	1.00	ug/L	90.4 *	92-112
4-Bromofluorobenzene	45.0	50.0	1.00	ug/L	90.0	90-105

N80190309 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	50.8	50.0	1.00	ug/L	102	96-106
1,2-Dichloroethane-D4	46.6	50.0	1.00	ug/L	93.2	92-112
4-Bromofluorobenzene	44.8	50.0	1.00	ug/L	89.6 *	90-105

NQ8134040 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	50.4	50.0	1.00	ug/L	101	96-106
1,2-Dichloroethane-D4	49.8	50.0	1.00	ug/L	99.6	92-112
4-Bromofluorobenzene	46.8	50.0	1.00	ug/L	93.6	90-105

NQ8134041 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	48.5	50.0	1.00	ug/L	97.0	96-106
1,2-Dichloroethane-D4	44.8	50.0	1.00	ug/L	89.6 *	92-112
4-Bromofluorobenzene	51.1	50.0	1.00	ug/L	102	90-105

NQ8134042 **SURR**	Value	Spike	DL	Units	REC(%)	Limits(%)
Toluene-D8	51.2	50.0	1.00	ug/L	102	96-106
1,2-Dichloroethane-D4	50.1	50.0	1.00	ug/L	100	92-112
4-Bromofluorobenzene	45.9	50.0	1.00	ug/L	91.8	90-105

Toluene-D8	50.9	50.0	1.00	ug/L	102	[illegible]
1,2-Dichloroethane-D4	49.0	50.0	1.00	ug/L	98.0	92-112
4-Bromofluorobenzene	47.0	50.0	1.00	ug/L	94.0	90-105

QA/QC REPORT

Ledger #	N801903	Prep Method	3510
Analyzed by	HC	Prepared by	DW
QA/QC Batch ID	0518980012	Analysis Method	610
MS/MSD Ref ID		Matrix	LIQUID

NQ8138055 **MB**	Value	RL	Units
Naphthalene	Below RL	2.50	ug/L
Acenaphthylene	Below RL	2.50	ug/L
Acenaphthene	Below RL	2.50	ug/L
Fluorene	Below RL	0.500	ug/L
Phenanthrene	Below RL	0.500	ug/L
Anthracene	Below RL	0.500	ug/L
Fluoranthene	Below RL	0.500	ug/L
Pyrene	Below RL	2.50	ug/L
Benz(A)Anthracene	Below RL	0.500	ug/L
Chrysene	Below RL	0.500	ug/L
Benzo(B)Fluoranthene	Below RL	0.500	ug/L
Benzo(K)Fluoranthene	Below RL	0.500	ug/L
Benzo(A)Pyrene	Below RL	0.500	ug/L
Dibenz(A,H)Anthracene	Below RL	2.50	ug/L
Benzo(G,H,I)Perylene	Below RL	2.50	ug/L
Indeno(1,2,3-CD)Pyrene	Below RL	0.500	ug/L

NQ8138053 **LCS**	Value	Spike Value	Units	REC(%)	Control Limits (%)
Naphthalene	8.39	20.0	ug/L	42.0	42- 93
Acenaphthylene	9.47	20.0	ug/L	47.3	42- 98
Acenaphthene	8.97	20.0	ug/L	44.9	38-108
Fluorene	10.4	20.0	ug/L	51.9	46- 99
Phenanthrene	11.4	20.0	ug/L	57.2	45-106
Anthracene	12.9	20.0	ug/L	64.5	47-126
Fluoranthene	13.4	20.0	ug/L	67.0	50-112
Pyrene	14.1	20.0	ug/L	70.7	53-113
Benz(A)Anthracene	14.7	20.0	ug/L	73.5	39-112
Chrysene	14.8	20.0	ug/L	73.9	34-117
Benzo(B)Fluoranthene	14.6	20.0	ug/L	73.2	10-128
Benzo(K)Fluoranthene	14.6	20.0	ug/L	72.9	10-134
Benzo(A)Pyrene	13.3	20.0	ug/L	66.4	10-126
Indeno(1,2,3-CD)Pyrene	13.7	20.0	ug/L	68.4	10-139
Dibenz(A,H)Anthracene	13.5	20.0	ug/L	67.6	10-147
Benzo(G,H,I)Perylene	13.4	20.0	ug/L	67.2	10-130

NQ8138054 **LCSD**	Value	Spike Value	Units	REC(%)	Control Limits (%)	RPD	RPD Limits
Naphthalene	7.46	20.0	ug/L	37.3*	42-113	11.8	4
Acenaphthylene	8.55	20.0	ug/L	42.8	42- 98	10.2	4
Acenaphthene	8.41	20.0	ug/L	42.0	38-108	6.51	6
Fluorene	10.3	20.0	ug/L	51.4	46- 99	0.881	4
Phenanthrene	11.8	20.0	ug/L	59.1	45-106	3.31	3
Anthracene	13.4	20.0	ug/L	67.2	47-126	4.07	3
Fluoranthene	13.7	20.0	ug/L	68.3	50-112	1.94	3
Pyrene	14.4	20.0	ug/L	72.1	53-113	2.08	3
Benz(A)Anthracene	14.7	20.0	ug/L	73.5	39-112	0.0136	2

QA/QC Conventions

DV : Duplicate
DR : Duplicate Reference
MS : Matrix Spike
MSD : Matrix Spike Duplicate
LCS : Lab Control Spike
LCSD: Lab Control Spike Duplicate
MB : Method Blank
PDS : Post-Digestion Spike

Chrysene	14.8	20.0	ug/L	74.2	[illegible]	[illegible]	[illegible]
Benzo(B)Fluoranthene	14.1	20.0	ug/L	70.6	10-128	3.50	43.(
Benzo(K)Fluoranthene	14.0	20.0	ug/L	69.8	10-134	4.36	75.(
Benzo(A)Pyrene	12.9	20.0	ug/L	64.3	10-126	3.31	56.(
Indeno(1,2,3-CD)Pyrene	13.1	20.0	ug/L	65.6	10-139	4.11	66.
Dibenz(A,H)Anthracene	12.8	20.0	ug/L	64.2	10-147	5.22	64.
Benzo(G,H,I)Perylene	12.6	20.0	ug/L	63.1	10-130	6.24	62.

QA/QC Conventions

DV : Duplicate
DR : Duplicate Referance
MS : Matrix Spike
MSD : Matrix Spike Duplicate
LCS : Lab Control Spike
LCSD: Lab Control Spike Duplicate
MB : Method Blank
PDS : Post-Digestion Spike

p-Terphenyl (Surr)						
N80190308	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	38.5	50.0	1.00	ug/L	77.0	10-137
N80190309	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	28.1	50.0	1.00	ug/L	56.3	10-137
N80190310	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	45.1	50.0	1.00	ug/L	90.2	10-137
N80190311	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	35.4	50.0	1.00	ug/L	70.7	10-137
N80190312	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	30.7	50.0	1.00	ug/L	61.4	10-137
N80190313	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	25.9	50.0	1.00	ug/L	51.7	10-137
N80190314	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	31.8	50.0	1.00	ug/L	63.6	10-137
NQ8138055 **MB**	Value	Spike	DL	Units	REC(%)	Limits(%)
P-Terphenyl (Surr)	33.4	50.0	1.00	ug/L	66.8	10-137
NQ8138053 **LCS**	Value	Spike	DL	Units	REC(%)	Limits(%)
p-Terphenyl	38.4	50.0	1.00	ug/L	76.8	10-137
NQ8138054 **LCSD**	Value	Spike	DL	Units	REC(%)	Limits(%)
p-Terphenyl	36.2	50.0	1.00	ug/L	72.5	10-137

QA/QC REPORT

Ledger #	N801903	**Prep Method**	418.1
Analyzed by	MKM	**Prepared by**	SM
QA/QC Batch ID	0514980018	**Analysis Method**	418.1
MS/MSD Ref ID		**Matrix**	LIQUID

NQ8134056 **MB**	Value	RL	Units
TPH(FTIR)	Below RL	0.500	mg/L

NQ8134054 **LCS**	Value	Spike Value	Units	REC(%)	Control Limits (%)
TPH(FTIR)	2.07	2.04	mg/L	101	80-120

NQ8134055 **LCSD**	Value	Spike Value	Units	REC(%)	Control Limits (%)	RPD	RPD Limits
TPH(FTIR)	1.97	2.04	mg/L	96.3	80-120	5.08	2

QA/QC Conventions

DV : Duplicate
DR : Duplicate Reference
MS : Matrix Spike
MSD : Matrix Spike Duplicate
LCS : Lab Control Spike
LCSD: Lab Control Spike Duplicate
MB : Method Blank
PDS : Post-Digestion Spike

HYDROLOGIC, INC.

Chain of Custody Record

❒ Asheville, NC (704) 254-5169 ❒ Norcross, GA (770) 368-0636 ❒ Frankfort KY (502) 223-0251 ❒ Lumberton, NC (910) 738-6190 ❒ Charlotte, NC (704) 392-1164 ❒ Morrisville, NC (919) 380-9699

❒ Brighton, CO (303) 659-0497 ❒ Orlando, FL (407) 851-2560 ❒ Lexington, SC (803) 796-8989 ❒ Richmond, VA (804) 358-3145 ❒ Burlington, NC (910) 570-4661 ❒ Macon, GA (912) 757-0811

Client: USACE	Project No.: MAYPORT 1490
Report Address: P.O. Box 889	Invoice Address:
SAVANNAH, GA 31402	
Attn: MARK HARVISON	Attn:
Phone No.: 912-652-5151	Sampled By: AMIRON, J. SMITH
Fax No.: 912-652-5311	P.O. No: 0096
TURNAROUND TIME	State Samples Collected FLORIDA
❒ 24 Hours ❒ 48 Hours	
❒ 5 Days ❒ 10 Days	Date Needed:

REQUESTED PARAMETERS

8260 / 418.1 8270^{044} / 610 / 8310

LAB CODE I.D.
A = Asheville, NC
B = Burlington, NC
C = Charlotte, NC
D = Denver, CO
E = Lexington, SC
G = Macon, GA
K = Frankfort, KY
L = Lumberton, NC
M = Morrisville, NC
N = Norcross, GA
O = Orlando, FL
R = Richmond, VA
S = Subcontracted

Sample ID	Date	Time	Comp/ Grab	Matrix	Containers	HCl	H_2SO_4	—	← Preserv.	REMARKS
TRIP BLANKS				AQUEOUS	3	3	—	—		
MAY-1490-5D	5/11/98	1038	GRAB	AQUEOUS	2	2	—	—		
MAY-1490-6A	5/11/98	1043	GRAB	AQUEOUS	2	2	—	—		
MAY-1490-2A	5/11/98	1050	GRAB	AQUEOUS	2	2	—	—		
MAY-1490-DUP-1	5/11/98	1000	GRAB	AQUEOUS	2	2	—	—		
MAY-1490-3A	5/11/98	1055	GRAB	AQUEOUS	2	2	—	—		
MAY-1490-4	5/11/98	1102	GRAB	AQUEOUS	4	2	1	1		
MAY-1490-1A	5/11/98	1106	GRAB	AQUEOUS	4	2	1	1		
MAY-1490-BLK-1	5/11/98	1110	GRAB	AQUEOUS	4	2	1	1	NO SULFURIC ACID	
									3°C	

Lab Use Only **Custody Seal:** ❒ Yes ❒ No ❒ N/A **Init Lab Temp.** **Rec. Lab Temp**

COMMENTS:

N801903

Relinquished By:	Date 12-MAY-98 Time 16:	Received By: SHIPPING	Date 12-MAY-98 Time 16:
Relinquished By:	Date Time	Received By:	Date 5/13/98 Time 10:30

HYDROLOGIC, INC.

Chain of Custody Record

☐ Asheville, NC (704) 254-5169 ☐ Norcross, GA (770) 368-0636 ☐ Frankfort KY (502) 223-0251 ☐ Lumberton, NC (910) 738-6190 ☐ Charlotte, NC (704) 392-1164 ☐ Morrisville, NC (919) 380-9699

☐ Brighton, CO (303) 659-0497 ☐ Orlando, FL (407) 851-2560 ☐ Lexington, SC (803) 796-8989 ☐ Richmond, VA (804) 358-3145 ☐ Burlington, NC (910) 570-4661 ☐ Macon, GA (912) 757-0811

Client: USACE	Project No.: MAYPORT 1490
Report Address: PO BOX 889	Invoice Address: 100 W OGLETHORPE AVE
SAVANNAH GA 31401	SAVANNAH, GA 31402
Attn: MARK HARVISON	Attn: MARK HARVISON
Phone No.: (912) 652-5151	Sampled By: JUDSON SMITH, DEREK ANDON
Fax No.: (912) 652-5311	P.O. No: 0096
	State Samples Collected FLA

TURNAROUND TIME

☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days Date Needed: 3-7 DAY TURN AR.

REQUESTED PARAMETERS

LAB CODE I.D.

A = Asheville, NC
B = Burlington, NC
C = Charlotte, NC
D = Denver, CO
E = Lexington, SC
G = Macon, GA
K = Frankfort, KY
L = Lumberton, NC
M = Morrisville, NC
N = Norcross, GA
O = Orlando, FL
R = Richmond, VA
S = Subcontracted

Sample ID	Date	Time	Comp/ Grab	Matrix	Containers	—	H_2SO_4	610 / 8310	418.1	← Preserv.	REMARKS
MAY-1490-5D	5/11/98	1038	GRAB	AQUEOUS	2	1	1				
MAY-1490-6A	5/11/98	1043	GRAB	AQUEOUS	2	1	1				NO SULFURIC ACID
MAY-1490-2A	5/11/98	1050	GRAB	AQUEOUS	2	1	1				
MAY-1490-DUP-1	5/11/98	1000	GRAB	AQUEOUS	2	1	1				
MAY-1490-3A	5/11/98	1055	GRAB	AQUEOUS	2	1	1				

2°C

Lab Use Only Custody Seal: ☐ Yes ☐ No ☐ N/A | Init Lab Temp. | Rec. Lab Temp

COMMENTS:

N80 1903

Relinquished By: [signature]	Date 12-May 98 Time 16	Received By: SHIPPING	Date 12-May 98 Time 16:0
Relinquished By:	Date Time	Received By: [signature]	Date 5/13/98 Time 10:30
Relinquished By:	Date Time	Received By:	Date Time

Lab Use Only

ADDENDUM 4
TO
CONTAMINATION ASSESSMENT REPORT

MAYPORT NAVAL STATION
BUILDING 1490 - SIMA SHOPS

JACKSONVILLE, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

JULY 1999

BACKGROUND

This addendum to the Contamination Assessment Report (CAR) for Building 1490 (SIMA Shops) at Mayport Naval Station, Mayport, Florida is a result of a request from the Florida Department of Environmental Protection (FDEP) to perform supplemental assessment work subsequent to the removal of the underground storage tank (UST) at the site. A copy of the FDEP request, and comments based on their review of addendum 3 of the CAR can be found in attachment 1.

The UST at the site was removed in June of 1997. During the removal of the UST, five of the six existing monitoring wells at the site were destroyed. These wells were replaced approximately in their previous locations, except for offsets due to obstructions. The relationships of the former well locations with their replacements are shown on figure 1 (attachment 3). A copy of the UST Closure Report was presented in addendum 3.

Although the work described in the Closure Report referred to the removal of an "oil/water separator", the UST removed from the site was in fact an underground waste oil storage tank (see attachment 2). Soil and ground-water sampling and analysis data presented in the Closure Report are associated with the closure of the waste oil UST.

The original CAR for the site (May 1992) described free product petroleum (0.05' and 0.17' respectively) found in two compliance wells, MPT-1490-1 and MPT-1490-2, which was apparently predominately associated with the area of the tank backfill. A subsequent monthly free product monitoring/recovery program initiated in February 1993 did not detect product in any of the site wells until a June 1993 sampling event, as part of supplemental work at the site, revealed that well MPT-1490-1 indicated 0.06' of free product. Subsequent monthly product checks through July 1994 did not detect any free product.

In December 1993 FDEP requested that compliance wells MPT-1490-1 and MPT-1490-2 be sampled for EPA methods 608, 624, and 625. No contaminants were found above detection limits for that sampling event.

RESULTS OF SUPPLEMENTAL ASSESSMENT

At FDEP's request, an additional shallow monitoring well, MAY-1490-7 was installed near the location of former compliance well MPT-1490-1, as shown on figure 1 (attachment 3). Construction information

for all monitoring wells, including new well MAY-1490-7, is contained in table 1 (attachment 4). The installation log of the new well is located in attachment 5.

After installation of the new well, it was sampled along with wells MAY-1490-2A and MAY-1490-6A on March 27 1999 for FL-PRO and EPA methods 8260 (+MTBE), 8270 and RCRA metals (6010 and 7470). A summary of the analytical results is contained in table 2 (attachment 6). Laboratory analytical data sheets are in attachment 7. Although these results indicate that all parameters analyzed for in the wells were below detection limits, the detection limits for seven EPA 8270 analytes and two EPA 8260 analytes were above maximum contaminant levels (MCLs) for those analytes.

Ground-water level readings taken during the sampling event are shown on figure 1, and indicate that the slight gradient at the site is still somewhat to the west-southwest toward the ship basin.

SUMMARY OF SUPPLEMENTAL ASSESSMENT

Although this supplemental re-sampling and laboratory analysis of wells at the site indicates that there is apparently little if any remaining ground-water contamination at the site, some of the analytical data is not definitive enough to allow a regulatory decision to be made. Since this deficiency has been noted on the last two sampling events, either a different laboratory will be contracted or different (equivalent) analytical methods will be used for future sampling events, in order to meet the required detection limits.

Based on the results of free product monitoring of wells, and since analytical results indicate that if contamination exists at the site, it is relatively low-level, it is proposed that a Monitoring Only Plan (MOP) be implemented at the site for EPA methods 8260 (+MTBE) and 8270, and FL-PRO. The results of the MOP are expected to show that if limited contamination exists at the site, it will not increase or migrate substantially from present conditions. The MOP would require quarterly sampling of several wells at the site for a period of one year, after which if monitoring results warrant, a No Further Action Proposal (NFAP) would be recommended.

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT
- ATTACHMENT 2 – NAVAL STATION MAYPORT MEMO
- ATTACHMENT 3 – FIGURE 1 - DATA SUMMARY MAP
- ATTACHMENT 4 – TABLE 1 – MONITORING WELL DATA
- ATTACHMENT 5 – MONITORING WELL INSTALLATION LOG
- ATTACHMENT 6 – TABLE 2 – SUMMARY OF GROUND-WATER ANALYTICAL RESULTS
- ATTACHMENT 7 - LABORATORY ANALYTICAL RESULTS

ATTACHMENT 1

FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

October 23, 1998

Ms. Beverly Washington
Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC 29419-9010

file: sima_ad3.doc

RE: Addendum 3 to Contamination Assessment Report Building 1490-SIMA Shop, NAVSTA Mayport

Dear Ms. Washington,

I have reviewed the above document dated September 1998 (received September 17, 1998). The following comments should be adequately addressed before the document can be considered final:

1. Project definition: My understanding of this project was that it was removal of an underground storage tank that contained waste oil from an oil/water separator. Documentation appended to the report indicates that although Attachment 5 should be a UST Closure Report, the attachment is for closure of an oil/water separator. Please fully document the work that was accomplished during the period for which the report has been prepared. If an underground storage tank was removed, please submit the closure documentation, including any soil and water sampling analytical results.

2. Background: Please document the location of the newly installed wells relative to the former wells since I cannot tell how much "offsets due to obstructions" actually is.

3. Results of Supplemental Assessment (including Figure 1): Please do not use "BDL" to report analytical values. Please present analytical results in a summary table which identifies each sample location, the analytical method that was used, the analytical value or the detection limit for the parameter if the analytical value was below the detection limit. For example, in all of the latest samples, the reporting limits were above the maximum contaminant limits for benzene, which was given as "BDL." If "BDL" is used and I do not check the detection limits for each analysis, I cannot tell if the data are suitable for regulatory decisions. If the reporting limit is above the MCL, I cannot reasonably conclude that the sample meets regulatory standards or guidelines and consequently, I must judge the data as suspect. Please see Note 1 of Table II in Chapter 62-770, F.A.C.,

which states that detection limits shall meet the specified cleanup target levels. I suggest that the Navy discuss this with the contract laboratory and reconcile the problem.

4. Summary of Supplemental Assessment: The recommendation of No Further Action is not appropriate at this time. Page 1 of the appended Closure Assessment Report noted that the oil/water separator (OWS) that was removed contained waste oil; therefore, ground water and soil samples, including the recent sampling of the permanent monitoring wells, should have been analyzed for the chemicals of concern in Table II of Chapter 62-770, F.A.C. Please note that this includes analysis for TRPH by the FL-PRO method. If an oil/water separator was removed, please indicate the former location of the OWES on Figure 1. I suggest that the Navy submit all of the possible closure documents to me before the next sampling event. I am concerned because I do not have information regarding the soil and water analyses that were (may have been) obtained nor their locations during the closure.

5. Sampling: examination of the prior Contamination Assessment Report and of Figure 1 in Addendum 1, dated September 1993, indicates that an area of free product existed at compliance well MPT-1490-2 and that the approximate areal extent of ground water contamination extended beyond compliance well MPT-1490-2. The present Addendum 4 does not document the disposition of the free product, the compliance wells, the associated soil nor any results from a temporary well that may have been emplaced at the location of the former underground storage tank. If this information exists, please submit it. In the absence of adequate information in this regard, please conduct soil borings at the location of the former UST, utilizing the general applicable guidelines, including analytical protocols in the current Closure Assessment handbook, Revision of April 1998. Additionally, please install a shallow monitoring well at the approximate location of the southwest corner of the former UST, near for location of former compliance well MPT-1490-1. Please sample this well and monitoring wells MAY-1490-2A and MAY-1490-6A and conduct analyses for the chemicals of concern in Table II of Chapter 62-770, F.A.C. Please note that this includes analysis for TRPH by the FL-PRO method. Please conduct water level measurements at the site monitoring wells and prepare an updated ground water flow map.

6. Following the sampling event, please evaluate the analytical results, remembering the necessity for usable detection limits. If the analyses indicates significant ground water contamination, additional assessment may be required, as provided in Chapter 62-770, F.A.C. If you wish, I would be happy to meet with you and Mr. Cardwell Smith either at our next partnering meeting or by teleconference when the data are available, prior to preparation of the next monitoring report.

Thank you for the opportunity to review this document. If you need further clarification or other assistance, please contact me at (850) 921-4230.

Printed on recycled paper.

Sincerely,

James H. Cason, P.G.
Remedial Project Manager

cc: Jan Bouvier, NAVSTA Mayport
Randy Bishop, NAVSTA Mayport

TJB JJC ESN

ATTACHMENT 2

NAVAL STATION MAYPORT MEMO

STAFF CIVIL ENGINEER DEPARTMENT
NAVAL STATION
MAYPORT, FLORIDA 32228-0067

IN REPLY REFER TO:
5090.16
N4E7
10-Mar-999

MEMORANDUM

From: Jan Bovier, Environmental Division, Naval Station Mayport
To: Cardwell Smith, US Army Corps of Engineers, Savannah District

Via: Cheryl Mitchell, Environmental Director, Naval Station Mayport CM

Subj: CLARIFICATION OF WORK PERFORMED ON TANK 1490 (SIMA)

Ref: (a) Closure Assessment Report for Tank 1490 dated 23 April 1997
(b) Contract #N62467-96-R-2520, "Remove/Replace Underground Storage Tank, Building 1488, Naval Station Mayport

Encl: (1) Digital Photographs of Subject Tank dated 09 March 1999

1. Questions have arisen from Florida Department of Environmental Protection regarding reference (a). The contractor's report references the tank as an oil/water separator throughout the report, when it was actually an underground storage tank. Reference (b), Section 01010, paragraph 2 General Description states: "The work includes removal and replacement of an underground, waste oil storage tank. The existing tank is precast concrete and will be replaced with a double wall fiberglass tank with interstitial leak detection. Preparation of a tank closure report per Florida Department of Environmental Protection Regulation 17-761 will be required. Existing piping that connects three (3) existing oil/water separators to the storage tank will be removed and replaced with containment piping. The containment piping will have interstitial monitoring. The existing separators are housed in concrete vaults which will be cleaned and relined. New lids for the vaults will be installed that includes access hatches and incidental related work."

2. Enclosure (1) is being sent for your use and information.

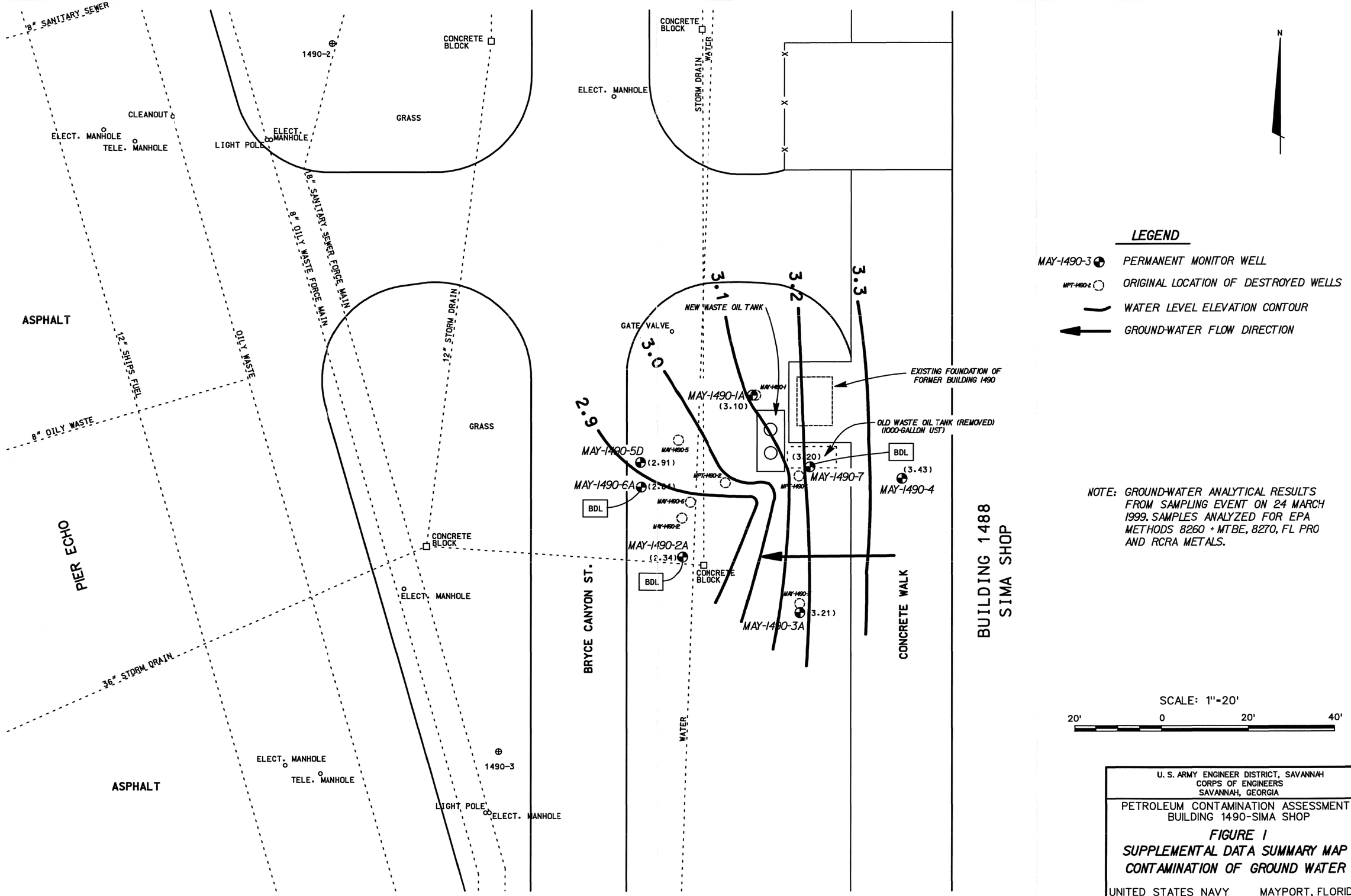
3. Please refer any questions to Mr. Jan Bovier, at (904) 2700-6730 or FAX at (904) 270-7398.

Jan B Bovier
Jan Bovier

Copy to:
SOUTHDIV, Beverly Washington (Code 1848)

ATTACHMENT 3

FIGURE 1 - DATA SUMMARY MAP



U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490-SIMA SHOP

FIGURE 1
SUPPLEMENTAL DATA SUMMARY MAP
CONTAMINATION OF GROUND WATER

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1"=20'	REVISED 3/99	

ATTACHMENT 4

TABLE 1 – MONITORING WELL DATA

TABLE 1

MONITORING WELL DATA

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

24 MARCH 1999

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (msl)	Screened Interval BLS (ft.)	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (msl)
MAY-1490-1A	12.62	Flush	8.05	2.0 – 11.5	4.95	3.10
MAY-1490-2A	12.10	"	6.96	1.8 – 11.3	4.62	2.34
MAY-1490-3A	12.31	"	7.49	1.8 – 11.3	4.28	3.21
MAY-1490-4	12.82	"	8.93	3.4 – 12.4	5.50	3.43
MAY-1490-5D	22.55	"	7.14	17.2 – 21.7	4.23	2.91
MAY-1490-6A	12.44	"	7.12	1.9 – 11.4	4.28	2.84
MAY-1490-7	12.50	"	8.81	2.0 – 11.5	5.61	3.20

Notes: - BLS = Below Land Suurface
- flush = Level with ground surface

ATTACHMENT 5

MONITORING WELL INSTALLATION LOG

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Mayport Naval Station Bldg. 1490-SIMA Shops		**LOG of WELL:** MAY-1490-7	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 17 MAR 99	**COMPLTD:** 17 MAR 99
METHOD: 7" O.D. HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 2.0'-11.5'	**PROTECTION LEVEL:** D
TOC ELEV.: 7.89'	**MONITOR INST.:** OVA	**TOT. DEPTH:** 12.5'	**DEPTH TO** ▽ 4.8'
LOGGED BY: C. SMITH	**WELL DEVELOPMENT DATE:** 17 MAR 99		**SITE:** Bld. 1490

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					(SM) Gray, fine grained, silty sand, no odor.		SM		
					(SP) Light brown, fine grained, poorly graded sand.		SP		
5					(SM) Tan, fine grained, silty sand.		SM		
					Odor of H_2S.				
10									
15									
20									

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

d:\may1490\log7.dgn

ATTACHMENT 6

TABLE 2 – SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

27 MARCH 1999

	MONITOR WELL NUMBER						
PARAMETER	MAY 1490-2A 3-99	MAY 1490-6A 3-99	MAY 1490-6A 3-99 DUPLICATE	MAY 1490-7 3-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
FLORIDA PRO (3510C) ug/L							
PETROLEUM RESIDUAL ORGANICS (TRPH)	<208	<202	<202	<206**	<202	NA	5 mg/L
EXTRACTABLE ORGANICS (8270C) ug/L							
ACENAPHTHENE	<10	<10	<10	<10	<10	NA	20 ug/L
ACENAPHTHYLENE	<10	<10	<10	<10	<10	NA	210 ug/L
ANTHRACENE	<10	<10	<10	<10	<10	NA	2100 ug/L
BENZO(A)ANTHRACENE	<10	<10	<10	<10	<10	NA	0.2 ug/L
BENZO(A)PYRENE	<10	<10	<10	<10	<10	NA	0.2 ug/L
BENZO(B)FLUORANTHENE	<10	<10	<10	<10	<10	NA	0.2 ug/L
BENZO(G,H,I)PERYLENE	<10	<10	<10	<10	<10	NA	210 ug/L
BENZO(K)FLUORANTHENE	<10	<10	<10	<10	<10	NA	0.5 ug/L
4-BROMOPHENYL-PHENYLETHER	<10	<10	<10	<10	<10	NA	
BUTYLBENZYLPHTHALATE	<10	<10	<10	<10	<10	NA	
CARBAZOLE	<10	<10	<10	<10	<10	NA	
4-CHLORO-3-METHYLPHENOL	<10	<10	<10	<10	<10	NA	
4-CHLOROANILINE	<10	<10	<10	<10	<10	NA	
BIS(2-CHLOROETHOXY)MEHTANE	<10	<10	<10	<10	<10	NA	
BIS(2-CHLOROETHYL)ETHER	<10	<10	<10	<10	<10	NA	
BIS(2-CHLOROISOPROPYL)ETHER	<10	<10	<10	<10	<10	NA	
2-CHLORONAPHTHALENE	<10	<10	<10	<10	<10	NA	
2-CHLOROPHENOL	<10	<10	<10	<10	<10	NA	
4-CHLOROPHENYL-PHENYLETHER	<10	<10	<10	<10	<10	NA	
CHRYSENE	<10	<10	<10	<10	<10	NA	5 ug/L
DIBENZOFURAN	<10	<10	<10	<10	<10	NA	
DIBENZ(A,H)ANTHRACENE	<10	<10	<10	<10	<10	NA	0.2 ug/L
1,2-DICHLOROBENZENE	<10	<10	<10	<10	<10	NA	
1,3-DICHLOROBENZENE	<10	<10	<10	<10	<10	NA	
1,4-DICHLOROBENZENE	<10	<10	<10	<10	<10	NA	
3,3-DICHLOROBENZIDINE	<20	<20	<20	<20	<20	NA	
2,4-DICHLOROPHENOL	<10	<10	<10	<10	<10	NA	
DIETHYLPHTHALATE	<10	<10	<10	<10	<10	NA	
DI-N-BUTYLPHTHALATE	<10	<10	<10	<10	<10	NA	
4,6-DINITRO-2-METHYLPHENOL	<25	<25	<25	<25	<25	NA	
2,4-DINITROPHENOL	<25	<25	<25	<25	<25	NA	
2,4-DINITROTOLUENE	<10	<10	<10	<10	<10	NA	
2,6-DINITROTOLUENE	<10	<10	<10	<10	<10	NA	
DI-N-OCTYLPHTHALATE	<10	<10	<10	<10	<10	NA	
FLUORANTHENE	<10	<10	<10	<10	<10	NA	280 ug/L
FLUORENE	<10	<10	<10	<10	<10	NA	280 ug/L
HEXACHLOROBENZENE	<10	<10	<10	<10	<10	NA	

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

27 MARCH 1999

	MONITOR WELL NUMBER						
PARAMETER	MAY 1490-2A 3-99	MAY 1490-6A 3-99	MAY 1490-6A 3-99 DUPLICATE	MAY 1490-7 3-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
HEXACHLOROBUTADIENE	<10	<10	<10	<10	<10	NA	
HEXACHLOROCYCLOPENTADIENE	<10	<10	<10	<10	<10	NA	
HEXACHLOROETHANE	<10	<10	<10	<10	<10	NA	
NDENO(1,2,3-CD)PYRENE	<10	<10	<10	<10	<10	NA	0.2 ug/L
SOPHORONE	<10	<10	<10	<10	<10	NA	
2-METHYLNAPHTHALENE	<10	<10	<10	<10	<10	NA	
2-METHYLPHENOL	<10	<10	<10	<10	<10	NA	
3 AND 4 METHYLPHENOL	<10	<10	<10	<10	<10	NA	
NAPHTHALENE	<10	<10	<10	<10	<10	NA	20 ug/L
2-NITROANILINE	<25	<25	<25	<25	<25	NA	
3-NITROANILINE	<25	<25	<25	<25	<25	NA	
4-NITROANILINE	<25	<25	<25	<25	<25	NA	
NITROBENZENE	<10	<10	<10	<10	<10	NA	
2-NITROPHENOL	<10	<10	<10	<10	<10	NA	
4-NITROPHENOL	<25	<25	<25	<25	<25	NA	
N-NITROSO-DI-N-PROPYLAMINE	<10	<10	<10	<10	<10	NA	
N-NITROSODIPHENYLAMINE	<10	<10	<10	<10	<10	NA	
PENTACHLOROPHENOL	<25	<25	<25	<25	<25	NA	
PHENANTHRENE	<10	<10	<10	<10	<10	NA	210 ug/L
PHENOL	<10	<10	<10	<10	<10	NA	
PYRENE	<10	<10	<10	<10	<10	NA	210 ug/L
BIS(2-ETHYLHEXYL)PHTHALATE	<10	<10	<10	<10	<10	NA	
1,2,4-TRICHLOROBENZENE	<10	<10	<10	<10	<10	NA	
2,4,5-TRICHLOROPHENOL	<25	<25	<25	<25	<25	NA	
2,4,6-TRICHLOROPHENOL	<10	<10	<10	<10	<10	NA	
VOLATILE ORGANIC COMPOUNDS (8260) ug/L							
ACETONE	<10	<10	<10	<10	<10	<10	
BENZENE	<2	<2	<2	<2	<2	<2	1 ug/L
BROMOBENZENE	<2	<2	<2	<2	<2	<2	
BROMOFORM	<2	<2	<2	<2	<2	<2	
BROMOMETHANE	<2	<2	<2	<2	<2	<2	
2-BUTANONE (MEK)	<10	<10	<10	<10	<10	<10	
N-BUTYLBENZENE	<2	<2	<2	<2	<2	<2	
SEC-BUTYLBENZENE	<2	<2	<2	<2	<2	<2	
T-BUTYLBENZENE	<2	<2	<2	<2	<2	<2	
CARBON DISULFIDE	<2	<2	<2	<2	<2	<2	
CARBON TETRACHLORIDE	<2	<2	<2	<2	<2	<2	
CHLOROBENZENE	<2	<2	<2	<2	<2	<2	
CHLOROETHANE	<2	<2	<2	<2	<2	<2	
2-CHLOROETHYLVINYL ETHER	<5	<5	<5	<5	<5	<5	
CHLOROFORM	<2	<2	<2	<2	<2	<2	

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

27 MARCH 1999

MONITOR WELL NUMBER

PARAMETER	MAY 1490-2A 3-99	MAY 1490-6A 3-99	MAY 1490-6A 3-99 DUPLICATE	MAY 1490-7 3-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
CHLOROMETHANE	<2	<2	<2	<2	<2	<2	
2-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	
1,2-DIBROMO-3-CHLOROPROPANE	<10	<10	<10	<10	<10	<10	
DIBROMOCHLOROMETHANE	<2	<2	<2	<2	<2	<2	
1,2-DIBROMOETHANE	<2	<2	<2	<2	<2	<2	0.02 ug/L
DIBROMOMETHANE	<2	<2	<2	<2	<2	<2	
1,2-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,3-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,4-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
DICHLORODIFLUOROMETHANE	<2	<2	<2	<2	<2	<2	
1,1-DICHLOROETHANE	<2	<2	<2	<2	<2	<2	
1,2-DICHLOROETHANE	<2	<2	<2	<2	<2	<2	3 ug/L
1,1-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	
CIS 1,2-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	
TRANS-1,2-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	
1,2-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
1,3-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
2,2-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
1,1-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	
CIS-1,3-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	
TRANS-1,3-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	
EHTYLBENZENE	<2	<2	<2	<2	<2	<2	30 ug/L
HEXACHLOROBUTADIENE	<2	<2	<2	<2	<2	<2	
2-HEXANONE	<10	<10	<10	<10	<10	<10	
ISOPROPYLBENZENE	<2	<2	<2	<2	<2	<2	
4-ISOPROPYLTOLUENE	<2	<2	<2	<2	<2	<2	
4-METHAL-2-PENTANONE	<10	<10	<10	<10	<10	<10	
METHYLENE CHLORIDE	<10	<10	<10	<10	<10	<10	
NAPHTHALENE	<2	<2	<2	<2	<2	<2	20 ug/L
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	
STYRENE	<2	<2	<2	<2	<2	<2	
1,1,1,2-TETRACHLOROETHANE	<2	<2	<2	<2	<2	<2	
1,1,2,2-TETRACHLOROETHANE	<2	<2	<2	<2	<2	<2	
TETRACHLOROETHENE (PCE)	<2	<2	<2	<2	<2	<2	
TOLUENE	<2	<2	<2	<2	<2	<2	40 ug/L
1,2,3-TRICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,2,4-TRICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,1,1-TRICHLOROETHANE	<2	<2	<2	<2	<2	<2	
1,1,2-TRICHLOROETHANE	<2	<2	<2	<2	<2	<2	
TRICHLOROETHENE (TCE)	<2	<2	<2	<2	<2	<2	

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

27 MARCH 1999

	MONITOR WELL NUMBER						
PARAMETER	MAY 1490-2A 3-99	MAY 1490-6A 3-99	MAY 1490-6A 3-99 DUPLICATE	MAY 1490-7 3-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
1,2,3-TRICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	
1,3,5-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	
VINYL CHLORIDE	<2	<2	<2	<2	<2	<2	
XYLENES (TOTAL)	<2	<2	<2	<2	<2	<2	20 ug/L
BROMODICHLOROMETHANE	<2	<2	<2	<2	<2	<2	
TRICHLOROFLUOROMETHANE	<2	<2	<2	<2	<2	<2	
METHYL TERT-BUTYL ETHER (MTBE)	<10	<10	<10	<10	<10	<10	35 ug/L
METALS, mg/L							
ARSENIC, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	50 ug/L
BARIUM, TOTAL (6010B)	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	2000 ug/L
CADMIUM, TOTAL (6010B)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	NA	5 ug/L
CHROMIUM, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	100 ug/L
LEAD, TOTAL (6010B)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	NA	15 ug/L
MERCURY, TOTAL (7470)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NA	2 ug/L
SELENIUM, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	50 ug/L
SILVER, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	100 ug/L

Notes: - NA = Not Analyzed

- Shaded values indicate detection limit above regulatory limit.

ATTACHMENT 7

LABORATORY ANALYTICAL RESULTS

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA/HYDROLOGIC, INC. 5859

1412 OAK BROOK DR., SUITE 105
NORCROSS, GA 30093

Project:
Project Name: MAYPORT 1490
Sampler: HC/JS

Lab Number: 99-A44206
Sample ID: TRIP BLANK
Sample Type: Ground water
Site ID:

Date Collected:
Time Collected:
Date Received: 3/27/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	3/29/99	16:40	R.Ward	8260B	8568
Benzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Bromobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Bromochloromethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Bromoform	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Bromomethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
2-Butanone	ND	ug/l	10	10	1	3/29/99	16:40	R.Ward	8260B	8568
n-Butylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
sec-Butylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
t-Butylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Carbon disulfide	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Carbon tetrachloride	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Chlorobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Chloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
2-Chloroethylvinylether	ND	ug/l	5	2	1	3/29/99	16:40	R.Ward	8260B	8568
Chloroform	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Chloromethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
2-Chlorotoluene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
4-Chlorotoluene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	3/29/99	16:40	R.Ward	8260B	8568
Dibromochloromethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2-Dibromoethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Dibromomethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2-Dichlorobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,3-Dichlorobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,4-Dichlorobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Dichlorodifluoromethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1-Dichloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2-Dichloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1-Dichloroethene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2-Dichloropropane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,3-Dichloropropane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
2,2-Dichloropropane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1-Dichloropropene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44206
Sample ID: TRIP BLANK

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Ethylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Hexachlorobutadiene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
2-Hexanone	ND	ug/l	10	10	1	3/29/99	16:40	R.Ward	8260B	8568
Isopropylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
4-Isopropyltoluene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
4-Methyl-2-pentanone	ND	ug/l	10	10	1	3/29/99	16:40	R.Ward	8260B	8568
Methylene chloride	ND	ug/l	10	10	1	3/29/99	16:40	R.Ward	8260B	8568
Naphthalene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
n-Propylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Styrene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Tetrachloroethene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Toluene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1,1-Trichloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,1,2-Trichloroethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Trichloroethene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2,3-Trichloropropane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Vinyl chloride	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Xylenes	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Bromodichloromethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Trichlorofluoromethane	ND	ug/l	2	2	1	3/29/99	16:40	R.Ward	8260B	8568
Methyl-t-butyl ether	ND	ug/l	10	2	1	3/29/99	16:40	R.Ward	8260B	8568

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
VOA Surrogate, 1,2-Dichloroethane, d4	105.	60. - 138.
VOA Surrogate, Toluene d8	100.	80. - 123.
VOA Surrogate, 4-Bromofluorobenzene	96.	73. - 122.
VOA Surrogate, Dibromofluoromethane	100.	74. - 133.

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44206
Sample ID: TRIP BLANK

Report Approved By: _____ Report Date: 4/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: HRS-E87358

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA/HYDROLOGIC, INC. 5859

1412 OAK BROOK DR., SUITE 105
NORCROSS, GA 30093

Project:
Project Name: MAYPORT 1490
Sampler: HC/JS

Lab Number: 99-A44207
Sample ID: MAY-1490-2A-3-99
Sample Type: Ground water
Site ID:

Date Collected: 3/24/99
Time Collected: 17:30
Date Received: 3/27/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Florida Pro	ND	ug/l	208.	100.	1	4/ 1/99	2:06	K.Phelps	FDEP	299
EXTRACTABLE ORGANICS										
Acenaphthene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Acenaphthylene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Anthracene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Benzo(a)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Benzo(a)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Benzo(b)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Benzo(g,h,i)perylene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Benzo(k)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4-Bromophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Butylbenzylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Carbazole	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4-Chloroaniline	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Bis(2-chloroethoxy)methane	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Bis(2-chloroethyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Bis(2-chloroisopropyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2-Chloronaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2-Chlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4-Chlorophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Chrysene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Dibenzofuran	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Dibenz(a,h)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
1,2-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
1,3-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
1,4-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
3,3'-Dichlorobenzidine	ND	ug/l	20.	20.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Diethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Dimethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Di-n-Butylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2,4-dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44207
Sample ID: MAY-1490-2A-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2,6-Dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Di-n-octylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Fluorene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Hexachlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Hexachlorobutadiene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Hexachlorocyclopentadiene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Hexachloroethane	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Isophorone	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2-Methylnaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
3 and 4-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Naphthalene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
3-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Nitrobenzene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2-Nitrophenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
4-Nitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
N-Nitroso-Di-n-Propylamine	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
N-Nitrosodiphenylamine	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Pentachlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Phenanthrene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Phenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Pyrene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
1,2,4-Trichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	3:49	M. Cobb	8270C	1130
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	4/ 2/99	1:19	R.Ward	8260B	8568
Benzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Bromobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Bromochloromethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Bromoform	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Bromomethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
2-Butanone	ND	ug/l	10	10	1	4/ 2/99	1:19	R.Ward	8260B	8568
n-Butylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
sec-Butylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
t-Butylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Carbon disulfide	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Carbon tetrachloride	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Chlorobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Chloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44207
Sample ID: MAY-1490-2A-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Chloroform	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Chloromethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
2-Chlorotoluene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
4-Chlorotoluene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	4/ 2/99	1:19	R.Ward	8260B	8568
Dibromochloromethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2-Dibromoethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Dibromomethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2-Dichlorobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,3-Dichlorobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,4-Dichlorobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Dichlorodifluoromethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1-Dichloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2-Dichloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1-Dichloroethene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2-Dichloropropane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,3-Dichloropropane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
2,2-Dichloropropane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1-Dichloropropene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Ethylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Hexachlorobutadiene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
2-Hexanone	ND	ug/l	10	10	1	4/ 2/99	1:19	R.Ward	8260B	8568
Isopropylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
4-Isopropyltoluene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
4-Methyl-2-pentanone	ND	ug/l	10	10	1	4/ 2/99	1:19	R.Ward	8260B	8568
Methylene chloride	ND	ug/l	10	10	1	4/ 2/99	1:19	R.Ward	8260B	8568
Naphthalene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
n-Propylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Styrene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Tetrachloroethene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Toluene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1,1-Trichloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,1,2-Trichloroethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Trichloroethene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2,3-Trichloropropane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568

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ANALYTICAL REPORT

Laboratory Number: 99-A44207
Sample ID: MAY-1490-2A-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Vinyl chloride	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Xylenes	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Bromodichloromethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Trichlorofluoromethane	ND	ug/l	2	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
Methyl-t-butyl ether	ND	ug/l	10	2	1	4/ 2/99	1:19	R.Ward	8260B	8568
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Barium, Total	ND	mg/l	0.0100	0.0100	1	3/31/99	8:58	C.Holmes	6010B	9015
Cadmium, Total	ND	mg/l	0.0010	0.0010	1	3/31/99	8:58	C.Holmes	6010B	9015
Chromium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Lead, Total	ND	mg/l	0.0030	0.0030	1	3/31/99	8:58	C.Holmes	6010B	9015
Mercury, Total	ND	mg/l	0.00020	0.00020	1	4/ 2/99	7:03	G.Robinson	7470	8664
Selenium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Silver, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	960. ml	1.0 ml	3/31/99	Fitzwater	3510
Fla Pro	960. ml	2.0 ml	3/30/99	M. Cauthen	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	65. #	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	75.	55. - 118.
VOA Surrogate, 1,2-Dichloroethane, d4	104.	60. - 138.
VOA Surrogate, Toluene d8	95.	80. - 123.
VOA Surrogate, 4-Bromofluorobenzene	93.	73. - 122.
VOA Surrogate, Dibromofluoromethane	96.	74. - 133.
surr-Nitrobenzene-d5	51.	15. - 105.
surr-2-Fluorobiphenyl	57.	17. - 110.
surr-Terphenyl d14	85.	10. - 116.
surr-Phenol d5	12.	10. - 100.
surr-2-Fluorophenol	18.	9. - 100.
surr-2,4,6-Tribromophenol	84.	15. - 134.

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44207
Sample ID: MAY-1490-2A-3-99

Fla-Pro surrogate slightly low; insufficient sample for re-extraction.

Report Approved By: _____ Report Date: 4/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA/HYDROLOGIC, INC. 5859

1412 OAK BROOK DR., SUITE 105
NORCROSS, GA 30093

Project:
Project Name: MAYPORT 1490
Sampler: HC/JS

Lab Number: 99-A44208
Sample ID: MAY-1490-6A-3-99
Sample Type: Ground water
Site ID:

Date Collected: 3/24/99
Time Collected: 18:05
Date Received: 3/27/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Florida Pro	ND	ug/l	202.	100.	1	4/ 1/99	2:36	K.Phelps	FDEP	299
EXTRACTABLE ORGANICS										
Acenaphthene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Acenaphthylene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Anthracene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Benzo(a)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Benzo(a)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Benzo(b)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Benzo(g,h,i)perylene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Benzo(k)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4-Bromophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Butylbenzylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Carbazole	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4-Chloroaniline	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Bis(2-chloroethoxy)methane	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Bis(2-chloroethyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Bis(2-chloroisopropyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2-Chloronaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2-Chlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4-Chlorophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Chrysene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Dibenzofuran	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Dibenz(a,h)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
1,2-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
1,3-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
1,4-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
3,3'-Dichlorobenzidine	ND	ug/l	20.	20.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Diethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Dimethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Di-n-Butylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2,4-dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44208
Sample ID: MAY-1490-6A-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2,6-Dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Di-n-octylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Fluorene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Hexachlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Hexachlorobutadiene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Hexachlorocyclopentadiene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Hexachloroethane	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Isophorone	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2-Methylnaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
3 and 4-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Naphthalene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
3-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Nitrobenzene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2-Nitrophenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
4-Nitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
N-Nitroso-Di-n-Propylamine	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
N-Nitrosodiphenylamine	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Pentachlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Phenanthrene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Phenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Pyrene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
1,2,4-Trichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	4:26	M. Cobb	8270C	1130
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	3/30/99	13:05	R.Ward	8260B	8568
Benzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Bromobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Bromochloromethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Bromoform	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Bromomethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
2-Butanone	ND	ug/l	10	10	1	3/30/99	13:05	R.Ward	8260B	8568
n-Butylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
sec-Butylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
t-Butylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Carbon disulfide	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Carbon tetrachloride	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Chlorobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Chloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44208
Sample ID: MAY-1490-6A-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	3/30/99	13:05	R.Ward	8260B	8568
Chloroform	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Chloromethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
2-Chlorotoluene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
4-Chlorotoluene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	3/30/99	13:05	R.Ward	8260B	8568
Dibromochloromethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2-Dibromoethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Dibromomethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,3-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,4-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Dichlorodifluoromethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1-Dichloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2-Dichloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1-Dichloroethene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2-Dichloropropane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,3-Dichloropropane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
2,2-Dichloropropane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1-Dichloropropene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Ethylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Hexachlorobutadiene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
2-Hexanone	ND	ug/l	10	10	1	3/30/99	13:05	R.Ward	8260B	8568
Isopropylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
4-Isopropyltoluene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
4-Methyl-2-pentanone	ND	ug/l	10	10	1	3/30/99	13:05	R.Ward	8260B	8568
Methylene chloride	ND	ug/l	10	10	1	3/30/99	13:05	R.Ward	8260B	8568
Naphthalene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
n-Propylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Styrene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Tetrachloroethene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Toluene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1,1-Trichloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,1,2-Trichloroethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Trichloroethene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2,3-Trichloropropane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44208
Sample ID: MAY-1490-6A-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Vinyl chloride	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Xylenes	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Bromodichloromethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Trichlorofluoromethane	ND	ug/l	2	2	1	3/30/99	13:05	R.Ward	8260B	8568
Methyl-t-butyl ether	ND	ug/l	10	2	1	3/30/99	13:05	R.Ward	8260B	8568
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Barium, Total	ND	mg/l	0.0100	0.0100	1	3/31/99	8:58	C.Holmes	6010B	9015
Cadmium, Total	ND	mg/l	0.0010	0.0010	1	3/31/99	8:58	C.Holmes	6010B	9015
Chromium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Lead, Total	ND	mg/l	0.0030	0.0030	1	3/31/99	8:58	C.Holmes	6010B	9015
Mercury, Total	ND	mg/l	0.00020	0.00020	1	4/ 2/99	7:03	G.Robinson	7470	8664
Selenium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Silver, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	990. ml	1.0 ml	3/31/99	Fitzwater	3510
Fla Pro	990. ml	2.0 ml	3/30/99	M. Cauthen	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	64. #	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	83.	55. - 118.
VOA Surrogate, 1,2-Dichloroethane, d4	104.	60. - 138.
VOA Surrogate, Toluene d8	103.	80. - 123.
VOA Surrogate, 4-Bromofluorobenzene	96.	73. - 122.
VOA Surrogate, Dibromofluoromethane	98.	74. - 133.
surr-Nitrobenzene-d5	56.	15. - 105.
surr-2-Fluorobiphenyl	63.	17. - 110.
surr-Terphenyl d14	82.	10. - 116.
surr-Phenol d5	13.	10. - 100.
surr-2-Fluorophenol	20.	9. - 100.
surr-2,4,6-Tribromophenol	88.	15. - 134.

COPY

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44208
Sample ID: MAY-1490-6A-3-99

Fla-Pro Surrogate slightly low; insufficient sample for re-extraction.

Report Approved By: _____ Report Date: 4/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA/HYDROLOGIC, INC. 5859

1412 OAK BROOK DR., SUITE 105
NORCROSS, GA 30093

Project:
Project Name: MAYPORT 1490
Sampler: HC/JS

Lab Number: 99-A44209
Sample ID: MAY-1490-7-3-99
Sample Type: Ground water
Site ID:

Date Collected: 3/24/99
Time Collected: 19:05
Date Received: 3/27/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Florida Pro	ND	ug/l	206.	100.	1	4/ 1/99	3:06	K.Phelps	FDEP	299
EXTRACTABLE ORGANICS										
Acenaphthene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Acenaphthylene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Anthracene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Benzo(a)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Benzo(a)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Benzo(b)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Benzo(g,h,i)perylene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Benzo(k)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4-Bromophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Butylbenzylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Carbazole	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4-Chloroaniline	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Bis(2-chloroethoxy)methane	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Bis(2-chloroethyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Bis(2-chloroisopropyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2-Chloronaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2-Chlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4-Chlorophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Chrysene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Dibenzofuran	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Dibenz(a,h)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
1,2-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
1,3-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
1,4-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
3,3'-Dichlorobenzidine	ND	ug/l	20.	20.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Diethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Dimethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Di-n-Butylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2,4-dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44209
Sample ID: MAY-1490-7-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2,6-Dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Di-n-octylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Fluorene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Hexachlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Hexachlorobutadiene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Hexachlorocyclopentadiene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Hexachloroethane	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Isophorone	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2-Methylnaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
3 and 4-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Naphthalene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
3-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Nitrobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2-Nitrophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
4-Nitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
N-Nitroso-Di-n-Propylamine	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
N-Nitrosodiphenylamine	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Pentachlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Phenanthrene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Phenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Pyrene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
1,2,4-Trichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:03	M. Cobb	8270C	1130
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	3/30/99	13:45	R.Ward	8260B	8568
Benzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Bromobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Bromochloromethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Bromoform	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Bromomethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
2-Butanone	ND	ug/l	10	10	1	3/30/99	13:45	R.Ward	8260B	8568
n-Butylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
sec-Butylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
t-Butylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Carbon disulfide	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Carbon tetrachloride	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Chlorobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Chloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44209
Sample ID: MAY-1490-7-3-99

Analyte	Result	Units	Report Limit	Avan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	3/30/99	13:45	R.Ward	8260B	8568
Chloroform	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Chloromethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
2-Chlorotoluene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
4-Chlorotoluene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	3/30/99	13:45	R.Ward	8260B	8568
Dibromochloromethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2-Dibromoethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Dibromomethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,3-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,4-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Dichlorodifluoromethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1-Dichloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2-Dichloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1-Dichloroethene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2-Dichloropropane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,3-Dichloropropane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
2,2-Dichloropropane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1-Dichloropropene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Ethylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Hexachlorobutadiene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
2-Hexanone	ND	ug/l	10	10	1	3/30/99	13:45	R.Ward	8260B	8568
Isopropylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
4-Isopropyltoluene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
4-Methyl-2-pentanone	ND	ug/l	10	10	1	3/30/99	13:45	R.Ward	8260B	8568
Methylene chloride	ND	ug/l	10	10	1	3/30/99	13:45	R.Ward	8260B	8568
Naphthalene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
n-Propylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Styrene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Tetrachloroethene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Toluene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1,1-Trichloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,1,2-Trichloroethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Trichloroethene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2,3-Trichloropropane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
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ANALYTICAL REPORT

Laboratory Number: 99-A44209
Sample ID: MAY-1490-7-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Vinyl chloride	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Xylenes	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Bromodichloromethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Trichlorofluoromethane	ND	ug/l	2	2	1	3/30/99	13:45	R.Ward	8260B	8568
Methyl-t-butyl ether	ND	ug/l	10	2	1	3/30/99	13:45	R.Ward	8260B	8568
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Barium, Total	ND	mg/l	0.0100	0.0100	1	3/31/99	8:58	C.Holmes	6010B	9015
Cadmium, Total	ND	mg/l	0.0010	0.0010	1	3/31/99	8:58	C.Holmes	6010B	9015
Chromium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Lead, Total	ND	mg/l	0.0030	0.0030	1	3/31/99	8:58	C.Holmes	6010B	9015
Mercury, Total	ND	mg/l	0.00020	0.00020	1	4/ 2/99	7:03	G.Robinson	7470	8664
Selenium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Silver, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	990. ml	1.0 ml	3/31/99	Fitzwater	3510
Fla Pro	970. ml	2.0 ml	3/30/99	M. Cauthen	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	61. #	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	69.	55. - 118.
VOA Surrogate, 1,2-Dichloroethane, d4	105.	60. - 138.
VOA Surrogate, Toluene d8	98.	80. - 123.
VOA Surrogate, 4-Bromofluorobenzene	100.	73. - 122.
VOA Surrogate, Dibromofluoromethane	100.	74. - 133.
surr-Nitrobenzene-d5	52.	15. - 105.
surr-2-Fluorobiphenyl	57.	17. - 110.
surr-Terphenyl d14	37.	10. - 116.
surr-Phenol d5	10.	10. - 100.
surr-2-Fluorophenol	12.	9. - 100.
surr-2,4,6-Tribromophenol	18.	15. - 134.

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ANALYTICAL REPORT

Laboratory Number: 99-A44209
Sample ID: MAY-1490-7-3-99

Fla-Pro surrogate slightly low; insufficient sample for re-extraction.

Report Approved By: _____ Report Date: 4/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
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ANALYTICAL REPORT

TESTAMERICA/HYDROLOGIC, INC. 5859

1412 OAK BROOK DR., SUITE 105
NORCROSS, GA 30093

Project:
Project Name: MAYPORT 1490
Sampler: HC/JS

Lab Number: 99-A44210
Sample ID: MAY-1490-BLK1-3-99
Sample Type: Ground water
Site ID:

Date Collected: 3/24/99
Time Collected: 19:10
Date Received: 3/27/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Florida Pro	ND	ug/l	202.	100.	1	4/ 1/99	3:35	K.Phelps	FDEP	299
EXTRACTABLE ORGANICS										
Acenaphthene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Acenaphthylene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Anthracene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Benzo(a)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Benzo(a)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Benzo(b)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Benzo(g,h,i)perylene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Benzo(k)fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4-Bromophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Butylbenzylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Carbazole	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4-Chloroaniline	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Bis(2-chloroethoxy)methane	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Bis(2-chloroethyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Bis(2-chloroisopropyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2-Chloronaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2-Chlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4-Chlorophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Chrysene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Dibenzofuran	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Dibenz(a,h)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
1,2-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
1,3-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
1,4-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
3,3'-Dichlorobenzidine	ND	ug/l	20.	20.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Diethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Dimethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Di-n-Butylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2,4-dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44210
Sample ID: MAY-1490-BLK1-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2,6-Dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Di-n-octylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Fluorene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Hexachlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Hexachlorobutadiene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Hexachlorocyclopentadiene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Hexachloroethane	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Isophorone	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2-Methylnaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
3 and 4-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Naphthalene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
3-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Nitrobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2-Nitrophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
4-Nitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
N-Nitroso-Di-n-Propylamine	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
N-Nitrosodiphenylamine	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Pentachlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Phenanthrene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Phenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Pyrene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
1,2,4-Trichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	5:40	M. Cobb	8270C	1130
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	3/29/99	17:19	R.Ward	8260B	8568
Benzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Bromobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Bromochloromethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Bromoform	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Bromomethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
2-Butanone	ND	ug/l	10	10	1	3/29/99	17:19	R.Ward	8260B	8568
n-Butylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
sec-Butylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
t-Butylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Carbon disulfide	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Carbon tetrachloride	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Chlorobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Chloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44210
Sample ID: MAY-1490-BLK1-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	3/29/99	17:19	R.Ward	8260B	8568
Chloroform	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Chloromethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
2-Chlorotoluene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
4-Chlorotoluene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	3/29/99	17:19	R.Ward	8260B	8568
Dibromochloromethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2-Dibromoethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Dibromomethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2-Dichlorobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,3-Dichlorobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,4-Dichlorobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Dichlorodifluoromethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1-Dichloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2-Dichloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1-Dichloroethene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2-Dichloropropane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,3-Dichloropropane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
2,2-Dichloropropane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1-Dichloropropene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Ethylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Hexachlorobutadiene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
2-Hexanone	ND	ug/l	10	10	1	3/29/99	17:19	R.Ward	8260B	8568
Isopropylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
4-Isopropyltoluene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
4-Methyl-2-pentanone	ND	ug/l	10	10	1	3/29/99	17:19	R.Ward	8260B	8568
Methylene chloride	ND	ug/l	10	10	1	3/29/99	17:19	R.Ward	8260B	8568
Naphthalene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
n-Propylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Styrene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Tetrachloroethene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Toluene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1,1-Trichloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,1,2-Trichloroethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Trichloroethene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2,3-Trichloropropane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
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ANALYTICAL REPORT

Laboratory Number: 99-A44210
Sample ID: MAY-1490-BLK1-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Vinyl chloride	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Xylenes	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Bromodichloromethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Trichlorofluoromethane	ND	ug/l	2	2	1	3/29/99	17:19	R.Ward	8260B	8568
Methyl-t-butyl ether	ND	ug/l	10	2	1	3/29/99	17:19	R.Ward	8260B	8568
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Barium, Total	ND	mg/l	0.0100	0.0100	1	3/31/99	8:58	C.Holmes	6010B	9015
Cadmium, Total	ND	mg/l	0.0010	0.0010	1	3/31/99	8:58	C.Holmes	6010B	9015
Chromium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Lead, Total	ND	mg/l	0.0030	0.0030	1	3/31/99	8:58	C.Holmes	6010B	9015
Mercury, Total	ND	mg/l	0.00020	0.00020	1	4/ 2/99	7:03	G.Robinson	7470	8664
Selenium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Silver, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	950. ml	1.0 ml	3/31/99	Fitzwater	3510
Fla Pro	990. ml	2.0 ml	3/30/99	M. Cauthen	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	68. #	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	90.	55. - 118.
VOA Surrogate, 1,2-Dichloroethane, d4	107.	60. - 138.
VOA Surrogate, Toluene d8	97.	80. - 123.
VOA Surrogate, 4-Bromofluorobenzene	99.	73. - 122.
VOA Surrogate, Dibromofluoromethane	99.	74. - 133.
surr-Nitrobenzene-d5	68.	15. - 105.
surr-2-Fluorobiphenyl	77.	17. - 110.
surr-Terphenyl d14	91.	10. - 116.
surr-Phenol d5	14.	10. - 100.
surr-2-Fluorophenol	15.	9. - 100.
surr-2,4,6-Tribromophenol	25.	15. - 134.

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ANALYTICAL REPORT

Laboratory Number: 99-A44210
Sample ID: MAY-1490-BLK1-3-99

Fla-Pro Surrogate slightly low; insufficient sample for re-extraction.

Report Approved By: _____ Report Date: 4/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: HRS-E87358

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ANALYTICAL REPORT

TESTAMERICA/HYDROLOGIC, INC. 5859

1412 OAK BROOK DR., SUITE 105
NORCROSS, GA 30093

Project:
Project Name: MAYPORT 1490
Sampler: HC/JS

Lab Number: 99-A44211
Sample ID: MAY-1490-DUP1-3-99
Sample Type: Ground water
Site ID:

Date Collected: 3/24/99
Time Collected: 16:40
Date Received: 3/27/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Florida Pro	ND	ug/l	202.	100.	1	4/ 1/99	4:36	K.Phelps	FDEP	299
EXTRACTABLE ORGANICS										
Acenaphthene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Acenaphthylene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Anthracene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Benzo(a)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Benzo(a)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Benzo(b)Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Benzo(g,h,i)perylene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Benzo(k)Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4-Bromophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Butylbenzylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Carbazole	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4-Chloro-3-methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4-Chloroaniline	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Bis(2-chloroethoxy)methane	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Bis(2-chloroethyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Bis(2-chloroisopropyl)ether	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2-Chloronaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2-Chlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4-Chlorophenyl-phenylether	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Chrysene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Dibenzofuran	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Dibenz(a,h)anthracene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
1,2-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
1,3-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
1,4-Dichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
3,3'-Dichlorobenzidine	ND	ug/l	20.	20.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2,4-Dichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Diethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2,4-Dimethylphenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Dimethylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Di-n-Butylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4,6-Dinitro-2-methylphenol	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2,4-Dinitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2,4-dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130

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ANALYTICAL REPORT

Laboratory Number: 99-A44211
Sample ID: MAY-1490-DUP1-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2,6-Dinitrotoluene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Di-n-octylphthalate	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Fluoranthene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Fluorene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Hexachlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Hexachlorobutadiene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Hexachlorocyclopentadiene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Hexachloroethane	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Isophorone	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2-Methylnaphthalene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
3 and 4-Methylphenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Naphthalene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
3-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4-Nitroaniline	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Nitrobenzene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2-Nitrophenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
4-Nitrophenol	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
N-Nitroso-Di-n-Propylamine	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
N-Nitrosodiphenylamine	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Pentachlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Phenanthrene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Phenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Pyrene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
Bis(2-ethylhexyl)phthalate	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
1,2,4-Trichlorobenzene	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2,4,5-Trichlorophenol	ND	ug/l	25.	25.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
2,4,6-Trichlorophenol	ND	ug/l	10.	10.	1	4/ 2/99	6:17	M. Cobb	8270C	1130
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	3/30/99	14:24	R.Ward	8260B	8568
Benzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Bromobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Bromochloromethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Bromoform	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Bromomethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
2-Butanone	ND	ug/l	10	10	1	3/30/99	14:24	R.Ward	8260B	8568
n-Butylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
sec-Butylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
t-Butylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Carbon disulfide	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Carbon tetrachloride	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Chlorobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Chloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A44211
Sample ID: MAY-1490-DUP1-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	3/30/99	14:24	R.Ward	8260B	8568
Chloroform	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Chloromethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
2-Chlorotoluene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
4-Chlorotoluene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	3/30/99	14:24	R.Ward	8260B	8568
Dibromochloromethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2-Dibromoethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Dibromomethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,3-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,4-Dichlorobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Dichlorodifluoromethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1-Dichloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2-Dichloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1-Dichloroethene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2-Dichloropropane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,3-Dichloropropane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
2,2-Dichloropropane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1-Dichloropropene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Ethylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Hexachlorobutadiene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
2-Hexanone	ND	ug/l	10	10	1	3/30/99	14:24	R.Ward	8260B	8568
Isopropylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
4-Isopropyltoluene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
4-Methyl-2-pentanone	ND	ug/l	10	10	1	3/30/99	14:24	R.Ward	8260B	8568
Methylene chloride	ND	ug/l	10	10	1	3/30/99	14:24	R.Ward	8260B	8568
Naphthalene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
n-Propylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Styrene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Tetrachloroethene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Toluene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1,1-Trichloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,1,2-Trichloroethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Trichloroethene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2,3-Trichloropropane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568

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ANALYTICAL REPORT

Laboratory Number: 99-A44211
Sample ID: MAY-1490-DUP1-3-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Vinyl chloride	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Xylenes	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Bromodichloromethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Trichlorofluoromethane	ND	ug/l	2	2	1	3/30/99	14:24	R.Ward	8260B	8568
Methyl-t-butyl ether	ND	ug/l	10	2	1	3/30/99	14:24	R.Ward	8260B	8568
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Barium, Total	ND	mg/l	0.0100	0.0100	1	3/31/99	8:58	C.Holmes	6010B	9015
Cadmium, Total	ND	mg/l	0.0010	0.0010	1	3/31/99	8:58	C.Holmes	6010B	9015
Chromium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Lead, Total	ND	mg/l	0.0030	0.0030	1	3/31/99	8:58	C.Holmes	6010B	9015
Mercury, Total	ND	mg/l	0.00020	0.00020	1	4/ 2/99	7:03	G.Robinson	7470	8664
Selenium, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015
Silver, Total	ND	mg/l	0.0050	0.0050	1	3/31/99	8:58	C.Holmes	6010B	9015

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
BNA's	990. ml	1.0 ml	3/31/99	Fitzwater	3510
Fla Pro	990. ml	2.0 ml	3/30/99	M. Cauthen	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	69. #	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	92.	55. - 118.
VOA Surrogate, 1,2-Dichloroethane, d4	104.	60. - 138.
VOA Surrogate, Toluene d8	97.	80. - 123.
VOA Surrogate, 4-Bromofluorobenzene	99.	73. - 122.
VOA Surrogate, Dibromofluoromethane	101.	74. - 133.
surr-Nitrobenzene-d5	64.	15. - 105.
surr-2-Fluorobiphenyl	74.	17. - 110.
surr-Terphenyl d14	58.	10. - 116.
surr-Phenol d5	10.	10. - 100.
surr-2-Fluorophenol	10.	9. - 100.
surr-2,4,6-Tribromophenol	20.	15. - 134.

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ANALYTICAL REPORT

Laboratory Number: 99-A44211
Sample ID: MAY-1490-DUP1-3-99

Fla-Pro Surrogate slightly low; insufficient sample for re-extraction.

Report Approved By: _____ Report Date: 4/ 2/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: HRS-E87358

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PROJECT QUALITY CONTROL DATA

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch
Florida Pro	mg/l	< 0.10	0.41	0.42	98	55. - 118.	299
Acenaphthene	mg/l	< 0.0100	0.1100	0.1000	110	46. - 129.	1130
4-Chloro-3-methylphenol	mg/l	< 0.0100	0.1100	0.1000	110	43. - 139.	1130
2-Chlorophenol	mg/l	< 0.0100	0.0970	0.1000	97	47. - 113.	1130
1,4-Dichlorobenzene	mg/l	< 0.0100	0.0920	0.1000	92	46. - 108.	1130
2,4-dinitrotoluene	mg/l	< 0.0100	0.1200	0.1000	120	41. - 126.	1130
4-Nitrophenol	mg/l	< 0.0250	0.1000	0.1000	100	14. - 150.	1130
N-Nitroso-Di-n-Propylamine	mg/l	< 0.0100	0.0890	0.1000	89	47. - 142.	1130
Pentachlorophenol	mg/l	< 0.0250	0.1300	0.1000	130	33. - 135.	1130
Phenol	mg/l	< 0.0100	0.0800	0.1000	80	13. - 145.	1130
Pyrene	mg/l	< 0.0100	0.0830	0.1000	83	40. - 149.	1130
1,2,4-Trichlorobenzene	mg/l	< 0.0100	0.1100	0.1000	110	41. - 127.	1130
Benzene	mg/l	< 0.0020	0.0462	0.0500	92	66. - 135.	8568
Chlorobenzene	mg/l	< 0.0020	0.0476	0.0500	95	68. - 134.	8568
1,1-Dichloroethene	mg/l	< 0.0020	0.0461	0.0500	92	59. - 144.	8568
Toluene	mg/l	< 0.0020	0.0466	0.0500	93	55. - 151.	8568
Trichloroethene	mg/l	< 0.0020	0.0533	0.0500	107	54. - 153.	8568
Arsenic, Total	mg/l	< 0.0050	0.0520	0.0500	104	80 - 120	9015
Barium, Total	mg/l	0.0210	2.050	2.000	101	80 - 120	9015
Cadmium, Total	mg/l	< 0.0010	0.0550	0.0500	110	80 - 120	9015
Chromium, Total	mg/l	< 0.0050	0.2080	0.2000	104	80 - 120	9015
Lead, Total	mg/l	< 0.0030	0.0550	0.0500	110	80 - 120	9015
Mercury, Total	mg/l	< 0.00020	0.00108	0.00100	108	80 - 120	8664
Selenium, Total	mg/l	< 0.0050	0.0530	0.0500	106	80 - 120	9015
Silver, Total	mg/l	0.0130	0.0630	0.0500	100	80 - 120	9015

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
Florida Pro	mg/l	0.41	0.44	7.06	20.	299
Acenaphthene	mg/l	0.1100	0.1100	0.00	25.	1130
4-Chloro-3-methylphenol	mg/l	0.1100	0.1100	0.00	25.	1130
2-Chlorophenol	mg/l	0.0970	0.0920	5.29	22.	1130
1,4-Dichlorobenzene	mg/l	0.0920	0.0910	1.09	49.	1130
2,4-dinitrotoluene	mg/l	0.1200	0.1100	8.70	43.	1130
4-Nitrophenol	mg/l	0.1000	0.1000	0.00	49.	1130
N-Nitroso-Di-n-Propylamine	mg/l	0.0890	0.0840	5.78	39.	1130
Pentachlorophenol	mg/l	0.1300	0.1300	0.00	34.	1130
Phenol	mg/l	0.0800	0.0790	1.26	35.	1130
Pyrene	mg/l	0.0830	0.0860	3.55	36.	1130
1,2,4-Trichlorobenzene	mg/l	0.1100	0.1100	0.00	26.	1130
Benzene	mg/l	0.0462	0.0460	0.43	18.	8568
Chlorobenzene	mg/l	0.0476	0.0489	2.69	20.	8568
1,1-Dichloroethene	mg/l	0.0461	0.0482	4.45	52.	8568
Toluene	mg/l	0.0466	0.0459	1.51	22.	8568

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PROJECT QUALITY CONTROL DATA

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
Trichloroethene	mg/l	0.0533	0.0534	0.19	18.	8568
Arsenic, Total	mg/l	0.0520	0.0520	0.00	20	9015
Barium, Total	mg/l	2.050	2.010	1.97	20	9015
Cadmium, Total	mg/l	0.0550	0.0540	1.83	20	9015
Chromium, Total	mg/l	0.2080	0.2040	1.94	20	9015
Lead, Total	mg/l	0.0550	0.0540	1.83	20	9015
Mercury, Total	mg/l	0.00108	0.00112	3.64	20	8664
Selenium, Total	mg/l	0.0530	0.0520	1.90	20	9015
Silver, Total	mg/l	0.0630	0.0610	3.23	20	9015

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Florida Pro	mg/l	0.42	0.42	100	70 - 130	299
Acenaphthene	mg/l	0.1000	0.1240	124	60 - 140	1130
Acenaphthylene	mg/l	0.1000	0.1260	126	60 - 140	1130
Anthracene	mg/l	0.1000	0.1280	128	60 - 140	1130
Benzo(a)anthracene	mg/l	0.1000	0.1280	128	60 - 140	1130
Benzo(a)pyrene	mg/l	0.1000	0.1300	130	60 - 140	1130
Benzo(b)fluoranthene	mg/l	0.1000	0.1220	122	60 - 140	1130
Benzo(g,h,i)perylene	mg/l	0.1000	0.1300	130	60 - 140	1130
Benzo(k)fluoranthene	mg/l	0.1000	0.1360	136	60 - 140	1130
4-Bromophenyl-phenylether	mg/l	0.1000	0.1380	138	60 - 140	1130
Butylbenzylphthalate	mg/l	0.1000	0.1240	124	60 - 140	1130
Carbazole	mg/l	0.1000	0.1180	118	60 - 140	1130
4-Chloro-3-methylphenol	mg/l	0.1000	0.1260	126	60 - 140	1130
4-Chloroaniline	mg/l	0.1000	0.0700	70	60 - 140	1130
Bis(2-chloroethoxy)methane	mg/l	0.1000	0.1000	100	60 - 140	1130
Bis(2-chloroethyl)ether	mg/l	0.1000	0.0960	96	60 - 140	1130
Bis(2-chloroisopropyl)ether	mg/l	0.1000	0.1020	102	60 - 140	1130
2-Chloronaphthalene	mg/l	0.1000	0.1180	118	60 - 140	1130
2-Chlorophenol	mg/l	0.1000	0.1120	112	60 - 140	1130
4-Chlorophenyl-phenylether	mg/l	0.1000	0.1280	128	60 - 140	1130
Chrysene	mg/l	0.1000	0.1340	134	60 - 140	1130
Dibenzofuran	mg/l	0.1000	0.1180	118	60 - 140	1130
Dibenz(a,h)anthracene	mg/l	0.1000	0.1400	140	60 - 140	1130
1,2-Dichlorobenzene	mg/l	0.1000	0.1100	110	60 - 140	1130
1,3-Dichlorobenzene	mg/l	0.1000	0.1100	110	60 - 140	1130
1,4-Dichlorobenzene	mg/l	0.1000	0.1100	110	60 - 140	1130
3,3'-Dichlorobenzidine	mg/l	0.1000	< 0.0400	N/A	60 - 140	1130
2,4-Dichlorophenol	mg/l	0.1000	0.1260	126	60 - 140	1130
Diethylphthalate	mg/l	0.1000	0.1320	132	60 - 140	1130
2,4-Dimethylphenol	mg/l	0.1000	0.0920	92	60 - 140	1130
Dimethylphthalate	mg/l	0.1000	0.1200	120	60 - 140	1130
Di-n-Butylphthalate	mg/l	0.1000	0.1300	130	60 - 140	1130

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PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	R.C. Batch
4,6-Dinitro-2-methylphenol	mg/l	0.1000	0.1220	122	60 - 140	1130
2,4-Dinitrophenol	mg/l	0.1000	0.1000	100	60 - 140	1130
2,4-dinitrotoluene	mg/l	0.1000	0.1360	136	60 - 140	1130
2,6-Dinitrotoluene	mg/l	0.1000	0.1280	128	60 - 140	1130
Di-n-octylphthalate	mg/l	0.1000	0.1300	130	60 - 140	1130
Fluoranthene	mg/l	0.1000	0.1280	128	60 - 140	1130
Fluorene	mg/l	0.1000	0.1240	124	60 - 140	1130
Hexachlorobenzene	mg/l	0.1000	0.1280	128	60 - 140	1130
Hexachlorobutadiene	mg/l	0.1000	0.1260	126	60 - 140	1130
Hexachlorocyclopentadiene	mg/l	0.1000	0.1260	126	60 - 140	1130
Hexachloroethane	mg/l	0.1000	0.1180	118	60 - 140	1130
Indeno(1,2,3-cd)pyrene	mg/l	0.1000	0.1240	124	60 - 140	1130
Isophorone	mg/l	0.1000	0.1080	108	60 - 140	1130
2-Methylnaphthalene	mg/l	0.1000	0.1220	122	60 - 140	1130
2-Methylphenol	mg/l	0.1000	0.1040	104	60 - 140	1130
3 and 4-Methylphenol	mg/l	0.1000	0.1040	104	60 - 140	1130
Naphthalene	mg/l	0.1000	0.1220	122	60 - 140	1130
2-Nitroaniline	mg/l	0.1000	0.1260	126	60 - 140	1130
3-Nitroaniline	mg/l	0.1000	0.1260	126	60 - 140	1130
4-Nitroaniline	mg/l	0.1000	0.1160	116	60 - 140	1130
Nitrobenzene	mg/l	0.1000	0.1140	114	60 - 140	1130
2-Nitrophenol	mg/l	0.1000	0.1220	122	60 - 140	1130
4-Nitrophenol	mg/l	0.1000	0.1260	126	60 - 140	1130
N-Nitroso-Di-n-Propylamine	mg/l	0.1000	0.1000	100	60 - 140	1130
N-Nitrosodiphenylamine	mg/l	0.1000	0.1260	126	60 - 140	1130
Pentachlorophenol	mg/l	0.1000	0.1380	138	60 - 140	1130
Phenanthrene	mg/l	0.1000	0.1240	124	60 - 140	1130
Phenol	mg/l	0.1000	0.0980	98	60 - 140	1130
Pyrene	mg/l	0.1000	0.1240	124	60 - 140	1130
Bis(2-ethylhexyl)phthalate	mg/l	0.1000	0.1220	122	60 - 140	1130
1,2,4-Trichlorobenzene	mg/l	0.1000	0.1240	124	60 - 140	1130
2,4,5-Trichlorophenol	mg/l	0.1000	0.1340	134	60 - 140	1130
2,4,6-Trichlorophenol	mg/l	0.1000	0.1300	130	60 - 140	1130
Acetone	mg/l	0.0500	0.0560	112	70 - 130	8568
Benzene	mg/l	0.0500	0.0475	95	70 - 130	8568
Bromobenzene	mg/l	0.0500	0.0477	95	70 - 130	8568
Bromochloromethane	mg/l	0.0500	0.0502	100	70 - 130	8568
Bromoform	mg/l	0.0500	0.0512	102	70 - 130	8568
Bromomethane	mg/l	0.0500	0.0458	92	70 - 130	8568
2-Butanone	mg/l	0.0500	0.0486	97	70 - 130	8568
n-Butylbenzene	mg/l	0.0500	0.0447	89	70 - 130	8568
sec-Butylbenzene	mg/l	0.0500	0.0470	94	70 - 130	8568
t-Butylbenzene	mg/l	0.0500	0.0478	96	70 - 130	8568
Carbon disulfide	mg/l	0.0500	0.0448	90	70 - 130	8568
Carbon tetrachloride	mg/l	0.05000	0.05070	101	70 - 130	8568
Chlorobenzene	mg/l	0.0500	0.0461	92	70 - 130	8568

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PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Chloroethane	ng/l	0.0500	0.0459	92	70 - 130	8568
2-Chloroethylvinylether	ng/l	0.0500	0.0473	95	70 - 130	8568
Chloroform	ng/l	0.0500	0.0492	98	70 - 130	8568
Chloromethane	ng/l	0.0500	0.0445	89	70 - 130	8568
2-Chlorotoluene	ng/l	0.0500	0.0470	94	70 - 130	8568
4-Chlorotoluene	ng/l	0.0500	0.0471	94	70 - 130	8568
1,2-Dibromo-3-chloropropane	ng/l	0.0500	0.0597	119	70 - 130	8568
Dibromochloromethane	ng/l	0.0500	0.0495	99	70 - 130	8568
1,2-Dibromoethane	ng/l	0.0500	0.0519	104	70 - 130	8568
Dibromomethane	ng/l	0.0500	0.0495	99	70 - 130	8568
1,2-Dichlorobenzene	ng/l	0.0500	0.0493	99	70 - 130	8568
1,3-Dichlorobenzene	ng/l	0.0500	0.0469	94	70 - 130	8568
1,4-Dichlorobenzene	ng/l	0.0500	0.0462	92	70 - 130	8568
Dichlorodifluoromethane	ng/l	0.0500	0.0430	86	70 - 130	8568
1,1-Dichloroethane	ng/l	0.0500	0.0493	99	70 - 130	8568
1,2-Dichloroethane	ng/l	0.0500	0.0504	101	70 - 130	8568
1,1-Dichloroethene	ng/l	0.0500	0.0479	96	70 - 130	8568
cis-1,2-Dichloroethene	ng/l	0.0500	0.0489	98	70 - 130	8568
trans-1,2-Dichloroethene	ng/l	0.0500	0.0474	95	70 - 130	8568
1,2-Dichloropropane	ng/l	0.0500	0.0473	95	70 - 130	8568
1,3-Dichloropropane	ng/l	0.0500	0.0486	97	70 - 130	8568
2,2-Dichloropropane	ng/l	0.0500	0.0359	72	70 - 130	8568
1,1-Dichloropropene	ng/l	0.0500	0.0469	94	70 - 130	8568
cis-1,3-Dichloropropene	ng/l	0.0500	0.0448	90	70 - 130	8568
trans-1,3-Dichloropropene	ng/l	0.0500	0.0464	93	70 - 130	8568
Ethylbenzene	ng/l	0.0500	0.0460	92	70 - 130	8568
Hexachlorobutadiene	ng/l	0.0500	0.0447	89	70 - 130	8568
2-Hexanone	ng/l	0.0500	0.0530	106	70 - 130	8568
Isopropylbenzene	ng/l	0.0500	0.0480	96	70 - 130	8568
4-Isopropyltoluene	ng/l	0.0500	0.0467	93	70 - 130	8568
4-Methyl-2-pentanone	ng/l	0.0500	0.0500	100	70 - 130	8568
Methylene chloride	ng/l	0.0500	0.0454	91	70 - 130	8568
Naphthalene	ng/l	0.0500	0.0618	124	70 - 130	8568
n-Propylbenzene	ng/l	0.0500	0.0471	94	70 - 130	8568
Styrene	ng/l	0.0500	0.0477	95	70 - 130	8568
1,1,1,2-Tetrachloroethane	ng/l	0.0500	0.0485	97	70 - 130	8568
1,1,2,2-Tetrachloroethane	ng/l	0.0500	0.0481	96	70 - 130	8568
Tetrachloroethene	ng/l	0.0500	0.0450	90	70 - 130	8568
Toluene	ng/l	0.0500	0.0468	94	70 - 130	8568
1,2,3-Trichlorobenzene	ng/l	0.0500	0.0590	118	70 - 130	8568
1,2,4-Trichlorobenzene	ng/l	0.0500	0.0502	100	70 - 130	8568
1,1,1-Trichloroethane	ng/l	0.0500	0.0497	99	70 - 130	8568
1,1,2-Trichloroethane	ng/l	0.0500	0.0518	104	70 - 130	8568
Trichloroethene	ng/l	0.0500	0.0478	96	70 - 130	8568
1,2,3-Trichloropropane	ng/l	0.0500	0.0483	97	70 - 130	8568
1,2,4-Trimethylbenzene	ng/l	0.0500	0.0469	94	70 - 130	8568

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PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
1,3,5-Trimethylbenzene	mg/l	0.0500	0.0483	97	70 - 130	8568
Vinyl chloride	mg/l	0.0500	0.0455	91	70 - 130	8568
Xylenes	mg/l	0.1500	0.1398	93	70 - 130	8568
Bromodichloromethane	mg/l	0.0500	0.0489	98	70 - 130	8568
Trichlorofluoromethane	mg/l	0.0500	0.0478	96	70 - 130	8568
Methyl-t-butyl ether	mg/l	0.0500	0.0497	99	70 - 130	8568
Arsenic, Total	mg/l	0.0530	0.0490	92	80 - 120	9015
Barium, Total	mg/l	0.5060	0.4800	95	80 - 120	9015
Cadmium, Total	mg/l	0.0510	0.0520	102	80 - 120	9015
Chromium, Total	mg/l	0.2710	0.2560	94	80 - 120	9015
Lead, Total	mg/l	0.3060	0.2920	95	80 - 120	9015
Mercury, Total	mg/l	0.01290	0.01172	91	80 - 120	8664
Selenium, Total	mg/l	0.2030	0.1940	96	80 - 120	9015
Silver, Total	mg/l	0.0990	0.1020	103	80 - 120	9015

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
Florida Pro	< 0.10	mg/l	299
Arsenic, Total	< 0.0050	mg/l	9015
Barium, Total	< 0.0100	mg/l	9015
Cadmium, Total	< 0.0010	mg/l	9015
Chromium, Total	< 0.0050	mg/l	9015
Lead, Total	< 0.0030	mg/l	9015
Mercury, Total	< 0.00020	mg/l	8664
Selenium, Total	< 0.0050	mg/l	9015
Silver, Total	< 0.0050	mg/l	9015
Acenaphthene	< 0.0100	mg/l	1130
Acenaphthylene	< 0.0100	mg/l	1130
Anthracene	< 0.0100	mg/l	1130
Benzo(a)anthracene	< 0.0100	mg/l	1130
Benzo(a)pyrene	< 0.0100	mg/l	1130
Benzo(b)fluoranthene	< 0.0100	mg/l	1130
Benzo(g,h,i)perylene	< 0.0100	mg/l	1130
Benzo(k)fluoranthene	< 0.0100	mg/l	1130
4-Bromophenyl-phenylether	< 0.0100	mg/l	1130
Butylbenzylphthalate	< 0.0100	mg/l	1130
Carbazole	< 0.0100	mg/l	1130
4-Chloro-3-methylphenol	< 0.0100	mg/l	1130
4-Chloroaniline	< 0.0100	mg/l	1130
Bis(2-chloroethoxy)methane	< 0.0100	mg/l	1130
Bis(2-chloroethyl)ether	< 0.0100	mg/l	1130
Bis(2-chloroisopropyl)ether	< 0.0100	mg/l	1130
2-Chloronaphthalene	< 0.0100	mg/l	1130
2-Chlorophenol	< 0.0100	mg/l	1130

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Blank Data

Analyte	Blank Value	Units	Q.C. Batch
4-Chlorophenyl-phenylether	< 0.0100	ng/l	1130
Chrysene	< 0.0100	ng/l	1130
Dibenzofuran	< 0.0100	ng/l	1130
Dibenz(a,h)anthracene	< 0.0100	ng/l	1130
1,2-Dichlorobenzene	< 0.0100	ng/l	1130
1,3-Dichlorobenzene	< 0.0100	ng/l	1130
1,4-Dichlorobenzene	< 0.0100	ng/l	1130
3,3'-Dichlorobenzidine	< 0.0200	ng/l	1130
2,4-Dichlorophenol	< 0.0100	ng/l	1130
Diethylphthalate	< 0.0100	ng/l	1130
2,4-Dimethylphenol	< 0.0100	ng/l	1130
Dimethylphthalate	< 0.0100	ng/l	1130
Di-n-Butylphthalate	< 0.0100	ng/l	1130
4,6-Dinitro-2-methylphenol	< 0.0250	ng/l	1130
2,4-Dinitrophenol	< 0.0250	ng/l	1130
2,4-dinitrotoluene	< 0.0100	ng/l	1130
2,6-Dinitrotoluene	< 0.0100	ng/l	1130
Di-n-octylphthalate	< 0.0100	ng/l	1130
Fluoranthene	< 0.0100	ng/l	1130
Fluorene	< 0.0100	ng/l	1130
Hexachlorobenzene	< 0.0100	ng/l	1130
Hexachlorobutadiene	< 0.0100	ng/l	1130
Hexachlorocyclopentadiene	< 0.0100	ng/l	1130
Hexachloroethane	< 0.0100	ng/l	1130
Indeno(1,2,3-cd)pyrene	< 0.0100	ng/l	1130
Isophorone	< 0.0100	ng/l	1130
2-Methylnaphthalene	< 0.0100	ng/l	1130
2-Methylphenol	< 0.0100	ng/l	1130
3 and 4-Methylphenol	< 0.0100	ng/l	1130
Naphthalene	< 0.0100	ng/l	1130
2-Nitroaniline	< 0.0250	ng/l	1130
3-Nitroaniline	< 0.0250	ng/l	1130
4-Nitroaniline	< 0.0250	ng/l	1130
Nitrobenzene	< 0.0100	ng/l	1130
2-Nitrophenol	< 0.0100	ng/l	1130
4-Nitrophenol	< 0.0250	ng/l	1130
N-Nitroso-Di-n-Propylamine	< 0.0100	ng/l	1130
N-Nitrosodiphenylamine	< 0.0100	ng/l	1130
Pentachlorophenol	< 0.0250	ng/l	1130
Phenanthrene	< 0.0100	ng/l	1130
Phenol	< 0.0100	ng/l	1130
Pyrene	< 0.0100	ng/l	1130
Bis(2-ethylhexyl)phthalate	< 0.0100	ng/l	1130
1,2,4-Trichlorobenzene	< 0.0100	ng/l	1130
2,4,5-Trichlorophenol	< 0.0250	ng/l	1130
2,4,6-Trichlorophenol	< 0.0100	ng/l	1130

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PROJECT QUALITY CONTROL DATA

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
Acetone	< 0.0100	mg/l	8568
Benzene	< 0.0020	mg/l	8568
Bromobenzene	< 0.0020	mg/l	8568
Bromochloromethane	< 0.0020	mg/l	8568
Bromoform	< 0.0020	mg/l	8568
Bromomethane	< 0.0020	mg/l	8568
2-Butanone	< 0.0100	mg/l	8568
n-Butylbenzene	< 0.0020	mg/l	8568
sec-Butylbenzene	< 0.0020	mg/l	8568
t-Butylbenzene	< 0.0020	mg/l	8568
Carbon disulfide	< 0.0020	mg/l	8568
Carbon tetrachloride	< 0.00200	mg/l	8568
Chlorobenzene	< 0.0020	mg/l	8568
Chloroethane	< 0.0020	mg/l	8568
2-Chloroethylvinylether	< 0.0050	mg/l	8568
Chloroform	< 0.0020	mg/l	8568
Chloromethane	< 0.0020	mg/l	8568
2-Chlorotoluene	< 0.0020	mg/l	8568
4-Chlorotoluene	< 0.0020	mg/l	8568
1,2-Dibromo-3-chloropropane	< 0.0100	mg/l	8568
Dibromochloromethane	< 0.0020	mg/l	8568
1,2-Dibromoethane	< 0.0020	mg/l	8568
Dibromomethane	< 0.0020	mg/l	8568
1,2-Dichlorobenzene	< 0.0020	mg/l	8568
1,3-Dichlorobenzene	< 0.0020	mg/l	8568
1,4-Dichlorobenzene	< 0.0020	mg/l	8568
Dichlorodifluoromethane	< 0.0020	mg/l	8568
1,1-Dichloroethane	< 0.0020	mg/l	8568
1,2-Dichloroethane	< 0.0020	mg/l	8568
1,1-Dichloroethene	< 0.0020	mg/l	8568
cis-1,2-Dichloroethene	< 0.0020	mg/l	8568
trans-1,2-Dichloroethene	< 0.0020	mg/l	8568
1,2-Dichloropropane	< 0.0020	mg/l	8568
1,3-Dichloropropane	< 0.0020	mg/l	8568
2,2-Dichloropropane	< 0.0020	mg/l	8568
1,1-Dichloropropene	< 0.0020	mg/l	8568
cis-1,3-Dichloropropene	< 0.0020	mg/l	8568
trans-1,3-Dichloropropene	< 0.0020	mg/l	8568
Ethylbenzene	< 0.0020	mg/l	8568
Hexachlorobutadiene	< 0.0020	mg/l	8568
2-Hexanone	< 0.0100	mg/l	8568
Isopropylbenzene	< 0.0020	mg/l	8568
4-Isopropyltoluene	< 0.0020	mg/l	8568
4-Methyl-2-pentanone	< 0.0100	mg/l	8568
Methylene chloride	0.0027	mg/l	8568
Naphthalene	< 0.0020	mg/l	8568

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PROJECT QUALITY CONTROL DATA

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
n-Propylbenzene	< 0.0020	ng/l	8568
Styrene	< 0.0020	ng/l	8568
1,1,1,2-Tetrachloroethane	< 0.0020	ng/l	8568
1,1,2,2-Tetrachloroethane	< 0.0020	ng/l	8568
Tetrachloroethene	< 0.0020	ng/l	8568
Toluene	< 0.0020	ng/l	8568
1,2,3-Trichlorobenzene	< 0.0020	ng/l	8568
1,2,4-Trichlorobenzene	< 0.0020	ng/l	8568
1,1,1-Trichloroethane	< 0.0020	ng/l	8568
1,1,2-Trichloroethane	< 0.0020	ng/l	8568
Trichloroethene	< 0.0020	ng/l	8568
1,2,3-Trichloropropane	< 0.0020	ng/l	8568
1,2,4-Trimethylbenzene	< 0.0020	ng/l	8568
1,3,5-Trimethylbenzene	< 0.0020	ng/l	8568
Vinyl chloride	< 0.0020	ng/l	8568
Xylenes	< 0.0020	ng/l	8568
Bromodichloromethane	< 0.0020	ng/l	8568
Trichlorofluoromethane	< 0.0020	ng/l	8568
Methyl-t-butyl ether	< 0.0100	ng/l	8568

Chain of Custody Record — **ITI BIOLOGIC, INC.** — Page 1 of 1

☐ Asheville, NC (828) 254-5169 ☐ Norcross, GA (770) 368-0636 ☐ Charlotte, NC (704) 392-1164 ☐ Frankfort KY (502) 223-0251 ☐ Morrisville, NC (919) 380-9699
☐ Lumberton, NC (910) 738-6190 ☐ Lexington, SC (803) 796-8989 ☐ Brighton, CO (303) 659-0497 ☐ Macon, GA (912) 757-0811 ☐ Orlando, FL (407) 851-2560

Client: CESAS	Project No.: MAY 1490
Report Address: 100 W OGLETHORPE AVE SAVANNAH GA 31401	Invoice Address: 100 W OGLETHORPE AVE SAVANNAH GA 31401
Attn: MARK HARRISON	Attn: MARK HARRISON
Phone No.: (912) 652-5151	Sampled By: HCISS
Fax No.: (912) 652-5311	P.O. No: 0163
TURNAROUND TIME ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days Date Needed:	State Samples Collected FLORIDA

REQUESTED PARAMETERS

LAB CODE I.D.
A = Asheville, NC
C = Charlotte, NC
D = Denver, CO
E = Lexington, SC
G = Macon,GA
K = Frankfort, KY
L = Lumberton, NC
M = Morrisville, NC
N = Norcross, GA
O = Orlando, FL
S = Subcontracted

Sample ID	Date	Time	Comp/ Grab	Matrix	Containers	8260 + MTBE HCl	8270 ICE	FL-PRO ICE	RCRA METALS HNO3	← Preserv.	REMARKS
TRIP BLANK			G	AQ	2	2	—	—	—		
MAY-1490-2A-3-99	3/24/99	17 30	G	AQ	5	2	1	1	1		
MAY-1490-6A-3-99	3/24/99	18 05	G	AQ	5	2	1	1	1		
MAY-1490-7-3-99	3/24/99	19 05	G	AQ	5	2	1	1	1		
MAY-1490-BLK1-3-99	3/24/99	19 10	G	AQ	5	2	1	1	1		
MAY-1490-DUP1-3-99	3/24/99	16 40	G	AQ	5	2	1	1	1		

COMMENTS: MUST MEET STATE OF FLORIDA REQUIREMENTS.

	Date	Time		Date	Time
Relinquished By:	25-MAR-99	16:10	Received By: SHIPPING	25-MAR-99	16:10
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

ADDENDUM 5
TO
CONTAMINATION ASSESSMENT REPORT

MAYPORT NAVAL STATION
BUILDING 1490 - SIMA SHOPS

JACKSONVILLE, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

OCROBER 1999

BACKGROUND

This addendum to the Contamination Assessment Report (CAR) for Building 1490 (SIMA Shops) at Mayport Naval Station, Mayport, Florida is a result of a request from the Florida Department of Environmental Protection (FDEP) to perform supplemental sampling and analysis of ground-water monitoring wells at the site. Although the results of the previous round of samples taken on March 27 1999 indicated that all parameters analyzed for in monitoring wells on site were below detection limits, the detection limits for seven EPA 8270 analytes and two EPA 8260 analytes were above maximum contaminant levels (MCLs) for those analytes (See CAR Addendum 4).

RESULTS OF SUPPLEMENTAL ASSESSMENT

At FDEP's request, site monitoring wells MAY-1490-2A, MAY-1490-6A and MAY-1490-7 were sampled on October 1 1999 for FL-PRO and EPA methods 8260B (+MTBE), 8310 and RCRA metals (6010 and 7470). A summary of the analytical results is contained in table 2 (attachment 3). Laboratory analytical data sheets are in attachment 4.

SUMMARY OF SUPPLEMENTAL ASSESSMENT

Due to detection limit deficiencies noted on previous sampling events, EPA method 8310 was substituted for method 8270. All detection limits for 8310 analytes were below the required levels with the exception of Dibenzo(a,h)anthracene and Indeno(1,2,3-cd)pyrene, which were only slightly above (0.31 and 0.44 ug/l respectivley) the required detection limit of 0.20 ug/l. The only method 8260B analyte with a detection limit above that required (0.02 ug/l), was 1,2 Dibromoethane (EDB) with a detection limit of 2.0 ug/l.

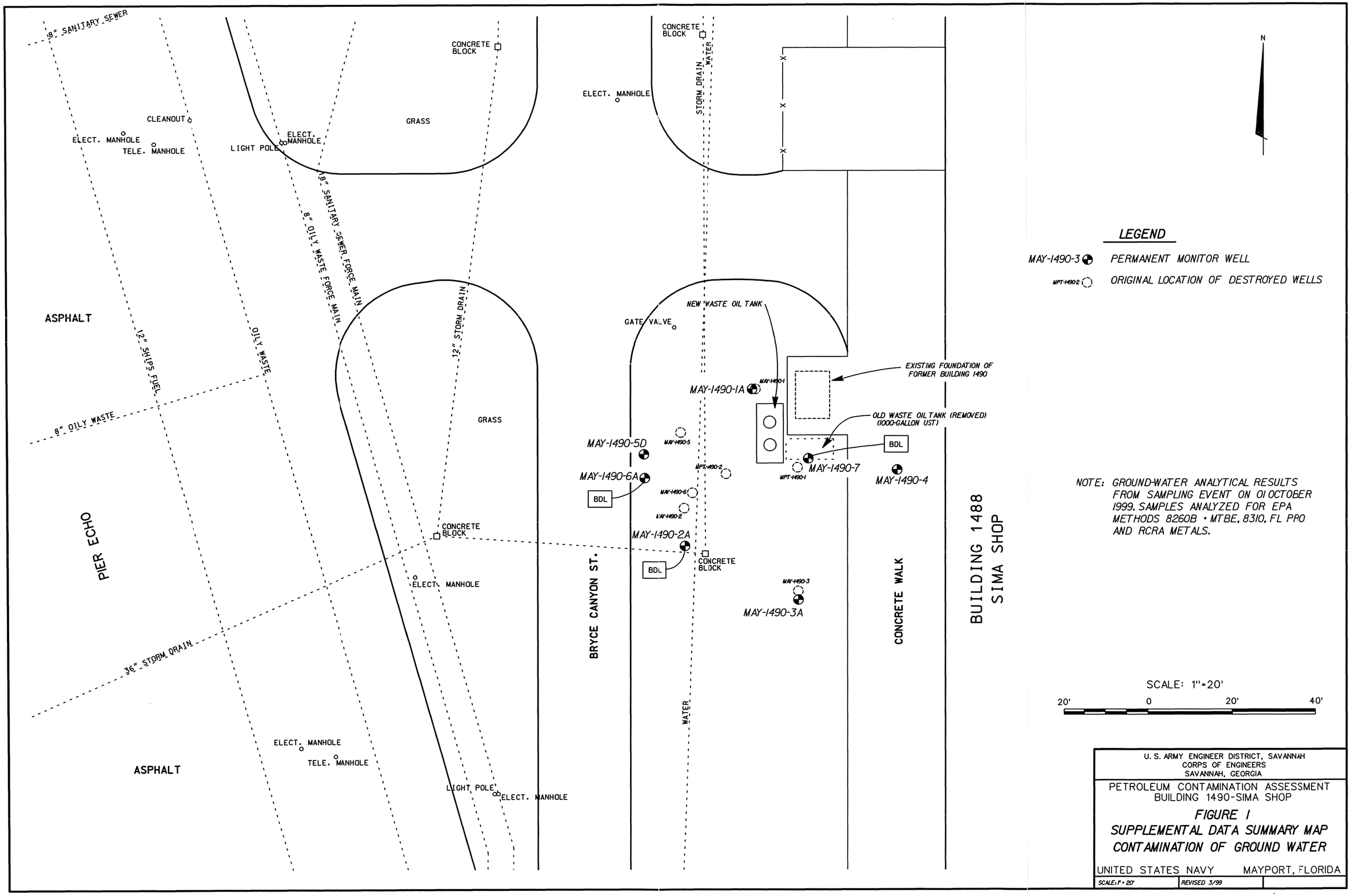
Since these latest analytical results of ground-water samples from the site indicate that little if any ground-water contamination exists at the site, it is recommended that a No Further Action Proposal (NFAP) be made for the site.

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FIGURE 1 - DATA SUMMARY MAP
- ATTACHMENT 2 – TABLE 1 – MONITORING WELL DATA
- ATTACHMENT 3 – TABLE 2 – SUMMARY OF GROUND WATER ANALYTICAL RESULTS
- ATTACHMENT 4 – LABORATORY ANALYTICAL RESULTS

ATTACHMENT 1

FIGURE 1 - DATA SUMMARY MAP



U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BUILDING 1490-SIMA SHOP

FIGURE 1
SUPPLEMENTAL DATA SUMMARY MAP
CONTAMINATION OF GROUND WATER

UNITED STATES NAVY MAYPORT, FLORIDA

SCALE: 1" = 20' | REVISED 3/99

ATTACHMENT 2

TABLE 1 – MONITORING WELL DATA

TABLE 1

MONITORING WELL DATA

BUILDING 1490
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

01 October 1999

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (msl)	Screened Interval BLS (ft.)	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (msl)
MAY-1490-1A	12.62	Flush	8.05	2.0 – 11.5	NR	--
MAY-1490-2A	12.10	"	6.96	1.8 – 11.3	2.04	4.92
MAY-1490-3A	12.31	"	7.49	1.8 – 11.3	NR	--
MAY-1490-4	12.82	"	8.93	3.4 – 12.4	NR	--
MAY-1490-5D	22.55	"	7.14	17.2 – 21.7	NR	--
MAY-1490-6A	12.44	"	7.12	1.9 – 11.4	2.05	5.07
MAY-1490-7	12.50	"	8.81	2.0 – 11.5	3.74	5.07

Notes: - BLS = Below Land Suurface
- flush = Level with ground surface
- NR= Not recorded

ATTACHMENT 3

TABLE 2 – SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

01 OCTOBER 1999

MONITOR WELL NUMBER

PARAMETER	MAY 1490-2A 9-99	MAY 1490-6A 9-99	MAY 1490-6A 9-99 DUPLICATE	MAY 1490-7 9-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
FLORIDA PRO (3510C) ug/L							
PETROLEUM RESIDUAL ORGANICS (TRPH)	<204	<208	<206	<208**	<204	NA	5 mg/L
EXTRACTABLE ORGANICS (8310) ug/L							
ACENAPHTHENE	<1.02	<1.03	<1.04	<1.01	<1.03	NA	20 ug/L
ACENAPHTHYLENE	<2.04	<2.06	<2.08	<2.02	<2.06	NA	210 ug/L
ANTHRACENE	<0.67	<0.68	<0.69	<0.67	<0.68	NA	2100 ug/L
BENZO(A)ANTHRACENE	<0.13	<0.13	<0.14	<0.13	<0.13	NA	0.2 ug/L
BENZO(A)PYRENE	<0.10	<0.10	<0.10	<0.10	<0.10	NA	0.2 ug/L
BENZO(B)FLUORANTHENE	<0.18	<0.19	<0.19	<0.19	<0.19	NA	0.2 ug/L
BENZO(G,H,I)PERYLENE	<0.78	<0.78	<0.79	<0.77	<0.78	NA	210 ug/L
BENZO(K)FLUORANTHENE	<0.17	<0.18	<0.18	<0.17	<0.18	NA	0.5 ug/L
CHRYSENE	<0.15	<0.15	<0.16	<0.15	<0.15	NA	5 ug/L
DIBENZO(A,H)ANTHRACENE	<0.31	<0.31	<0.31	<0.30	<0.31	NA	0.2 ug/
FLUORANTHENE	<0.21	<0.22	<0.22	<0.21	<0.21	NA	280 ug/L
FLUORENE	<0.21	<0.22	<0.22	<0.21	<0.21	NA	280 ug/L
INDENO(1,2,3-CD)PYRENE	<0.44	<0.44	<0.45	<0.43	<0.44	NA	0.2 ug/L
1-METHYLNAPHTHALENE	<2.04	<2.06	<2.08	<2.02	<2.04	NA	
2-METHYLNAPHTHALENE	<2.04	<2.06	<2.08	<2.02	<2.04	NA	
NAPHTHALENE	<1.02	<1.03	<1.04	<1.01	<1.00	NA	20 ug/L
PHENANTHRENE	<0.65	<0.66	<0.67	<0.65	<0.66	NA	210 ug/L
PYRENE	<0.28	<0.28	<0.28	<0.28	<0.28	NA	210 ug/L
VOLATILE ORGANIC COMPOUNDS (8260B) ug/L							
ACETONE	<10	<10	<10	<10	<10	<10	
ACROLEIN	<10	<10	<10	<10	<10	<10	
ACRYLONITRILE	<10	<10	<10	<10	<10	<10	
BENZENE	<1	<1	<1	<1	<1	<1	1 ug/L
BROMOBENZENE	<2	<2	<2	<2	<2	<2	
BROMOCHLOROMETHANE	<2	<2	<2	<2	<2	<2	
BROMOFORM	<2	<2	<2	<2	<2	<2	
BROMOMETHANE	<2	<2	<2	<2	<2	<2	

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

01 OCTOBER 1999

	MONITOR WELL NUMBER						
PARAMETER	MAY 1490-2A 9-99	MAY 1490-6A 9-99	MAY 1490-6A 9-99 DUPLICATE	MAY 1490-7 9-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
2-BUTANONE (MEK)	<10	<10	<10	<10	<10	<10	
N-BUTYLBENZENE	<2	<2	<2	<2	<2	<2	
SEC-BUTYLBENZENE	<2	<2	<2	<2	<2	<2	
T-BUTYLBENZENE	<2	<2	<2	<2	<2	<2	
CARBON DISULFIDE	<2	<2	<2	<2	<2	<2	
CARBON TETRACHLORIDE	<2	<2	<2	<2	<2	<2	
CHLOROBENZENE	<2	<2	<2	<2	<2	<2	
CHLOROETHANE	<2	<2	<2	<2	<2	<2	
2-CHLOROETHYLVINYL ETHER	<5	<5	<5	<5	<5	<5	
CHLOROFORM	<2	<2	<2	<2	<2	<2	
CHLOROMETHANE	<2	<2	<2	<2	<2	<2	
2-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	
4-CHLOROTOLUENE	<2	<2	<2	<2	<2	<2	
1,2-DIBROMO-3-CHLOROPROPANE	<10	<10	<10	<10	<10	<10	
DIBROMOCHLOROMETHANE	<2	<2	<2	<2	<2	<2	
1,2-DIBROMOETHANE	<2	<2	<2	<2	<2	<2	0.02 ug/L
DIBROMOMETHANE	<2	<2	<2	<2	<2	<2	
1,4-DICHLORO-2-BUTENE	<2	<2	<2	<2	<2	<2	
1,2-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,3-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,4-DICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
DICHLORODIFLUOROMETHANE	<2	<2	<2	<2	<2	<2	
1,1-DICHLOROETHANE	<2	<2	<2	<2	<2	<2	
1,2-DICHLOROETHANE	<2	<2	<2	<2	<2	<2	3 ug/L
1,1-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	
CIS 1,2-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	
TRANS-1,2-DICHLOROETHENE	<2	<2	<2	<2	<2	<2	
1,2-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
1,3-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
2,2-DICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
1,1-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

01 OCTOBER 1999

MONITOR WELL NUMBER

PARAMETER	MAY 1490-2A 9-99	MAY 1490-6A 9-99	MAY 1490-6A 9-99 DUPLICATE	MAY 1490-7 9-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
CIS-1,3-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	
TRANS-1,3-DICHLOROPROPENE	<2	<2	<2	<2	<2	<2	
EHTYLBENZENE	<2	<2	<2	<2	<2	<2	30 ug/L
HEXACHLOROBUTADIENE	<2	<2	<2	<2	<2	<2	
2-HEXANONE	<10	<10	<10	<10	<10	<10	
IODOMETHANE	<2	<2	<2	<2	<2	<2	
ISOPROPYLBENZENE	<2	<2	<2	<2	<2	<2	
4-ISOPROPYLTOLUENE	<2	<2	<2	<2	<2	<2	
MEHTYL METHACRYLATE	<5	<5	<5	<5	<5	<5	
4-METHAL-2-PENTANONE	<10	<10	<10	<10	<10	<10	
METHYLENE CHLORIDE	<5	<5	<5	<5	<5	<5	
NAPHTHALENE	<2	<2	<2	<2	<2	<2	20 ug/L
N-PROPYLBENZENE	<2	<2	<2	<2	<2	<2	
STYRENE	<2	<2	<2	<2	<2	<2	
1,1,1,2-TETRACHLOROETHANE	<2	<2	<2	<2	<2	<2	
1,1,2,2-TETRACHLOROETHANE	<2	<2	<2	<2	<2	<2	
TETRACHLOROETHENE (PCE)	<2	<2	<2	<2	<2	<2	
TOLUENE	<2	<2	<2	<2	<2	<2	40 ug/L
1,2,3-TRICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,2,4-TRICHLOROBENZENE	<2	<2	<2	<2	<2	<2	
1,1,1-TRICHLOROETHANE	<2	<2	<2	<2	<2	<2	
1,1,2-TRICHLOROETHANE	<2	<2	<2	<2	<2	<2	
TRICHLOROETHENE (TCE)	<2	<2	<2	<2	<2	<2	
1,2,3-TRICHLOROPROPANE	<2	<2	<2	<2	<2	<2	
1,2,4-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	
1,3,5-TRIMETHYLBENZENE	<2	<2	<2	<2	<2	<2	
VINYL ACETATE	<10	<10	<10	<10	<10	<10	
VINYL CHLORIDE	<2	<2	<2	<2	<2	<2	
XYLENES (TOTAL)	<2	<2	<2	<2	<2	<2	20 ug/L
BROMODICHLOROMETHANE	<2	<2	<2	<2	<2	<2	
TRICHLOROFLUOROMETHANE	<2	<2	<2	<2	<2	<2	

TABLE 2

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

BUILDING 1490 - SIMA SHOPS
MAYPORT NAVAL STATION
MAYPORT FLORIDA

01 OCTOBER 1999

	MONITOR WELL NUMBER						
PARAMETER	MAY 1490-2A 9-99	MAY 1490-6A 9-99	MAY 1490-6A 9-99 DUPLICATE	MAY 1490-7 9-99	RINSATE BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
METHYL TERT-BUTYL ETHER (MTBE)	<10	<10	<10	<10	<10	<10	35 ug/L
METALS, mg/L							
ARSENIC, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	50 ug/L
BARIUM, TOTAL (6010B)	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	2000 ug/L
CADMIUM, TOTAL (6010B)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	NA	5 ug/L
CHROMIUM, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	100 ug/L
LEAD, TOTAL (6010B)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	NA	15 ug/L
MERCURY, TOTAL (7470)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NA	2 ug/L
SELENIUM, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	50 ug/L
SILVER, TOTAL (6010B)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	NA	100 ug/L

Notes: - NA = Not Analyzed

ATTACHMENT 4

LABORATORY ANALYTICAL RESULTS

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A151620
Sample ID: MAY-1490-2A-9-99
Sample Type: Ground water
Site ID:

Project: DO #210
Project Name: SITE 1490 MAYPORT
Sampler: JUDSON SMITH

Date Collected: 10/ 1/99
Time Collected: 16:33
Date Received: 10/ 2/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TRPH	ND	ug/l	204	100.	1	10/ 8/99	1:59	J.Saigasak	FPRO	7521
Naphthalene	ND	ug/l	1.02	1.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Acenaphthene	ND	ug/l	1.02	1.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Anthracene	ND	ug/l	0.67	0.66	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Fluoranthene	ND	ug/l	0.21	0.21	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Fluorene	ND	ug/l	0.21	0.21	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Pyrene	ND	ug/l	0.28	0.27	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(a)anthracene	ND	ug/l	0.13	0.13	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(a)pyrene	ND	ug/l	0.10	0.10	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(b)fluoranthene	ND	ug/l	0.13	0.13	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(k)fluoranthene	ND	ug/l	0.17	0.17	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Chrysene	ND	ug/l	0.15	0.15	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Dibenzo(a,h)anthracene	ND	ug/l	0.31	0.30	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Indeno(1,2,3-cd)pyrene	ND	ug/l	0.44	0.43	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Acenaphthylene	ND	ug/l	2.04	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(g,h,i)perylene	ND	ug/l	0.78	0.76	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Phenanthrene	ND	ug/l	0.65	0.64	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
1-Methylnaphthalene	ND	ug/l	2.04	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
2-Methylnaphthalene	ND	ug/l	2.04	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	82600	4699
Acrolein	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	82600	4699
Acrylonitrile	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	82600	4699
Benzene	ND	ug/l	1	1	1	10/ 7/99	10:09	J Hollinan	82600	4699
Bromobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Bromochloromethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Bromoform	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Bromomethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
2-Butanone	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	82600	4699
n-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
sec-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
t-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Carbon disulfide	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Carbon tetrachloride	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Chlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699
Chloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82600	4699

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151620
Sample ID: MAY-1490-2A-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Chloroform	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Chloromethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
2-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
4-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Dibromochloromethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2-Dibromoethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Dibromomethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,4-Dichloro-2-butene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,3-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,4-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Dichlorodifluoromethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,3-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
2,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Ethylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Hexachlorobutadiene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
2-Hexanone	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Iodomethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Isopropylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
4-Isopropyltoluene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Methyl methacrylate	ND	ug/l	5	5	1	10/ 7/99	10:09	S. Wasi	8260B	8867
4-Methyl-2-pentanone	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Methylene chloride	ND	ug/l	5	5	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Naphthalene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
n-Propylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Styrene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Tetrachloroethene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Toluene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1,1-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
1,1,2-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699
Trichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	8260B	4699

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A131620
Sample ID: MAY-1490-2A-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
Vinyl acetate	ND	ug/l	10	10	1	10/ 7/99	10:09	J Hollinan	82608	4699
Vinyl chloride	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
Xylenes	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
Dromodichloromethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
Trichlorofluoromethane	ND	ug/l	2	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
Methyl-t-butyl ether	ND	ug/l	10	2	1	10/ 7/99	10:09	J Hollinan	82608	4699
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	60108	4547
Barium, Total	0.0110	mg/l	0.0100	0.0100	1	10/ 6/99	7:25	G.Robinson	60108	4547
Cadmium	ND	mg/l	0.0010	0.0010	1	10/ 6/99	7:25	G.Robinson	60108	4547
Chromium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	60108	4547
Lead	ND	mg/l	0.0030	0.0030	1	10/ 6/99	7:25	G.Robinson	60108	4547
Mercury, Total	ND	mg/l	0.00020	0.00020	1	10/ 6/99	7:49	G.McCord	7470	4670
Selenium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	60108	4547
Silver, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	60108	4547

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	980. ml	1.00 ml	10/ 4/99	Fitzwater	3510
Fla Pro	960. ml	2.0 ml	10/ 6/99	Fitzwater	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	81. *	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	80.	55. - 118.
VOA Surr, 1,2-DCA, d4	96.	60. - 138.
VOA Surr, Toluene d8	86.	80. - 123.
VOA Surr, 4-BFB	95.	73. - 122.
VOA Surr, DBFM	107.	74. - 133.
PAH Surr., p-terphenyl d14	96.	20. - 140.

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2960 Foster Creighton Dr.
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ANALYTICAL REPORT

Laboratory Number: 99-A151620
Sample ID: MAY-1490-2A-9-99

These results relate only to the items tested.
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permission of the laboratory.

Report Approved By: _____ Report Date: 10/11/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 6995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A151621
Sample ID: MAY-1490-6A-9-99
Sample Type: Ground water
Site ID:

Project: DO #210
Project Name: SITE 1490 MAYPORT
Sampler: JUDSON SMITH

Date Collected: 10/ 1/99
Time Collected: 17:00
Date Received: 10/ 2/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
INORGANIC PARAMETERS										
TPH	ND	ug/l	208.	100.	1	10/ 8/99	2:28	J.Salgasak	FPHO	7521
Naphthalene	ND	ug/l	1.03	1.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Acenaphthene	ND	ug/l	1.03	1.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Anthracene	ND	ug/l	0.68	0.66	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Fluoranthene	ND	ug/l	0.22	0.21	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Fluorene	ND	ug/l	0.22	0.21	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Pyrene	ND	ug/l	0.28	0.27	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(a)anthracene	ND	ug/l	0.13	0.13	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(a)pyrene	ND	ug/l	0.10	0.10	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(b)fluoranthene	ND	ug/l	0.19	0.18	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(k)fluoranthene	ND	ug/l	0.18	0.17	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Chrysene	ND	ug/l	0.15	0.15	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Dibenzo(a,h)anthracene	ND	ug/l	0.31	0.30	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Indeno(1,2,3-cd)pyrene	ND	ug/l	0.44	0.43	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Acenaphthylene	ND	ug/l	2.06	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(g,h,i)perylene	ND	ug/l	0.78	0.76	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Phenanthrene	ND	ug/l	0.66	0.64	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
1-Methylnaphthalene	ND	ug/l	2.06	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
2-Methylnaphthalene	ND	ug/l	2.06	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Acrolein	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Acrylonitrile	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Benzene	ND	ug/l	1	1	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Bromobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Bromochloromethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Bromoform	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Bromomethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
2-Butanone	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	8260B	4699
n-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
sec-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
t-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Carbon disulfide	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Carbon tetrachloride	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Chlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Chloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699

SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151621
Sample ID: MAY-1490-6A-7-99

Analyte	Result	Units	Report Limit	Run Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Chloroform	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Chloromethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
2-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
4-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	82600	4699
Dibromochloromethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2-Dibromoethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Dibromomethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,4-Dichloro-2-butene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,3-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,4-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Dichlorodifluoromethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,3-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
2,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Ethylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Hexachlorobutadiene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
2-Hexanone	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	82600	4699
Iodomethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Isopropylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
4-Isopropyltoluene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Methyl methacrylate	ND	ug/l	5	5	1	10/ 7/99	10:50	S. Wani	82600	8867
4-Methyl-2-pentanone	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	82600	4699
Methylene chloride	ND	ug/l	5	5	1	10/ 7/99	10:50	J Hollinan	82600	4699
Naphthalene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
n-Propylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Styrene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Tetrachloroethene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Toluene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1,1-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
1,1,2-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699
Trichloroethene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	82600	4699

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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151621
Sample ID: MAY-1490-SA-7-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Vinyl acetate	ND	ug/l	10	10	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Vinyl chloride	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Xylenes	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Dromochloromethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Trichlorofluoromethane	ND	ug/l	2	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
Methyl-t-butyl ether	ND	ug/l	10	2	1	10/ 7/99	10:50	J Hollinan	8260B	4699
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Barium, Total	0.0100	mg/l	0.0100	0.0100	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Cadmium	ND	mg/l	0.0010	0.0010	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Chromium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Lead	ND	mg/l	0.0030	0.0030	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Mercury, Total	ND	mg/l	0.00020	0.00020	1	10/ 6/99	7:49	G.McCord	7470	4670
Selenium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Silver, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	970. ml	1.00 ml	10/ 6/99	Fitzwater	3510
Fla Pro	960. ml	2.0 ml	10/ 6/99	Fitzwater	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	102.	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	92.	55. - 118.
VOA Surr, 1,2-DCA, d4	95.	60. - 138.
VOA Surr, Toluene d8	86.	80. - 123.
VOA Surr, 4-BFB	94.	73. - 122.
VOA Surr, DBFM	107.	74. - 133.
PAH Surr., p-terphenyl d14	88.	20. - 140.

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2960 Foster Creighton Dr.
P.O. Box 40566
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ANALYTICAL REPORT

Laboratory Number: 99-A151621
Sample ID: MAY-1490-6A-9-99

These results relate only to the items tested.
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Report Approved By: _____ Report Date: 10/11/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: HRS-E87358

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A151622
Sample ID: MAY-1490-7-9-99
Sample Type: Ground water
Site ID:

Date Collected: 10/ 1/99
Time Collected: 18:00
Date Received: 10/ 2/99
Time Received: 9:00

Project: DO #210
Project Name: SITE 1490 MAYPORT
Sampler: JUDSON SMITH

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TRPH	ND	ug/l	208.	100.	1	10/ 8/99	2:30	J.Salyasak	FPHO	7521
Naphthalene	ND	ug/l	1.01	1.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Acenapthene	ND	ug/l	1.01	1.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Anthracene	ND	ug/l	0.67	0.66	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Fluoranthene	ND	ug/l	0.21	0.21	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Fluorene	ND	ug/l	0.21	0.21	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Pyrene	ND	ug/l	0.27	0.27	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(a)anthracene	ND	ug/l	0.13	0.13	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(a)pyrene	ND	ug/l	0.19	0.19	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(b)fluoranthene	ND	ug/l	0.18	0.18	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(k)fluoranthene	ND	ug/l	0.17	0.17	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Chrysene	ND	ug/l	0.15	0.15	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Dibenzo(a,h)anthracene	ND	ug/l	0.30	0.30	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Indeno(1,2,3-cd)pyrene	ND	ug/l	0.43	0.43	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Acenaphthylene	ND	ug/l	2.02	2.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(g,h,i)perylene	ND	ug/l	0.77	0.76	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Phenanthrene	ND	ug/l	0.65	0.64	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
1-Methylnapthalene	ND	ug/l	2.02	2.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
2-Methylnapthalene	ND	ug/l	2.02	2.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Acrolein	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Acrylonitrile	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Benzene	ND	ug/l	1	1	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Bromobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Bromochloromethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Bromoform	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Bromomethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
2-Butanone	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
n-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
sec-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
t-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Carbon disulfide	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Carbon tetrachloride	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Chlorobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Chloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151622
Sample ID: MAY-1490-7-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Chloroform	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Chloromethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
2-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
4-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Dibromochloromethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2-Dibromoethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Dibromomethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,4-Dichloro-2-butene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,3-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,4-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Dichlorodifluoromethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,3-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
2,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Ethylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Hexachlorobutadiene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
2-Hexanone	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Iodomethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Isopropylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
4-Isopropyltoluene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Methyl methacrylate	ND	ug/l	5	5	1	10/ 7/99	11:30	S. Waal	8260B	8867
4-Methyl-2-pentanone	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Methylene chloride	ND	ug/l	5	5	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Naphthalene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
n-Propylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Styrene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Tetrachloroethene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Toluene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1,1-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,1,2-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Trichloroethene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699

COPY

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151622
Sample ID: MAY-1490-7-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Vinyl acetate	ND	ug/l	10	10	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Vinyl chloride	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Xylenes	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Dromodichloromethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Trichlorofluoromethane	ND	ug/l	2	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
Methyl-t-butyl ether	ND	ug/l	10	2	1	10/ 7/99	11:30	J Hollinan	8260B	4699
METALS										
Arsenic, Total	0.0060	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	S.Robinson	6010B	4547
Barium, Total	0.0160	mg/l	0.0100	0.0100	1	10/ 6/99	7:25	S.Robinson	6010B	4547
Cadmium	ND	mg/l	0.0010	0.0010	1	10/ 6/99	7:25	S.Robinson	6010B	4547
Chromium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	S.Robinson	6010B	4547
Lead	ND	mg/l	0.0030	0.0030	1	10/ 6/99	7:25	S.Robinson	6010B	4547
Mercury, Total	ND	mg/l	0.00020	0.00020	1	10/ 6/99	7:49	S.McCord	7470	4670
Selenium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	S.Robinson	6010B	4547
Silver, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	S.Robinson	6010B	4547

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	990. ml	1.00 ml	10/ 4/99	Fitzwater	3510
Fla Pro	960. ml	2.0 ml	10/ 6/99	Fitzwater	FOEF

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	86.	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	85.	55. - 118.
VOA Surr, 1,2-DCB, d4	99.	60. - 138.
VOA Surr, Toluene d8	88.	80. - 123.
VOA Surr, 4-BFB	96.	73. - 122.
VOA Surr, DBFM	109.	74. - 133.
PAH Surr., p-terphenyl d14	94.	20. - 140.

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151622
Sample ID: MAY-1490-7-9-99

These results relate only to the items tested.
This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: _____ Report Date: 10/11/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: MRS-E87358

COPY 2

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A151623
Sample ID: MAY-1490-DUP1-9-99
Sample Type: Ground water
Site ID:

Project: DO #210
Project Name: SITE 1490 MAYPORT
Sampler: JUDSON SMITH

Date Collected: 10/ 1/99
Time Collected: 13:10
Date Received: 10/ 2/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
%ORGANIC PARAMETERS%										
TRPH	ND	ug/l	296.	100.	1	10/ 8/99	3:27	J.Salgasak	FPHD	7521
Naphthalene	ND	ug/l	1.04	1.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Acenapthene	ND	ug/l	1.04	1.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Anthracene	ND	ug/l	0.69	0.66	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Fluoranthene	ND	ug/l	0.22	0.21	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Fluorene	ND	ug/l	0.22	0.21	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Pyrene	ND	ug/l	0.28	0.27	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(a)anthracene	ND	ug/l	0.14	0.13	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(a)pyrene	ND	ug/l	0.10	0.10	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(b)Fluoranthene	ND	ug/l	0.19	0.18	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(k)Fluoranthene	ND	ug/l	0.18	0.17	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Chrysene	ND	ug/l	0.16	0.15	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Dibenzo(a,h)anthracene	ND	ug/l	0.31	0.30	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Indeno(1,2,3-cd)pyrene	ND	ug/l	0.45	0.43	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Acenaphthylene	ND	ug/l	2.08	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Benzo(g,h,i)perylene	ND	ug/l	0.79	0.76	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
Phenanthrene	ND	ug/l	0.67	0.64	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
1-Methylnapthalene	ND	ug/l	2.08	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
2-Methylnapthalene	ND	ug/l	2.08	2.00	1	10/ 8/99	8:45	Noorbakhsh	8310	7721
%VOLATILE ORGANICS%										
Acetone	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	82608	4699
Acrolein	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	82608	4699
Acrylonitrile	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	82608	4699
Benzene	ND	ug/l	1	1	1	10/ 7/99	12:11	J Hollinan	82608	4699
Bromobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Bromochloromethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Bromoform	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Bromomethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
2-Butanone	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	82608	4699
n-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
sec-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
t-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Carbon disulfide	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Carbon tetrachloride	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Chlorobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699
Chloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	82608	4699

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
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Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151623
Sample ID: MAY-1490-DUP1-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Chloroform	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Chloromethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
2-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
4-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Dibromochloromethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2-Dibromoethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Dibromomethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,4-Dichloro-2-butene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,3-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,4-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Dichlorodifluoromethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,3-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
2,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Ethylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Hexachlorobutadiene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
2-Hexanone	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Iodomethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Isopropylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
4-Isopropyltoluene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Methyl methacrylate	ND	ug/l	5	5	1	10/ 7/99	12:11	S. Wani	8260B	8867
4-Methyl-2-pentanone	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Methylene chloride	ND	ug/l	5	5	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Naphthalene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
n-Propylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Styrene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Tetrachloroethene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Toluene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1,1-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,1,2-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Trichloroethene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699

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2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151623
Sample ID: MAY-1490-DUP1-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Vinyl acetate	ND	ug/l	10	10	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Vinyl chloride	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Xylenes	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Bromodichloromethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Trichlorofluoromethane	ND	ug/l	2	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
Methyl-t-butyl ether	ND	ug/l	10	2	1	10/ 7/99	12:11	J Hollinan	8260B	4699
METALS										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Barium, Total	0.0190	mg/l	0.0100	0.0100	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Cadmium	ND	mg/l	0.0010	0.0010	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Chromium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Lead	ND	mg/l	0.0030	0.0030	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Mercury, Total	ND	mg/l	0.00020	0.00020	1	10/ 6/99	7:49	G.McCord	7470	4670
Selenium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Silver, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	960. ml	1.00 ml	10/ 4/99	Fitzwater	3510
Fla Pro	970. ml	2.0 ml	10/ 6/99	Fitzwater	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	81. *	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	82.	55. - 118.
VOA Surr, 1,2-DCA, d4	97.	60. - 138.
VOA Surr, Toluene d8	86.	80. - 123.
VOA Surr, 4-BFB	98.	73. - 122.
VOA Surr, DBFM	108.	74. - 133.
PAH Surr., p-terphenyl d14	106.	20. - 140.

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ANALYTICAL REPORT

Laboratory Number: 99-A151623
Sample ID: MAY-1490-DUP1-9-99

These results relate only to the items tested.
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Report Approved By: _____ Report Date: 10/11/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A151624
Sample ID: MAY-1490-BLK1-9-99
Sample Type: Ground water
Site ID:

Project: DO #210
Project Name: SITE 1490 MAYPORT
Sampler: JUDSON SMITH

Date Collected: 10/ 1/99
Time Collected: 17:10
Date Received: 10/ 2/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
INORGANIC PARAMETERS										
TRPH	ND	ug/l	204.	100.	1	10/ 8/99	8:56	J.Saigasak	FPRO	7521
Naphthalene	ND	ug/l	1.03	1.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Acenaphthene	ND	ug/l	1.03	1.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Anthracene	ND	ug/l	0.68	0.66	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Fluoranthene	ND	ug/l	0.22	0.21	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Fluorene	ND	ug/l	0.22	0.21	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Pyrene	ND	ug/l	0.28	0.27	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(a)anthracene	ND	ug/l	0.13	0.13	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(a)pyrene	ND	ug/l	0.10	0.10	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(b)Fluoranthene	ND	ug/l	0.19	0.18	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(k)fluoranthene	ND	ug/l	0.18	0.17	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Chrysene	ND	ug/l	0.15	0.15	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Dibenzo(a,h)anthracene	ND	ug/l	0.31	0.30	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Indeno(1,2,3-cd)pyrene	ND	ug/l	0.44	0.43	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Acenaphthylene	ND	ug/l	2.06	2.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Benzo(g,h,i)perylene	ND	ug/l	0.78	0.76	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
Phenanthrene	ND	ug/l	0.66	0.64	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
1-Methylnaphthalene	ND	ug/l	2.06	2.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
2-Methylnaphthalene	ND	ug/l	2.06	2.00	1	10/ 8/99	8:45	Moorbakhsh	8310	7721
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	82600	4699
Acrolein	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	82600	4699
Acrylonitrile	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	82600	4699
Benzene	ND	ug/l	1	1	1	10/ 7/99	17:10	J Hollinan	82600	4699
Bromobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Bromochloromethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Bromoform	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Bromomethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
2-Butanone	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	82600	4699
n-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
sec-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
t-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Carbon disulfide	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Carbon tetrachloride	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Chlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699
Chloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	82600	4699

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151624
Sample ID: MAY-1490-BLK1-9-99

Analyte	Result	Units	Report Limit	Mean Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2-Chloroethylvinylether	ND	ug/l	5	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Chloroform	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Chloromethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
2-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
4-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Dibromochloromethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2-Dibromoethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Dibromomethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,4-Dichloro-2-butene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,3-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,4-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Dichlorodifluoromethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,3-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
2,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Ethylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Hexachlorobutadiene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
2-Hexanone	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Iodomethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Isopropylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
4-Isopropyltoluene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Methyl methacrylate	ND	ug/l	5	5	1	10/ 7/99	17:10	S. Wani	8260B	8867
4-Methyl-2-pentanone	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Methylene chloride	ND	ug/l	5	5	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Naphthalene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
n-Propylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Styrene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Tetrachloroethene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Toluene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1,1-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,1,2-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Trichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151624
Sample ID: MAY-1490-BLK1-9-99

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
1,2,3-Trichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Vinyl acetate	ND	ug/l	10	10	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Vinyl chloride	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Xylenes	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Bromodichloromethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Trichlorofluoromethane	ND	ug/l	2	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
Methyl-t-butyl ether	ND	ug/l	10	2	1	10/ 7/99	17:10	J Hollinan	8260B	4699
METALS*										
Arsenic, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Barium, Total	ND	mg/l	0.0100	0.0100	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Cadmium	ND	mg/l	0.0010	0.0010	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Chromium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Lead	ND	mg/l	0.0030	0.0030	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Mercury, Total	ND	mg/l	0.00020	0.00020	1	10/ 6/99	7:49	G.McCord	7470	4670
Selenium, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547
Silver, Total	ND	mg/l	0.0050	0.0050	1	10/ 6/99	7:25	G.Robinson	6010B	4547

PAH HPLC LCS compounds outside reported QC ranges,
but within historical limits
Volatile LCS compounds outside reported QC ranges,
but within historical limits

ND = Not detected at the report limit.

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	970. ml	1.00 ml	10/ 4/99	Fitzwater	3510
Fla Pro	980. ml	2.0 ml	10/ 6/99	Fitzwater	FDEP

Surrogate	% Recovery	Target Range
Fla Pro Surr., O-Terphenyl	84.	82. - 142.
Fla Pro Surr., C-35 Hydrocarbon	85.	55. - 118.
VOA Surr, 1,2-DCA, d4	100.	60. - 138.
VOA Surr, Toluene d8	84.	80. - 123.

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A131624
Sample ID: MAY-1490-BLK1-9-99

Surrogate	% Recovery	Target Range
VOA Surr, 4-BFB	98.	73. - 122.
VOA Surr, DBFM	109.	74. - 133.
PAH Surr., p-terphenyl d14	106.	20. - 140.

These results relate only to the items tested.
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Report Approved By: _____ Report Date: 10/11/99

Theodore J. Ouellio, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: HRS-E87358

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Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A151625
Sample ID: TRIP BLANK
Sample Type: Ground water
Site ID:

Date Collected:
Time Collected:
Date Received: 10/ 2/99
Time Received: 9:00

Project: DO #210
Project Name: SITE 1490 MAYPORT
Sampler: JUDSON SMITH

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS										
Acetone	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Acrolein	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Acrylonitrile	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Benzene	ND	ug/l	1	1	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Bromobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Bromochloromethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Bromoform	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Bromomethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
2-Butanone	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
n-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
sec-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
t-Butylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Carbon disulfide	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Carbon tetrachloride	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Chlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Chloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
2-Chloroethylvinylether	ND	ug/l	5	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Chloroform	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Chloromethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
2-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
4-Chlorotoluene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2-Dibromo-3-chloropropane	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Dibromochloromethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2-Dibromoethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Dibromomethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,4-Dichloro-2-butene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,3-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,4-Dichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Dichlorodifluoromethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2-Dichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
cis-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
trans-1,2-Dichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,3-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151625
Sample ID: TRIP BLANK

Analyte	Result	Units	Report Limit	Mean Limit	Dil Factor	Date	Time	Analyst	Method	Batch
2,2-Dichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
cis-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
trans-1,3-Dichloropropene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Ethylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Hexachlorobutadiene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
2-Hexanone	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Iodomethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Isopropylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
4-Isopropyltoluene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Methyl methacrylate	ND	ug/l	5	5	1	10/ 7/99	17:50	S. Neal	8260B	3867
4-Methyl-2-pentanone	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Methylene chloride	ND	ug/l	5	5	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Naphthalene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
n-Propylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Styrene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1,1,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1,2,2-Tetrachloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Tetrachloroethene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Toluene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2,3-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2,4-Trichlorobenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1,1-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,1,2-Trichloroethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Trichloroethene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2,3-Trichloropropane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,2,4-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
1,3,5-Trimethylbenzene	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Vinyl acetate	ND	ug/l	10	10	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Vinyl chloride	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Xylenes	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Bromodichloromethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Trichlorofluoromethane	ND	ug/l	2	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699
Methyl-t-butyl ether	ND	ug/l	10	2	1	10/ 7/99	17:50	J Hollinan	8260B	4699

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
VOA Surr, 1,2-DCA, d4	103.	60. - 138.
VOA Surr, Toluene d8	85.	80. - 123.
VOA Surr, 4-BFB	96.	73. - 122.
VOA Surr, DBFM	115.	74. - 133.

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

Laboratory Number: 99-A151625
Sample ID: TRIP BLANK

These results relate only to the items tested.
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Report Approved By: _____ Report Date: 10/11/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Gail A Lage, Technical Services

Laboratory Certification Number: HRS-E87358

SPECIALIZED
ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA

Matrix Spike Recovery

Analyte	Units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch
TRPH	mg/l	< 0.10	0.36	0.42	86	55. - 118.	7521
Naphthalene	mg/l	< 0.00100	0.00590	0.0100	59	55. - 115.	7721
Acenaphthene	mg/l	< 0.00100	0.00320	0.0100	32*	41. - 108.	7721
Anthracene	mg/l	< 0.00066	0.00520	0.0100	52	25. - 119.	7721
Fluoranthene	mg/l	< 0.00021	0.00680	0.0100	68	42. - 120.	7721
Fluorene	mg/l	< 0.00021	0.00430	0.0100	43*	48. - 118.	7721
Pyrene	mg/l	< 0.00027	0.00530	0.0100	53	51. - 114.	7721
Benzo(a)anthracene	mg/l	< 0.00013	0.00690	0.0100	69	47. - 111.	7721
Benzo(a)pyrene	mg/l	< 0.00010	0.00870	0.0100	87	51. - 109.	7721
Benzo(b)Fluoranthene	mg/l	< 0.00018	0.00680	0.0100	68	62. - 115.	7721
Benzo(k)Fluoranthene	mg/l	< 0.00017	0.00720	0.0100	72	62. - 110.	7721
Chrysene	mg/l	< 0.00015	0.00690	0.0100	69	58. - 109.	7721
Dibenzo(a,h)anthracene	mg/l	< 0.00030	0.00720	0.0100	72	59. - 122.	7721
Indeno(1,2,3-cd)pyrene	mg/l	< 0.00043	0.00700	0.0100	70	56. - 114.	7721
Acenaphthylene	mg/l	< 0.00200	0.00220	0.0100	22*	30. - 128.	7721
Benzo(g,h,i)perylene	mg/l	< 0.00076	0.00750	0.0100	75	56. - 115.	7721
Phenanthrene	mg/l	< 0.00064	0.00500	0.0100	50	47. - 123.	7721
Benzene	mg/l	< 0.0020	0.0454	0.0500	91	66. - 135.	4699
Chlorobenzene	mg/l	< 0.0020	0.0514	0.0500	103	68. - 134.	4699
1,1-Dichloroethene	mg/l	< 0.0020	0.0492	0.0500	98	59. - 144.	4699
Toluene	mg/l	< 0.0020	0.0462	0.0500	92	55. - 151.	4699
Trichloroethene	mg/l	< 0.0020	0.0497	0.0500	99	54. - 153.	4699
Arsenic, Total	mg/l	< 0.0050	0.0600	0.0500	120*	80 - 120	4547
Barium, Total	mg/l	0.0980	2.180	2.000	104	80 - 120	4547
Cadmium	mg/l	< 0.0010	0.0520	0.0500	104	80 - 120	4547
Chromium, Total	mg/l	< 0.0050	0.2010	0.2000	100	80 - 120	4547
Lead	mg/l	< 0.0030	0.0490	0.0500	98	80 - 120	4547
Mercury, Total	mg/l	< 0.00020	0.00100	0.00100	100	80 - 120	4670
Selenium, Total	mg/l	< 0.0050	0.0560	0.0500	112	80 - 120	4547
Silver, Total	mg/l	< 0.0050	0.0560	0.0500	112	80 - 120	4547

Matrix Spike Duplicate

Analyte	Units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
TRPH	mg/l	0.36	0.35	2.82	20.	7521
Naphthalene	mg/l	0.00590	0.00770	26.47*	23.	7721
Acenaphthene	mg/l	0.00320	0.00450	33.77*	23.	7721
Anthracene	mg/l	0.00520	0.00620	17.54	27.	7721
Fluoranthene	mg/l	0.00680	0.00760	11.11	18.	7721
Fluorene	mg/l	0.00430	0.00530	20.83	27.	7721
Pyrene	mg/l	0.00530	0.00610	14.04	18.	7721
Benzo(a)anthracene	mg/l	0.00690	0.00770	10.96	21.	7721
Benzo(a)pyrene	mg/l	0.00870	0.00990	12.90	26.	7721
Benzo(b)Fluoranthene	mg/l	0.00680	0.00760	11.11	23.	7721
Benzo(k)Fluoranthene	mg/l	0.00720	0.00820	12.99	19.	7721

SPECIALIZED
ASSAYS, INC.
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PROJECT QUALITY CONTROL DATA

Matrix Spike Duplicate

Analyte	Units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
Chrysene	ug/l	0.00690	0.00790	13.51	17.	7721
Dibenzo(a,h)anthracene	ug/l	0.00720	0.00790	9.27	28.	7721
Indeno(1,2,3-cd)pyrene	ug/l	0.00700	0.00760	8.22	28.	7721
Acenaphthylene	ug/l	0.00220	0.00380	53.33#	27.	7721
Benzo(g,h,i)perylene	ug/l	0.00750	0.00890	17.07	31.	7721
Phenanthrene	ug/l	0.00500	0.00600	18.18#	18.	7721
Benzene	ug/l	0.0454	0.0470	3.46	18.	4699
Chlorobenzene	ug/l	0.0514	0.0514	0.00	20.	4699
1,1-Dichloroethene	ug/l	0.0492	0.0501	1.81	52.	4699
Toluene	ug/l	0.0462	0.0477	3.19	22.	4699
Trichloroethene	ug/l	0.0497	0.0521	4.72	18.	4699
Arsenic, Total	ug/l	0.0600	0.0570	5.13	20	4547
Barium, Total	ug/l	2.180	2.120	2.79	20	4547
Cadmium	ug/l	0.0520	0.0500	3.92	20	4547
Chromium, Total	ug/l	0.2010	0.1940	3.54	20	4547
Lead	ug/l	0.0490	0.0480	2.06	20	4547
Mercury, Total	ug/l	0.00100	0.00086	15.05	20	4670
Selenium, Total	ug/l	0.0560	0.0520	7.41	20	4547
Silver, Total	ug/l	0.0560	0.0550	1.80	20	4547

Laboratory Control Data

Analyte	Units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
TRPH	ug/l	0.42	0.35	83	78 - 130	7521
Naphthalene	ug/l	0.0100	0.0107	107	60 - 140	7721
Acenaphthene	ug/l	0.0100	0.00850	85	60 - 140	7721
Anthracene	ug/l	0.0100	0.00820	82	60 - 140	7721
Fluoranthene	ug/l	0.0100	0.00760	76	60 - 140	7721
Fluorene	ug/l	0.0100	0.00540	54 #	60 - 140	7721
Pyrene	ug/l	0.0100	0.00610	61	60 - 140	7721
Benzo(a)anthracene	ug/l	0.0100	0.00750	75	60 - 140	7721
Benzo(a)pyrene	ug/l	0.0100	0.00680	68	60 - 140	7721
Benzo(b)Fluoranthene	ug/l	0.0100	0.00770	77	60 - 140	7721
Benzo(k)Fluoranthene	ug/l	0.0100	0.00820	82	60 - 140	7721
Chrysene	ug/l	0.0100	0.00780	78	60 - 140	7721
Dibenzo(a,h)anthracene	ug/l	0.0100	0.00760	76	60 - 140	7721
Indeno(1,2,3-cd)pyrene	ug/l	0.0100	0.00740	74	60 - 140	7721
Acenaphthylene	ug/l	0.0100	0.00960	96	60 - 140	7721
Benzo(g,h,i)perylene	ug/l	0.0100	0.00870	87	60 - 140	7721
Phenanthrene	ug/l	0.0100	0.00600	60	60 - 140	7721
Acetone	ug/l	0.2500	0.2498	100	70 - 130	4699
Acrolein	ug/l	0.2500	0.1800	72	70 - 130	4699
Acrylonitrile	ug/l	0.2500	0.2340	94	70 - 130	4699
Benzene	ug/l	0.0500	0.0473	95	70 - 130	4699
Bromobenzene	ug/l	0.0500	0.0543	109	70 - 130	4699

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PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	Units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Bromochloromethane	mg/l	0.0500	0.0512	102	70 - 130	4699
Bromoform	mg/l	0.0500	0.0568	114	70 - 130	4699
Bromomethane	mg/l	0.0500	0.0413	83	70 - 130	4699
2-Butanone	mg/l	0.2500	0.2500	100	70 - 130	4699
n-Butylbenzene	mg/l	0.0500	0.0536	107	70 - 130	4699
sec-Butylbenzene	mg/l	0.0500	0.0551	110	70 - 130	4699
t-Butylbenzene	mg/l	0.0500	0.0562	112	70 - 130	4699
Carbon disulfide	mg/l	0.0500	0.0499	100	70 - 130	4699
Carbon tetrachloride	mg/l	0.05000	0.06190	124	70 - 130	4699
Chlorobenzene	mg/l	0.0500	0.0538	106	70 - 130	4699
Chloroethane	mg/l	0.0500	0.0510	102	70 - 130	4699
2-Chloroethylvinylether	mg/l	0.2500	0.2470	99	70 - 130	4699
Chloroform	mg/l	0.0500	0.0512	102	70 - 130	4699
Chloromethane	mg/l	0.0500	0.0309	62 *	70 - 130	4699
2-Chlorotoluene	mg/l	0.0500	0.0543	109	70 - 130	4699
4-Chlorotoluene	mg/l	0.0500	0.0540	108	70 - 130	4699
1,2-Dibromo-3-chloropropane	mg/l	0.0500	0.0515	103	70 - 130	4699
Dibromochloromethane	mg/l	0.0500	0.0574	115	70 - 130	4699
1,2-Dibromoethane	mg/l	0.0500	0.0538	108	70 - 130	4699
Dibromomethane	mg/l	0.0500	0.0531	106	70 - 130	4699
1,4-Dichloro-2-butene	mg/l	0.0500	0.0494	99	70 - 130	4699
1,2-Dichlorobenzene	mg/l	0.0500	0.0545	109	70 - 130	4699
1,3-Dichlorobenzene	mg/l	0.0500	0.0541	108	70 - 130	4699
1,4-Dichlorobenzene	mg/l	0.0500	0.0538	108	70 - 130	4699
Dichlorodifluoromethane	mg/l	0.0500	0.0579	116	70 - 130	4699
1,1-Dichloroethane	mg/l	0.0500	0.0518	104	70 - 130	4699
1,2-Dichloroethane	mg/l	0.0500	0.0550	110	70 - 130	4699
1,1-Dichloroethene	mg/l	0.0500	0.0511	102	70 - 130	4699
cis-1,2-Dichloroethene	mg/l	0.0500	0.0510	102	70 - 130	4699
trans-1,2-Dichloroethene	mg/l	0.0500	0.0504	101	70 - 130	4699
1,2-Dichloropropane	mg/l	0.0500	0.0493	99	70 - 130	4699
1,3-Dichloropropane	mg/l	0.0500	0.0506	101	70 - 130	4699
2,2-Dichloropropane	mg/l	0.0500	0.0493	99	70 - 130	4699
1,1-Dichloropropene	mg/l	0.0500	0.0516	103	70 - 130	4699
cis-1,3-Dichloropropene	mg/l	0.0500	0.0445	89	70 - 130	4699
trans-1,3-Dichloropropene	mg/l	0.0500	0.0444	89	70 - 130	4699
Ethylbenzene	mg/l	0.0500	0.0532	106	70 - 130	4699
Hexachlorobutadiene	mg/l	0.0500	0.0574	115	70 - 130	4699
2-Hexanone	mg/l	0.2500	0.2460	98	70 - 130	4699
Iodomethane	mg/l	0.2500	0.2190	88	70 - 130	4699
Isopropylbenzene	mg/l	0.0500	0.0548	108	70 - 130	4699
4-Isopropyltoluene	mg/l	0.0500	0.0547	109	70 - 130	4699
4-Methyl-2-pentanone	mg/l	0.2500	0.2350	94	70 - 130	4699
Methylene chloride	mg/l	0.0500	0.0484	97	70 - 130	4699
Naphthalene	mg/l	0.0500	0.0588	118	70 - 130	4699
n-Propylbenzene	mg/l	0.0500	0.0534	107	70 - 130	4699

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PROJECT QUALITY CONTROL DATA

Laboratory Control Data

Analyte	Units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Styrene	ug/l	0.0500	< 0.0020	N/A	70 - 130	4699
1,1,1,2-Tetrachloroethane	ug/l	0.0500	0.0573	115	70 - 130	4699
1,1,2,2-Tetrachloroethane	ug/l	0.0500	0.0517	103	70 - 130	4699
Tetrachloroethene	ug/l	0.0500	0.0516	103	70 - 130	4699
Toluene	ug/l	0.0500	0.0476	95	70 - 130	4699
1,2,3-Trichlorobenzene	ug/l	0.0500	0.0584	117	70 - 130	4699
1,2,4-Trichlorobenzene	ug/l	0.0500	0.0536	107	70 - 130	4699
1,1,1-Trichloroethane	ug/l	0.0500	0.0563	113	70 - 130	4699
1,1,2-Trichloroethane	ug/l	0.0500	0.0500	100	70 - 130	4699
Trichloroethene	ug/l	0.0500	0.0520	104	70 - 130	4699
1,2,3-Trichloropropane	ug/l	0.0500	0.0494	99	70 - 130	4699
1,2,4-Trimethylbenzene	ug/l	0.0500	0.0558	112	70 - 130	4699
1,3,5-Trimethylbenzene	ug/l	0.0500	0.0544	109	70 - 130	4699
Vinyl acetate	ug/l	0.2500	0.1660	66 *	70 - 130	4699
Vinyl chloride	ug/l	0.0500	0.0503	101	70 - 130	4699
Xylenes	ug/l	0.1500	0.1635	109	70 - 130	4699
Bromodichloromethane	ug/l	0.0500	0.0543	109	70 - 130	4699
Trichlorofluoromethane	ug/l	0.0500	0.0598	120	70 - 130	4699
methyl-t-butyl ether	ug/l	0.0500	0.0487	97	70 - 130	4699
Arsenic, Total	ug/l	0.0500	0.0540	108	80 - 120	4547
Barium, Total	ug/l	2.000	2.040	102	80 - 120	4547
Cadmium	ug/l	0.0500	0.0510	102	80 - 120	4547
Chromium, Total	ug/l	0.2000	0.1970	98	80 - 120	4547
Lead	ug/l	0.0500	0.0460	92	80 - 120	4547
Mercury, Total	ug/l	0.00100	0.00098	98	80 - 120	4670
Selenium, Total	ug/l	0.0500	0.0550	110	80 - 120	4547
Silver, Total	ug/l	0.0500	0.0550	110	80 - 120	4547

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
TRPH	< 0.10	mg/l	7521
Naphthalene	< 0.00100	ug/l	7721
Acenaphthene	< 0.00100	ug/l	7721
Anthracene	< 0.00066	ug/l	7721
Fluoranthene	< 0.00021	ug/l	7721
Fluorene	< 0.00021	ug/l	7721
Pyrene	< 0.00027	ug/l	7721
Benzo(a)anthracene	< 0.00013	ug/l	7721
Benzo(a)pyrene	< 0.00010	ug/l	7721
Benzo(b)fluoranthene	< 0.00013	ug/l	7721
Benzo(k)fluoranthene	< 0.00017	ug/l	7721
Chrysene	< 0.00015	ug/l	7721
Dibenzo(a,h)anthracene	< 0.00030	ug/l	7721
Indeno(1,2,3-cd)pyrene	< 0.00043	ug/l	7721

SPECIALIZED
ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
Acenaphthylene	< 0.00200	ng/l	7721
Benzo(g,h,i)perylene	< 0.00076	ng/l	7721
Phenanthrene	< 0.00064	ng/l	7721
1-Methylnaphthalene	< 0.00200	ng/l	7721
2-Methylnaphthalene	< 0.00200	ng/l	7721
Arsenic, Total	< 0.0050	ng/l	4547
Barium, Total	< 0.0100	ng/l	4547
Cadmium	< 0.0010	ng/l	4547
Chromium, Total	< 0.0050	ng/l	4547
Lead	< 0.0030	ng/l	4547
Mercury, Total	< 0.00020	ng/l	4670
Selenium, Total	< 0.0050	ng/l	4547
Silver, Total	< 0.0050	ng/l	4547
Acetone	< 0.0100	ng/l	4699
Acrolein	< 0.0100	ng/l	4699
Acrylonitrile	< 0.0100	ng/l	4699
Benzene	< 0.0020	ng/l	4699
Bromobenzene	< 0.0020	ng/l	4699
Bromochloromethane	< 0.0020	ng/l	4699
Bromoform	< 0.0020	ng/l	4699
Bromomethane	< 0.0020	ng/l	4699
2-Butanone	< 0.0100	ng/l	4699
n-Butylbenzene	< 0.0020	ng/l	4699
sec-Butylbenzene	< 0.0020	ng/l	4699
t-Butylbenzene	< 0.0020	ng/l	4699
Carbon disulfide	< 0.0020	ng/l	4699
Carbon tetrachloride	< 0.00200	ng/l	4699
Chlorobenzene	< 0.0020	ng/l	4699
Chloroethane	< 0.0020	ng/l	4699
2-Chloroethylvinylether	< 0.0050	ng/l	4699
Chloroform	< 0.0020	ng/l	4699
Chloromethane	< 0.0020	ng/l	4699
2-Chlorotoluene	< 0.0020	ng/l	4699
4-Chlorotoluene	< 0.0020	ng/l	4699
1,2-Dibromo-3-chloropropane	< 0.0100	ng/l	4699
Dibromochloromethane	< 0.0020	ng/l	4699
1,2-Dibromoethane	< 0.0020	ng/l	4699
Dibromomethane	< 0.0020	ng/l	4699
1,4-Dichloro-2-butene	< 0.0020	ng/l	4699
1,2-Dichlorobenzene	< 0.0020	ng/l	4699
1,3-Dichlorobenzene	< 0.0020	ng/l	4699
1,4-Dichlorobenzene	< 0.0020	ng/l	4699
Dichlorodifluoromethane	< 0.0020	ng/l	4699
1,1-Dichloroethane	< 0.0020	ng/l	4699
1,2-Dichloroethane	< 0.0020	ng/l	4699
1,1-Dichloroethene	< 0.0020	ng/l	4699

SPECIALIZED
ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA

Blank Data

Analyte	Blank Value	Units	R.C. Batch
cis-1,2-Dichloroethene	< 0.0020	mg/l	4699
trans-1,2-Dichloroethene	< 0.0020	mg/l	4699
1,2-Dichloropropane	< 0.0020	mg/l	4699
1,3-Dichloropropane	< 0.0020	mg/l	4699
2,2-Dichloropropane	< 0.0020	mg/l	4699
1,1-Dichloropropene	< 0.0020	mg/l	4699
cis-1,3-Dichloropropene	< 0.0020	mg/l	4699
trans-1,3-Dichloropropene	< 0.0020	mg/l	4699
Ethylbenzene	< 0.0020	mg/l	4699
Hexachlorobutadiene	< 0.0020	mg/l	4699
2-Hexanone	< 0.0100	mg/l	4699
Iodomethane	< 0.0020	mg/l	4699
Isopropylbenzene	< 0.0020	mg/l	4699
4-Isopropyltoluene	< 0.0020	mg/l	4699
4-Methyl-2-pentanone	< 0.0100	mg/l	4699
Methylene chloride	< 0.0020	mg/l	4699
Naphthalene	< 0.0020	mg/l	4699
n-Propylbenzene	< 0.0020	mg/l	4699
Styrene	< 0.0020	mg/l	4699
1,1,1,2-Tetrachloroethane	< 0.0020	mg/l	4699
1,1,2,2-Tetrachloroethane	< 0.0020	mg/l	4699
Tetrachloroethene	< 0.0020	mg/l	4699
Toluene	< 0.0020	mg/l	4699
1,2,3-Trichlorobenzene	< 0.0020	mg/l	4699
1,2,4-Trichlorobenzene	< 0.0020	mg/l	4699
1,1,1-Trichloroethane	< 0.0020	mg/l	4699
1,1,2-Trichloroethane	< 0.0020	mg/l	4699
Trichloroethene	< 0.0020	mg/l	4699
1,2,3-Trichloropropane	< 0.0020	mg/l	4699
1,2,4-Trimethylbenzene	< 0.0020	mg/l	4699
1,3,5-Trimethylbenzene	< 0.0020	mg/l	4699
Vinyl acetate	< 0.0100	mg/l	4699
Vinyl chloride	< 0.0020	mg/l	4699
Xylenes	< 0.0020	mg/l	4699
Bromodichloromethane	< 0.0020	mg/l	4699
Trichlorofluoromethane	< 0.0020	mg/l	4699
Methyl-t-butyl ether	< 0.0100	mg/l	4699

COPY 3

orida Department of

Memorandum **Environmental Protection**

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: James J. Crane, P.G. III Administrator
Technical Review Section JJC

Tim J. Bahr, Professional Geologist II
Technical Review Section TB

FROM: David M. Clowes, Remedial Project Manager
Technical Review Section DMC

DATE: December 14, 1993

SUBJECT: Contamination Assessment Report (CAR) Addendum 1 for Building 1490 - SIMA Shops, Naval Station Mayport.

I have reviewed the Contamination Assessment Report (CAR) Addendum 1 dated September 1993 (received October 18, 1993), submitted for this site.

All the documents submitted to date are adequate to meet the contamination assessment requirements of Rules 17-770.600 and 17-770.630, Florida Administrative Code (F.A.C.). However, free product recovery should be implemented in accordance with Rule 17-770.300(1), F.A.C.

When all free product has been removed, then monitoring wells (MPT-1490-1 and MPT-1490-2) that have contained free product should be resampled (EPA Methods 608, 624, and 625) to determine if a Remedial Action Plan (RAP) is necessary. If laboratory analyses of these wells confirm that contaminant concentrations are below the target cleanup levels for the constituents of concern, then a RAP is not necessary.

HASN'T BEEN SAMPLED. SAMPLED, BUT

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 889
SAVANNAH, GEORGIA 31402-0889

REPLY TO
ATTENTION OF:

CESAS-EN

10 March 1994

MEMORANDUM FOR Commanding Officer, Southern Division, Naval Facilities Engineering Command, Code 1842, 2155 Eagle Dr., P.O. Box 190010, Charleston, SC 29419-9010

SUBJECT: Addendum 1 to Contamination Assessment Report (CAR), Mayport Naval Station, Building 1490, SIMA Shops

1. The following response is provided for Florida Department of Environmental Protection (FDEP) comments on the subject report dated December 14, 1993. A copy of the FDEP comments is also attached.

a. The continuing monthly monitoring program has found no free product in site monitoring wells MPT-1490-1 and MPT-1490-2 since September of 1993.

b. Since no free product has been observed, wells MPT-1490-1 and MPT-1490-2 will be re-sampled for EPA methods 608, 624 and 625 to determine if a RAP is necessary for the site.

c. A contract to remove and replace the underground tank at the site is also being initiated. Any excessively contaminated soil found in the backfill around the tank during tank removal, will be removed and properly disposed of. Findings of the tank removal will be addressed in the required Closure Report.

2. If you have any questions or comments, please contact Cardwell Smith at 912-652-5674.

FOR THE COMMANDER:

J H Rogers

Encl

JOSEPH H. ROGERS, JR., P.E.
Chief, Engineering Division

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 1
To Cheryl Mitchel	From Bryan Kizer
Co.	Co.
Dept.	Phone #
Fax # 960-6884	Fax #

Florida Department of
Environmental Protection

Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: James J. Crane, P.G. Administrator
Technical Review Section

Tim J. Bahr, Professional Geologist II
Technical Review Section

FROM: David M. Clowes, Remedial Project Manager
Technical Review Section

DATE: April 23, 1994

SUBJECT: Response to Comments on Contamination Assessment Report (CAR) Addendum 1 for Building 1490 - SIMA Shops, Naval Station Mayport.

I have reviewed the above document dated March 21, 1994 (received March 29, 1994), submitted for this site. The document appears acceptable.

A CAR Addendum 2 should now be submitted with the results of resampled monitoring wells MPT-1490-1 and MPT-1490-2.

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Florida Department of

Memorandum — Environmental Protection

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: James J. Crane, P.G. Administrator
Technical Review Section JJC

Tim J. Bahr, Professional Geologist II
Technical Review Section TB

FROM: David M. Clowes, Remedial Project Manager
Technical Review Section DMC

DATE: April 23, 1994

SUBJECT: Response to Comments on Contamination Assessment Report (CAR) Addendum 1 for Building 1490 - SIMA Shops, Naval Station Mayport.

I have reviewed the above document dated March 21, 1994 (received March 29, 1994), submitted for this site. The document appears acceptable.

A CAR Addendum 2 should now be submitted with the results of resampled monitoring wells MPT-1490-1 and MPT-1490-2.

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To Peggy Lowroe	From David Clowes
Co.	Co.
Dept.	Phone #
Fax # 904 877-0742	Fax #

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Florida Department of
Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

May 2, 1994

Mr. David Driggers
Code 1852
Installation Branch
Department of the Navy
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P. O. Box 190010
North Charleston, SC 29419-9010

Dear Mr. Driggers:

Department personnel have completed the technical review of the Response to Comments, Contamination Assessment Report Addendum 1, Building 1490, NS Mayport. I have enclosed a memorandum addressed to me from Mr. David M. Clowes. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-3935.

Sincerely,

Eric S. Nuzie

Eric S. Nuzie
Federal Facilities Coordinator

ESN/st

Enclosure

cc: David Clowes
Cheryl Mitchell
James Hudson
Brian Cheary
Jerry Young
John Mitchell

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To Peggy Layne	From David Driggers
Co.	Co.
Dept.	Phone #
Fax # 904 877-0742	Fax #

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APPENDIX F

CONTAMINATION ASSESSMENT REPORT FOR ECHO PIER

MONITORING ONLY PLAN (MOP) REPORT

MAYPORT NAVAL STATION
ECHO PIER

MAYPORT, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

JULY 1999

INTRODUCTION

This Monitoring Only Plan (MOP) report for Echo Pier at Mayport Naval Station, Mayport, Florida is a result of a request by the Florida Department of Environmental Protection (FDEP) that the Southern Division, Naval Facilities Engineering Command (NAVFACENGCOM) Charleston, South Carolina perform supplemental sampling at the site.

BACKGROUND

In July of 1996 a leaking diesel fuel pipeline was discovered in the Echo3 area of Echo Pier. Bechtel Environmental, Inc. was contracted by Southern Division to repair the pipeline, complete the Initial Remedial Action (IRA) and prepare a Contamination Assessment Report (CAR). The IRA involved recovery of free product, composed of diesel fuel released from the pipeline, plus removal of ground water and excavation of contaminated soil. The pipeline was repaired and placed back in service on July 19,1996. The source of the contamination was believed to have been removed. The CAR dated February 1997, recommended a No further Action (NFA) status for the site.

Upon review of the CAR, FDEP recommended a supplemental sampling event at the site. Based upon the results of the supplemental sampling event, Bechtel Inc. proposed a Monitoring Only Plan (MOP) in a Contamination Assessment Report Addendum (CARA), dated May 13, 1997. FDEP final approval of a MOP for the DFM site was granted in a letter to Southern Division dated 16 June 1997. A copy of the letter is contained in attachment 1.

On September 25, 1997 eight-tenths of a foot of free product was discovered in monitoring well MP-EP-02. Subsequent discussion between Southern Division and FDEP resulted in a decision to proceed with the MOP monitoring of wells MP-EP-02 and MP-EP-03, and to perform free product monitoring and removal at all four wells at the site (MP-EP-01 through MP-EP-04) on an as-needed basis. Southern Division plans to initiate further assessment at the site in Fiscal Year 1999.

SUMMARY OF GROUND WATER MONITORING AND ANALYSIS

This report covers the two latest MOP sampling events at Echo Pier, which occurred on 21 February and 15 May 1999.

21 February 1999 Sampling Event

Due to the presence of 0.97 feet of product in monitoring well MP-EP-02 during this sampling event, only well MP-EP-03 was sampled. Well MP-EP-03 was purged of a minimum of three volumes using a Teflon bailer. Well purging continued until field parameters (pH, specific conductance, and temperature) stabilized. Water level elevation data is contained in table 4 (attachment 5) and field water quality parameters for all wells sampled are contained in table 5 (attachment 6). Ground-water samples were collected using a Teflon bailer and placed in appropriate containers. The samples were properly preserved, stored on ice, and delivered to the laboratory for analysis.

The monitoring well sample was analyzed for EPA Methods 602 (including MTBE). Chain of custody was maintained on the samples throughout the sampling period. Sampling procedures were conducted according to U.S. Army Corps of Engineers, Savannah District's FDEP-approved Comprehensive Quality Assurance Plan No. 910026G. Laboratory analyses were performed according to the laboratories' FDEP-approved Generic Quality Assurance Plan.

Although laboratory analytical results of the sample from well MP-EP-03, as shown in table 3, indicated all parameters were below laboratory detection limits, the detection limit for benzene (2.0 ug/L) was above the required detection limit of 1.0 ug/L. Laboratory analytical data is contained in attachment 7

All wells were checked for free product petroleum using an oil/water interface probe and disposable teflon bailers. One well, MP-EP-02, contained 0.97 feet of free product. No other wells indicated product.

15 May 1999 Sampling Event

Due to the presence of 0.02 feet of product in monitoring well MP-EP-02 during this sampling event, only well MP-EP-03 was sampled. Well MP-EP-03 was purged of a minimum of three volumes using a Teflon bailer. Well purging continued until field parameters (pH, specific conductance, and temperature) stabilized. Water level elevation data is contained in table 4A (attachment 5) and field water quality parameters for all wells sampled are contained in table 5A (attachment 6). Ground-water samples were collected using a Teflon bailer and placed in appropriate containers. The samples were properly preserved, stored on ice, and delivered to the laboratory for analysis.

The monitoring well sample was analyzed for EPA Methods 602 (including MTBE). Chain of custody was maintained on the samples throughout the sampling period. Sampling procedures were conducted according to U.S. Army Corps of Engineers, Savannah District's FDEP-approved Comprehensive Quality Assurance Plan No. 910026G. Laboratory analyses were performed according to the laboratories' FDEP-approved Generic Quality Assurance Plan.

Laboratory analytical results of the sample from well MP-EP-03, as shown in table 3A, indicated all parameters were below detection limits. Laboratory analytical data is contained in attachment 7.

All wells were checked for free product petroleum using an oil/water interface probe and disposable teflon bailers. One well, MP-EP-02, contained 0.02 feet of free product. No other wells indicated product.

Table 1 is a summary comparison of sampling events for total volatile organic aromatics (VOAs) in all wells sampled on the indicated sampling events.

TABLE 1
TOTAL VOAs (EPA 602) ug/L

Well No.	December 1996 (CAR)	April 1997 (CARA)	November 1998 (MOP)	February 1999 (MOP)	May 1999 (MOP
MP-EP-01	2	BDL	NS	NS	NS
MP-EP-02	27	33	21	NS*	NS**
MP-EP-03	BDL	BDL	BDL	BDL***	BDL
MP-EP-04	2	BDL	NS	NS	NS

NS – Not Sampled.
** – 0.97' of Free Product.*
*** – 0.02' of Free Product*
**** – Laboratory detection limit for benzene was 2.0 ug/L..*

FREE PRODUCT MONITORING AND REMOVAL

Free product monitoring and removal is being performed on all wells at the site. Four weekly product-monitoring events were performed on 13, 21 and 28 November and 5 December 1998. Beginning in January 1999, product-monitoring events have been performed on a monthly basis. The results of this monitoring are displayed in table 2. Well MP-EP-02 is the only well that has contained free product, with a total of about 39 gallons of product/water removed to date. Product removed from wells is drummed for disposal.

FUTURE MONITORING AND ANALYSIS

Free product monitoring and removal will continue at the site on a monthly basis. The next sampling event for laboratory analysis is scheduled for August 1999. By request of FDEP, EPA method 610 analysis will be added for the August event. The results of that event will determine the analytical methods to be used in future events.

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FDEP LETTER OF MOP APPROVAL
- ATTACHMENT 2 - TABLE 2 - SUMMARY OF FREE PRODUCT MONITORING
- ATTACHMENT 3 - TABLE 3 - SUMMARY OF FEBRUARY 1999 MOP GROUND-WATER ANALYTICAL RESULTS FOR EPA 602

  - TABLE 3A - SUMMARY OF MAY 1999 MOP GROUND-WATER ANALYTICAL RESULTS FOR EPA 602
- ATTACHMENT 4 - DATA SUMMARY MAP OF FEBRUARY 1999 MONITORING WELL ANALYTICAL RESULTS

  - DATA SUMMARY MAP OF MAY 1999 MONITORING WELL ANALYTICAL RESULTS
- ATTACHMENT 5 - TABLE 4 - WATER LEVEL ELEVATION DATA FOR FEBRUARY 1999

  - TABLE 4A - WATER LEVEL ELEVATION DATA FOR MAY 1999
- ATTACHMENT 6 - TABLE 5 - FIELD WATER QUALITY PARAMETERS FOR FEBRUARY 1999

  - TABLE 5A - FIELD WATER QUALITY PARAMETERS FOR MAY 1999
- ATTACHMENT 7 - LABORATORY ANALYTICAL RESULTS (EPA 602 + MTBE) FOR FEBRUARY 1999

  - LABORATORY ANALYTICAL RESULTS (EPA 602 + MTBE) FOR MAY 1999

ATTACHMENT 1

FDEP LETTER OF MOP APPROVAL

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 16, 1997

Mr. H.J. Fraser-Rahim, P.E.
Southern Division
Naval Facilities Engineering Command
PO Box 190010
2155 Eagle Drive
North Charleston, South Carolina 29419

RE: Echo Pier Site, US Naval Station, Mayport, Florida

Dear Mr. Fraser-Rahim:

The Bureau of Waste Cleanup has reviewed the Contamination Assessment Report Addendum (CARA) and Monitoring Only Plan (MOP) proposal dated May 13, 1997 (received May 27, 1997), submitted for this site. The Department designates "source well" as the well located within or adjacent to the identified source of potential groundwater contamination. Likewise, the Department designates "perimeter well" as the well located near the limits of the groundwater contamination or downgradient from the source area. This order is based on monitoring well locations shown in Figure 1 of the Contamination Assessment Report Addendum dated May 13, 1997. The designated wells are:

Source Well: MP-EP-02.

Perimeter Well: MP-EP-03.

Pursuant to Rule 62-770.600(14), Florida Administrative Code (F.A.C.), the Department approves the "monitoring only" proposal. Pursuant to Rules 62-770.660 and 62-770.700(3), F.A.C., you are required to complete the monitoring program outlined below, and to submit the analytical results to the Department within sixty (60) days of sample collection. Each designated well shall be sampled quarterly for one year for EPA Method 602 constituents plus Methyl-tert-butylether (MTBE).

If contaminant concentrations in the designated wells increase above the concentrations listed below, then the resampling/supplemental assessment described in Rule 62-770.660(6) should be performed. If the contaminant concentrations in all wells do not decrease below Rule 62-770.730(5) target cleanup levels after the duration of the monitoring period, then additional monitoring, supplemental contamination assessment and/or remediation may be required.

Source Wells: 50 ug/l Benzene; 500 ug/l Total VOAs.

Perimeter Wells: 1 ug/l Benzene; 50 ug/l Total VOAs.

Persons whose substantial interests are affected by this Approval Order have the right to challenge the Department's decision. Such a challenge may include filing a petition for an administrative determination (hearing) as described in the following paragraphs. However, pursuant to Chapter 62-103, F.A.C., you may request an extension of time to file the Petition. All requests for extensions of time or petitions for administrative determinations must be filed directly with the Department's Office of General Counsel at the address given below within twenty-one (21) days of receipt of this notice (do not send them to the Bureau of Waste Cleanup).

Notwithstanding the above, a person whose substantial interests are affected by this Approval Order may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within twenty-one (21) days of receipt of this notice. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the Department file number (FDEP facility number), and the name and address of the facility;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by each petitioner, if any;

(e) A statement of facts which each petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes each petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by each petitioner, stating precisely the action each petitioner wants the Department to take with respect to the Department's action or proposed action.

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This Approval Order is final and effective on the date of receipt of this Order unless a petition (or time extension) is filed in accordance with the preceding paragraphs. Upon the timely filing of a petition, this Order will not be effective until further order of the Department.

When the Order is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, F.S., by filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy the Notice of Appeal, accompanied by the applicable filing fees, with the appropriate District Court of Appeal. The Notice of Appeal must be filed within thirty (30) days from the date the Final Order is filed with the Clerk of the Department.

Please be advised that mediation of this decision, pursuant to Section 120.573, F.S., is available.

Note, any changes to the ownership status of this site and/or property must be reported to the Department.

Any questions you may have on the technical aspects of this Approval Order should be directed to James H. Cason, P.G. at (904) 488-3935. Contact with the above named person does not constitute a petition for administrative determination.

Sincerely,

John M. Ruddell, Director
Division of Waste Management

JMR/jhc

cc: Cheryl Mitchell, NAVSTA Mayport
Brian Cheary, FDEP Northeast District
Jerry Young, City of Jacksonville

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ATTACHMENT 2

TABLE 2 - SUMMARY OF FREE PRODUCT MONITORING

TABLE 2
SUMMARY OF FREE PRODUCT MONITORING

ECHO PIER
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

THICKNESS OF PRODUCT LAYER IN WELL (FEET)/PRODUCT REMOVED (GALLONS)

MONITOR WELL	11/13/98	11/21/98	11/28/98	12/05/98	01/25/99	02/20/99	03/21/99	04/25/99	05/15/99				
MP-EP-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
MP-EP-02	0.72/15.0	0.54/6.0	0.03/1.5	0.26/2.5	0.26/1.3	0.97/0.9	0.27/5.0	0.26/6.0	0.02/0.4				
MP-EP-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
MP-EP-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				

ATTACHMENT 3

TABLES 3 AND 3A - SUMMARY OF MOP GROUND-WATER ANALYTICAL RESULTS FOR EPA 602

TABLE 3
SUMMARY OF MOP GROUND-WATER ANALYTICAL RESULTS (EPA 602)

ECHO PIER
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

20 February 1999

	MONITOR WELL NO.			
PARAMETER	**MP-EP-03 2-99**	**MP-EP-03 * 2-99 (Duplicate)**	**MP-EP-BLK 2-99 BLANK**	**Regulatory Standard**
Purgeable Aromatics (5030/602/)				
Benzene, ug/L	< 2.0	< 2.0	< 2.0	1 ug/L
Ethylbenzene, ug/L	< 2.0	< 2.0	< 2.0	30 ug/L
Toluene, ug/L	< 2.0	< 2.0	< 2.0	40 ug/L
Xylenes, ug/L	< 6.0	< 6.0	< 6.0	20 ug/L
Methyl-Tert-Butyl-Ether (MTBE), ug/L	< 2.0	< 2.0	< 2.0	35 ug/L

Note: Duplicate for MP-EP-03 was labeled "MP-EP-05" on chain of custody.

TABLE 3A
SUMMARY OF MOP GROUND-WATER ANALYTICAL RESULTS (EPA 602)

ECHO PIER
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

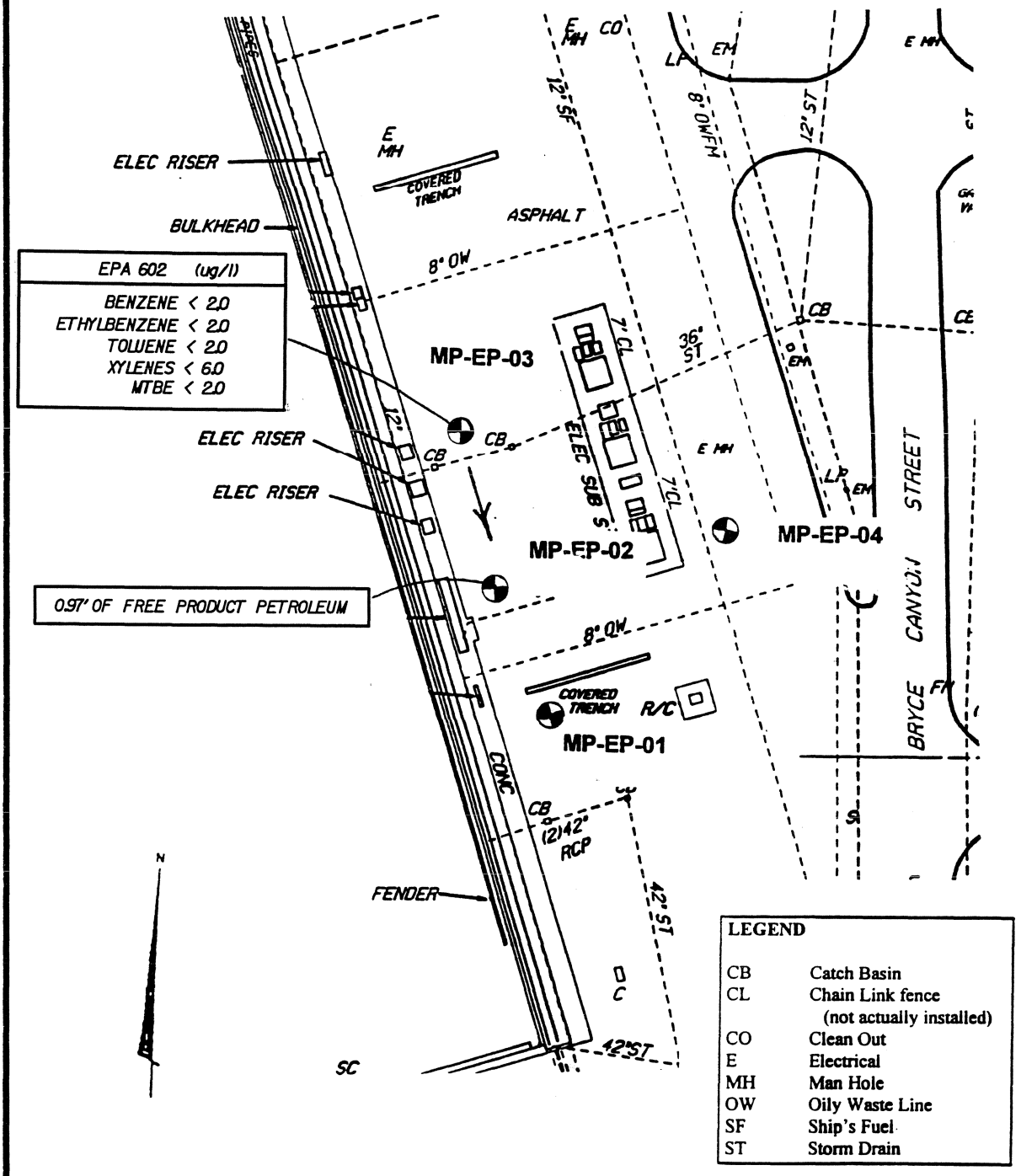
15 May 1999

	MONITOR WELL NO.				
PARAMETER	**MP-EP-03 5-99**	**MP-EP-03 * 5-99 (Duplicate)**	**MP-EP-BLK 5-99 Blank**	**Trip Blank**	**Regulatory Standard**
Purgeable Aromatics (602)					
Benzene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	1 ug/L
Chlorobenzene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-dichlorobenzene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	
1,3-dichlorobenzene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	
1,4-dichlorobenzene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	30 ug/L
Toluene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	40 ug/L
M,p-Xylenes, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	
o-Xylene, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	
Total Xylenes, ug/L	< 1.0	< 1.0	< 1.0	< 1.0	20 ug/L
Methyl-Tert-Butyl-Ether (MTBE), ug/L	< 1.0	< 1.0	< 1.0	< 1.0	35 ug/L

Note: Duplicate for MP-EP-03 was labeled "MP-EP-05" on chain of custody.

ATTACHMENT 4

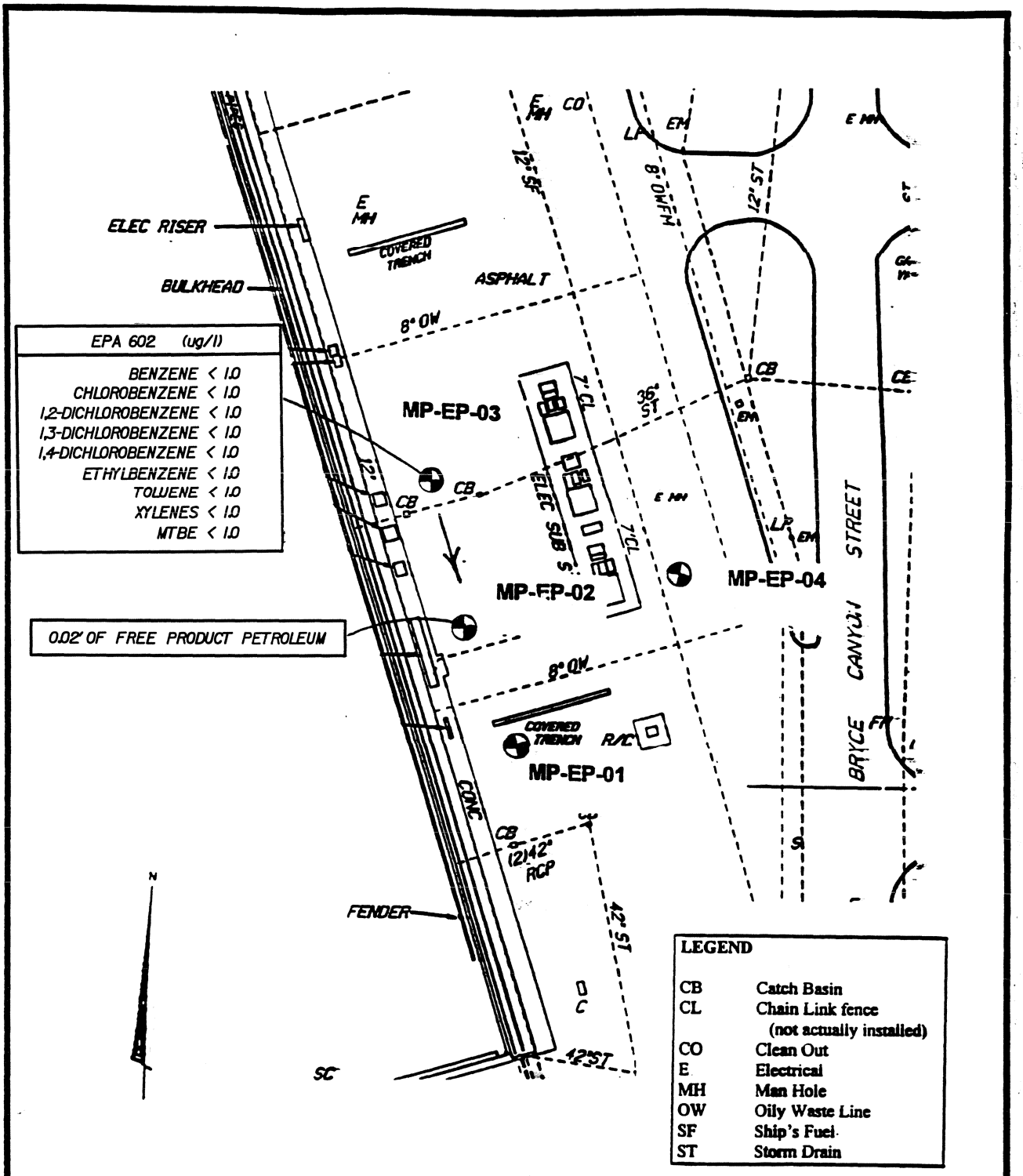
DATA SUMMARY MAPS OF MONITORING WELL ANALYTICAL RESULTS



PIER ECHO MOP SAMPLING
MAYPORT NS, MAYPORT, FLORIDA

DATA SUMMARY MAP
MONITORING WELL ANALYTICAL RESULTS
20 FEBRUARY 1999

MAP SOURCE: Contamination Assessment Report, Bechtel Inc. dated February 1997.



PIER ECHO MOP SAMPLING
MAYPORT NS, MAYPORT, FLORIDA

DATA SUMMARY MAP
MONITORING WELL ANALYTICAL RESULTS
15 MAY 1999

MAP SOURCE: Contamination Assessment Report, Bechtel Inc. dated February 1997.

ATTACHMENT 5

TABLES 4 AND 4A - WATER LEVEL ELEVATION DATA

TABLE 4

MONITOR WELL
WATER LEVEL DATA

ECHO PIER

MAYPORT NAVAL STATION
MAYPORT, FLORIDA

20 FEBRUARY 1999

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (MSL) *	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (MSL) *
MP-EP-01	17.8	Flush	8.96	5.93	3.03
MP-EP-02	17.8	"	9.09	5.97 **	3.12
MP-EP-03	17.8	"	9.09	5.90	3.19
MP-EP-04	17.8	"	8.61	5.54	3.07

Notes: - BLS = Below Land Surface
- flush = Level with ground surface
* - Elevations referenced to MSL (Mean Sea Level).
** - 0.97' of Free Product petroleum found in MP-EP-02.

TABLE 4A

MONITOR WELL
WATER LEVEL DATA

ECHO PIER

MAYPORT NAVAL STATION
MAYPORT, FLORIDA

15 MAY 1999

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (MSL) *	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (MSL) *
MP-EP-01	17.8	Flush	8.96	5.67	3.29
MP-EP-02	17.8	"	9.09	5.81 **	3.28
MP-EP-03	17.8	"	9.09	5.79	3.30
MP-EP-04	17.8	"	8.61	5.25	3.36

Notes: - BLS = Below Land Surface
- flush = Level with ground surface
* - Elevations referenced to MSL (Mean Sea Level).
** - 0.02' of Free Product petroleum found in MP-EP-02.

ATTACHMENT 6

TABLE 5 AND 5A - FIELD WATER QUALITY PARAMETERS

TABLE 5

FIELD WATER QUALITY PARAMETERS

PIER ECHO

MAYPORT NAVAL STATION
MAYPORT, FLORIDA

20 FEBRUARY 1999

Well No.	pH	Specific Conductance (umhos/cm)	Temperature (Degrees Celsius)
MP-EP-01	NS	NS	NS
MP-EP-02	NS	NS	NS
MP-EP-03	6.82	1233	20.8
MP-EP-04	NS	NS	NS

TABLE 5A

FIELD WATER QUALITY PARAMETERS

PIER ECHO

MAYPORT NAVAL STATION
MAYPORT, FLORIDA

15 MAY 1999

Well No.	pH	Specific Conductance (umhos/cm)	Temperature (Degrees Celsius)
MP-EP-01	NS	NS	NS
MP-EP-02	NS	NS	NS
MP-EP-03	7.14	1344	25.8
MP-EP-04	NS	NS	NS

ATTACHMENT 7

LABORATORY ANALYTICAL RESULTS (EPA 602)

ECOSYS
A TESTAMERICA OF GEORGIA, INC. LABORATORY
1412 Oakbrook Drive
Suite 105
Norcross, Georgia 30093
Phone (770) 368-0636
Fax (770) 368-0806

ANALYTICAL REPORT

CLIENT:
USACE-SAVANNAH DISTRICT
Mark Harvison
100 West Oglethorpe Ave.
Savannah, GA 31402
P:912-652-5151 F:912-652-5311

Ledger Number	N904649
P.O. Number	DO 149
Date Received	02/23/1999
Time Received	11:44
Reporting Date	05/18/1999

Project Name ECHO PIER

Client Sample # MP-EP-03
Sampling Date/Time 02/20/1999 11:00 **Lab Sample ID** N90464901

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/602 602				Batch **0303990008**			
Benzene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1
Toluene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1
Ethylbenzene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1
Xylenes (Total)	***Below RL***	6.0	ug/L	1.0	KD	02/27/1999	02/27/1
Methyl Tert-Butyl Ether	***Below RL***	2.0	ug/L	1.0	KD	02/27/1990	02/27/1

Project Name ECHO PIER

Client Sample # MP-EP-05
Sampling Date/Time 02/20/1999 15:10 **Lab Sample ID** N90464902

Prep/Method / Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analys
5030/602 602				Batch **0303990008**			
Benzene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1
Toluene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1
Ethylbenzene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1
Xylenes (Total)	***Below RL***	6.0	ug/L	1.0	KD	02/27/1999	02/27/1
Methyl Tert-Butyl Ether	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/1

Project Name ECHO PIER

Client Sample # MP-EP-BLK-2-99

Sampling Date/Time 02/20/1999 17:20 **Lab Sample ID** N90464903

Prep/Method Analyte	Result	RL	Units	Dilution Factor	Analyst Init.	Date of Prep	Date of Analysi
5030/602 602					Batch **0303990008**		
Benzene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/19
Toluene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/19
Ethylbenzene	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/19
Xylenes (Total)	***Below RL***	6.0	ug/L	1.0	KD	02/27/1999	02/27/19
Methyl Tert-Butyl Ether	***Below RL***	2.0	ug/L	1.0	KD	02/27/1999	02/27/19

RL = Reporting Limit INIT. = (*) Analysis performed by another TestAmerica Laboratory, (#) Analysis performed by subcontracted Laboratory.

Certifying Scientist

Organics and Inorganics in Wastewater, Solids, and Wastes

NC-DEHNR 441, SC-DHEC 98013, GA -DNR-806 UT-DOH E-228 (UST), FL-DEP 940134 HRS E87194 (Water) HRS 87368 (Drinking Water),

EPA ID	EPA Reg Waste	US Army Corps of Engineers Validation
GA-00033	GA-0001011006	

These result(s) relate only to the item(s) tested.

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TESTAMERICA INC.

Chain of Custody Record

Page 1 of 1

☐ Asheville, NC (828) 254-5169	☐ Norcross, GA (770) 368-0636	☐ Charlotte, NC (704) 392-1164	☐ Frankfort KY (502) 223-0251	☐ Morrisville, NC (919) 380-9699
☐ Lumberton, NC (910) 738-6190	☐ Lexington, SC (803) 796-8989	☐ Brighton, CO (303) 659-0497	☐ Macon, GA (912) 757-0811	☐ Orlando, FL (407) 851-2560

Client: USACE	Project No: Echo PIER
Report Address: P.O Box 889 Savannah GA	Invoice Address:
Attn: M. Harris io.	Attn:
Phone No: 912-652-5151	Sampled By: A. Cooper
Fax No.:	P.O. No: 0149
	State Samples Collected FLA

TURNAROUND TIME

☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days Date Needed: 3-7 Days

REQUESTED PARAMETERS

EPA 602 +MTBE

LAB CODE I.D.

A = Asheville, NC
C = Charlotte, NC
D = Denver, CO
E = Lexington, SC
G = Macon, GA
K = Frankfort, KY
L = Lumberton, NC
M = Morrisville, NC
N = Norcross, GA
O = Orlando, FL
S = Subcontracted

Sample ID	Date	Time	Comp/ Grab	Matrix	Containers	HCl	← Preserv.	REMARKS
MP-EP-03	2[illegible]	11:00	G	Aq	2	2		
MP-EP-05	2[illegible]	15:10	G	Aq	2	2		
MP-EP-BIK-2-99	2[illegible]	17:20	G	Aq	2	2		

Lab Use Only **Custody Seal:** ☐Yes ☐No ☐N/A **Init Lab Temp.** **Rec. Lab Temp** 4°

COMMENTS:

Relinquished By:	Date 2/25 Time 11:44	Received By: M Ellen	Date 2/23 Time 11:44	Lab Use Only: 904649
Relinquished By:	Date Time	Received By:	Date Time	
Relinquished By:	Date Time	Received By:	Date Time	

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Project: 0147
Project Name: USACE
Sampler: H COOPER

Lab Number: 99-A72991
Sample ID: MP-EP-03-5-99
Sample Type: Water
Site ID:

Date Collected: 5/15/99
Time Collected: 15:48
Date Received: 5/20/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS by GC*										
Benzene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602	971
Chlorobenzene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602/601	971
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602/601	971
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602/601	971
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602/601	971
Ethylbenzene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602	971
Toluene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602	971
m,p-Xylenes	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602	971
o-Xylene	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602	971
MTBE	ND	ug/l	1.0	1.0	1	5/27/99	7:21	M.Himelick	602	971

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
PID Surr., a,a,a-trifluorotoluene	95.	50. - 150.
Hall Surr., 2-chloropropane	119.	49. - 123.
Hall Surr., chloroprene	101.	63. - 122.
Hall Surr., 1-chloro-3-fluorobenzene	81.	59. - 117.

Report Approved By: Michael A. Dunn Report Date: 5/28/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A72992
Sample ID: MP-EP-BLK-5-99
Sample Type: Water
Site ID:

Project: 0147
Project Name: USACE
Sampler: H COOPER

Date Collected: 5/15/99
Time Collected: 17:00
Date Received: 5/20/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS by GC										
Benzene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602	971
Chlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602/601	971
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602/601	971
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602/601	971
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602/601	971
Ethylbenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602	971
Toluene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602	971
m,p-Xylenes	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602	971
o-Xylene	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602	971
MTBE	ND	ug/l	1.0	1.0	1	5/25/99	5:12	M.Hinelick	602	971

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
PID Surr., a,a,a-trifluorotoluene	100.	50. - 150.
Hall Surr., 2-chloropropane	91.	49. - 123.
Hall Surr., chloroprene	102.	63. - 122.
Hall Surr., 1-chloro-3-fluorobenzene	107.	59. - 117.

Report Approved By: Michael A. Dunn Report Date: 5/28/99

Theodore J. Duello, Ph.D., Lab Director
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ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Lab Number: 99-A72993
Sample ID: MP-EP-05-5-99
Sample Type: Water
Site ID:

Project: 0147
Project Name: USACE
Sampler: H COOPER

Date Collected: 5/15/99
Time Collected: 16:00
Date Received: 5/20/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS by GC										
Benzene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602	971
Chlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602/601	971
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602/601	971
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602/601	971
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602/601	971
Ethylbenzene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602	971
Toluene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602	971
m,p-Xylenes	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602	971
o-Xylene	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602	971
MTBE	ND	ug/l	1.0	1.0	1	5/25/99	5:48	M.Hinelick	602	971

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
PID Surr., a,a,a-trifluorotoluene	97.	50. - 150.
Hall Surr., 2-chloropropane	99.	49. - 123.
Hall Surr., chloroprene	107.	63. - 122.
Hall Surr., 1-chloro-3-fluorobenzene	113.	59. - 117.

Report Approved By: Michael H. Dunn Report Date: 5/28/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
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Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

Laboratory Certification Number: HRS-E87358

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

USACE-SAVANNAH DISTRICT 8995
MARK HARVISON
100 WEST OGLETHORPE AVE
SAVANNAH, GA 31402

Project: 0147
Project Name: USACE
Sampler: H COOPER

Lab Number: 99-A72994
Sample ID: TRIP BLANK
Sample Type: Water
Site ID:

Date Collected:
Time Collected:
Date Received: 5/20/99
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS by GC										
Benzene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602	971
Chlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602/601	971
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602/601	971
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602/601	971
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602/601	971
Ethylbenzene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602	971
Toluene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602	971
m,p-Xylenes	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602	971
o-Xylene	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602	971
MTBE	ND	ug/l	1.0	1.0	1	5/25/99	8:15	M.Himelick	602	971

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
PID Surr., a,a,a-trifluorotoluene	97.	50. - 150.
Hall Surr., 2-chloropropane	90.	49. - 123.
Hall Surr., chloroprene	95.	63. - 122.
Hall Surr., 1-chloro-3-fluorobenzene	114.	59. - 117.

Report Approved By: Michael D. Dunn Report Date: 5/28/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director
Russell Morgan, Technical Services

Laboratory Certification Number: HRS-E87358

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	R.C. Batch
Benzene	ug/l	< 0.0010	0.0216	0.0200	108	76. - 122.	971
Benzene	ug/l	< 0.0010	0.0203	0.0200	102	76. - 122.	971
Ethylbenzene	ug/l	< 0.0010	0.0194	0.0200	97	76. - 125.	971
Ethylbenzene	ug/l	< 0.0010	0.0187	0.0200	94	76. - 125.	971
Toluene	ug/l	< 0.0010	0.0212	0.0200	106	74. - 127.	971
Toluene	ug/l	< 0.0010	0.0205	0.0200	102	74. - 127.	971
m,p-Xylenes	ug/l	< 0.0010	0.0412	0.0400	103	75. - 133.	971
m,p-Xylenes	ug/l	< 0.0010	0.0383	0.0400	96	75. - 133.	971
o-Xylene	ug/l	< 0.0010	0.0196	0.0200	98	74. - 126.	971
o-Xylene	ug/l	< 0.0010	0.0178	0.0200	89	74. - 126.	971
MTBE	ug/l	< 0.0010	0.0208	0.0200	104	67. - 130.	971
MTBE	ug/l	< 0.0010	0.0203	0.0200	102	67. - 130.	971

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	R.C. Batch
Benzene	ug/l	0.0200	0.0216	108	70 - 130	971
Benzene	ug/l	0.0200	0.0210	105	70 - 130	971
Chlorobenzene	ug/l	0.0200	0.0200	100	70 - 130	971
Chlorobenzene	ug/l	0.0200	0.0194	97	70 - 130	971
1,2-Dichlorobenzene	ug/l	0.0200	0.0230	115	70 - 130	971
1,2-Dichlorobenzene	ug/l	0.0200	0.0233	116	70 - 130	971
1,3-Dichlorobenzene	ug/l	0.0200	0.0230	115	70 - 130	971
1,3-Dichlorobenzene	ug/l	0.0200	0.0230	115	70 - 130	971
1,4-Dichlorobenzene	ug/l	0.0200	0.0234	117	70 - 130	971
1,4-Dichlorobenzene	ug/l	0.0200	0.0223	112	70 - 130	971
Ethylbenzene	ug/l	0.0200	0.0195	98	70 - 130	971
Ethylbenzene	ug/l	0.0200	0.0190	95	70 - 130	971
Toluene	ug/l	0.0200	0.0213	106	70 - 130	971
Toluene	ug/l	0.0200	0.0205	102	70 - 130	971
m,p-Xylenes	ug/l	0.0400	0.0411	103	70 - 130	971
m,p-Xylenes	ug/l	0.0400	0.0400	100	70 - 130	971
o-Xylene	ug/l	0.0200	0.0192	96	70 - 130	971
o-Xylene	ug/l	0.0200	0.0187	94	70 - 130	971
MTBE	ug/l	0.0200	0.0214	107	70 - 130	971
MTBE	ug/l	0.0200	0.0199	100	70 - 130	971

Blank Data

Analyte	Blank Value	Units	R.C. Batch
Benzene	< 0.0010	ug/l	971
Benzene	< 0.0010	ug/l	971
Chlorobenzene	< 0.0010	ug/l	971
Chlorobenzene	< 0.0010	ug/l	971

SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

5/28/99

USACE-SAVANNAH DISTRICT
MARK HARVISON
SAVANNAH, GA 31402

The following samples were received on 5/20/99. These samples relate to your project: 0147 USACE. The laboratory project number is 144119.

Sample Identification	Lab Number	Collection Date
MP-EP-03-5-99	99-A72991	5/15/99
MP-EP-BLK-5-99	99-A72992	5/15/99
MP-EP-05-5-99	99-A72993	5/15/99
TRIP BLANK	99-A72994	

Quality Control Summary:

All samples were received in good condition, properly preserved, and properly labeled.

All analyses were completed within holding times, and all project and sample QC parameters were within acceptable limits.

I certify that the data presented in this report are, to the best of my knowledge, accurate and complete.

Michael H. Dunn, M.S., Technical Director
Ted J. Duello, Ph.D., Lab Director
Eric Smith, Assistant Technical Director
Johnny A. Mitchell, B.S., Dir. Technical Services

Chain of Custody Record Echo Pier **HYDROLOGIC, INC.** ~~143873~~ 144119 *Page* 1 *of* _

☐ Asheville, NC (828) 254-5169	☐ Norcross, GA (770) 368-0636	☐ Charlotte, NC (704) 392-1164	☐ Frankfort KY (502) 223-0251	☐ Morrisville, NC (919) 380-9699
☐ Lumberton, NC (910) 738-6190	☐ Lexington, SC (803) 796-8989	☐ Brighton, CO (303) 659-0497	☐ Macon, GA (912) 757-0811	☐ Orlando, FL (407) 851-2560

Client: USACE	Project No.: 0147
Report Address: P.O Box 888	Invoice Address:
Charleston S. C.	
Attn: M. Harrington	Attn:
Phone No.: 912-6[redacted]5151	Sampled By: H. Cooper
Fax No.:	P.O. No:
TURNAROUND TIME	State Samples Collected FL [redacted]
☐ 24 Hours ☐ 48 Hours	
☐ 5 Days ☐ 10 Days	Date Needed: 3-7 DAYS

REQUESTED PARAMETERS

602+ MTBE

LAB CODE I.D.
A = Asheville, NC
C = Charlotte, NC
D = Denver, CO
E = Lexington, SC
G = Macon,GA
K = Frankfort, KY
L = Lumberton, NC
M = Morrisville, NC
N = Norcross, GA
O = Orlando, FL
S = Subcontracted

Sample ID	Date	Time	Comp/ Grab	Matrix	Containers	HCl	← Preserv.	REMARKS
MP-EP-03-5-9[redacted]	5-15-95	1548	G	Aq	2	2	< 1 ppb	72991
MP-EP-Blk-5[redacted]	[redacted]	17:00	G	Aq	2	2	< 1 ppb	72992[redacted]
MP-EP-05-5-9[redacted]	[redacted]	16:00	G	Aq	2	2	< 1 ppb	72[redacted]
TRIP Blank					2	2		72994

COMMENTS:

Relinquished By: NC Cooper	Date/Time: 5-16-95 17:00	Received By: Shipperd	Date/Time
Relinquished By:	Date/Time	Received By:	Date/Time

APPENDIX G

CONFIRMATION ASSESSMENT LETTER REPORT

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

RECEIVED
TETRA TECH NUS
JACKSONVILLE FL

TtNUS-FY99-0228

November 5, 1999

Project Number 0199

Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Ms. Adrienne Wilson
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: **Clean Contract No. N62467-94-D-0888**
Contract Task Order No. 0094

Subject: **Confirmation Assessment Letter Report**
AOC C, Naval Station Mayport
Jacksonville, Florida

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Confirmation Assessment (CA) Letter Report for the referenced Contract Task Order (CTO). This report was prepared for the U.S. Navy Southern Division Naval Facilities Engineering Command under CTO 0094, for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. The contents of this report document the field work, results, and recommendations for this Confirmation Assessment.

On September 22, forty-five monitoring wells in the vicinity of Area of Concern (AOC) C were surveyed for depth to water, total depth, and top-of-casing elevation. AOC C is located southeast of the NAVSTA Mayport Turning Basin and includes buildings and facilities around the southern portion of Echo Pier, Building 191, and the Shore Intermediate Maintenance Activity (SIMA) Building, Building 1488. A site map with existing monitoring well locations is shown in **Figure 1**.

Water level measurements were recorded at each well with an electronic water level measurement probe. The depth to water ranged from 2.34 to 4.75 feet below land surface (bls). The top of casing elevations were then surveyed relative to the known elevation of monitoring well MPT-20-MW03S (HLA, *Solid Waste Management Unit Assessment Report for Tetrachloroethene Release near Building 191 U. S. Naval Station, Mayport, Florida*, April 17, 1996). These survey results were used to calculate groundwater elevations above mean sea level (msl) (**Table 1**). **Figures 2, 3, and 4** depict the potentiometric surface for the shallow (0-20 ft. bls), intermediate (20-35 ft. bls), and deep (35-50 ft. bls) monitoring wells respectively. Groundwater flows in a northwesterly direction toward the Turning Basin in all three zones of the aquifer. This consistency in groundwater elevations and flow indicates the lack of a continuous confining unit across the site.

Monitoring wells MPT-EP 01, MPT-EP-02, MPT-EP-03 and MPT-EP-DPW02I were suspected to contain free product and therefore were not included in this round of water levels.

There appears to be a groundwater high in the vicinity of the Building 191 source area, which is the location of a tetrachloroethene release that occurred in 1993. TtNUS proposes the installation of three shallow piezometers in this area to further assess the local groundwater flow. On the southern side of Building 191, monitoring well MPT-TC-MW01S was found to have no-expandable cap seal. The water table elevation for this well was therefore considered suspect and was not considered in the shallow aquifer potentiometric map.

Based on groundwater flow and analytical results collected during previous investigations (HLA, *Technical Memorandum of Groundwater Assessment of Tetrachloroethene Release at Building 191*, January 1999), TtNUS proposes that twenty-nine additional monitoring wells be installed in AOC C. The proposed locations for the wells are shown in **Figure 5**.

Of the 29 monitoring wells, 24 will be clusters of 3 nested wells located along the boundaries of AOC C. These clusters will include one shallow well (0-20 ft. bls), one intermediate well (20-35 ft. bls), and one deep well (35-50 ft. bls). Two well clusters will be installed along AOC C's southern boundary. One cluster will be installed to the west of Building 191, on the western side of the newly installed retention pond. Two clusters will be installed to the east of SIMA, and one cluster will be installed to the north of SIMA. One cluster will be installed along the portion of the pier that borders Massey Avenue, and one cluster will be installed along the northern portion of Echo Pier. These monitoring well clusters will help delineate the vertical and horizontal boundaries of groundwater contamination at AOC C.

Two monitoring wells are proposed in locations to determine and/or confirm the vertical or horizontal migration of the existing contaminant plume. These monitoring wells are proposed to the northwest of existing wells MPT-TC-DPW02D and DD. Samples from these existing deep wells historically contained the highest concentrations of trichloroethene (TCE) at 810 µg/ℓ and tetrachloroethene (PCE) at 120 µg/ℓ. One monitoring well will be installed to 30 ft. bls, the depth of well MPT-TC-DPW02D. The deeper well will be installed to 50 ft. bls to determine if any vertical migration of contaminants has occurred.

Three deep monitoring wells are proposed for the Echo Pier area. Vinyl chloride was detected in shallow monitoring wells MPT-EP-MW03S, MPT-EP-MW04S, and MPT-EP-DPW02I at concentrations exceeding the Florida Department of Environmental Protection (FDEP) standards (HLA, 1999). Installation of three deep wells to 40 ft. bls is proposed to determine if vertical migration of vinyl chloride has occurred.

Prior to monitoring well installation, selected existing monitoring wells will be sampled to confirm the presence of contamination. The wells to be sampled were chosen based on historic exceedences and their proximity to the source area. **Table 2** presents the rationale for sampling these wells. Analytical results from the proposed sampling event may affect the new monitoring well locations.

If you have any questions with regard to this submittal, please contact Terry Hansen at (850) 385-9899.

Very truly yours,

Abby Wilcox
Project Geologist

Mark T. for
Debbie Wroblewski
Program Manager

TH/abw

Enclosures

cc: Mr. Randy Bishop (NAVSTA Mayport)
Mr. Mark Dunn (BEI)
Ms. Martha Berry (USEPA Region IV)
Mr. Jim Cason (FDEP)
Mr. Frank Lesesne (HLA)
Mr. Charles Radford (CH2MHill)

bcc: Ms. Debbie Wroblewski (Cover Letter Only)
Mr. Mark Perry/ File
file

PROFESSIONAL CERTIFICATION

Confirmation Assessment Letter Report

Area of Concern C

Naval Station Mayport

Jacksonville, Florida

This Confirmation Assessment Letter Report has been prepared under the supervision of a Florida-registered Professional Geologist. The work and professional opinion rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards or practice.

Terry Hansen, P.G.
Florida License No. 234

Table 1
Groundwater Elevations
September 22, 1999

AOC C Confirmation Assessment
Mayport Naval Station
Mayport, Florida

Well ID	Groundwater Elevation (above msl)	Total Depth	Well ID	Groundwater Elevation (above msl)	Total Depth
MPT-TC-DPW1S	7.28	8.50	MPT-TC-MW01S	9.16	11.79
MPT-TC-DPW1D	6.74	41.04	MPT-20-MW3S	8.43	13.10
MPT-TC-DPW2S	5.55	7.21	MPT-TC-MW6S	6.62	10.15
MPT-TC-DPW2I	5.54	21.77	MPT-TC-MW7D	5.54	31.19
MPT-TC-DPW2D	5.57	32.02	MPT-TC-MW04S	5.70	12.91
MPT-TC-DPW02DD	4.96	46.20	MPT-EP-DPW02I	-	31.45
MPT-TC-DPW3S	6.25	7.98	MPT-EP-DPW03I	5.30	25.85
MPT-TC-DPW3I	5.70	26.54	MPT-EP-DPW04S	5.19	10.42
MPT-TC-DPW3D	5.67	39.92	MP-EP-01	-	17.10
MPT-TC-DPW3DD	5.43	44.92	MP-EP-02	-	17.23
MPT-TC-DPW4S	5.57	8.00	MP-EP-03	-	17.08
MPT-TC-DPW4I	5.58	21.26	MP-EP-04	4.93	17.40
MPT-TC-DPW4D	5.58	32.49	MAY-1490-1A	5.08	12.34
MPT-TC-DPW5I	5.45	31.01	MAY-1490-2A	5.05	10.98
MPT-TC-DPW6S	5.25	8.24	MAY-1490-3A	3.90	2.49
MPT-TC-DPW6I	5.77	26.48	MAY-1490-4	5.20	13.26
MPT-TC-DPW7S	5.23	15.09	MAY-1490-5D	4.92	22.75
MPT-TC-DPW7I	5.23	31.57	MAY-1490-6A	4.90	12.33
MPT-TC-DPW7D	5.12	42.29	MAY-1490-7	5.06	12.37
MPT-TC-DPW9S	5.39	30.74			
MPT-TC-DPW9I	5.42	37.94			
MPT-TC-DPW9D	5.18	45.57			
MPT-TC-DPW10I	5.73	30.18			
MPT-TC-DPW10D	4.82	45.21			
MPT-TC-DPW11I	5.43	31.31			
MPT-TC-DPW12I	5.45	30.55			
MPT-TC-DPW-12D	5.34	35.77			
MPT-TC-DPW13I	5.51	30.81			
MPT-TC-DPW14S	5.35	15.21			
MPT-TC-DPW14I	5.36	30.69			

NOTES
- measurement not taken

Table 2
Monitoring Well Sampling Rationale

AOC C Confirmation Assessment
Mayport Naval Station
Mayport, Florida

Well ID	Rationale
MPT-TC-DPW1S	northern edge of source area
MPT-TC-DPW1D	northern edge of source area
MPT-TC-DPW2D	confirm historic exceedence of TCE (810 ug/L)and PCE (120 ug/L) [1]
MPT-TC-DPW02DD	determine contaminant vertical migration from upper aquifer zone
MPT-TC-DPW3S	source area confirmation well
MPT-TC-DPW3I	source area confirmation well
MPT-TC-DPW3D	source area confirmation well
MPT-TC-DPW3DD	source area confirmation well
MPT-TC-DPW06S	southern edge of source area
MPT-TC-DPW06I	southern edge of source area
MPT-TC-DPW09I	confirm historic exceedence of TCE (4 ug/L) [1]
MPT-TC-DPW09D	determine contamination vertical migration from upper aquifer zone
MPT-TC-DPW07D	confirm historic exceedence of 1,1-Dichloroethene (14 ug/L) [1]
MPT-TC-MW04S	confirm historic exceedences of TCE (9 ug/L) and PCE (26 ug/L) [1]
MPT-EP-DPW02I	confirm historic exceedence of vinyl chloride (1 ug/L) [1]
MPT-EP-MW03S	confirm historic exceedence of vinyl chloride (1.3 ug/L) [1]
MPT-EP-MW04S	confirm historic exceedence of vinyl chloride (1.3 ug/L) [1]

Notes

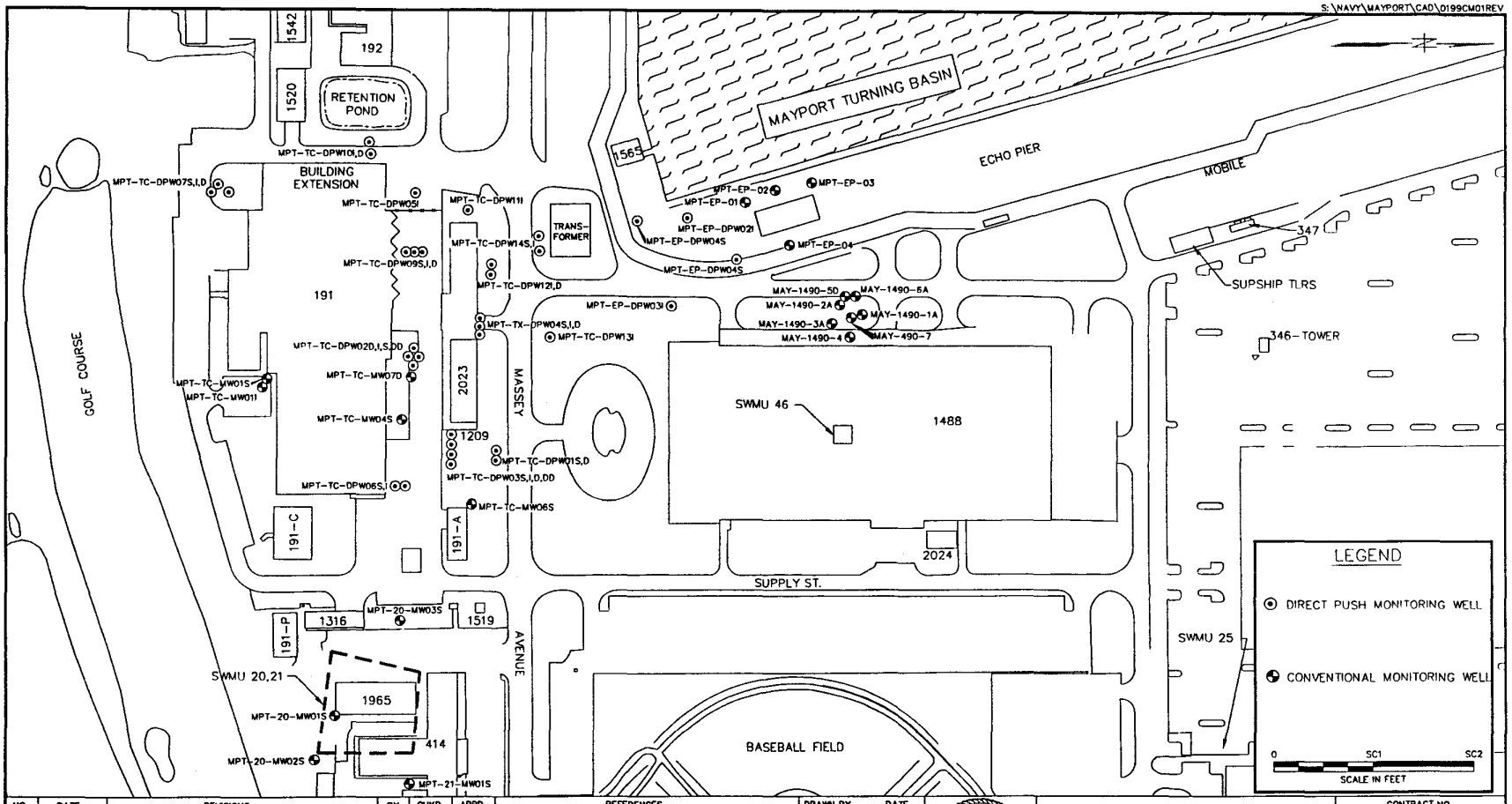
[1] *Technical Memorandum Groundwater Assessment of Tetrachloroethene Release near Building 191* (HLA, 1999)

Exceedences based on Florida Department of Environmental Protection (FDEP) groundwater criteria

Table 3
Proposed Monitoring Well Rationale

AOC C Confirmation Assessment
Mayport Naval Station
Mayport, Florida

Well ID	Rationale
MPT-AC-DPW01S,I,D	southern boundary of AOC C
MPT-AC-DPW02S,I,D	southern boundary of AOC C
MPT-AC-DPW03S,I,D	western boundary of AOC C
MPT-AC-DPW04S,I,D	western boudary of AOC C
MPT-AC-DPW05S,I,D	northern boundary of AOC C
MPT-AC-DPW06S,I,D	northern boundary of AOC C
MPT-AC-DPW07S,I,D	eastern boundary of AOC C
MPT-AC-DPW08S,I,D	eastern boundary of AOC C
MPT-AC-DPW09D,DD	determine vertical migration of contaminants from the most impacted area
MPT-AC-DPW10D	determine vertical migration of contaminants in Echo Pier monitoring wells
MPT-AC-DPW11D	determine vertical migration of contaminants in Echo Pier monitoring wells
MPT-TC-DPW12D	determine vertical migration of contaminants in Echo Pier monitoring wells



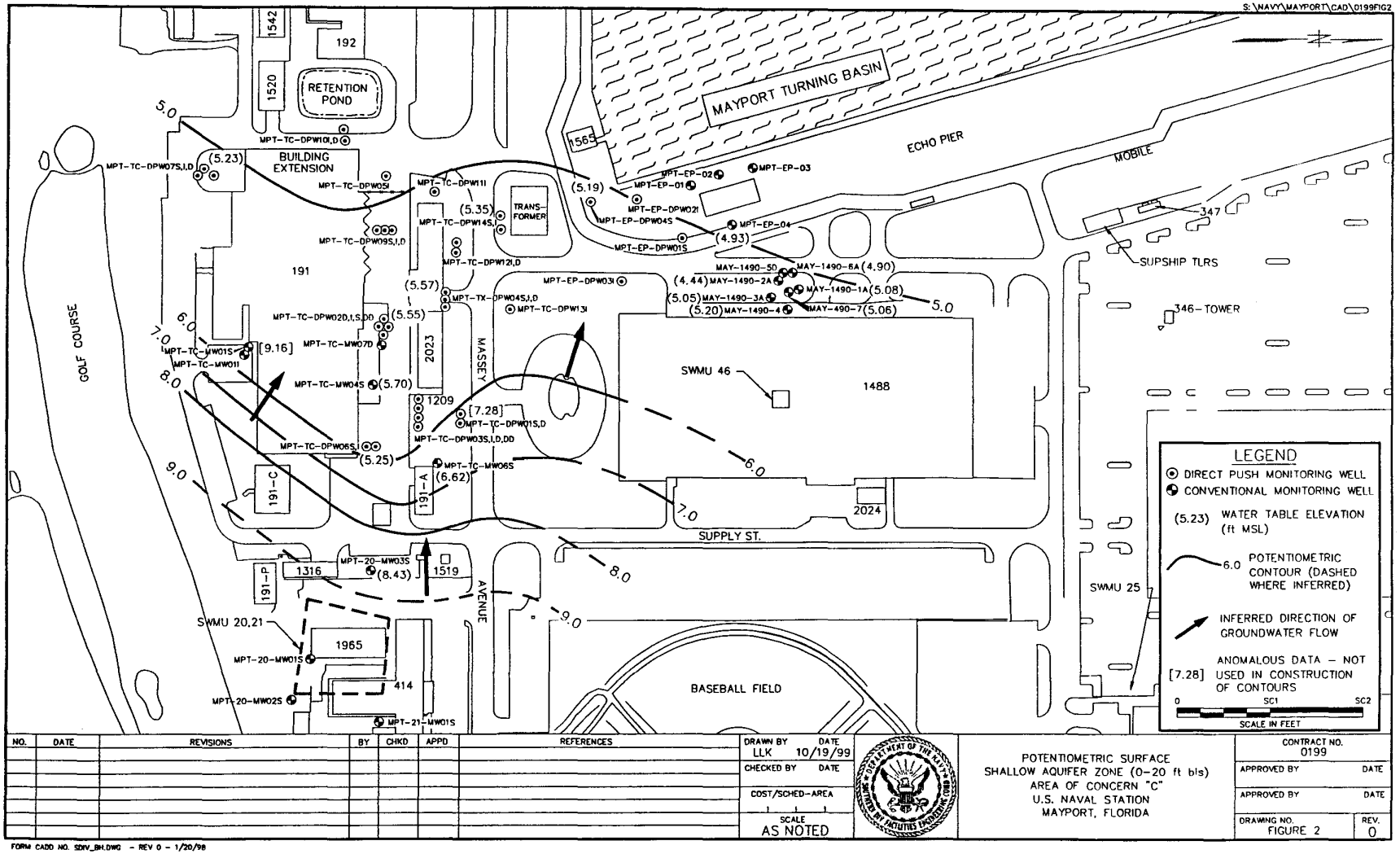
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 10/19/99
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

DIRECT PUSH AND CONVENTIONAL MONITORING WELL LOCATIONS
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 1
REV. 0

FORM CADD NO. SDIV_BH.DWG - REV 0 - 1/20/98



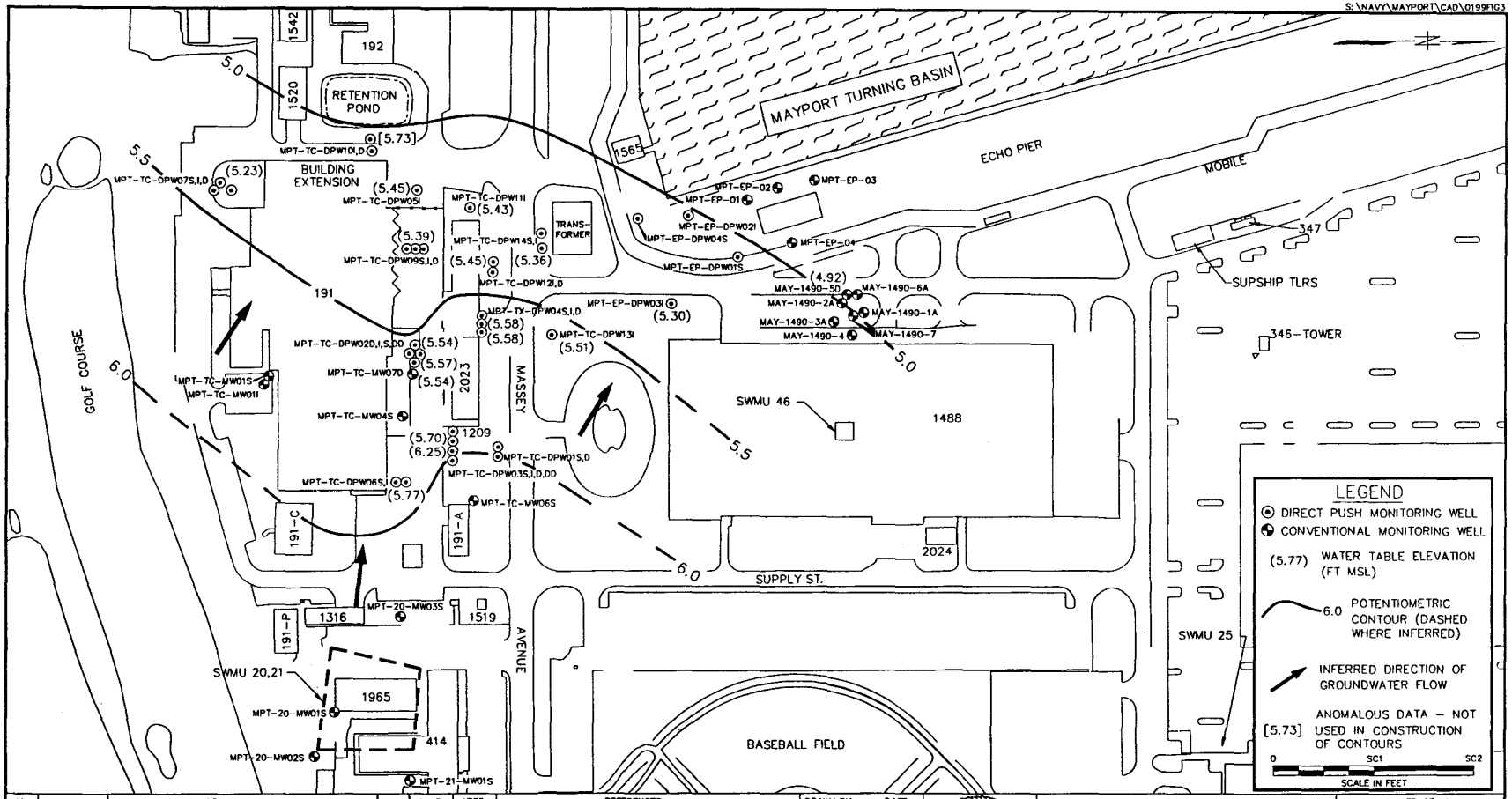
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 10/19/99
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

POTENTIOMETRIC SURFACE
SHALLOW AQUIFER ZONE (0–20 ft bls)
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 2
REV. 0

FORM CADD NO. SDIV_BH.DWG – REV 0 – 1/20/98



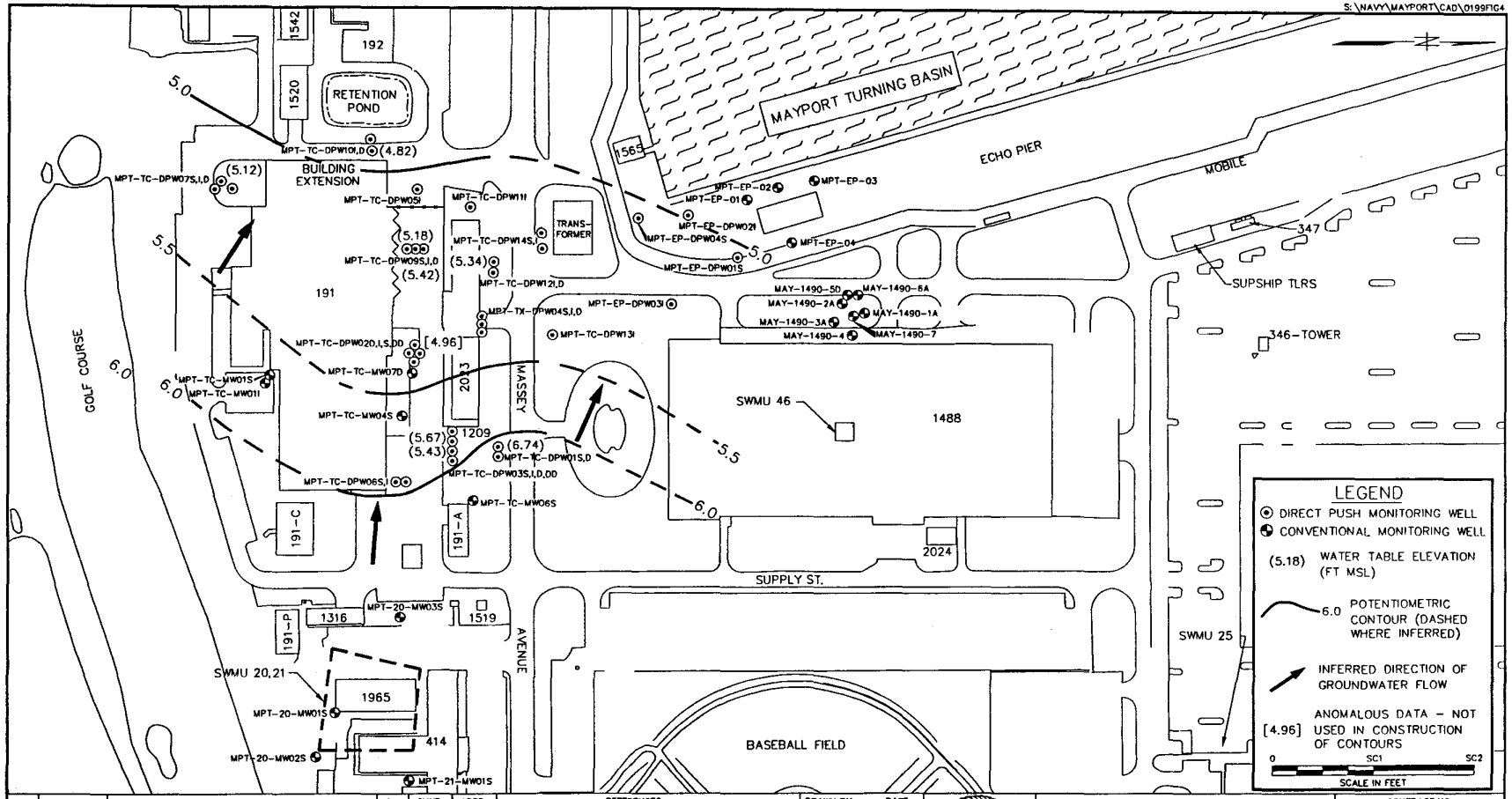
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 10/19/99
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

POTENTIOMETRIC SURFACE MAP
INTERMEDIATE AQUIFER ZONE (20–35 ft bls)
SEPTEMBER 22, 1999
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 3
REV. 0

FORM CADD NO. SDIV_SH.DWG – REV 0 – 1/20/98



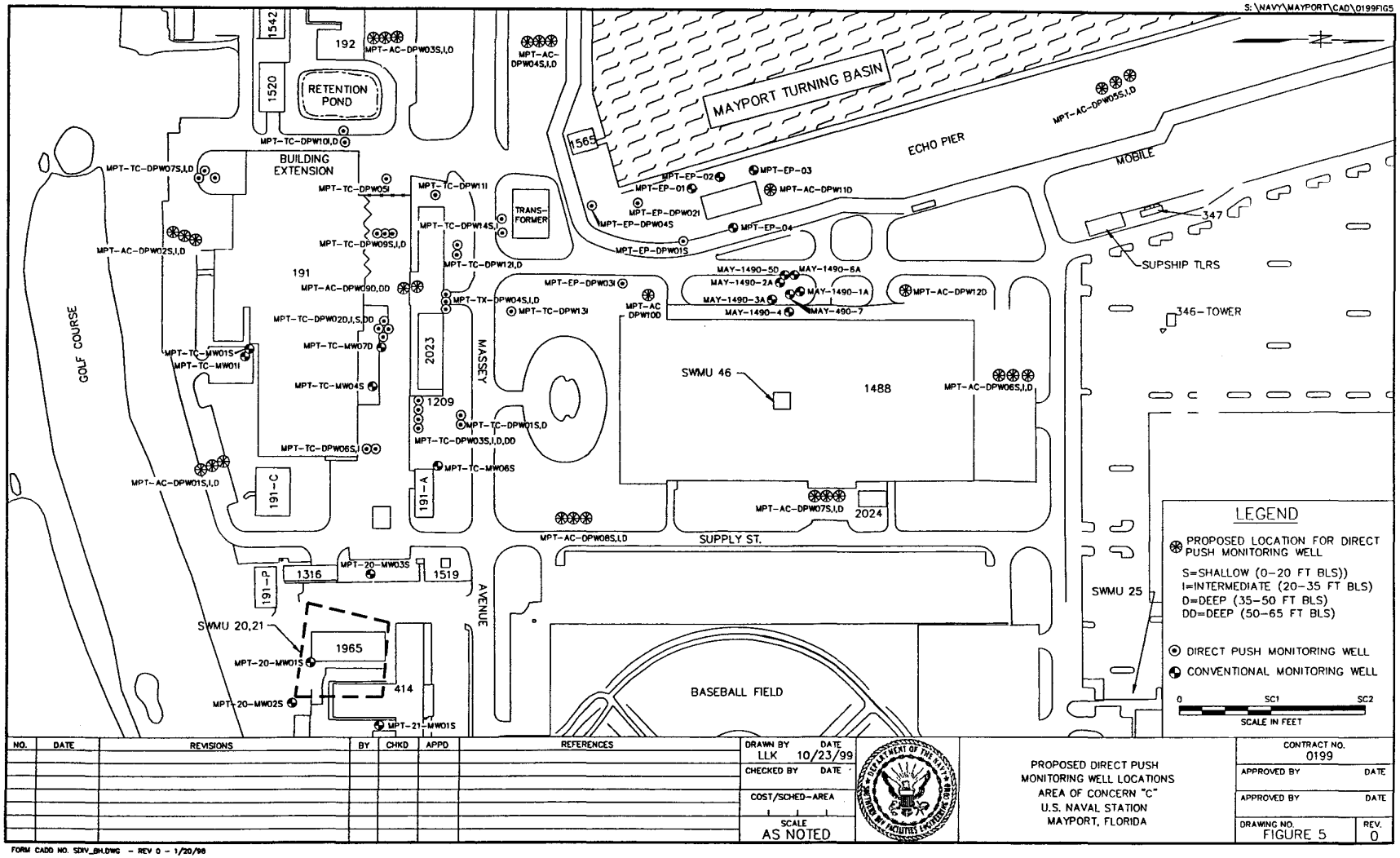
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 10/28/99
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

POTENTIOMETRIC SURFACE MAP
DEEP AQUIFER ZONE (35-50 ft bls)
SEPTEMBER 22, 1999
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 4
REV. 0

FORM CADD NO. SDIV_BM.DWG - REV 0 - 1/20/98



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY LLK DATE 10/23/99
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

PROPOSED DIRECT PUSH MONITORING WELL LOCATIONS
AREA OF CONCERN "C"
U.S. NAVAL STATION
MAYPORT, FLORIDA

CONTRACT NO. 0199
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 5
REV. 0

FORM CADD NO. SDIV_SH.DWG - REV 0 - 1/20/98

01990315 CTO 94

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

December 23, 1999

Ms. Adrienne Wilson
Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC 29419-9010

file: aoc_c_lr1.doc

RE: Confirmation Assessment Letter Report for AOC "C", US Naval Station (NAVSTA), Mayport, Florida

Dear Ms. Wilson:

I have reviewed the above document dated November 1999 (received November 8, 1999) and we have discussed it at the Partnering meeting earlier this month. The document is acceptable and I concur with the installation of three piezometers near Building 191 and the three deep monitoring wells.

If you need further clarification or any additional information, please feel free to contact me at 850-921-4230.

Sincerely,

James H. Cason, P.G.
Remedial Project Manager

CC: Randy Bishop, NAVSTA Mayport
Terry Hansen, TetraTech NUS, Tallahassee

JBC
TJB TB JJC ESN ESN

APPENDIX H

VALIDATED LABORATORY ANALYTICAL DATA

Tetra Tech NUS INTERNAL CORRESPONDENCE

TO:	**T. HANSEN**	**DATE:**	**APRIL 7, 2000**
FROM:	**JENNIFER M. MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE AND TIN**
CTO-094 NS MAYPORT, FLORIDA
SDG – MP001

SAMPLES: 20/Aqueous

MPT-EP-GW-DPW02I-01	MPT-EP-GW-MW03S-01
MPT-EP-GW-MW04S-01	MPT-TC-GW-DPW01D-01
MPT-TC-GW-DPW01S-01	MPT-TC-GW-DPW02D-01
MPT-TC-GW-DPW02DD-01	MPT-TC-GW-DPW03D-01
MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW03I-01
MPT-TC-GW-DPW03S-01	MPT-TC-GW-DPW06I-01
MPT-TC-GW-DPW06S-01	MPT-TC-GW-DPW07D-01
MPT-TC-GW-DPW09-D-01	MPT-TC-GW-DPW09I-01
MPT-TC-GW-DU01	MPT-TC-GW-DU02
MPT-TC-GW-EB01	MPT-TC-GW-MW04S-01

Overview

The sample set for CTO 094,NS Mayport, SDG MP001, consists of twenty (20) aqueous environmental samples. Two field duplicate pairs (MPT-TC-GW-DU01/MPT-TC-DPW03DD-01 and MPT-TC-GW-DU02/MPT-TC-DPW07D-01) were included within this SDG.

All samples were analyzed for Target Analyte List (TAL) metals, cyanide and tin. The samples were collected by TetraTech NUS on November 30, December 1-3 and 6-7, 1999 and analyzed by Severn Trent Laboratories, formerly Quanterra Laboratories, under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All metals analyses , with the exception to mercury, were conducted using SW846 method 6010B. Mercury analyses were conducted under SW846 method 7470A. Cyanide analyses were conducted under SW846 9012A.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
• ICP Interference Check Sample
• Matrix Spike / Matrix Spike Duplicate Recoveries
* • Matrix Spike Duplicate Relative Percent Differences
* • Field Duplicate Recoveries
* • Laboratory Control Sample Results
• ICP Serial Dilution Results

* • Sample Quanitation
• Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Affected samples : All

Analyte	Maximum Concentration	Action Level (aqueous)
Barium	0.46 ug/L	2.3 ug/L
Beryllium	0.64 ug/L	3.2 ug/L
Calcium [1]	95.5 ug/L	477.5 ug/L
Cyanide [1]	4.0 ug/L	20 ug/L
Iron [1]	20.9 ug/L	104.5 ug/L
Magnesium	37.1 ug/L	185.5 ug/L
Manganese [1]	1.2 ug/L	6.0 ug/L
Sodium	356 ug/L	1780 ug/L
Zinc [1]	4.4 ug/L	22.0 ug/L

[1] – Maximum concentration present in a preparation blank

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration in evaluation for blank contamination. Positive results less than the blank action level for barium, calcium, cyanide, iron, magnesium, manganese and zinc were qualified, "U", as a result of blank contamination. No validation action was required for the remaining analytes as the results reported were either greater than the blank action level or were nondetected.

ICP Interference Check Sample Results

The interfering analyte magnesium was present in sample MPT-TC-GW-DPW02DD-01 at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, cadmium, cobalt, copper, manganese, nickel, potassium, tin and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for arsenic in the affected sample. The positive result reported for arsenic was qualified as estimated, "J".

Matrix Spike/Matrix Spike Duplicate

The Matrix Spike/Matrix Spike Duplicate (MS/MSD) Percent Recovery (%R) reported for cyanide was less than the 75% quality control limits. Nondetected results reported for cyanide were qualified as estimated, "UJ".

ICP Serial Dilution Results

The ICP Serial Dilution Percent Difference reported for barium was greater than the 10% quality control limit. Positive results reported for barium were qualified as estimated, "J".

Notes

A Laboratory Control Sample (LCS) percent recovery for cyanide was less than 80% quality control limits. However, the sample used for the LCS analysis was not taken from this SDG. The decision was made not to qualify the cyanide results in this SDG based on this factor.

The laboratory originally used the incorrect detection limits for cyanide. As a result, the laboratory was contacted and Form 1's with the correct MDL were sent. Changes were made to the Electronic Deliverable Database (EDD) by the data reviewer.

A field duplicate summary table is included in Appendix C. A summary table was not conducted for cyanide, as results reported in the duplicate pairs were nondetected.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory/preparation blanks.

Other Factors Affecting Data Quality: MS noncompliance was noted for cyanide. Barium was qualified for ICP Serial Dilution noncompliance. The interfering analyte magnesium was present in one sample.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Jennifer M. Malle

Tetra Tech NUS
Jennifer M. Malle
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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	73.6	U		73.6	U		73.6	U		73.6	U	
ANTIMONY	2.6	U		2.6	U		2.6	U		2.6	U	
ARSENIC	2.7	U		9.0			2.7	U		2.7	U	
BARIUM	30.2	J	I	12.8	J	I	26.7	J	I	2.2	U	A
BERYLLIUM	0.30	U		0.30	U		0.30	U		0.30	U	
CADMIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CALCIUM	102000			105000			93100			71600		
CHROMIUM	2.5			1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	3.0			1.1	U		1.1	U		1.1	U	
IRON	207			2570			81.3	U	A	30.2	U	A
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	32200			43900			23200			46800		
MANGANESE	83.6			137			14.3			91.0		
MERCURY	0.11	U		0.11	U		0.11	U		0.11	U	
NICKEL	1.3	U		1.3	U		1.3	U		1.5		
POTASSIUM	27600			29100			14300			23600		
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	87100			59300			55700			188000		
THALLIUM	7.1	U		7.1	U		7.9			7.5		
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	1.4			3.9			1.7			0.75		
ZINC	223			1.7	U		6.1	U	A	4.4	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01	MPT-TC-GW-DPW02D-01	MPT-TC-GW-DPW02DD-01	MPT-TC-GW-DPW03D-01
SAMPLE DATE:	11/30/99	12/03/99	12/03/99	12/01/99
LABORATORY ID:	A9L030207001	A9L060111002	A9L060111001	A9L030207008
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	73.6	U		73.6	U		73.6	U		187		
ANTIMONY	3.2			2.6	U		2.6	U		2.6	U	
ARSENIC	2.7	U		2.7	U		9.2	J	K	2.7	U	
BARIUM	30.9	J	I	2.6	J	I	52.7	J	I	48.5	J	I
BERYLLIUM	0.30	U		0.30	U		0.30	U		0.30	U	
CADMIUM	0.22			0.20	U		0.20	U		0.20	U	
CALCIUM	157000			92100			199000			42900		
CHROMIUM	4.0			1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	1710			23.1	U	A	3540			973		
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	23100			24400			376000			74100		
MANGANESE	134			27.5			191			27.0		
MERCURY	0.11	U		0.11	U		0.11	U		0.11	U	
NICKEL	2.9			1.4			1.3	U		13.5		
POTASSIUM	3890			4330			198000			80800		
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	11400			18500			3490000			1050000		
THALLIUM	7.3			7.1	U		10.7			7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	0.50	U		0.50	U		0.50	U		0.50	U	
ZINC	6.5	U	A	11.5	U	A	9.2	U	A	17.6	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	128			73.6	U		73.6	U		73.6	U	
ANTIMONY	2.6	U		2.6	U		2.6	U		2.6	U	
ARSENIC	4.6			2.7	U		2.7	U		2.7	U	
BARIUM	45.8	J	I	4.6	J	I	5.8	J	I	5.4	J	I
BERYLLIUM	0.30	U		0.30	U		0.30	U		0.30	U	
CADMIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CALCIUM	35900			75900			128000			66800		
CHROMIUM	1.6	U		1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	833			57.1	U	A	346			87.8	U	A
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	65700			26700			21600			54300		
MANGANESE	22.8			103			121			20.1		
MERCURY	0.11	U		0.11	U		0.11	U		0.11	U	
NICKEL	1.7			1.3	U		1.3	U		1.8		
POTASSIUM	80200			6420			4170			16100		
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	1150000			18500			15300			24200		
THALLIUM	7.1	U		7.1	U		7.1	U		7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	0.50	U		0.59			0.50	U		1.4		
ZINC	9.8	U	A	12.0	U	A	4.0	U	A	50.2		

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	73.6	U		73.6	U		73.6	U		73.6	U	
ANTIMONY	2.6	U		2.6	U		2.6	U		2.6	U	
ARSENIC	2.7	U		2.7	U		2.7	U		2.7	U	
BARIUM	3.1	J	I	3.3	J	I	11.4	J	I	3.6	J	I
BERYLLIUM	0.30	U		0.30	U		0.30	U		0.30	U	
CADMIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CALCIUM	87600			91500			34500			98600		
CHROMIUM	1.6	U		1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	315			847			410			32.0	U	A
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	23200			18800			38100			30800		
MANGANESE	147			38.6			31.6			31.7		
MERCURY	0.11	U		0.11	U		0.11	U		0.11	U	
NICKEL	3.4			1.3	U		1.7			1.3	U	
POTASSIUM	4710			9620			42900			4570		
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	16100			17900			283000			26900		
THALLIUM	7.1	U		7.6			7.1	U		7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	0.50	U		2.8			0.66			0.89		
ZINC	16.2	U	A	4.9	U	A	13.4	U	A	8.2	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	73.6	U		73.6	U		73.6	U		73.6	U	
ANTIMONY	3.4			2.6	U		2.6	U		2.6	U	
ARSENIC	4.0			2.7	U		2.7	U		3.1		
BARIUM	45.5	J	I	3.3	J	I	0.30	U		1.6	U	A
BERYLLIUM	0.30	U		0.30	U		0.30	U		0.30	U	
CADMIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CALCIUM	34400			98000			110	U	A	69100		
CHROMIUM	1.6	U		1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	702			906			13.7	U		102	U	A
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	62700			20400			13.3	U	A	6030		
MANGANESE	22.7			41.4			0.67	U	A	41.7		
MERCURY	0.11	U		0.11	U		0.11	U		0.11	U	
NICKEL	4.0			1.3	U		1.3	U		1.3	U	
POTASSIUM	79300			10400			15.6	U		1120		
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	1100000			19300			96.2	U		9270		
THALLIUM	10.0			7.1	U		7.1	U		7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	0.50	U		2.5			0.50	U		3.2		
ZINC	16.0	U	A	5.0	U	A	5.9	U	A	10.2	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
CYANIDE	2.2	UJ	D	2.2	UJ	D	2.2	UJ	D	2.6	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE	2.9	U	A	2.2	UJ	D	2.2	UJ	D	4.0	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE	6.0	U	A	2.2	UJ	D	2.2	UJ	D	4.0	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE	4.0	U	A	2.2	UJ	D	4.0	U	A	3.0	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DU01	MPT-TC-GW-DU02	MPT-TC-GW-EB01	MPT-TC-GW-MW04S-01
SAMPLE DATE:	12/01/99	12/06/99	12/06/99	12/03/99
LABORATORY ID:	A9L030207006	A9L070216003	A9L070216001	A9L060111003
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW07D-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
CYANIDE	3.0	U	A	2.2	UJ	D	2.2	UJ	D	2.2	UJ	D

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: T. HANSEN **DATE:** APRIL 12, 2000

FROM: GRETCHEN PHIPPS **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION – APPENDIX IX VOLATILES, APPENDIX IX, SEMIVOLATILES, PESTICIDES, PCBs, HERBICIDES AND ORGANOPHOSHPOROUS PESTICIDES
CTO 094 – NS MAYPORT
SDG – MP001

SAMPLES: 26/Aqueous/

MPT-EP-GW-DPW02I-01	MPT-EP-GW-MW03S-01
MPT-EP-GW-MW04S-01	MPT-TC-GW-DPW01D-01
MPT-TC-GW-DPW01S-01	MPT-TC-GW-DPW02D-01
MPT-TC-GW-DPW02DD-01	MPT-TC-GW-DPW03D-01
MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW03I-01
MPT-TC-GW-DPW03S-01	MPT-TC-GW-DPW06I-01
MPT-TC-GW-DPW06S-01	MPT-TC-GW-DPW07D-01
MPT-TC-GW-DPW09D-01	MPT-TC-GW-DPW09I-01
MPT-TC-GW-DU01	MPT-TC-GW-DU02
MPT-TC-GW-EB01	MPT-TC-GW-MW04S-01
TRIP BLANK TB-1	TRIP BLANK TB-2
TRIP BLANK TB-3	TRIP BLANK TB-3A
TRIP BLANK TB-4	TRIP BLANK TB-6

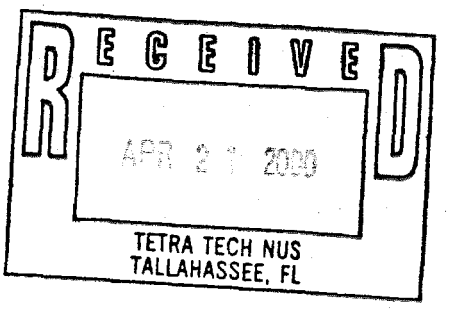
Overview

The sample set for CTO 094, NS Mayport, SDG MP001, consists of twenty (20) aqueous environmental samples and six (6) trip blanks. Two (2) field duplicates (MPT-TC-GW-DPW03DD-01 / MPT-TC-GW-DU01 and MPT-TC-GW-DPW07D-01 / MPT-TC-GW-DU02) were included within this SDG.

The aqueous environmental samples were analyzed for Appendix IX volatile organics, Appendix IX semivolatile organics, pesticides, PCBs, herbicides and organophosphorous pesticides. The trip blanks were analyzed for volatile organics. The samples were collected by Tetra Tech NUS on November 30 and December 1-3, 6 and 7, 1999 and analyzed by Severn Trent Laboratories in North Canton under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Volatile analyses were conducted using SW 846 method 8260B. Semivolatile analyses were conducted using SW 846 method 8270C. Pesticide analyses were conducted using SW 846 method 8081A. PCB analyses were conducted using SW 846 method 8082. Organophosphorous pesticide analyses were conducted using SW 846 method 8141A. Herbicide analyses were conducted using SW 846 method 8151A.

The data was evaluated based on the following parameters:

- Data Completeness
- Holding Times
- GC/MS Tuning and System Performance



MEMO TO: T. HANSEN
DATE: APRIL 12, 2000

- Initial/Continuing Calibrations
- Laboratory Method / Trip Blanks
- Surrogate Spike Recoveries
- Matrix Spike/Matrix Spike Duplicate Results
- Blank Spike/Blank Spike Duplicate Results
- Internal Standard Performance
- Percent Differences Between Columns
- Performance Evaluation Mixture Breakdowns
- Field Duplicate Results
* - Compound Identification
- Compound Quanitation
- Detection Limits

* - All quality control criteria were met for this parameter.

Volatiles

The initial and continuing calibration RRFs for acetone, isobutanol, 2-butanone, acrolein, acrylonitrile, 2-chloroethylvinyl ether, acetonitrile, methacrylonitrile and propionitrile were <0.05 quality control limit affecting the samples analyzed on instrument A3UX3 after October 27. The nondetected results reported for the above listed compounds in the samples MPT-EP-GW-MW03S-01 and MPT-EP-GW-MW04S-01were qualified as rejected, "UR".

The initial calibration %RSDs for acetone and dichlorodifluoromethane were >30% but <50% quality control limit affecting the samples analyzed on instrument A3UX7 after December 8. The positive results reported for acetone in the affected samples were qualified as estimated, "J".

The initial calibration %RSDs for acetone and bromomethane were >30% but <50% quality control limit affecting the samples analyzed on instrument A3UX7 after December 14. No validation action was taken on this basis.

The continuing calibration %D for dichlorodifluoromethane was >25% quality control limit affecting the sample TRIP BLANK TB-6. The nondetected result reported for dichlorodifluoromethane in TRIP BLANK TB-6 was qualified as estimated, "UJ".

Initial or continuing calibration RRFs for acrolein, acetonitrile, 2-chloroethyl vinyl ether, propionitrile and 2-isobutanol were <25% quality control limit affecting samples analyzed on A3UX7 on December 8-10. The nondetected results reported for the above listed compounds in the affected samples were qualified as rejected, "UR". The positive result reported for acetonitrile in sample MPT-TC-GW-EB01 was qualified as estimated, "J".

The continuing calibration %Ds for isobutanol, trichlorofluoromethane, vinyl acetate, dichlorodifluoromethane, methyl acrylonitrile and methyl methacrylate were >25% quality control limit affecting the samples analyzed on December 10. The nondetected results reported for the above listed compounds in the affected samples were qualified as estimated, "UJ". Isobutanol was previously rejected. Therefore, no further qualifiers were assigned.

The continuing calibration %D for dichlorodifluoromethane was >25% quality control limit affecting the samples analyzed on instrument A3UX3 on December 16. The nondetected results reported for dichlorodifluoromethane in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for isobutanol, dichlorodifluoromethane, methyl acrylonitrile and methyl methacrylate were >25% quality control limit affecting the samples analyzed on instrument A3UX7 on December 8. The nondetected results reported for the above listed compounds in the affected samples were qualified as estimated, "UJ". Isobutanol was previously rejected. Therefore, no further qualifiers were assigned.

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The following compounds were detected in the laboratory method blanks / trip blanks at the following maximum concentrations:

Compound	Maximum Concentration	Action Level
1,1,2,2-Tetrachloroethane[(1)]	0.17µg/L	0.85µg/L
Acetone	5.5µg/L	55µg/L
Benzene	0.069µg/L	0.345µg/L
Chloromethane[(1)]	0.14µg/L	0.7µg/L
Ethyl benzene[(1)]	0.078µg/L	0.39µg/L
Methylene chloride	0.70µg/L	7.0µg/L
Toluene[(1)]	0.53µg/L	2.65µg/L
Carbon Disulfide[(1)]	0.15µg/L	0.75µg/L

(1) Maximum concentration present in a trip blank.

An action level of 5 to 10X the maximum concentration was used to evaluate samples for blank contamination. The positive results less than the blank action level for acetone, benzene, ethyl benzene, methylene chloride, carbon disulfide and toluene were qualified, "U", as a result of blank contamination. It should be noted the field quality control blanks are not qualified based on method blank contamination or contamination in other field quality control blanks.

The volatile internal standard area recoveries for chlorobenzene-d5, 1,4-dichlorobenzene-d4 and fluorobenzene fell below the lower quality control limits in sample MPT-EP-GW-MW03S-01. Positive and nondetected results reported were qualified as estimated, "J" and "UJ", respectively.

The Blank Spike / Blank Spike Duplicate Percent Recoveries (%Rs) for ethylbenzene, xylenes and methylene chloride were less than the lower quality control limits. No validation action was taken on this basis.

Field duplicate imprecision (>30% RPD) was noted for 1,2-dichloroethene(total) affecting field duplicate pair MPT-TC-GW-DPW03DD-01 / MPT-TC-GW-DU01. The positive and nondetected results reported for 1,2-dichloroethene(total) in the affected samples were qualified as estimated, "J" and "UJ", respectively.

Field duplicate imprecision (>30% RPD) was noted for 1,1-dichloroethene and vinyl chloride affecting field duplicate pair MPT-TC-GW-DPW07D-01 / MPT-TC-GW-DU02. The positive and nondetected results reported for the above listed compounds in the affected samples were qualified as estimated, "J" and "UJ", respectively.

Semivolatiles

The initial calibration RRF for 4-nitroquinoline-1-oxide was <0.05 quality control limit and the %RSD was >30% quality control limit affecting the samples analyzed on instrument A4HP6 after November 24. The nondetected results reported for the above listed compound in the affected samples were qualified as rejected, "UR".

The continuing calibration RRFs for 4-nitroquinoline-1-oxide were <0.05 quality control limit affecting the samples analyzed on instrument A4HP6 on December 14-17 and 23. The nondetected results reported for the above listed compound in the affected samples were qualified as rejected, "UR".

The continuing calibration %Ds for hexachlorocyclopentadiene, a,a-dimethyl-phenethylamine, phenacetin, Aramite and chlorobenzilate were >25% quality control limit affecting the samples analyzed on instrument A4HP6 on December 14. The nondetected results reported for the above

listed compounds in the affected samples were qualified as estimated, "UJ". Hexachloro-cyclopentadiene was rejected due to LCS noncompliances. Therefore, no further qualifiers were assigned.

The continuing calibration %D for p-phenylenediamine, Aramite and chlorobenzilate were>25% quality control limit affecting the samples analyzed on instrument A4HP6 on December 17. The nondetected results reported for the above listed compounds in the affected samples were qualified as estimated, "UJ".

The initial calibration RRF for 4-nitroquinoline-1-oxide was <0.05 quality control limit and the %RSD was >30% quality control limit affecting the samples analyzed on instrument A4HP8 after December 8. The nondetected results reported for the above listed compound in the affected samples were qualified as rejected, "UR".

The continuing calibration %Ds for methyl methansulfonate, a,a-dimethyl-phenethylamine, hexachloropropene, N-nitrosodi-n-butylamine, 1,3,5-trinitrobenzene, pentachloronitrobenzene, methyapyrilene and 4-nitroquinoline-1-oxide were >25% quality control limit affecting the samples analyzed on instrument A4HP8 on December 23. The nondetected results reported for the above listed compounds in the affected samples were qualified as estimated, "UJ".

The continuing calibration %D for chlorobenzilate was >25% quality control limit affecting the samples analyzed on instrument H4HP6 on December 16. The nondetected results reported for the chlorobenzilate in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for 3,3'-dimethylbenzidine and chlorobenzilate were >25% quality control limit affecting the samples analyzed on instrument H4HP6 on December 18. The nondetected results reported for the 3,3'-dimethylbenzidine and chlorobenzilate in the affected samples were qualified as estimated, "UJ".

The following compounds were detected in the laboratory method blanks / trip blanks at the following maximum concentrations:

Compound	Maximum Concentration	Action Level
Bis(2-ethyl hexyl)phthalate	12µg/L	120µg/L

An action level of 5 to 10X the maximum concentration was used to evaluate samples for blank contamination. The positive results less than the blank action level for bis(2-ethyl hexyl)phthalate were qualified, "U", as a result of blank contamination.

The semivolatile surrogate 2-fluorophenol exceeded the upper limit affecting samples MPT-TC-GW-DPW03S-01 and MPT-TC-GW-DPW03DD-01. No validation action was taken on this basis.

The Blank Spike / Blank Spike Duplicate %Rs for hexachlorocyclopentadiene and dimethyl phthalate were <10%. The nondetected results reported for the above listed compounds were qualified as rejected, "UR".

The Blank Spike / Blank Spike Duplicate %R bis(2-ethyl hexyl)phthalate was less than the lower quality control limit. No validation action was taken on this basis.

The Matrix Spike / Matrix Spike Duplicate %Rs for 3,3'-dichlorobenzidiene and hexachlorocyclopentadiene were <10% affecting samples MPT-TC-GW-DRW03DD-01 and MPT-TC-GW-DU01. The nondetected results reported for the above listed compounds in the affected samples were qualified as rejected, "UR".

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The Matrix Spike / Matrix Spike Duplicate %Rs and/or %RPD were for di-n-butyl benzyl phthalate, butyl benzyl phthalate and 2,4-dimethyl phenol were outside the quality control limits affecting sample MPT-TC-GW-DRW03DD-01. No validation action was taken on this basis.

The Matrix Spike / Matrix Spike Duplicate %R for 2,4-dinitrophenol was <10% affecting sample MPT-TC-GW-DRW02DD-01. The nondetected result reported for the above listed compound in the affected sample was qualified as rejected, "UR".

The Matrix Spike / Matrix Spike Duplicate %Rs and/or %RPD were for pentachlorophenol, 4-nitrophenol and 4,6-dinitro-2-methylphenol were outside the quality control limits affecting sample MPT-TC-GW-DRW02DD-01. No validation action was taken on this basis.

Pesticides

Due to low LCS recoveries the samples were re-extracted. The re-extractions took placetwenty (20) to twenty-eight (28) days past holding times. The re-extractions were not used for validation purposes.

The following samples were analyzed for pesticides forty-four (44) days past extraction: MPT-TC-GW-DPW03D-01, MPT-TC-GW-DPW06I-01 and MPT-TC-GW-DPW06S-01. The positive and nondetected results in the above listed samples were qualified as estimated, "J" and "UJ", respectively.

The continuing calibration %D for several pesticide compounds were >15% quality control limit on one column. No validation action was taken on this basis.

The initial calibration %RSDs for Methoxychlor were >20% quality control limit on both columns affecting the samples analyzed on instrument A2HP3 after December 21. The nondetected results reported for Methoxychlor in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for Endrin and Endosulfan II were >15% quality control limit on both columns affecting the samples bracketing the continuing calibration analyzed on December 18 at 10:31. The nondetected results reported for Endrin and Endosulfan II in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for 4,4'-DDT and Methoxychlor were >15% quality control limit on both columns affecting the samples bracketing the continuing calibration analyzed on December 19 at 1:15. The nondetected results reported for 4,4'-DDT and Methoxychlor in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for 4,4'-DDD, Methoxychlor and Endrin Ketone were >15% quality control limit on both columns affecting the samples bracketing the continuing calibration analyzed on December 21 at 2:56. The nondetected results reported for 4,4'-DDD, Methyoxychlor and Endrin Ketone in the affected samples were qualified as estimated, "UJ".

The initial calibration %RSDs for Methoxychlor were >20% quality control limit on both columns affecting the samples analyzed on instrument A2HP3 after December 23. The nondetected results reported for Methoxychlor in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for 4,4-DDT, Endrin and Methoxychlor were >15% quality control limit on both columns affecting the samples bracketing the continuing calibration analyzed on December 25 at 6:54. The nondetected results reported for 4,4-DDT, Endrin and Methoxychlor in the affected samples were qualified as estimated, "UJ".

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The initial calibration %RSDs for Heptachlor were >20% quality control limit on both columns affecting the samples analyzed on instrument A2HP5 after December 29. The nondetected results reported for Heptachlor in the affected samples were qualified as estimated, "UJ".

The initial calibration %RSD for Methoxychlor was >20% quality control limit on both columns affecting the samples analyzed on instrument H2HP5 after December 17. The nondetected results reported for Methyoxychlor in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for Kepone were >15% quality control limit on both columns affecting the samples bracketing the continuing calibrations analyzed on instrument AP93 December 21 at 13:41, December 31 at 22:40 and January 18 at 18:39. The nondetected results reported for Kepone in the affected samples were qualified as estimated, "UJ".

The continuing calibration %Ds for 4,4-DDT and Aldrin were >15% quality control limit on one column affecting sample MPT-TC-GW-DPW01S-01. The positive results reported for 4,4-DDT and Aldrin in the affected sample were qualified as estimated, "J".

The pesticide surrogate decachlorobiphenyl was less than the lower limit on one column affecting samples MPT-TC-GW-DP03S-01 and MPT-TC-GW-DP03I-01. No validation action was taken on this basis.

The pesticide surrogate decachlorobiphenyl was not recovered on one column affecting sample MPT-TC-GW-7D01. Results were not reported from this column. No validation action was taken on this basis.

The pesticide surrogate decachlorobiphenyl was not recovered on one column affecting sample MPT-TC-GW-DU02. Results were not reported from this column. Decachlorobiphenyl was less than the lower limit on the other column which was used for reporting. There were no positive results in the affected sample. Therefore, no validation action was taken on this basis.

The Blank Spike %Rs for Dieldrin, Heptachlor, 4,4'-DDT, Methoxychlor and Endrin aldehyde were less than the lower quality control limit. The Blank Spike %R for Endrin was <10%. The Matrix Spike / Matrix Spike Duplicate %Rs for Endrin were acceptable. No validation action was taken on this basis.

The Performance Evaluation Mixture (PEM) Breakdown for Endrin was >20% quality control limit on one column affecting the samples analyzed on December 21. No validation action was taken on this basis.

The PEM Breakdown for Endrin was >20% quality control limit on one column affecting the samples analyzed on December 25. No validation action was taken on this basis.

The percent differences (%Ds) between columns for alpha-BHC and gamma-BHC(Lindane) affecting sample MPT-TC-GW-DPW01S-01 were >100% quality control limit. The positive results reported for alpha-BHC and gamma-BHC(Lindane) in the affected sample were qualified as rejected, "R".

The %Ds between columns for Aldrin and 4,4-DDT affecting sample MPT-TC-GW-DPW01S-01 were >25% quality control limit. The positive results reported for Aldrin and 4,4-DDT in the affected sample were qualified as estimated, "J".

The %Ds between columns for alpha-BHC and Heptachlor affecting sample MPT-TC-GW-DPW03D-01 were >100% quality control limit. The positive results reported for alpha-BHC and Heptachlor in the affected sample were qualified as rejected, "R".

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The %D between columns for gamma-BHC(Lindane) affecting sample MPT-TC-GW-DPW03D-01 was >25% quality control limit. The positive result reported for gamma-BHC(Lindane) in the affected sample was qualified as estimated, "J".

The %Ds between columns for gamma-BHC(Lindane) and Heptachlor affecting samples MPT-TC-GW-DPW06S-01 and MPT-TC-GW-DRW03DD-01were >100% quality control limit. The positive results reported for gamma-BHC(Lindane) and Heptachlor in the affected samples were qualified as rejected, "R".

The %D between columns for gamma-Chlordane affecting sample MPT-TC-GW-DPW09D-01 was >100% quality control limit. The positive result reported for gamma-Chlordane in the affected sample was qualified as rejected, "R".

The %D between columns for beta-BHC affecting sample MPT-TC-GW-DPW09I-01 was >100% quality control limit. The positive result reported for beta-BHC in the affected sample was qualified as rejected, "R".

The %Ds between columns for Isodrin affecting samples MPT-TC-GW-DPW01S-01, MTP-TC-GW-DPW03S-01 and MPT-TC-GW-DPW03I-01 were >100% quality control limit. The positive results reported for Isodrin in the affected samples were qualified as rejected, "R".

PCBs

Due to low LCS recoveries the samples were re-extracted. The re-extractions took placetwenty (20) to twenty-eight (28) days past holding times. The re-extractions were not used for validation purposes.

The continuing calibration %D for Aroclor 1016 was >15% quality control limit on one column affecting the samples analyzed on December 16. No validation action was taken on this basis.

The continuing calibration %Ds for Aroclor 1260 was >15% quality control limit on one column affecting the samples analyzed on December 30 and January 2. No validation action was taken on this basis.

The Blank Spike / Blank Spike Duplicate %Rs for Aroclor 1016 and Aroclor 1260 were less than the lower quality control limit. No validation action was taken on this basis.

Organophosphorous pesticide

The continuing calibration %D for several organophosphorous pesticide compounds were >15% quality control limit on one column. No validation action was taken on this basis.

The continuing calibration %Ds for Dimethoate were >15% quality control limit on both column affecting the all samples with exception to MPT-TC-GW-DPW02D-01, MPT-TC-GW-DPW02DD-01 and MPT-TC-GW-DPW04S-01. The nondetected results reported for Dimethoate in the affected samples were qualified as estimated, "UJ".

The initial calibration %RSDs for Dimethoate were >20% quality control limit on both columns affecting all samples with exception to MPT-TC-GW-DPW02D-01, MPT-TC-GW-DPW02DD-01 and MPT-TC-GW-DPW04S-01. The nondetected results reported for Dimethoate in the affected samples were qualified as estimated, "UJ".

The Matrix Spike / Matrix Spike Duplicate %R Dimethoate was outside the quality control limits affecting sample MPT-TC-GW-DRW03DD-01. No validation action was taken on this basis.

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Sample MPT-EP-GW-DPW02I-01 was diluted to a 100X dilution despite the absence of target compounds. Therefore, the reporting limits are elevated.

Herbicides

Samples MPT-TC-GW-EB01, MPT-TC-GW-DPW07D-01, MPT-TC-GW-DU02 and MPT-TC-GW-DPW02I-01 were re-extracted twenty (20) to twenty-eight (28) days past holding times. The re-extractions were not used for validation purposes.

The Blank Spike / Blank Spike Duplicate %R for Dinoseb was <10%in QA batch 9342159 including samples MPT-TC-GW-DPW01-2I-01, MPT-TC-GW-DPW01-7D-01, MPT-TC-GW-DU02 and MPT-TC-GW-EB01. The nondetected results reported for Dinoseb in the above listed samples were qualified as rejected, "UR". The nondetected results reported for Dinoseb for all other samples were qualified as estimated, "UJ", as the Blank Spike, Blank Spike Duplicate, MS and MSD %R were all less than the lower quality control limits.

The Matrix Spike / Matrix Spike Duplicate %Rs and/or %RPD were for 2,4,5-TD, Dinoseb, 2,4-D and 2,4,5-TP were outside the quality control limits affecting samples MPT-TC-GW-DRW03DD-01 and MPT-TC-GW-DU01. No validation action was taken on this basis.

The %D between columns for 2,4-D affecting sample MPT-TC-GW-DU02 was >100% quality control limit. The positive result reported for 2,4-D in the affected sample was qualified as rejected, "R".

Notes

All positive results reported at concentration less than the reporting limits were qualified as estimated, "J".

The following volatile compounds were reported at higher limits than the requested reporting limits: 2-butanone, 2-hexanone, 4-methyl-2-pentanone, acetone, acrolein and acrylonitrile.

Total 1,2-dichloroethene was incorrectly reported as a nondetected result in samples when either or both cis-1,2-dichloroethene and trans-1,2-dichloroethene were present. The total 1,2-dichloroethene results were corrected by the data reviewer.

The volatile Form 1 for sample MPT-TC-GW-DPW03DD-01 was resubmitted by the laboratory. Several incorrect reporting limits were used on the original Form 1.

The semivolatile compound hexachlorophene was requested for analysis. However, it is an unstable compound and the laboratory could not report it.

The following semivolatile compounds were not requested for analysis but, were reported by the laboratory: a,a-dimethyl phenethylamine, chlorobenzilate and diallate.

2-Methylnaphthalene, acenaphthene and naphthalene exceeded the instruments linear range on sample MPT-EP-GW-DPW02I-01. The sample was reanalyzed at a 4X dilution and the results from the reanalyses were transposed over the original results and used for validation purposes.

The pesticides Isodrin and Kepone were not requested but, were reported by the laboratory.

Toxaphene was reported at a higher reporting limit than requested.

The PCB surrogates were diluted out of samples MPT-TC-GW-DPW03D-01 and MPT-TC-GW-DPW06S-01. The extraction efficiency could not be evaluated on these samples.

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PCB analyses were conducted at a 20x dilution on sample MPT-TC-GW-DPW03C-01 and at a 10X dilution on sample MPT-TC-GW-DPW06S-01. Therefore, the reporting limits are elevated.

The organophosphorous pesticide surrogates were diluted out of sample MPT-EP-GW-DPW02I-01. The extraction efficiency could not be evaluated on this sample.

Organophosphorous pesticide analyses were conducted at a 100X dilution on sample MPT-EP-GW-DPW02I-01. Therefore, the reporting limits are elevated.

The following organophosphorous pesticide compounds were not requested for analyses but, were reported by the laboratory: O,O,O-Triethyl phosphorothioate, Parathion, Sulfotep and Thionazin.

The laboratory did not include Form 10s in the original data package. The laboratory was notified on March 10. The data reviewer contacted the laboratory several time before the missing Forms were resubmitted on April 4.

Although, SW 846 methodologies requests that the higher of two results analyzed on dual columns be reported, the Laboratory used professional judgement and reported the result which was considered more accurate.

Executive Summary

Laboratory Performance: Several compounds were qualified due to calibration noncompliances. Several compounds were present in the laboratory method blanks.

Other Factors Affecting Data Quality: Several compounds were present in the field trip blanks. Internal standard area recoveries were outside the quality control limits affecting the volatile fraction. Several compounds were qualified due to Blank Spike / Blank Spike Duplicate %Rs <10%. Several compounds were qualified due to Matrix Spike / Matrix Spike Duplicate %Rs <10%. Field duplicate imprecision was noted for several compounds. Several compounds were qualified due to %Ds between columns.

MEMO TO: T. HANSEN
DATE: APRIL 12, 2000

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problem areas affecting data quality.

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Gretchen A Phipps

Tetra Tech NUS
Gretchen A. Phipps

Tetra Tech NUS
Joseph A. Samchuck
Quality Control Officer

Attachments:

1. Appendix A - Qualified Analytical Data
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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

CTO094 - NAS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		5	UJ	N	1.7	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		5	UJ	N	1.7	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		5	UJ	N	1.7	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		5	UJ	N	1.7	U		1	U	
1,1-DICHLOROETHANE	0.77	J	P	5	UJ	N	0.45	J	P	1	U	
1,1-DICHLOROETHENE	1	U		5	UJ	N	1.7	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		5	UJ	N	1.7	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		5	UJ	N	1.7	U		1	U	
1,2-DIBROMOETHANE	1	U		5	UJ	N	1.7	U		1	U	
1,2-DICHLOROETHANE	1	U		5	UJ	N	1.7	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	0.33	J	P	1.6	J	N	1.7			1	U	
1,2-DICHLOROPROPANE	1	U		5	UJ	N	1.7	U		1	U	
2-BUTANONE	10	U		50	UR	C	17	UR	C	10	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C	5	UR	C	1.7	UR	C	1	UR	C
2-HEXANONE	10	UR	C	50	UJ	N	17	U		10	U	
4-METHYL-2-PENTANONE	10	U		50	UJ	N	17	U		10	U	
ACETONE	10	U	A	50	UR	C	17	UR	C	10	U	A
ACETONITRILE	20	UR	C	100	UR	C	33	UR	C	20	UR	C
ACROLEIN	10	UR	C	50	UR	C	17	UR	C	10	UR	C
ACRYLONITRILE	10	U		50	UR	C	17	UR	C	10	U	
ALLYL CHLORIDE	1	U		5	UJ	N	1.7	U		1	U	
BENZENE	1	U	A	5	UJ	N	1.7	U		1	U	
BROMODICHLOROMETHANE	1	U		5	UJ	N	1.7	U		1	U	
BROMOFORM	1	U		5	UJ	N	1.7	U		1	U	
BROMOMETHANE	2	U		10	UJ	N	3.3	U		2	U	
CARBON DISULFIDE	1	U		4.5	J	NP	1.7	U	B	1	U	
CARBON TETRACHLORIDE	1	U		5	UJ	N	1.7	U		1	U	
CHLOROBENZENE	1	U		5	UJ	N	1.7	U		1	U	
CHLOROETHANE	1	U		5	UJ	N	1.7	U		1	U	
CHLOROFORM	1	U		5	UJ	N	1.7	U		1	U	
CHLOROMETHANE	1	U		5	UJ	N	1.7	U		1	U	
CHLOROPRENE	1	U		5	UJ	N	1.7	U		1	U	
CIS-1,2-DICHLOROETHENE	0.2	J	P	1.6	J	NP	1.7			0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		5	UJ	N	1.7	U		1	U	

CTO094 - NAS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		5	UJ	N	1.7	U		1	U	
DIBROMOMETHANE	1	U		5	UJ	N	1.7	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	5	UJ	CN	0.78	J	CP	1	UJ	C
ETHYL METHACRYLATE	1	U		5	UJ	N	1.7	U		1	U	
ETHYLBENZENE	1	U	B	5	UJ	N	1.7	U		1	U	
IODOMETHANE	1	U		5	UJ	N	1.7	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	250	UR	C	83	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	5	UR	C	1.7	UR	C	1	UJ	C
METHYL METHACRYLATE	1	UJ	C	5	UJ	N	1.7	U		1	UJ	C
METHYLENE CHLORIDE	1	U		5	UJ	N	1.7	U		1	U	A
PROPIONITRILE	4	UR	C	20	UR	C	6.6	UR	C	4	UR	C
STYRENE	1	U		5	UJ	N	1.7	U		1	U	
TETRACHLOROETHENE	1	U		5	UJ	N	1.7	U		1	U	
TOLUENE	1	U	B	5	UJ	N	1.7	U		1	U	B
TRANS-1,2-DICHLOROETHENE	0.13	J	P	2.5	UJ	N	0.83	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		5	UJ	N	1.7	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		5	UJ	N	1.7	U		1	U	
TRICHLOROETHENE	1	U		5	UJ	N	1.7	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		10	UJ	N	3.3	U		2	U	
VINYL ACETATE	1	U		5	UJ	N	1.7	U		1	U	
VINYL CHLORIDE	4.3			5	UJ	N	0.49	J	P	1	U	
XYLENES, TOTAL	1	U		5	UJ	N	1.7	U		1	U	

CTO094 - NAS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		5	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		5	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		5	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		5	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		2.8	J	P	3.1			0.26	J	P
1,1-DICHLOROETHENE	1	U		0.85	J	P	0.84	J	P	1.0	U	
1,2,3-TRICHLOROPROPANE	1	U		5	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		5	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		5	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		5	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		74			0.24	J	P	3		
1,2-DICHLOROPROPANE	1	U		5	U		1	U		1	U	
2-BUTANONE	10	U		50	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C	5	UR	C	1	UR	C	1	UR	C
2-HEXANONE	10	U		50	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		50	U		10	U		10	U	
ACETONE	10	U	A	50	U	A	10	U	A	10	U	A
ACETONITRILE	20	UR	C	100	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	50	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		50	U		10	U		10	U	
ALLYL CHLORIDE	1	U		5	U		1	U		1	U	
BENZENE	1	U		5	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		5	U		1	U		1	U	
BROMOFORM	1	U		5	U		1	U		1	U	
BROMOMETHANE	2	U		10	U		2	U		2	U	
CARBON DISULFIDE	1	U	B	5	U		1	U		1	U	
CARBON TETRACHLORIDE	1	U		5	U		1	U		1	U	
CHLOROBENZENE	1	U		5	U		1	U		1	U	
CHLOROETHANE	1	U		5	U		1	U		1	U	
CHLOROFORM	1	U		5	U		1	U		1	U	
CHLOROMETHANE	1	U		5	U		1	U		1	U	
CHLOROPRENE	1	U		5	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		57			0.24	J	P	2.9		
CIS-1,3-DICHLOROPROPENE	1	U		5	U		1	U		1	U	

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QUANTERRA
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SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		5	U		1	U		1	U	
DIBROMOMETHANE	1	U		5	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	5	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		5	U		1	U		1	U	
ETHYLBENZENE	1	U		5	U		1	U		1	U	
IODOMETHANE	1	U		5	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	250	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	5	UJ	C	1	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	UJ	C	5	UJ	C	1	UJ	C	1	UJ	C
METHYLENE CHLORIDE	1	U	A	5	U	A	1	U	A	1	U	
PROPIONITRILE	4	UR	C	20	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		5	U		1	U		1	U	
TETRACHLOROETHENE	1	U		5	U		1	U		1	U	
TOLUENE	1	U	B	5	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		17			0.5	U		0.12	J	P
TRANS-1,3-DICHLOROPROPENE	1	U		5	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		5	U		1	U		1	U	
TRICHLOROETHENE	1	U		81			0.27	J	P	0.078	J	P
TRICHLOROFLUOROMETHANE	2	U		10	U		2	U		2	U	
VINYL ACETATE	1	U		5	U		1	U		1	U	
VINYL CHLORIDE	1	U		5	U		1	U		1	U	
XYLENES, TOTAL	1	U		5	U		1	U		1	U	

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WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	0.35	J	GP	1	U		1	U		0.21	J	P
1,1-DICHLOROETHENE	1.0	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	3.2	J	G	1.1			1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C	1	UR	C	1	UR	C	1	UR	C
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	5	U	A	10	U	A	10	U	A	10	U	A
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1.0	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1.0	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	3.1	J	G	1.1			0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHYLENE CHLORIDE	1	U		1	U	A	1	U	A	1	U	
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1.0	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	0.11	J	P	0.07	J	P	0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	0.10	J	P	0.3	J	P	0.15	J	P	1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	0.13	J	P	1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1.7	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1.7	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1.7	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1.7	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1.7	U		18			23			0.45	J	P
1,1-DICHLOROETHENE	1.7	U		7.8	J	G	1.7			0.48	J	P
1,2,3-TRICHLOROPROPANE	1.7	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.7	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1.7	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1.7	U		0.27	J	P	0.081	J	P	1	U	
1,2-DICHLOROETHENE (TOTAL)	1.7	U		0.34	J	P	3.1			34		
1,2-DICHLOROPROPANE	1.7	U		1	U		1	U		1	U	
2-BUTANONE	17	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1.7	UR	C	1	UR	C	1	UR	C	1	UR	C
2-HEXANONE	17	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	17	U		10	U		10	U		10	U	
ACETONE	23	U	A	10	U	A	10	U	A	10	U	A
ACETONITRILE	33	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	17	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	17	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1.7	U		1	U		1	U		1	U	
BENZENE	1.7	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1.7	U		1	U		1	U		1	U	
BROMOFORM	1.7	U		1	U		1	U		1	U	
BROMOMETHANE	3.3	U		2	U		2	U		2	U	
CARBON DISULFIDE	1.7	U		1	U		1	U		1	U	
CARBON TETRACHLORIDE	1.7	U		1	U		1	U		1	U	
CHLOROBENZENE	1.7	U		1	U		1	U		1	U	
CHLOROETHANE	1.7	U		1	U		1	U		1	U	
CHLOROFORM	1.7	U		1	U		1	U		1	U	
CHLOROMETHANE	1.7	U		1	U		1	U		1	U	
CHLOROPRENE	1.7	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.83	U		0.34	J	P	2.9			33		
CIS-1,3-DICHLOROPROPENE	1.7	U		1	U		1	U		1	U	

CTO094 - NAS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1.7	U		1	U		1	U		1	U	
DIBROMOMETHANE	1.7	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1.7	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1.7	U		1	U		1	U		1	U	
ETHYLBENZENE	1.7	U		1	U		1	U		1	U	
IODOMETHANE	1.7	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	83	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1.7	UJ	C	1	UJ	C	1	UR	C	1	UJ	C
METHYL METHACRYLATE	1.7	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHYLENE CHLORIDE	1.7	U		1	U		1	U		1	U	
PROPIONITRILE	6.6	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1.7	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1.7	U		1	U		1	U		3.4		
TOLUENE	1.7	U		1	U		1	U	B	1	U	
TRANS-1,2-DICHLOROETHENE	0.83	U		0.5	U		0.11	J	P	1.2		
TRANS-1,3-DICHLOROPROPENE	1.7	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1.7	U		1	U		1	U		1	U	
TRICHLOROETHENE	1.7	U		0.12	J	P	1.2			23		
TRICHLOROFLUOROMETHANE	3.3	U		2	U		2	U		2	U	
VINYL ACETATE	1.7	U		1	U		1	U		1	U	
VINYL CHLORIDE	1.7	U		0.47	J	P	1	U		0.27	J	P
XYLENES, TOTAL	1.7	U		1	U		1	U		1	U	

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SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1.2	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1.2	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1.2	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1.2	U		1	U	
1,1-DICHLOROETHANE	0.2	J	P	14			1.2	U		1	U	
1,1-DICHLOROETHENE	1	U		5.6	J	G	1.2	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1.2	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1.2	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1.2	U		1	U	
1,2-DICHLOROETHANE	1	U		0.17	J	P	1.2	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	2	J	G	0.30	J	P	1.2	U		0.14	J	P
1,2-DICHLOROPROPANE	1	U		1	U		1.2	U		1	U	
2-BUTANONE	10	U		10	U		16			10	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C	1	UR	C	1.2	UR	C	1	UR	C
2-HEXANONE	10	U		10	U		12	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		12	U		10	U	
ACETONE	10	U	A	10	U	A	38	U	A	10	U	A
ACETONITRILE	20	UR	C	20	UR	C	3.5	J	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	12	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		12	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1.2	U		1	U	
BENZENE	1	U		1	U		1.2	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1.2	U		1	U	
BROMOFORM	1	U		1	U		1.2	U		1	U	
BROMOMETHANE	2	U		2	U		2.5	U		2	U	
CARBON DISULFIDE	1	U	B	1	U		1.2	U	B	1	U	
CARBON TETRACHLORIDE	1	U		1	U		1.2	U		1	U	
CHLOROBENZENE	0.086	J	P	1	U		1.2	U		1	U	
CHLOROETHANE	1	U		1	U		1.2	U		1	U	
CHLOROFORM	1	U		1	U		0.11	J	P	1	U	
CHLOROMETHANE	1	U		1	U		1.2	U		1	U	
CHLOROPRENE	1	U		1	U		1.2	U		1	U	
CIS-1,2-DICHLOROETHENE	1.9	J	G	0.3	J	P	0.62	U		0.14	J	P
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1.2	U		1	U	

SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1.2	U		1	U	
DIBROMOMETHANE	1	U		1	U		1.2	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1.2	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1.2	U		1	U	
ETHYLBENZENE	1	U		1	U		1.2	U	B	1	U	
IODOMETHANE	1	U		1	U		1.2	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	62	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	1	UJ	C	1.2	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	UJ	C	1	UJ	C	1.2	UJ	C	1	UJ	C
METHYLENE CHLORIDE	1	U	A	1	U		1	U	A	1	U	A
PROPIONITRILE	4	UR	C	4	UR	C	5	UR	C	4	UR	C
STYRENE	1	U		1	U		1.2	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1.2	U		0.83	J	P
TOLUENE	1	U	B	1	U		1.5	U	B	1	U	
TRANS-1,2-DICHLOROETHENE	0.079	J	P	0.5	U		0.62	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1.2	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1.2	U		1	U	
TRICHLOROETHENE	0.065	J	P	0.099	J	P	1.2	U		0.62	J	P
TRICHLOROFLUOROMETHANE	2	U		2	U		2.5	UJ	C	2	U	
VINYL ACETATE	1	U		1	U		1.2	UJ	C	1	U	
VINYL CHLORIDE	1	U		0.34	J	P	1.2	U		1	U	
XYLENES, TOTAL	1	U		1	U		1.2	U		1	U	

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SAMPLE NUMBER:	TRIP BLANK TB-1			TRIP BLANK TB-2			TRIP BLANK TB-3			TRIP BLANK TB-3A		
SAMPLE DATE:	11/30/99			12/01/99			12/03/99			12/02/99		
LABORATORY ID:	A9L030207003			A9L030207009			A9L060111004			A9L030207014		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C	1	UR	C	1	UR	C	1	UR	C
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	2.2	J	CP	0.87	J	CP	2	J	CP	10	U	
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	0.15	J	P	1	U		1	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	0.14	J	P	1	U		0.093	J	P	1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

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SAMPLE NUMBER:	TRIP BLANK TB-1			TRIP BLANK TB-2			TRIP BLANK TB-3			TRIP BLANK TB-3A		
SAMPLE DATE:	11/30/99			12/01/99			12/03/99			12/02/99		
LABORATORY ID:	A9L030207003			A9L030207009			A9L060111004			A9L030207014		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHYLENE CHLORIDE	0.45	J	P	0.43	J	P	0.69	J	P	0.32	J	P
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	0.32	J	P	0.28	J	P	0.29	J	P	0.3	J	P
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	TRIP BLANK TB-4	TRIP BLANK TB-6	/ /	/ /
SAMPLE DATE:	12/06/99	12/07/99		
LABORATORY ID:	A9L070216005	A9L080188003		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U							
1,1,1-TRICHLOROETHANE	1	U		1	U							
1,1,2,2-TETRACHLOROETHANE	0.17	J	P	1	U							
1,1,2-TRICHLOROETHANE	1	U		1	U							
1,1-DICHLOROETHANE	1	U		1	U							
1,1-DICHLOROETHENE	1	U		1	U							
1,2,3-TRICHLOROPROPANE	1	U		1	U							
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U							
1,2-DIBROMOETHANE	1	U		1	U							
1,2-DICHLOROETHANE	1	U		1	U							
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U							
1,2-DICHLOROPROPANE	1	U		1	U							
2-BUTANONE	10	U		10	U							
2-CHLOROETHYL VINYL ETHER	1	UR	C	1	UR	C						
2-HEXANONE	10	U		10	U							
4-METHYL-2-PENTANONE	10	U		10	U							
ACETONE	10	U		2.1	J	P						
ACETONITRILE	20	UR	C	20	UR	C						
ACROLEIN	10	UR	C	10	UR	C						
ACRYLONITRILE	10	U		10	U							
ALLYL CHLORIDE	1	U		1	U							
BENZENE	1	U		1	U							
BROMODICHLOROMETHANE	1	U		1	U							
BROMOFORM	1	U		1	U							
BROMOMETHANE	2	U		2	U							
CARBON DISULFIDE	1	U		1	U							
CARBON TETRACHLORIDE	1	U		1	U							
CHLOROBENZENE	1	U		1	U							
CHLOROETHANE	1	U		1	U							
CHLOROFORM	1	U		1	U							
CHLOROMETHANE	1	U		0.11	J	P						
CHLOROPRENE	1	U		1	U							
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
CIS-1,3-DICHLOROPROPENE	1	U		1	U							

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SAMPLE NUMBER:	TRIP BLANK TB-4			TRIP BLANK TB-6			/ /			/ /		
SAMPLE DATE:	12/06/99			12/07/99								
LABORATORY ID:	A9L070216005			A9L080188003								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U							
DIBROMOMETHANE	1	U		1	U							
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C						
ETHYL METHACRYLATE	1	U		1	U							
ETHYLBENZENE	0.078	J	P	1	U							
IODOMETHANE	1	U		1	U							
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C						
METHACRYLONITRILE	1	UJ	C	1	U							
METHYL METHACRYLATE	1	UJ	C	1	U							
METHYLENE CHLORIDE	0.34	J	P	0.36	J	P						
PROPIONITRILE	4	UR	C	4	UR	C						
STYRENE	1	U		1	U							
TETRACHLOROETHENE	1	U		1	U							
TOLUENE	0.34	J	P	0.53	J	P						
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
TRANS-1,3-DICHLOROPROPENE	1	U		1	U							
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U							
TRICHLOROETHENE	1	U		1	U							
TRICHLOROFLUOROMETHANE	2	U		2	U							
VINYL ACETATE	1	U		1	U							
VINYL CHLORIDE	1	U		1	U							
XYLENES, TOTAL	1	U		1	U							

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SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	UJ	C	10	UJ	C	10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	95			10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01	MPT-EP-GW-MW03S-01	MPT-EP-GW-MW04S-01	MPT-TC-GW-DPW01D-01
SAMPLE DATE:	12/06/99	12/07/99	12/07/99	11/30/99
LABORATORY ID:	A9L070216004	A9L080188002	A9L080188001	A9L030207002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	U		50	UJ	C	50	UJ	C	50	UJ	C
ACENAPHTHENE	99			1.7	J	P	10	U		10	U	
ACENAPHTHYLENE	1.8	J	P	10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	2.1	J	P	10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	UJ	C
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	18			10	U		10	U		10	U	
CHLOROBENZILATE	10	UJ	C	10	U		10	UJ	C	10	UJ	C
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

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SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	56			10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	E	10	UR	E	10	UR	E	10	UR	E
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	4.8	J	P	10	U		10	U		10	U	
FLUORENE	40			10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	E	10	UR	E	10	UR	E	10	UR	E
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	UJ	C	10	UJ	C	10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	UJ	C	10	UJ	C	10	U	
METHYL METHANESULFONATE	10	U		10	UJ	C	10	UJ	C	10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	UJ	C	10	UJ	C	10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	140			10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

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QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	UJ	C	10	UJ	C	10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	UJ	C
PHENANTHRENE	29			10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	3.6	J	P	10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	UR	D	25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	UJ	C	10	UJ	C	10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01	MPT-TC-GW-DPW02D-01	MPT-TC-GW-DPW02DD-01	MPT-TC-GW-DPW03D-01
SAMPLE DATE:	11/30/99	12/03/99	12/03/99	12/01/99
LABORATORY ID:	A9L030207001	A9L060111002	A9L060111001	A9L030207008
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	U		50	U		50	UJ	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	UJ	C	10	U		10	U		10	UJ	C
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01	MPT-TC-GW-DPW02D-01	MPT-TC-GW-DPW02DD-01	MPT-TC-GW-DPW03D-01
SAMPLE DATE:	11/30/99	12/03/99	12/03/99	12/01/99
LABORATORY ID:	A9L030207001	A9L060111002	A9L060111001	A9L030207008
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	E	10	UR	E	10	UR	E	10	UR	E
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	E	10	UR	E	10	UR	E	10	UR	E
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	UJ	C	10	U		10	U		10	UJ	C
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	UR	D	10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW03I-01	MPT-TC-GW-DPW03S-01	MPT-TC-GW-DPW06I-01
SAMPLE DATE:	12/01/99	12/01/99	12/01/99	12/02/99
LABORATORY ID:	A9L030207005	A9L030207007	A9L030207004	A9L030207011
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	UJ	C	50	UJ	C	50	UJ	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	12	U	A	5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	UR	E	10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	E	10	UR	E	10	U		10	UR	E
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	E	10	UR	E	10	UR	E
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		13	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		13	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		13	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		13	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		13	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		13	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		13	U		10	U		10	U	
1,4-DIOXANE	10	U		13			10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		13	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		13	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		13	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		13	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		13	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		13	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		13	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		13	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		33	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		13	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		13	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		13	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		13	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		13	U		10	U		10	U	
2-CHLOROPHENOL	10	U		13	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		13	U		10	U		10	U	
2-METHYLPHENOL	10	U		13	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		13	U		10	U		10	U	
2-NITROANILINE	25	U		33	U		25	U		25	U	
2-NITROPHENOL	10	U		13	U		10	U		10	U	
2-PICOLINE	10	U		13	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		13	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		13	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		13	U		10	U		10	U	
3-METHYLPHENOL	10	U		13	U		10	U		10	U	
3-NITROANILINE	25	U		33	U		25	U		25	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01	MPT-TC-GW-DPW07D-01	MPT-TC-GW-DPW09D-01	MPT-TC-GW-DPW09I-01
SAMPLE DATE:	12/02/99	12/06/99	12/02/99	12/02/99
LABORATORY ID:	A9L030207010	A9L070216002	A9L030207013	A9L030207012
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		33	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		13	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		13	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		13	U		10	U		10	U	
4-CHLOROANILINE	10	U		13	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		13	U		10	U		10	U	
4-METHYLPHENOL	10	U		13	U		10	U		10	U	
4-NITROANILINE	25	U		33	U		25	U		25	U	
4-NITROPHENOL	25	U		33	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	13	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		13	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		13	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	66	U		50	UJ	C	50	UJ	C
ACENAPHTHENE	10	U		13	U		10	U		10	U	
ACENAPHTHYLENE	10	U		13	U		10	U		10	U	
ACETOPHENONE	10	U		13	U		10	U		10	U	
ANILINE	10	U		13	U		10	U		10	U	
ANTHRACENE	10	U		13	U		10	U		10	U	
ARAMITE	10	UJ	C	13	UJ	C	10	UJ	C	10	UJ	C
BENZO(A)ANTHRACENE	10	U		13	U		10	U		10	U	
BENZO(A)PYRENE	10	U		13	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		13	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		13	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		13	U		10	U		10	U	
BENZYL ALCOHOL	10	U		13	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		13	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		13	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		97	U	A	5	U		5.8	U	A
BUTYLBENZYL PHTHALATE	10	U		13	U		10	U		10	U	
CARBAZOLE	10	U		13	U		10	U		10	U	
CHLOROBENZILATE	10	UJ	C	13	UJ	C	10	UJ	C	10	UJ	C
CHRYSENE	10	U		13	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		13	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		13	U		10	U		10	U	

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		27	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		13	U		10	U		10	U	
DIBENZOFURAN	10	U		13	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		13	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	E	13	UR	E	10	UR	E	10	UR	E
DIPHENYLAMINE	10	U		13	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		13	U		10	U		10	U	
FLUORANTHENE	10	U		13	U		10	U		10	U	
FLUORENE	10	U		13	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		13	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		13	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	E	13	UR	E	10	UR	E	10	UR	E
HEXACHLOROETHANE	10	U		13	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		13	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		13	U		10	U		10	U	
ISOPHORONE	10	U		13	U		10	U		10	U	
ISOSAFROLE	10	U		13	U		10	U		10	U	
METHAPYRILENE	10	U		13	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		13	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		13	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		13	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		13	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		13	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		13	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		13	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		13	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		13	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		13	U		10	U		10	U	
NAPHTHALENE	10	U		13	U		10	U		10	U	
NITROBENZENE	10	U		13	U		10	U		10	U	
O-TOLUIDINE	10	U		13	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		13	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		13	UJ	C	10	U		10	U	
PENTACHLOROBENZENE	10	U		13	U		10	U		10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		66	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		13	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		13	U		10	U		10	U	
PHENACETIN	10	UJ	C	13	U		10	UJ	C	10	UJ	C
PHENANTHRENE	10	U		13	U		10	U		10	U	
PHENOL	10	U		13	U		10	U		10	U	
PRONAMIDE	10	U		13	U		10	U		10	U	
PYRENE	10	U		13	U		10	U		10	U	
PYRIDINE	10	U		13	U		10	U		10	U	
SAFROLE	10	U		13	U		10	U		10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		16			10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	UR	D	10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	UJ	C
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

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SAMPLE NUMBER:	MPT-TC-GW-DU01	MPT-TC-GW-DU02	MPT-TC-GW-EB01	MPT-TC-GW-MW04S-01
SAMPLE DATE:	12/01/99	12/06/99	12/06/99	12/03/99
LABORATORY ID:	A9L030207006	A9L070216003	A9L070216001	A9L060111003
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW07D-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	U		50	U		50	U	
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	UJ	C	10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	E	10	UR	E	10	UR	E	10	UR	E
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	E	10	UR	E	10	UR	E
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

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SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	UJ	C	10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

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SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	UJ	C	0.05	UJ	C	0.05	U	
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	U		0.05	UJ	C	0.05	UJ	C	0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	UJ	C	0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.10	U		0.10	U		0.10	U		0.10	U	
KEPONE	1.0	UJ	C	1.0	U		1.0	U		1.0	U	
METHOXYCHLOR	0.1	U		0.1	UJ	C	0.1	UJ	C	0.10	U	
TOXAPHENE	2	U		2	U		2	U		2	U	

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SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	UJ	H
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
4,4'-DDT	0.011	J	CPU	0.05	UJ	C	0.05	UJ	C	0.05	UJ	H
ALDRIN	0.0062	J	CPU	0.05	U		0.05	U		0.05	UJ	H
ALPHA-BHC	0.0074	R	U	0.05	U		0.05	U		0.1	R	U
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
AROCLOR-1016	1	U		1	U		1	U		20	U	
AROCLOR-1221	1	U		1	U		1	U		20	U	
AROCLOR-1232	1	U		1	U		1	U		20	U	
AROCLOR-1242	1	U		1	U		1	U		20	U	
AROCLOR-1248	1	U		1	U		1	U		20	U	
AROCLOR-1254	1	U		1	U		1	U		20	U	
AROCLOR-1260	1	U		1	U		1	U		20	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.069	J	H
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	H
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDOSULFAN II	0.05	UJ	C	0.05	U		0.05	U		0.05	UJ	H
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDRIN	0.05	UJ	C	0.05	U		0.05	U		0.05	UJ	H
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
GAMMA-BHC (LINDANE)	0.008	R	U	0.05	U		0.05	U		0.076	J	HU
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.087	R	U
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ISODRIN	0.024	R	U	0.10	U		0.10	U		0.10	UJ	H
KEPONE	1.0	U		1.0	U		1.0	U		1.0	UJ	CH
METHOXYCHLOR	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C	0.1	UJ	H
TOXAPHENE	2	U		2	U		2	U		2	UJ	H

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
PESTICIDES/PCBs	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
4,4'-DDD	0.05	U		0.05	UJ	C	0.05	UJ	C	0.05	UJ	H
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	H
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	H
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDOSULFAN II	0.05	UJ	C	0.05	U		0.05	U		0.05	UJ	H
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDRIN	0.05	UJ	C	0.05	U		0.05	U		0.05	UJ	H
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ENDRIN KETONE	0.05	U		0.05	UJ	C	0.05	UJ	C	0.05	UJ	H
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	UJ	H
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
HEPTACHLOR	0.0056	R	U	0.05	U		0.05	U		0.05	UJ	H
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	UJ	H
ISODRIN	0.10	U		0.069	R	U	0.0064	R	U	0.10	UJ	H
KEPONE	1.0	U		1.0	UJ	C	1.0	UJ	C	1.0	UJ	CH
METHOXYCHLOR	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C	0.1	UJ	H
TOXAPHENE	2	U		2	U		2	U		2	UJ	H

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	UJ	H	0.05	UJ	C	0.05	UJ	C	0.05	U	
ALDRIN	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
AROCLOR-1016	10	U		1	U		1	U		1	U	
AROCLOR-1221	10	U		1	U		1	U		1	U	
AROCLOR-1232	10	U		1	U		1	U		1	U	
AROCLOR-1242	10	U		1	U		1	U		1	U	
AROCLOR-1248	10	U		1	U		1	U		1	U	
AROCLOR-1254	10	U		1	U		1	U		1	U	
AROCLOR-1260	10	U		1	U		1	U		1	U	
BETA-BHC	0.05	UJ	H	0.05	U		0.05	U		0.035	R	U
DELTA-BHC	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	UJ	H	0.05	U		0.05	UJ	C	0.05	UJ	C
ENDOSULFAN SULFATE	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	UJ	H	0.05	UJ	C	0.05	UJ	C	0.05	UJ	C
ENDRIN ALDEHYDE	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.052	R	U	0.05	U		0.0081	J	P	0.05	U	
GAMMA-CHLORDANE	0.05	UJ	H	0.05	U		0.019	R	U	0.05	U	
HEPTACHLOR	0.028	R	U	0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	UJ	H	0.05	U		0.05	U		0.05	U	
ISODRIN	0.10	UJ	H	0.10	U		0.10	U		0.10	U	
KEPONE	1.0	UJ	CH	1.0	U		1.0	U		1.0	U	
METHOXYCHLOR	0.1	UJ	H	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
TOXAPHENE	2	UJ	H	2	U		2	U		2	U	

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WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	UJ	C	0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	UJ	C	0.05	UJ	C	0.05	UJ	C
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	UJ	C	0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	UJ	C	0.05	UJ	C	0.05	UJ	C	0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.10	U		0.10	U		0.10	U		0.10	U	
KEPONE	1.0	U		1.0	U		1.0	U		1.0	U	
METHOXYCHLOR	0.1	UJ	C	0.1	U		0.1	UJ	C	0.1	UJ	C
TOXAPHENE	2	U		2	U		2	U		2	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01			MPT-EP-GW-MW03S-01			MPT-EP-GW-MW04S-01			MPT-TC-GW-DPW01D-01		
SAMPLE DATE:	12/06/99			12/07/99			12/07/99			11/30/99		
LABORATORY ID:	A9L070216004			A9L080188002			A9L080188001			A9L030207002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	UR	E	0.6	UJ	E	0.6	UJ	E	0.6	UJ	E

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WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01			MPT-TC-GW-DPW02D-01			MPT-TC-GW-DPW02DD-01			MPT-TC-GW-DPW03D-01		
SAMPLE DATE:	11/30/99			12/03/99			12/03/99			12/01/99		
LABORATORY ID:	A9L030207001			A9L060111002			A9L060111001			A9L030207008		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	UJ	E	0.6	UJ	E	0.6	UJ	E	0.6	UJ	E

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW03I-01	MPT-TC-GW-DPW03S-01	MPT-TC-GW-DPW06I-01
SAMPLE DATE:	12/01/99	12/01/99	12/01/99	12/02/99
LABORATORY ID:	A9L030207005	A9L030207007	A9L030207004	A9L030207011
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	UJ	E	0.6	UJ	E	0.6	UJ	E	0.6	UJ	E

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WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01			MPT-TC-GW-DPW07D-01			MPT-TC-GW-DPW09D-01			MPT-TC-GW-DPW09I-01		
SAMPLE DATE:	12/02/99			12/06/99			12/02/99			12/02/99		
LABORATORY ID:	A9L030207010			A9L070216002			A9L030207013			A9L030207012		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	UJ	E	0.6	UR	E	0.6	UJ	E	0.6	UJ	E

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WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DU01			MPT-TC-GW-DU02			MPT-TC-GW-EB01			MPT-TC-GW-MW04S-01		
SAMPLE DATE:	12/01/99			12/06/99			12/06/99			12/03/99		
LABORATORY ID:	A9L030207006			A9L070216003			A9L070216001			A9L060111003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW07D-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		0.095	R	U	4	U		4	U	
DINOSEB	0.6	UJ	E	0.6	UR	E	0.6	UR	E	0.6	UJ	E

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-EP-GW-DPW02I-01	MPT-EP-GW-MW03S-01	MPT-EP-GW-MW04S-01	MPT-TC-GW-DPW01D-01
SAMPLE DATE:	12/06/99	12/07/99	12/07/99	11/30/99
LABORATORY ID:	A9L070216004	A9L080188002	A9L080188001	A9L030207002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	100	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
DISULFOTON	100	U		1	U		1	U		1	U	
FAMPHUR	100	U		1	U		1	U		1	U	
METHYL PARATHION	100	U		1	U		1	U		1	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	100	U		1	U		1	U		1	U	
PARATHION	100	U		1	U		1	U		1	U	
PHORATE	100	U		1	U		1	U		1	U	
SULFOTEP	100	U		1	U		1	U		1	U	
THIONAZIN	100	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW01S-01	MPT-TC-GW-DPW02D-01	MPT-TC-GW-DPW02DD-01	MPT-TC-GW-DPW03D-01
SAMPLE DATE:	11/30/99	12/03/99	12/03/99	12/01/99
LABORATORY ID:	A9L030207001	A9L060111002	A9L060111001	A9L030207008
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1	UJ	C	1	U		1	U		1	UJ	C
DISULFOTON	1	U		1	U		1	U		1	U	
FAMPHUR	1	U		1	U		1	U		1	U	
METHYL PARATHION	1	U		1	U		1	U		1	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1	U		1	U		1	U		1	U	
PARATHION	1	U		1	U		1	U		1	U	
PHORATE	1	U		1	U		1	U		1	U	
SULFOTEP	1	U		1	U		1	U		1	U	
THIONAZIN	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW03DD-01			MPT-TC-GW-DPW03I-01			MPT-TC-GW-DPW03S-01			MPT-TC-GW-DPW06I-01		
SAMPLE DATE:	12/01/99			12/01/99			12/01/99			12/02/99		
LABORATORY ID:	A9L030207005			A9L030207007			A9L030207004			A9L030207011		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
DISULFOTON	1	U		1	U		1	U		1	U	
FAMPHUR	1	U		1	U		1	U		1	U	
METHYL PARATHION	1	U		1	U		1	U		1	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1	U		1	U		1	U		1	U	
PARATHION	1	U		1	U		1	U		1	U	
PHORATE	1	U		1	U		1	U		1	U	
SULFOTEP	1	U		1	U		1	U		1	U	
THIONAZIN	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DPW06S-01	MPT-TC-GW-DPW07D-01	MPT-TC-GW-DPW09D-01	MPT-TC-GW-DPW09I-01
SAMPLE DATE:	12/02/99	12/06/99	12/02/99	12/02/99
LABORATORY ID:	A9L030207010	A9L070216002	A9L030207013	A9L030207012
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
DISULFOTON	1	U		1	U		1	U		1	U	
FAMPHUR	1	U		1	U		1	U		1	U	
METHYL PARATHION	1	U		1	U		1	U		1	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1	U		1	U		1	U		1	U	
PARATHION	1	U		1	U		1	U		1	U	
PHORATE	1	U		1	U		1	U		1	U	
SULFOTEP	1	U		1	U		1	U		1	U	
THIONAZIN	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP001

SAMPLE NUMBER:	MPT-TC-GW-DU01	MPT-TC-GW-DU02	MPT-TC-GW-EB01	MPT-TC-GW-MW04S-01
SAMPLE DATE:	12/01/99	12/06/99	12/06/99	12/03/99
LABORATORY ID:	A9L030207006	A9L070216003	A9L070216001	A9L060111003
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:	MPT-TC-GW-DPW03DD-01	MPT-TC-GW-DPW07D-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1	UJ	C	1	UJ	C	1	UJ	C	1	U	
DISULFOTON	1	U		1	U		1	U		1	U	
FAMPHUR	1	U		1	U		1	U		1	U	
METHYL PARATHION	1	U		1	U		1	U		1	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1	U		1	U		1	U		1	U	
PARATHION	1	U		1	U		1	U		1	U	
PHORATE	1	U		1	U		1	U		1	U	
SULFOTEP	1	U		1	U		1	U		1	U	
THIONAZIN	1	U		1	U		1	U		1	U	

Tetra Tech NUS

INTERNAL CORRESPONDENCE

RECEIVED
TETRA TECH NUS
TALLAHASSEE, FL

TO: T. HANSEN **DATE:** APRIL 7, 2000

FROM: JENNIFER M. MALLE **COPIES:** DV FILE

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, TIN AND MISCELLANEOUS PARAMETERS**
CTO-094 NS MAYPORT, FLORIDA
SDG – MP002

SAMPLES: 18/Aqueous

MPT-AC-GW-DPW01D-01	MPT-AC-GW-DPW01I-01
MPT-AC-GW-DPW01S-01	MPT-AC-GW-DPW02D-01
MPT-AC-GW-DPW02I-01	MPT-AC-GW-DPW02S-01
MPT-AC-GW-DPW03D-01	MPT-AC-GW-DPW03I-01
MPT-AC-GW-DPW04D-01	MPT-AC-GW-DPW04I-01 ECHO
MPT-AC-GW-DPW05D-01	MPT-AC-GW-DPW05I-01
MPT-AC-GW-DPW08D-01	MPT-AC-GW-DPW08I-01
MPT-AC-GW-DPW08S-01	MPT-AC-GW-DPW11I-01
MPT-AC-GW-DPW12I-01	MPT-AC-GW-DU03

Overview

The sample set for CTO 094,NS Mayport, SDG MP002 consists of eighteen (18) aqueous environmental samples. Field duplicate pair MPT-AC-GW-DU03/MPT-AC-GW-DPW02I was included within this SDG.

All samples, with the exception to MPT-AC-GW-DPW02D-01, MPT-AC-GW-DPW02I-01, MPT-AC-GW-DPW02S-01, MPT-AC-GW-DPW04D-01, MPT-AC-GW-DPW04I-01 and MPT-AC-GW-DU03, were analyzed for Target Analyte List (TAL) metals, cyanide, tin, nitrate, nitrite and sulfate. Samples MPT-AC-GW-DPW02D-01, MPT-AC-GW-DPW02I-01, MPT-AC-GW-DPW02S-01, MPT-AC-GW-DPW04D-01, MPT-AC-GW-DPW04I-01 and MPT-AC-GW-DU03,were analyzed for TAL metals, cyanide and tin only. The samples were collected by TetraTech NUS on January 5-6 and 10-11, 2000 and analyzed by Severn Trent Laboratories, formerly Quanterra Laboratories, under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All metals analyses, with the exception to mercury, were conducted using SW846 method 6010B. Mercury analyses were conducted under SW846 method 7470A. Cyanide analyses were conducted under SW846 9012A. Analyses for nitrate and nitrite were conducted under EPA method 353.2. Sulfate analyses were conducted under EPA method 375.4.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times

* • Calibration Recoveries
• Laboratory Blank Analyses
* • ICP Interference Check Sample
* • Matrix Spike / Matrix Spike Duplicate Recoveries
* • Matrix Spike Duplicate Relative Percent Differences
* • Laboratory Control Sample Recoveries
• Field Duplicate Precision
• ICP Serial Dilution
* • Sample Quanitation
• Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Affected samples : All

Analyte	Maximum Concentration	Action Level (aqueous)
Barium	0.56 ug/L	2.8 ug/L
Beryllium	0.89 ug/L	4.45 ug/L
Cadmium	0.30 ug/L	1.5 ug/L
Calcium [1]	72.2 ug/L	361 ug/L
Chromium	2.1 ug/L	10.5 ug/L
Cobalt	1.3 ug/L	6.5 ug/L
Cyanide [1]	2.0 ug/L	10 ug/L
Iron	39 ug/L	195 ug/L
Magnesium	44.1 ug/L	220.5 ug/L
Manganese	1.1 ug/L	5.5 ug/L
Potassium	33.6 ug/L	168 ug/L
Vanadium	3.3 ug/L	16.5 ug/L
Tin	2.7 ug/L	13.5 ug/L
Zinc [1]	6.2 ug/L	31 ug/L

[1] - Maximum concentration present in a preparation blank

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration in evaluation for blank contamination. Positive results less than the blank action level for barium, beryllium, cadmium, chromium, cyanide, iron, vanadium and zinc were qualified, "U", as a result of blank contamination. No validation action was required for the remaining analytes as the results reported were either greater than the blank action level or were nondetected.

Field Duplicate Precision

Field duplicate imprecision greater than 30% Relative Percent Difference (RPD) and 5x the Reporting Limit (RL) was noted for calcium, iron, magnesium and manganese. Positive results reported for calcium, iron, magnesium and manganese were qualified as estimated, "J".

ICP Serial Dilution

The ICP Serial Dilution Relative Percent Difference for potassium was greater than the 10% quality control limits and 50x the IDL. The positive result reported for potassium was qualified as estimated, "J".

Notes

The laboratory originally used the incorrect detection limits for cyanide. The laboratory was contacted and Form 1's with the correct MDL were sent. Changes were made to the Electronic Deliverable Database (EDD) by the data reviewer.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory/preparation blanks.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for calcium, iron, magnesium and manganese. The ICP Serial Dilution for potassium was greater than the 10% quality control limit.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Jennifer M. Malle
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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's r < 0.995
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning r < 0.995 (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO094- NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01	MPT-AC-GW-DPW01I-01	MPT-AC-GW-DPW01S-01	MPT-AC-GW-DPW02D-01
SAMPLE DATE:	01/05/00	01/05/00	01/05/00	01/06/00
LABORATORY ID:	A0A060123002	A0A060123001	A0A060123003	A0A070160002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	1650			73.6	U		73.6	U		73.6	U	
ANTIMONY	3.2			2.6	U		2.6	U		2.6	U	
ARSENIC	3.3			2.7	U		2.7	U		2.7	U	
BARIUM	14.5			4.7			2.9			5.5		
BERYLLIUM	0.30	U		0.30	U		0.30	U		0.30	U	
CADMIUM	0.20	U		0.20	U		0.21	U	A	0.20	U	
CALCIUM	38900	J	G	68800	J	G	106000	J	G	39800	J	G
CHROMIUM	2.5	U	A	1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	698	J	G	1280	J	G	343	J	G	2700	J	G
LEAD	1.7			1.5	U		1.5	U		1.5	U	
MAGNESIUM	50800	J	G	13500	J	G	15400	J	G	27800	J	G
MANGANESE	14.5	J	G	44.1	J	G	93.1	J	G	47.8	J	G
MERCURY	0.03	U		0.03	U		0.03	U		0.03	U	
NICKEL	1.3	U		1.3	U		1.3	U		1.3	U	
POTASSIUM	50700	J	I	4820	J	I	6340	J	I	28900	J	I
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	431000			8740			15600			79300		
THALLIUM	10.2			7.1	U		7.1	U		7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	2.7	U	A	0.50	U		0.90	U	A	0.50	U	
ZINC	11.9	U	A	15.0	U	A	4.2	U	A	4.3	U	A

CTO094- NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	192			73.6	U		73.6	U		73.6	U	
ANTIMONY	2.6	U		2.6	U		2.6	U		2.6	U	
ARSENIC	2.7	U		2.7	U		2.7	U		2.7	U	
BARIUM	6.1			8.2			41.2			3.2		
BERYLLIUM	0.30	U		0.38	U	A	0.30	U	A	0.30	U	
CADMIUM	0.20	U		0.20	U		0.20	U		0.20	U	
CALCIUM	93000	J	G	62000	J	G	85700	J	G	38300	J	G
CHROMIUM	1.6	U		1.9	U	A	1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	1700	J	G	8630	J	G	994	J	G	410	J	G
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	20900	J	G	14300	J	G	151000	J	G	7710	J	G
MANGANESE	72.9	J	G	136	J	G	386	J	G	32.0	J	G
MERCURY	0.03	U		0.03	U		0.03	U		0.03	U	
NICKEL	1.3	U		1.3	U		1.3	U		1.3	U	
POTASSIUM	6310	J	I	1570	J	I	109000	J	I	3250	J	I
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	14200			17300			1800000			14800		
THALLIUM	7.1	U		7.1	U		7.5			7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	1.5	U	A	0.50	U		0.96	U	A	0.91	U	A
ZINC	5.8	U	A	20.6	U	A	23.1	U	A	8.8	U	A

CTO094- NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
ALUMINUM	73.6	U		73.6	U		73.6	U		73.6	U	
ANTIMONY	2.6	U		2.6	U		2.6	U		2.6	U	
ARSENIC	2.7	U		2.7	U		2.7	U		2.7	U	
BARIUM	7.5			13.0			3.6			3.5		
BERYLLIUM	0.30	U		0.31	U	A	0.30	U		0.30	U	
CADMIUM	0.20	U		0.20	U		0.20	U		0.29	U	A
CALCIUM	26300	J	G	80900	J	G	82400	J	G	48900	J	G
CHROMIUM	2.4	U	A	1.6	U		1.6	U		1.6	U	
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	856	J	G	1110	J	G	120	U	A	269	J	G
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	47300	J	G	40900	J	G	18900	J	G	9940	J	G
MANGANESE	37.7	J	G	78.1	J	G	17.2	J	G	16.5	J	G
MERCURY	0.03	U		0.03	U		0.03	U		0.03	U	
NICKEL	1.3	U		1.3	U		1.3	U		1.3	U	
POTASSIUM	61600	J	I	24800	J	I	10800	J	I	6090	J	I
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	658000			293000			66500			15500		
THALLIUM	7.1	U		7.1	U		7.1	U		7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	3.5	U	A	1.5	U	A	0.50	U		0.50	U	
ZINC	4.6	U	A	14.0	U	A	16.7	U	A	8.2	U	A

CTO094- NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	73.6	U		73.6	U		73.6	U		73.6	U	
ANTIMONY	2.6	U		2.6	U		2.6	U		2.6	U	
ARSENIC	2.7	U		2.7	U		2.7	U		2.7	U	
BARIUM	1.7	U	A	1.5	U	A	4.6			2.5	U	A
BERYLLIUM	0.30	U		0.30	U		0.39	U	A	0.30	U	
CADMIUM	0.20	U		0.20	U		0.25	U	A	0.20	U	
CALCIUM	17100	J	G	24900	J	G	100000	J	G	16400	J	G
CHROMIUM	3.1	U	A	1.9	U	A	1.6	U		3.3	U	A
COBALT	0.70	U		0.70	U		0.70	U		0.70	U	
COPPER	1.1	U		1.1	U		1.1	U		1.1	U	
IRON	69.1	U	A	22.5	U	A	439	J	G	79.5	U	A
LEAD	1.5	U		1.5	U		1.5	U		1.5	U	
MAGNESIUM	19000	J	G	25100	J	G	15000	J	G	9350	J	G
MANGANESE	9.2	J	G	7.8	J	G	69.8	J	G	16.0	J	G
MERCURY	0.03	U		0.03	U		0.03	U		0.03	U	
NICKEL	1.3	U		1.3	U		1.4			1.3	U	
POTASSIUM	31800	J	I	32500	J	I	5100	J	I	16200	J	I
SELENIUM	4.7	U		4.7	U		4.7	U		4.7	U	
SILVER	1.6	U		1.6	U		1.6	U		1.6	U	
SODIUM	154000			85800			14100			296000		
THALLIUM	7.1	U		7.1	U		7.1	U		7.1	U	
TIN	2.5	U		2.5	U		2.5	U		2.5	U	
VANADIUM	6.2	U	A	2.8	U	A	0.75	U	A	3.2	U	A
ZINC	17.6	U	A	16.5	U	A	15.9	U	A	55.0		

CTO094- NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03			/ /			/ /		
SAMPLE DATE:	01/11/00			01/06/00								
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
ALUMINUM	73.6	U		73.6	U							
ANTIMONY	2.6	U		2.6	U							
ARSENIC	2.7	U		2.7	U							
BARIUM	2.6	U	A	5.2								
BERYLLIUM	0.30	U		0.30	U							
CADMIUM	0.20	U		0.20	U							
CALCIUM	50400	J	G	92400	J	G						
CHROMIUM	1.6	U		1.7	U	A						
COBALT	0.70	U		0.70	U							
COPPER	1.1	U		1.1	U							
IRON	32.0	U	A	1820	J	G						
LEAD	1.5	U		1.5	U							
MAGNESIUM	30000	J	G	21100	J	G						
MANGANESE	16.5	J	G	78.9	J	G						
MERCURY	0.03	U		0.03	U							
NICKEL	1.3	U		1.3	U							
POTASSIUM	23300	J	I	6430	J	I						
SELENIUM	4.7	U		4.7	U							
SILVER	1.6	U		1.6	U							
SODIUM	30600			14800								
THALLIUM	7.1	U		7.1	U							
TIN	2.5	U		2.5	U							
VANADIUM	0.50	U		1.7	U	A						
ZINC	16.1	U	A	40.6								

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01	MPT-AC-GW-DPW01I-01	MPT-AC-GW-DPW01S-01	MPT-AC-GW-DPW02D-01
SAMPLE DATE:	01/05/00	01/05/00	01/05/00	01/06/00
LABORATORY ID:	A0A060123002	A0A060123001	A0A060123003	A0A070160002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE(UG/L)	3.0	U		3.0	U		3.0	U		3.0	U	
NITRATE(MG/L)	2.5	U		0.01			0.5	U				
NITRITE(MG/L)	2.5	U		0.5	U		0.5	U				
SULFATE(MG/L)	95			26			45					

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE(UG/L)	3.0	U		3.0	U		3.0	U		3.0	U	
NITRATE(MG/L)							0.1	U		0.1	U	
NITRITE(MG/L)							0.1	U		0.1	U	
SULFATE(MG/L)							570			8		

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01	MPT-AC-GW-DPW04I-01	MPT-AC-GW-DPW05D-01	MPT-AC-GW-DPW05I-01
SAMPLE DATE:	01/06/00	01/06/00	01/10/00	01/10/00
LABORATORY ID:	A0A070160005	A0A070160004	A0A110168003	A0A110168004
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE(UG/L)	3.0	U		3.0	U		3.0	U		3.0	U	
NITRATE(MG/L)							0.1	U		0.1	U	
NITRITE(MG/L)							0.1	U		0.1	U	
SULFATE(MG/L)							27			10		

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
MISCELLANEOUS PARAMETERS												
CYANIDE(UG/L)	2.2	U		2.6	U	A	2.2	U		2.2	U	
NITRATE(MG/L)	0.1	U		0.1	U		0.1	U		0.1	U	
NITRITE(MG/L)	0.1	U		0.1	U		0.1	U		0.1	U	
SULFATE(MG/L)	30			29			74			10	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03								
SAMPLE DATE:	01/11/00			01/06/00			/ /			/ /		
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE(UG/L)	2.2	U		3.0	U							
NITRATE(MG/L)	0.1	U										
NITRITE(MG/L)	0.1	U										
SULFATE(MG/L)	39											

Tetra Tech NUS INTERNAL CORRESPONDENCE

TO: MR. T. HANSEN DATE: APRIL 20, 2000

FROM: LINDA KARSONOVICH COPIES: DV FILE

SUBJECT: ORGANIC DATA VALIDATION- VOA/SVOA/PEST/PCB/OP-PEST/HERB/METHANE
CTO 094, NS MAYPORT
SDG MP002

SAMPLES: 22/Aqueous/

MPT-AC-GW-DPW01D-01	MPT-AC-GW-DPW01I-01*	MPT-AC-GW-DPW01S-01*
MPT-AC-GW-DPW02D-01	MPT-AC-GW-DPW02I-01	MPT-AC-GW-DPW02S-01
MPT-AC-GW-DPW03D-01*	MPT-AC-GW-DPW03I-01*	MPT-AC-GW-DPW04D-01
MPT-AC-GW-DPW04I-01	MPT-AC-GW-DPW05D-01*	MPT-AC-GW-DPW05I-01*
MPT-AC-GW-DPW08D-01*	MPT-AC-GW-DPW08I-01*	MPT-AC-GW-DPW08S-01*
MPT-AC-GW-DPW11I-01*	MPT-AC-GW-DPW12I-01*	MPT-AC-GW-DU03
TRIP BLANK T-1	TRIP BLANK T-2	TRIP BLANK T-3
TRIP BLANK T-4		

OVERVIEW

The sample set for CTO 094NS Mayport, SDG MP002 consists of four (4) trip blanks and eighteen (18) aqueous environmental samples. All samples were analyzed for Appendix IX volatile organic compounds (VOCs). The environmental samples were analyzed for Appendix IX semivolatile organic compounds, (SVOCs), organochlorine pesticides, polychlorinated biphenyls (PCBs), organophosphorus pesticides (OP-Pest), and herbicides. Samples designated * were also analyzed for Methane. One field duplicate pair was included in the SDG: MPT-AC-GW-DPW02I-01 and MPT-AC-GW-DU03.

The sample was collected by TetraTech NUS on January 5, 6, 10, and 11, 2000 and analyzed by Quanterra Laboratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8260B, 8270C, 8081A, 8082, 8141A, 8151A, and RSK-175 analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

	• Data completeness
	• Holding times
*	• GC/MS Tuning and System Performance
	• Initial/continuing calibrations
	• Laboratory method blank results
	• Surrogate Recoveries
*	• Internal Standard Recoveries
	• Blank Spike/Blank Spike Duplicate Results
	• Matrix Spike/Matrix Spike Duplicate Results
*	• Field Duplicate Results
*	• Compound Identification
*	• Compound Quantitation
*	• Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical

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results are presented in Appendix A.

Volatile

Initial and continuing calibration relative response factors (RRFs) fell below the 0.05 quality control limit for acrolein, acetonitrile, propionitrile, and isobutanol. Nondetected results were rejected, UR, in all samples.

An initial calibration percent relative standard deviation (%RSD) exceeded the 30% quality control limit for acetone. Positive results for acetone in the trip blanks T-2, -3, and -4 were qualified as estimated, J. Nondetected results for acetone were not qualified, since the exceedance was less than 50%.

Continuing calibration percent differences (%Ds) on 01/10/00 exceeded the 25% quality control limit for chloromethane, bromomethane, chloroethane, trichlorofluoromethane, acetone, vinyl acetate, 1,2-dibromo-3-chloroporopane, dichlorodifluoromethane, and methylacrylonitrile. Nondetected results were qualified as estimated, UJ, in the associated samples. The positive result for acetone in trip blank T-1 was qualified as estimated, J.

A continuing calibration %D on 01/13/00 exceeded the 25% quality control limit for dichlorodifluoromethane. Nondetected results were qualified as estimated, UJ, in the associated samples.

Continuing calibration %Ds on 01/14/00 exceeded the 25% quality control limit for vinyl acetate, 1,2-dibromo-3-chloropropane, dichlorodifluoromethane, and methacrylonitrile. Nondetected results were qualified as estimated, UJ, in the associated samples.

Continuing calibration %Ds on 01/17/00 exceeded the 25% quality control limit for vinyl acetate and 1,2-dibromo-3-chloropropane. Nondetected results were qualified as estimated, UJ, in sample MPT-AC-GW-DPW08D-01.

The following compounds were detected in the laboratory method blanks and field quality control blanks (*):

Compound	Maximum Concentration	Blank Action Level
Acetone*	22 µg/L	220 µg/L
2-Butanone*	30 µg/L	300 µg/L
Chloromethane*	0.24 µg/L	1.2 µg/L
Methylene chloride*	0.6 µg/L	6 µg/L
1,1,2,2-tetrachloroethane*	0.15 µg/L	0.75 µg/L
Carbon disulfide*	0.12 µg/L	0.6 µg/L
Toluene*	0.48 µg/L	2.4 µg/L
Ethylbenzene*	0.05 µg/L	0.25 µg/L
Benzene	0.24 µg/L	1.2 µg/L

Sample aliquot and dilution factors were taken into consideration when applying the blank action levels. Positive results for acetone, methylene chloride, carbon disulfide, toluene, and benzene below the blank action level were qualified as nondetected, U. Field quality control blanks were not qualified based on laboratory blank contamination or contamination in other field quality control blanks.

Percent recoveries for several compounds exceeded the quality control limit in the blank spike and blank spike duplicate. No qualifiers were assigned on this basis as per the Functional Guidelines.

Semivolatiles

Initial and continuing calibration RRFs fell below the 0.05 quality control limit for 4-nitroquinoline-1-oxide. Nondetected results were rejected, UR, in all samples.

Initial calibration %RSDs exceeded the 30% quality control limit for 2,4-dinitrophenol. No qualifiers were assigned on this basis since the compound was not detected in the samples and the exceedance was less than 50%.

A continuing calibration %D exceeded the 25% quality control limit on 01/18/00 for a,a-dimethylphenethylamine. Nondetected results were qualified as estimated, UJ, in the associated samples.

A continuing calibration %D exceeded the 25% quality control limit on 01/19/00 for pentachloronitrobenzene. Nondetected results were qualified as estimated, UJ, in the associated samples.

Continuing calibration %Ds exceeded the 25% quality control limit on 01/24/00 for 2,4-dinitrophenol and a,a-dimethylphenethylamine, and 2-acetylaminofluorene. Nondetected results were qualified as estimated, UJ, in the associated samples.

Surrogate recovery of nitrobenzene-d5 exceeded the upper quality control limit in sample MPT-AC-GW-DPW05D. No qualifiers were assigned on this basis since only one surrogate per fraction was non-compliant.

The following compounds were detected in the laboratory method blanks:

Compound	Maximum Concentration	Blank Action Level
Bis(2-ethylhexyl)phthalate	31 µg/L	310 µg/L

Sample aliquot and dilution factors were taken into consideration when applying the blank action levels. Positive results for bis(2-ethylhexyl)phthalate below the blank action level were qualified as nondetected, U.

Blank spike, matrix spike, and matrix spike duplicate recoveries fell below 10% for dimethyl phthalate and hexachlorocyclopentadiene. Nondetected results were rejected, UR, in all samples.

Pesticides

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for Methoxychlor. Nondetected results in samples –DPW08D-, -DPW08I-, -DPW08S-, -DPW11I-, and DPW12I- were qualified as estimated, UJ.

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for Kepone. Nondetected results in samples –DPW03D-, -DPW03I-, -DPW05D-, and –DPW05I- were qualified as estimated, UJ.

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for Kepone and Isodrin. Nondetected results were qualified as estimated, UJ, in the associated samples.

Surrogate recovery of decachlorobiphenyl fell below the 30% quality control limit in samples –DPW03I-, and –DPW08D-. Nondetected results were qualified as estimated, UJ, in both samples.

PCBs

Surrogate recovery of decachlorobiphenyl fell below the 30% quality control limit in sample –DPW08D-. Nondetected results were qualified as estimated, UJ.

OP-Pests

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for o,o,o-triethyl phosphorothioate. Nondetected results were qualified as estimated, UJ, in the associated samples.

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for o,o,o-triethyl phosphorothioate, Parathion, Dimethoate, Methyl parathion, and Famphur. Nondetected results were qualified as estimated, UJ, in samples DPW03D-, -DPW03I-, -DPW05D-, and –DPW05I-.

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for Parathion, Dimethoate, Methyl parathion, and Famphur. Nondetected results were qualified as estimated, UJ, in sample –DPW01I -.

Herbicides

Sample –DPW11I- was re-extracted 21 days after sample collection due to low surrogate recovery. Only the

original sample analysis was used as the basis for data validation. Nondetected results were qualified as estimated, UJ.

Continuing calibration %Ds exceeded the 15% quality control limit on both analytical columns for 2,4,5-T. Nondetected results were qualified as estimated, UJ, in samples –DPW02S-, -DPW04D-, -DPW04I-, and -DU03.

Blank spike recovery of Dinoseb fell below the lower quality control limit. No action was required on this basis.

Matrix spike and matrix spike duplicate recoveries fell below the lower quality control limits for 6 of 10 compounds. The compounds were not detected in the unspiked sample. No action was required on this basis.

Methane

The methane was detected in the laboratory method blanks at the following maximum concentration:

Compound	Maximum Concentration	Blank Action Level
Methane	0.18 µg/L	0.9 µg/L

Sample aliquot and dilution factors were taken into consideration when applying the blank action levels. No qualifiers were assigned on this basis.

Additional Comments:

Positive results below the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

The compound hexachlorophene was listed in the technical statement of work (SOW); however, the compound was not reported by the laboratory due to technical problems.

The compounds Dillate, N-nitrosopiperdine, a,a-dimethylphenethylamine, chlorobenzilate, Isodrin, Kepone, o,o,o-triethyl phosphorothioate, and Parathion and appeared on the Forms 1s and electronic deliverable (EDD); however, these compounds were not listed in the technical SOW.

Dinoseb was reported as 2-sec-butyl-4, 6-dinitrophenol in the semivolatile fraction. The reviewer eliminated the semivolatile results since the herbicide fraction yielded a lower reporting limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several compounds exceeded the initial and/or continuing calibration %D and RRF criteria. Several target compounds were detected in the laboratory and field quality control blanks. Surrogate recoveries fell below the lower quality control limit in the pesticide,PCB, and herbicide fractions.

Other Factors Affecting Data Quality: Blank spike and/or matrix spike recoveries of dimethyl phthalate and hexachlorocyclopentadiene fell below 10%.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines "Navy Installation Restoration Program Laboratory Quality Assurance Guide" (February, 1996). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS

Linda Karsonovich
Chemist/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 – Support Documentation

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

Field Duplicates

Parameter	Compound	MPT-AC-GW-DPW02I-01	MPT-AC-GW-DU03	RPD
Volatile	1,1-Dichloroethane	0.93 J	0.82 J	12%
	1,1-Dichloroethene	0.36 J	0.35 J	3%
	cis-1,2-dichloroethene	0.11 J	0.5 U	NC
Semivolatile		ND	ND	
Pesticide		ND	ND	
PCB		ND	ND	
OP-Pest		ND	ND	
Herbicide	2,4-D	0.28	0.28	0%

NC – Not Calculated; positive result less than the reporting limit.
ND – Not Detected

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1.7	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1.7	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1.7	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1.7	U	
1,1-DICHLOROETHANE	0.37	J	P	1	U		1	U		42		
1,1-DICHLOROETHENE	1	U		1	U		1	U		4.6		
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1.7	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	UJ	C	1	UJ	C	1.7	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1.7	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1.7	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		1	U		1.7	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1.7	U	
2-BUTANONE	10	U		10	U		10	U		17	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1.7	U	
2-HEXANONE	10	U		10	U		10	U		17	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		17	U	
ACETONE	10	U	B	10	U	B	10	U	B	17	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	33	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	17	UR	C
ACRYLONITRILE	10	U		10	U		10	U		17	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1.7	U	
BENZENE	1	U		1	U		1	U		1.7	U	A
BROMODICHLOROMETHANE	0.33	J	P	1	U		1	U		1.7	U	
BROMOFORM	1	U		1	U		1	U		1.7	U	
BROMOMETHANE	2	UJ	C	2	UJ	C	2	UJ	C	3.3	U	
CARBON DISULFIDE	1	U	B	1	U	B	1	U		1.7	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1.7	U	
CHLOROBENZENE	1	U		1	U		1	U		1.7	U	
CHLOROETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1.7	U	
CHLOROFORM	0.67	J	P	1	U		1	U		1.7	U	
CHLOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1.7	U	
CHLOROPRENE	1	U		1	U		1	U		1.7	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.18	J	P
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1.7	U	

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SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01	MPT-AC-GW-DPW01I-01	MPT-AC-GW-DPW01S-01	MPT-AC-GW-DPW02D-01
SAMPLE DATE:	01/05/00	01/05/00	01/05/00	01/06/00
LABORATORY ID:	A0A060123002	A0A060123001	A0A060123003	A0A070160002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	0.2	J	P	1	U		1	U		1.7	U	
DIBROMOMETHANE	1	U		1	U		1	U		1.7	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1.7	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1.7	U	
ETHYLBENZENE	1	U		1	U		1	U		1.7	U	
IODOMETHANE	1	U		1	U		1	U		1.7	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	83	UR	C
METHACRYLONITRILE	1	UJ	C	1	UJ	C	1	UJ	C	1.7	U	
METHYL METHACRYLATE	1	U		1	U		1	U		1.7	U	
METHYLENE CHLORIDE	1	U		1	U		1	U		1.7	U	B
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	6.6	UR	C
STYRENE	1	U		1	U		1	U		1.7	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1.7	U	
TOLUENE	1	U	B	1	U	B	1	U		1.7	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.83	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1.7	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1.7	U	
TRICHLOROETHENE	1	U		1	U		1	U		1.7	U	
TRICHLOROFLUOROMETHANE	2	UJ	C	2	UJ	C	2	UJ	C	3.3	U	
VINYL ACETATE	1	UJ	C	1	UJ	C	1	UJ	C	1.7	U	
VINYL CHLORIDE	1	U		1	U		1	U		0.3	J	P
XYLENES, TOTAL	1	U		1	U		1	U		1.7	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	0.93	J	P	1	U		1.3			0.22	J	P
1,1-DICHLOROETHENE	0.36	J	P	1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	0.11	J	P	1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	10	U	B	10	U	B	10	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U	A	1	U	A	1	U		1	U	A
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U	B	1	U	B	1	U	B	1	U	B
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.11	J	P	0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

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SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	1	U		1	U		1	U	
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U	B	1	U	B	1	U	B	1	U	B
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U	B	1	U	B	1	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		0.095	J	P
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	UJ	C	1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

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SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	2			12			1	U		1	U	
1,1-DICHLOROETHENE	1	U		0.71	J	P	1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		0.087	J	P	1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		0.96	J	P	1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	11	U	B	10	U	B	10	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U	A	1	U	A	1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U	B	1	U	B	0.84	J	P	0.63	J	P
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.34	J	P	0.96			0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	U		1	U		1	U		1	U	
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U	B	1	U	B	1	U	B	1	U	B
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U	B	1	U		1	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		0.082	J	P	1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		0.19	J	P	1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		1	U		2		
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	10	U	B	10	U	B	11	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U		1	U		1	U		1	U	A
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	0.97	J	P	1	U	B	1	U	B	1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	0.11	J	P	0.29	J	P	1	U		4.6		
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		1.8		
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	U		1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	U		1	UJ	C	1	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U		1	U		1	U		1	U	B
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U	B	1	U		1	U	B
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.16	J	P
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03			TRIP BLANK TB-1			TRIP BLANK TB-2		
SAMPLE DATE:	01/11/00			01/06/00			01/05/00			01/06/00		
LABORATORY ID:	A0A120161001			A0A070160006			A0A060123004			A0A070160007		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		0.82	J	P	1	U		1	U	
1,1-DICHLOROETHENE	1	U		0.35	J	P	1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	U		1	UJ	C	1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	10	U	B	1.7	J	CP	1.2	J	CP
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U	A	1	U	A	1	U		0.093	J	P
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	UJ	C	2	U	
CARBON DISULFIDE	1	U	B	1	U	B	1	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	UJ	C	1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		0.24	J	CP	0.24	J	P
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03			TRIP BLANK TB-1			TRIP BLANK TB-2		
SAMPLE DATE:	01/11/00			01/06/00			01/05/00			01/06/00		
LABORATORY ID:	A0A120161001			A0A070160006			A0A060123004			A0A070160007		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	1	U		1	UJ	C	1	U	
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U		1	U	B	0.6	J	P	0.39	J	P
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	UJ	C	2	U	
VINYL ACETATE	1	UJ	C	1	U		1	UJ	C	1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	TRIP BLANK TB-3			TRIP BLANK TB-4			/ /			/ /		
SAMPLE DATE:	01/10/00			01/11/00								
LABORATORY ID:	A0A110168005			A0A120161006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U							
1,1,1-TRICHLOROETHANE	1	U		1	U							
1,1,2,2-TETRACHLOROETHANE	0.15	J	P	1	U							
1,1,2-TRICHLOROETHANE	1	U		1	U							
1,1-DICHLOROETHANE	1	U		1	U							
1,1-DICHLOROETHENE	1	U		1	U							
1,2,3-TRICHLOROPROPANE	1	U		1	U							
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	UJ	C						
1,2-DIBROMOETHANE	1	U		1	U							
1,2-DICHLOROETHANE	1	U		1	U							
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U							
1,2-DICHLOROPROPANE	1	U		1	U							
2-BUTANONE	10	U		30								
2-CHLOROETHYL VINYL ETHER	1	U		1	U							
2-HEXANONE	10	U		10	U							
4-METHYL-2-PENTANONE	10	U		10	U							
ACETONE	1.2	J	CP	22	J	C						
ACETONITRILE	20	UR	C	20	UR	C						
ACROLEIN	10	UR	C	10	UR	C						
ACRYLONITRILE	10	U		10	U							
ALLYL CHLORIDE	1	U		1	U							
BENZENE	0.11	J	P	0.075	J	P						
BROMODICHLOROMETHANE	1	U		1	U							
BROMOFORM	1	U		1	U							
BROMOMETHANE	2	U		2	U							
CARBON DISULFIDE	0.12	J	P	1	U							
CARBON TETRACHLORIDE	1	U		1	U							
CHLOROBENZENE	1	U		1	U							
CHLOROETHANE	1	U		1	U							
CHLOROFORM	1	U		1	U							
CHLOROMETHANE	0.17	J	P	0.14	J	P						
CHLOROPRENE	1	U		1	U							
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
CIS-1,3-DICHLOROPROPENE	1	U		1	U							

SAMPLE NUMBER:	TRIP BLANK TB-3			TRIP BLANK TB-4								
SAMPLE DATE:	01/10/00			01/11/00			/ /			/ /		
LABORATORY ID:	A0A110168005			A0A120161006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U							
DIBROMOMETHANE	1	U		1	U							
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C						
ETHYL METHACRYLATE	1	U		1	U							
ETHYLBENZENE	1	U		0.05	J	P						
IODOMETHANE	1	U		1	U							
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C						
METHACRYLONITRILE	1	U		1	UJ	C						
METHYL METHACRYLATE	1	U		1	U							
METHYLENE CHLORIDE	0.36	J	P	0.18	J	P						
PROPIONITRILE	4	UR	C	4	UR	C						
STYRENE	1	U		1	U							
TETRACHLOROETHENE	1	U		1	U							
TOLUENE	0.047	J	P	0.48	J	P						
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
TRANS-1,3-DICHLOROPROPENE	1	U		1	U							
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U							
TRICHLOROETHENE	1	U		1	U							
TRICHLOROFLUOROMETHANE	2	U		2	U							
VINYL ACETATE	1	U		1	UJ	C						
VINYL CHLORIDE	1	U		1	U							
XYLENES, TOTAL	1	U		1	U							

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01	MPT-AC-GW-DPW01I-01	MPT-AC-GW-DPW01S-01	MPT-AC-GW-DPW02D-01
SAMPLE DATE:	01/05/00	01/05/00	01/05/00	01/06/00
LABORATORY ID:	A0A060123002	A0A060123001	A0A060123003	A0A070160002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	U		50	U		50	U		50	U	
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01	MPT-AC-GW-DPW02S-01	MPT-AC-GW-DPW03D-01	MPT-AC-GW-DPW03I-01
SAMPLE DATE:	01/06/00	01/06/00	01/10/00	01/10/00
LABORATORY ID:	A0A070160001	A0A070160003	A0A110168002	A0A110168001
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01	MPT-AC-GW-DPW02S-01	MPT-AC-GW-DPW03D-01	MPT-AC-GW-DPW03I-01
SAMPLE DATE:	01/06/00	01/06/00	01/10/00	01/10/00
LABORATORY ID:	A0A070160001	A0A070160003	A0A110168002	A0A110168001
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	U		50	U		50	UJ	C	50	UJ	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		12	U	A
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01	MPT-AC-GW-DPW02S-01	MPT-AC-GW-DPW03D-01	MPT-AC-GW-DPW03I-01
SAMPLE DATE:	01/06/00	01/06/00	01/10/00	01/10/00
LABORATORY ID:	A0A070160001	A0A070160003	A0A110168002	A0A110168001
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		2	J	P	10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	U		50	U		50	U		50	UJ	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	UJ	C	10	UJ	C	10	UJ	C	10	UJ	C
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	UJ	C	50	UJ	C	50	UJ	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03			/ /			/ /		
SAMPLE DATE:	01/11/00			01/06/00								
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U							
1,2,4-TRICHLOROBENZENE	10	U		10	U							
1,2-DICHLOROBENZENE	10	U		10	U							
1,3,5-TRINITROBENZENE	10	U		10	U							
1,3-DICHLOROBENZENE	10	U		10	U							
1,3-DINITROBENZENE	10	U		10	U							
1,4-DICHLOROBENZENE	10	U		10	U							
1,4-DIOXANE	10	U		10	U							
1,4-NAPHTHOQUINONE	10	U		10	U							
1-NAPHTHYLAMINE	10	U		10	U							
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U							
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U							
2,4,5-TRICHLOROPHENOL	10	U		10	U							
2,4,6-TRICHLOROPHENOL	10	U		10	U							
2,4-DICHLOROPHENOL	10	U		10	U							
2,4-DIMETHYLPHENOL	10	U		10	U							
2,4-DINITROPHENOL	25	U		25	U							
2,4-DINITROTOLUENE	10	U		10	U							
2,6-DICHLOROPHENOL	10	U		10	U							
2,6-DINITROTOLUENE	10	U		10	U							
2-ACETYLAMINOFLUORENE	10	UJ	C	10	U							
2-CHLORONAPHTHALENE	10	U		10	U							
2-CHLOROPHENOL	10	U		10	U							
2-METHYLNAPHTHALENE	10	U		10	U							
2-METHYLPHENOL	10	U		10	U							
2-NAPHTHYLAMINE	10	U		10	U							
2-NITROANILINE	25	U		25	U							
2-NITROPHENOL	10	U		10	U							
2-PICOLINE	10	U		10	U							
3,3'-DICHLOROBENZIDINE	10	U		10	U							
3,3'-DIMETHYLBENZIDINE	10	U		10	U							
3-METHYLCHOLANTHRENE	10	U		10	U							
3-METHYLPHENOL	10	U		10	U							
3-NITROANILINE	25	U		25	U							

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03								
SAMPLE DATE:	01/11/00			01/06/00			/ /			/ /		
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U							
4-AMINOBIPHENYL	10	U		10	U							
4-BROMOPHENYL PHENYL ETHER	10	U		10	U							
4-CHLORO-3-METHYLPHENOL	10	U		10	U							
4-CHLOROANILINE	10	U		10	U							
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U							
4-METHYLPHENOL	10	U		10	U							
4-NITROANILINE	25	U		25	U							
4-NITROPHENOL	25	U		25	U							
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C						
5-NITRO-O-TOLUIDINE	10	U		10	U							
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U							
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	U							
ACENAPHTHENE	10	U		10	U							
ACENAPHTHYLENE	10	U		10	U							
ACETOPHENONE	10	U		10	U							
ANILINE	10	U		10	U							
ANTHRACENE	10	U		10	U							
ARAMITE	10	U		10	U							
BENZO(A)ANTHRACENE	10	U		10	U							
BENZO(A)PYRENE	10	U		10	U							
BENZO(B)FLUORANTHENE	10	U		10	U							
BENZO(G,H,I)PERYLENE	10	U		10	U							
BENZO(K)FLUORANTHENE	10	U		10	U							
BENZYL ALCOHOL	10	U		10	U							
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U							
BIS(2-CHLOROETHYL)ETHER	10	U		10	U							
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U							
BUTYLBENZYL PHTHALATE	10	U		10	U							
CARBAZOLE	10	U		10	U							
CHLOROBENZILATE	10	U		10	U							
CHRYSENE	10	U		10	U							
DI-N-BUTYL PHTHALATE	10	U		10	U							
DI-N-OCTYL PHTHALATE	10	U		10	U							

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03			/ /			/ /		
SAMPLE DATE:	01/11/00			01/06/00								
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U							
DIBENZO(A,H)ANTHRACENE	10	U		10	U							
DIBENZOFURAN	10	U		10	U							
DIETHYL PHTHALATE	10	U		10	U							
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE						
DIPHENYLAMINE	10	U		10	U							
ETHYL METHANESULFONATE	10	U		10	U							
FLUORANTHENE	10	U		10	U							
FLUORENE	10	U		10	U							
HEXACHLOROBENZENE	10	U		10	U							
HEXACHLOROBUTADIENE	10	U		10	U							
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE						
HEXACHLOROETHANE	10	U		10	U							
HEXACHLOROPROPENE	10	U		10	U							
INDENO(1,2,3-CD)PYRENE	10	U		10	U							
ISOPHORONE	10	U		10	U							
ISOSAFROLE	10	U		10	U							
METHAPYRILENE	10	U		10	U							
METHYL METHANESULFONATE	10	U		10	U							
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U							
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U							
N-NITROSODIETHYLAMINE	10	U		10	U							
N-NITROSODIMETHYLAMINE	10	U		10	U							
N-NITROSODIPHENYLAMINE	10	U		10	U							
N-NITROSOMETHYLETHYLAMINE	10	U		10	U							
N-NITROSOMORPHOLINE	10	U		10	U							
N-NITROSOPIPERIDINE	10	U		10	U							
N-NITROSOPYRROLIDINE	10	U		10	U							
NAPHTHALENE	10	U		10	U							
NITROBENZENE	10	U		10	U							
O-TOLUIDINE	10	U		10	U							
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U							
P-PHENYLENEDIAMINE	10	U		10	U							
PENTACHLOROBENZENE	10	U		10	U							

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01	MPT-AC-GW-DU03		
SAMPLE DATE:	01/11/00	01/06/00	/ /	/ /
LABORATORY ID:	A0A120161001	A0A070160006		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:		MPT-AC-GW-DPW02I-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U							
PENTACHLORONITROBENZENE	10	U		10	U							
PENTACHLOROPHENOL	10	U		10	U							
PHENACETIN	10	U		10	U							
PHENANTHRENE	10	U		10	U							
PHENOL	10	U		10	U							
PRONAMIDE	10	U		10	U							
PYRENE	10	U		10	U							
PYRIDINE	10	U		10	U							
SAFROLE	10	U		10	U							

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SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	U	
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	2	U		2	U		2	U		2	U	

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SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01	MPT-AC-GW-DPW02S-01	MPT-AC-GW-DPW03D-01	MPT-AC-GW-DPW03I-01
SAMPLE DATE:	01/06/00	01/06/00	01/10/00	01/10/00
LABORATORY ID:	A0A070160001	A0A070160003	A0A110168002	A0A110168001
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	UJ	R
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	R
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	UJ	R
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ENDRIN	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	UJ	R
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	UJ	R
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	UJ	R
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	U		0.1	UJ	R
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	CR
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	UJ	R
TOXAPHENE	2	U		2	U		2	U		2	UJ	R

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	U	
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	U		0.1	U	
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	2	U		2	U		2	U		2	U	

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SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ALDRIN	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	UJ	R	1	U		1	U		1	U	
AROCLOR-1221	1	UJ	R	1	U		1	U		1	U	
AROCLOR-1232	1	UJ	R	1	U		1	U		1	U	
AROCLOR-1242	1	UJ	R	1	U		1	U		1	U	
AROCLOR-1248	1	UJ	R	1	U		1	U		1	U	
AROCLOR-1254	1	UJ	R	1	U		1	U		1	U	
AROCLOR-1260	1	UJ	R	1	U		1	U		1	U	
BETA-BHC	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ENDRIN ALDEHYDE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	UJ	R	0.05	U		0.05	U		0.05	U	
ISODRIN	0.1	UJ	CR	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
KEPONE	1	UJ	CR	1	UJ	C	1	UJ	C	1	UJ	C
METHOXYCHLOR	0.1	UJ	CR	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
TOXAPHENE	2	UJ	R	2	U		2	U		2	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03			/ /			/ /		
SAMPLE DATE:	01/11/00			01/06/00								
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U							
4,4'-DDE	0.05	U		0.05	U							
4,4'-DDT	0.05	U		0.05	U							
ALDRIN	0.05	U		0.05	U							
ALPHA-BHC	0.05	U		0.05	U							
ALPHA-CHLORDANE	0.05	U		0.05	U							
AROCLOR-1016	1	U		1	U							
AROCLOR-1221	1	U		1	U							
AROCLOR-1232	1	U		1	U							
AROCLOR-1242	1	U		1	U							
AROCLOR-1248	1	U		1	U							
AROCLOR-1254	1	U		1	U							
AROCLOR-1260	1	U		1	U							
BETA-BHC	0.05	U		0.05	U							
DELTA-BHC	0.05	U		0.05	U							
DIELDRIN	0.05	U		0.05	U							
ENDOSULFAN I	0.05	U		0.05	U							
ENDOSULFAN II	0.05	U		0.05	U							
ENDOSULFAN SULFATE	0.05	U		0.05	U							
ENDRIN	0.05	U		0.05	U							
ENDRIN ALDEHYDE	0.05	U		0.05	U							
ENDRIN KETONE	0.05	U		0.05	U							
GAMMA-BHC (LINDANE)	0.05	U		0.05	U							
GAMMA-CHLORDANE	0.05	U		0.05	U							
HEPTACHLOR	0.05	U		0.05	U							
HEPTACHLOR EPOXIDE	0.05	U		0.05	U							
ISODRIN	0.1	UJ	C	0.1	UJ	C						
KEPONE	1	UJ	C	1	UJ	C						
METHOXYCHLOR	0.1	UJ	C	0.1	U							
TOXAPHENE	2	U		2	U							

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	UJ	C	1.0	U		1.0	U	
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	UJ	C	1.0	U		1.0	U	
METHYL PARATHION	1.0	U		1.0	UJ	C	1.0	U		1.0	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	UJ	C	1.0	U		1.0	UJ	C	1.0	UJ	C
PARATHION	1.0	U		1.0	UJ	C	1.0	U		1.0	U	
PHORATE	1.0	U		1.0	U		1.0	U		1.0	U	
SULFOTEP	1.0	U		1.0	U		1.0	U		1.0	U	
THIONAZIN	1.0	U		1.0	U		1.0	U		1.0	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
METHYL PARATHION	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	UJ	C	1.0	UJ	C	1.0	UJ	C	1.0	UJ	C
PARATHION	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
PHORATE	1.0	U		1.0	U		1.0	U		1.0	U	
SULFOTEP	1.0	U		1.0	U		1.0	U		1.0	U	
THIONAZIN	1.0	U		1.0	U		1.0	U		1.0	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
METHYL PARATHION	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	UJ	C	1.0	UJ	C	1.0	UJ	C	1.0	UJ	C
PARATHION	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
PHORATE	1.0	U		1.0	U		1.0	U		1.0	U	
SULFOTEP	1.0	U		1.0	U		1.0	U		1.0	U	
THIONAZIN	1.0	U		1.0	U		1.0	U		1.0	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	U		1.0	U	
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	U		1.0	U		1.0	U	
METHYL PARATHION	1.0	U		1.0	U		1.0	U		1.0	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	U		1.0	U		1.0	U		1.0	U	
PARATHION	1.0	U		1.0	U		1.0	U		1.0	U	
PHORATE	1.0	U		1.0	U		1.0	U		1.0	U	
SULFOTEP	1.0	U		1.0	U		1.0	U		1.0	U	
THIONAZIN	1.0	U		1.0	U		1.0	U		1.0	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01	MPT-AC-GW-DU03		
SAMPLE DATE:	01/11/00	01/06/00	/ /	/ /
LABORATORY ID:	A0A120161001	A0A070160006		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:		MPT-AC-GW-DPW02I-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U							
DISULFOTON	1.0	U		1.0	U							
FAMPHUR	1.0	U		1.0	U							
METHYL PARATHION	1.0	U		1.0	U							
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	U		1.0	UJ	C						
PARATHION	1.0	U		1.0	U							
PHORATE	1.0	U		1.0	U							
SULFOTEP	1.0	U		1.0	U							
THIONAZIN	1.0	U		1.0	U							

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW02D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/06/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A070160002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW02I-01			MPT-AC-GW-DPW02S-01			MPT-AC-GW-DPW03D-01			MPT-AC-GW-DPW03I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160001			A0A070160003			A0A110168002			A0A110168001		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	UJ	C	1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	0.28	J	P	4	U		4	U		4	U	
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW04D-01			MPT-AC-GW-DPW04I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01		
SAMPLE DATE:	01/06/00			01/06/00			01/10/00			01/10/00		
LABORATORY ID:	A0A070160005			A0A070160004			A0A110168003			A0A110168004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	1	UJ	C	1	UJ	C	1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW08D-01			MPT-AC-GW-DPW08I-01			MPT-AC-GW-DPW08S-01			MPT-AC-GW-DPW11I-01		
SAMPLE DATE:	01/11/00			01/11/00			01/11/00			01/11/00		
LABORATORY ID:	A0A120161005			A0A120161004			A0A120161003			A0A120161002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	UJ	R
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	UJ	R
2,4-D	4	U		4	U		4	U		4	UJ	R
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	UJ	R

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW12I-01			MPT-AC-GW-DU03								
SAMPLE DATE:	01/11/00			01/06/00			/ /			/ /		
LABORATORY ID:	A0A120161001			A0A070160006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:				MPT-AC-GW-DPW02I-01								
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	1	U		1	UJ	C						
2,4,5-TP (SILVEX)	1	U		1	U							
2,4-D	4	U		0.28	J	P						
DINOSEB	0.6	U		0.6	U							

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP002

SAMPLE NUMBER:	MPT-AC-GW-DPW01D-01			MPT-AC-GW-DPW01I-01			MPT-AC-GW-DPW01S-01			MPT-AC-GW-DPW03D-01		
SAMPLE DATE:	01/05/00			01/05/00			01/05/00			01/10/00		
LABORATORY ID:	A0A060123002			A0A060123001			A0A060123003			A0A110168002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
DISSOLVED METHANE												
METHANE	45			20			1400			15		

SAMPLE NUMBER:	MPT-AC-GW-DPW03I-01			MPT-AC-GW-DPW05D-01			MPT-AC-GW-DPW05I-01			MPT-AC-GW-DPW08D-01		
SAMPLE DATE:	01/10/00			01/10/00			01/10/00			01/11/00		
LABORATORY ID:	A0A110168001			A0A110168003			A0A110168004			A0A120161005		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
DISSOLVED METHANE												
METHANE	60			310			130			4400		

SAMPLE NUMBER:	MPT-AC-GW-DPW08I-01	MPT-AC-GW-DPW08S-01	MPT-AC-GW-DPW11I-01	MPT-AC-GW-DPW12I-01
SAMPLE DATE:	01/11/00	01/11/00	01/11/00	01/11/00
LABORATORY ID:	A0A120161004	A0A120161003	A0A120161002	A0A120161001
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
DISSOLVED METHANE												
METHANE	2400			190			460			390		

Tetra Tech NUS INTERNAL CORRESPONDENCE

TO:	**T. HANSEN**	**DATE:**	**APRIL 7, 2000**
FROM:	**JENNIFER M. MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, TIN AND MISCELLANEOUS PARAMETERS**
CTO-094 NS MAYPORT, FLORIDA
SDG – MP003

SAMPLES: 15/Aqueous

MPT-AC-GW-DPW03S-01	MPT-AC-GW-DPW04S-01 ECHO
MPT-AC-GW-DPW05S-01	MPT-AC-GW-DPW06D-01
MPT-AC-GW-DPW06I-01	MPT-AC-GW-DPW06S-01
MPT-AC-GW-DPW07D-01	MPT-AC-GW-DPW07I-01
MPT-AC-GW-DPW07S-01	MPT-AC-GW-DPW09D-01
MPT-AC-GW-DPW09I-01	MPT-AC-GW-DPW10I-01
MPT-AC-GW-DU04 ECHO	MPT-AC-GW-DU05
MPT-AC-GW-EB02	

Overview

The sample set for CTO 094,NS Mayport, SDG MP003, consists of fifteen (15) aqueous environmental samples. Field duplicate pairs MPT-AC-GW-DU04/MPT-AC-GW-DPW04S-01 and MPT-AC-GW-DU05/MPT-AC-GW-DPW06S-01 were included within this SDG.

All samples were analyzed for Target Analyte List (TAL) metals, cyanide, tin, nitrate, nitrite and sulfate. The samples were collected by TetraTech NUS on January 12-14, 2000 and analyzed by Severn Trent Laboratories formerly, Quanterra Laboratories, under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All metals analyses, with the exception to mercury, were conducted using SW846 method 6010B. Mercury analyses were conducted under SW846 method 7470A. Cyanide analyses were conducted under SW846 9012A. Analyses for nitrate and nitrite were conducted under EPA method 353.2. Sulfate analyses were conducted under EPA method 375.4.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
  • Laboratory Blank Analyses
* • ICP Interference Check Sample
* • Matrix Spike / Matrix Spike Duplicate Recoveries
* • Matrix Spike Duplicate Relative Percent Differences
* • Laboratory Control Sample Recoveries

* • Sample Quanitation
  • Field Duplicate Precision
  • Detection Limits

  * - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Affected samples : All

Analyte	Maximum Concentration	Action Level (aqueous)
Aluminum [1]	17.9 ug/L	89.5 ug/L
Antimony	3.3 ug/L	16.5 ug/L
Arsenic [1]	4.6 ug/L	23 ug/L
Barium	0.79 ug/L	3.95 ug/L
Beryllium	0.36 ug/L	1.8 ug/L
Calcium [1]	276 ug/L	1380 ug/L
Copper	3.9 ug/L	19.5 ug/L
Iron [1]	73.7 ug/L	368.5 ug/L
Magnesium [1]	52.2 ug/L	261 ug/L
Manganese [1]	1.9 ug/L	9.5 ug/L
Mercury	0.055 ug/L	0.275 ug/L
Nickel	2.2 ug/L	11.0 ug/L
Potassium [1]	416 ug/L	2080 ug/L
Thallium	9.7 ug/L	48.5 ug/L
Zinc [1]	4.8 ug/L	24 ug/L

[1] - Maximum concentration present in a preparation blank

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration in evaluation for blank contamination. Positive results less than the blank action level for aluminum, antimony, arsenic, barium, calcium, copper, iron, manganese, mercury, nickel, potassium and zinc were qualified, "U", as a result of blank contamination. No validation action was required for the remaining analytes as the results reported were either greater than the blank action level or were nondetected, "U".

Laboratory Control Sample Results

The Laboratory Control Sample (LCS) Percent Recovery %R) for iron was greater than the 120% quality control limits. Positive results reported for iron were qualified as estimated, "J".

Field Duplicate Precision

Field duplicate imprecision greater than 30% Relative Percent Difference (RPD) and 5x the Reporting Limit (RL) was noted for calcium, iron, magnesium, manganese, potassium, sodium and sulfate. Positive results reported for calcium, iron, magnesium, manganese, potassium, sodium and sulfate were qualified as estimated, "J".

Notes

The laboratory originally used the incorrect detection limits for cyanide. The laboratory was contacted and Form 1's with the correct MDL were sent. Changes were made to the Electronic Deliverable Database (EDD) by the data reviewer.

The sample MPT-AC-GW-DU04 was mislabeled as MPT-AC-GW-DU05 on the Form 1. Corrections to the Form 1 were made by the data reviewer.

According the case narrative, the sample on the chain of custody for MPT-AC-GW-DU04 did not match the sample ID listed on the bottle. The bottle was labeled as MPT-AC-GW-DU05. The laboratory used the sample ID on the bottle for log-in.

A matrix spike (MS) percent recovery was below the 75% quality control limits for sulfate. However, the sample used for the recovery was not included in this SDG. The decision not to qualify for MS noncompliance was based on this factor.

Field duplicate summary tables are included in Appendix C.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory/preparation blanks.

Other Factors Affecting Data Quality: LCS noncompliance was noted for iron. Field duplicate imprecision was noted for calcium, iron, magnesium, manganese, potassium, sodium and sulfate.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Jennifer M. Malle
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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	161			21.2	U	A	19.5	U	A	15.5	U	
ANTIMONY	3.1	U	A	1.6	U		2.1	U	A	2.3	U	A
ARSENIC	2.5	U		4.6	U	A	2.5	U		2.5	U	
BARIUM	13.6			10.5			3.4	U	A	2.1	U	A
BERYLLIUM	0.2	U		0.2	U		0.2	U		0.2	U	
CADMIUM	0.7	U		0.7	U		0.7	U		0.7	U	
CALCIUM	19900	J	G	63700	J	G	119000	J	G	38600	J	G
CHROMIUM	2.6	U		2.6	U		2.6	U		2.6	U	
COBALT	1.5	U		1.5	U		1.5	U		1.5	U	
COPPER	2.9	U		2.9	U		2.9	U		2.9	U	
IRON	1560	J	EG	341	U	A	1470	J	EG	262	U	A
LEAD	1.4	U		1.4	U		1.4	U		1.4	U	
MAGNESIUM	949	J	G	2560	J	G	12000	J	G	26600	J	G
MANGANESE	53.5	J	G	26.9	J	G	93.8	J	G	14.4	J	G
MERCURY	0.031	U		0.039	U	A	0.031	U		0.031	U	
NICKEL	1.7	U		1.7	U		1.8	U	A	1.7	U	
POTASSIUM	536	U	A	1820	U	A	22800	J	DG	26600	J	G
SELENIUM	3.1	U		3.1	U		3.1	U		3.1	U	
SILVER	1.9	U		1.9	U		1.9	U		1.9	U	
SODIUM	15700	J	G	5460	J	G	30900	J	G	22600	J	G
THALLIUM	9.4	U		9.4	U		9.4	U		9.4	U	
TIN	4.6	U		4.6	U		4.6	U		4.6	U	
VANADIUM	3.3			2.1			2.1	U		2.1	U	
ZINC	21.1	U	A	9.9	U	A	4.7	U	A	4.4	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	26.2	U	A	15.5	U		59.8	U	A	44.9	U	A
ANTIMONY	2.5	U	A	2.8	U	A	1.6	U		2.4	U	A
ARSENIC	4.5	U	A	2.5	U		2.5	U		2.5	U	
BARIUM	2.8	U	A	0.69	U	A	2.9	U	A	3.1	U	A
BERYLLIUM	0.2	U		0.2	U		0.2	U		0.21		
CADMIUM	0.7	U		0.7	U		0.7	U		0.7	U	
CALCIUM	73000	J	G	57400	J	G	43700	J	G	78000	J	G
CHROMIUM	2.6	U		2.6	U		3.3			2.6	U	
COBALT	1.5	U		1.5	U		1.5	U		1.5	U	
COPPER	2.9	U		2.9	U		2.9	U		2.9	U	
IRON	105	U	A	80	U	A	274	U	A	160	U	A
LEAD	1.4	U		1.4	U		1.4	U		1.4	U	
MAGNESIUM	13900	J	G	1950	J	G	28800	J	G	17700	J	G
MANGANESE	13.8	J	G	13.0	J	G	13.4	J	G	14.3	J	G
MERCURY	0.031	U		0.031	U		0.031	U		0.031	U	
NICKEL	1.7	U		5.7	U	A	1.7	U		1.7	U	
POTASSIUM	6840	J	G	1940	U	A	27200	J	G	11500	J	G
SELENIUM	3.5			3.1	U		3.1	U		3.1	U	
SILVER	1.9	U		1.9	U		1.9	U		1.9	U	
SODIUM	18900	J	G	7020	J	G	89100	J	G	13300	J	G
THALLIUM	9.4	U		9.4	U		9.4	U		9.4	U	
TIN	4.6	U		4.6	U		4.6	U		4.6	U	
VANADIUM	2.1	U		2.1	U		3.0			2.1	U	
ZINC	4.6	U	A	8.1	U	A	26.4			12.2	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	20.4	U	A	15.5	U		15.5	U		15.5	U	
ANTIMONY	2.0	U	A	1.6	U		1.6	U		1.6	U	
ARSENIC	2.9	U	A	12.2	U	A	2.5	U		2.5	U	
BARIUM	2.7	U	A	38.5			8.7			1.7	U	A
BERYLLIUM	0.2	U		0.2	U		0.2	U		0.2	U	
CADMIUM	0.7	U		0.7	U		0.7	U		0.7	U	
CALCIUM	76100	J	G	103000	J	G	91300	J	G	27700	J	G
CHROMIUM	2.6	U		2.6	U		2.6	U		2.6	U	
COBALT	1.5	U		1.6			1.5	U		1.5	U	
COPPER	2.9	U		7.0	U	A	2.9	U		2.9	U	
IRON	106	U	A	3170	J	EG	63.6	U	A	43.7	U	A
LEAD	1.4	U		1.4	U		1.4	U		1.4	U	
MAGNESIUM	10500	J	G	126000	J	G	30100	J	G	26500	J	G
MANGANESE	74.2	J	G	67.0	J	G	47.4	J	G	8.6	U	A
MERCURY	0.031	U		0.032	U	A	0.031	U		0.031	U	
NICKEL	1.7	U		4.3	U	A	1.7	U		1.7	U	
POTASSIUM	6180	J	G	107000	J	G	6520	J	G	31700	J	G
SELENIUM	3.1	U		3.1	U		3.1	U		3.1	U	
SILVER	1.9	U		1.9	U		1.9	U		1.9	U	
SODIUM	15600	J	G	1650000	J	G	78200	J	G	112000	J	G
THALLIUM	9.4	U		9.4	U		9.4	U		9.4	U	
TIN	4.6	U		4.6	U		4.6	U		4.6	U	
VANADIUM	2.1	U		2.1	U		2.1	U		3.1		
ZINC	8.2	U	A	7.9	U	A	8.8	U	A	3.7	U	A

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02					
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			/ /		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
ALUMINUM	18.4	U	A	15.5	U		15.5	U				
ANTIMONY	1.6	U	A	1.6	U		1.6	U				
ARSENIC	2.5	U		2.5	U		4.8	U	A			
BARIUM	2.1	U	A	1.7	U	A	0.65	U	A			
BERYLLIUM	0.2	U		0.2	U		0.2	U				
CADMIUM	0.7	U		0.83			0.7	U				
CALCIUM	77500	J	G	27900	J	G	192	U	A			
CHROMIUM	2.6	U		2.6	U		2.6	U				
COBALT	1.5	U		1.5	U		1.5	U				
COPPER	2.9	U		2.9	U		2.9	U				
IRON	90.6	U	A	43.7	U		43.7	U				
LEAD	1.4	U		1.4	U		1.4	U				
MAGNESIUM	10700	J	G	26900	J	G	19.7	U				
MANGANESE	73.4	J	G	8.1	U	A	2.1	U	A			
MERCURY	0.031	U		0.031	U		0.031	U				
NICKEL	1.7	U		1.7	U		1.7	U				
POTASSIUM	6280	J	G	28600	J	G	103	U				
SELENIUM	3.1	U		3.1	U		3.1	U				
SILVER	1.9	U		1.9	U		1.9	U				
SODIUM	15200	J	G	109000	J	G	686	U				
THALLIUM	9.4	U		9.4	U		9.4	U				
TIN	4.6	U		4.6	U		4.6	U				
VANADIUM	2.1	U		3.2			2.1	U				
ZINC	12.7	U	A	4.7	U	A	4.7	U	A			

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	MG/L			MG/L			MG/L			MG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE	3.0	U		3.0	U		3.0	U		3.0	U	
NITRATE	0.1	U		0.1	U		0.2			0.1	U	
NITRITE	0.1	U		0.1	U		0.1	U		0.1	U	
SULFATE	68	J	G	5	U		110	J	G	34	J	G

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	MG/L			MG/L			MG/L			MG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE	3.0	U		3.0	U		3.0	U		3.0	U	
NITRATE	0.1	U		0.1	U		0.1	U		0.1	U	
NITRITE	0.1	U		0.1	U		0.1	U		0.1	U	
SULFATE	14	J	G	8	J	G	5	U		26	J	G

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01	MPT-AC-GW-DPW09D-01	MPT-AC-GW-DPW09I-01	MPT-AC-GW-DPW10I-01
SAMPLE DATE:	01/12/00	01/14/00	01/14/00	01/13/00
LABORATORY ID:	A0A130126001	A0A150116003	A0A150116002	A0A140133006
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	MG/L	MG/L	MG/L	MG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
CYANIDE	3.0	U		3.0	U		3.0	U		3.0	U	
NITRATE	0.1	U		0.1	U		0.1	U		0.1	U	
NITRITE	0.1	U		0.1	U		0.1	U		0.1	U	
SULFATE	25	J	G	270	J	G	71	J	G	9	J	G

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02					
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			/ /		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	MG/L			MG/L			MG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE	3.0	U		3.0	U		3.0	U				
NITRATE	0.1	U		0.1	U		0.1	U				
NITRITE	0.1	U		0.1	U		0.1	U				
SULFATE	26	J	G	15	J	G	5	U				

Tetra Tech NUS INTERNAL CORRESPONDENCE

TO: TERRY HANSEN **DATE:** APRIL 20, 2000

FROM: SEAN NIXON **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION – DISSOLVED METHANE
CTO 094 NS, MAYPORT, FLORIDA
SDG MP003

SAMPLES 15/Aqueous

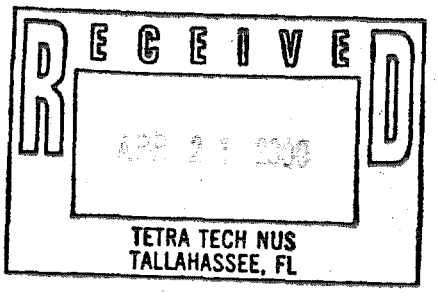
MPT-AC-GW-DPW03S-01	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW05S-01
MPT-AC-GW-DPW06D-01	MPT-AC-GW-DPW06I-01	MPT-AC-GW-DPW06S-01
MPT-AC-GW-DPW07D-01	MPT-AC-GW-DPW07I-01	MPT-AC-GW-DPW07S-01
MPT-AC-GW-DPW09D-01	MPT-AC-GW-DPW09I-01	MPT-AC-GW-DPW10I-01
MPT-AC-GW-DU04	MPT-AC-GW-DU05	MPT-AC-GW-EB02

OVERVIEW

The sample set for CTO 094, NS Mayport, Florida, Sample Delivery Group (SDG) MP003 consists of eighteen (18) aqueous environmental samples including 1 equipment blank. All of the samples were analyzed for dissolved methane. Two field duplicate pairs, samples DPW04S/DU04 and DPW06S/DU05, were included in this SDG.

The samples were collected by Tetra Tech NUS on January 12 - 14, 2000 and analyzed by Severn Trent Laboratories – North Canton. The analyses for dissolved methane were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria, using Standard Operating Procedure (SOP) RSK SOP-175. The data in this SDG were validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Initial/continuing calibrations
  • Laboratory method/field quality control blank results
* • Matrix Spike/Matrix Spike Duplicate results (MS/MSD)
* • Laboratory Control Samples/Blank Spike Analyses
  • Field duplicate precision
* • Compound identification
* • Compound quantitation
* • Detection limits



The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

Dissolved Methane

Gross field duplicate imprecision (Relative Percent Difference = 174%) was noted in the sample pair D04S/DU04. The positive results for methane in the aforementioned samples were qualified as estimated, J.

Gross field duplicate imprecision (Relative Percent Difference = 98%) was noted in the sample pair D06S/DU05. The positive results for methane in the aforementioned samples were qualified as estimated, J.

Additional Comments

Positive results reported below the RL were qualified as estimated, J.

Sample MPT-AC-GW-DU04 was misidentified on the Form I. The Form I was amended by the data reviewer.

Samples 04S, 05S, 06I, 07D, 07I, 07S, 09D, 09I, DU04, and DU05 required reanalyses at dilutions as a result of high concentrations of methane in the samples.

Methane was detected in the laboratory method blank and the equipment blank at the following concentration.

Compound	Maximum Concentration	Action Level
Methane	0.14 ug/L	0.7 ug/L

Sample aliquot and dilution factors were considered prior to the application of the action levels. No positive results less than the action level were reported for methane. It should be noted that field quality control blanks were not qualified for laboratory blank or field quality control blank contamination.

EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted in the field duplicate sample pairs DPW04S/DU04 and DPW06S/DU05.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Review (10/99), and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Sean T. Nixon
Tetra Tech NUS
Chemist/Data Validator

Joseph A. Samchuck
Tetra Tech NUS
Data Validation 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

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
DISSOLVED METHANE												
METHANE	28			110	J	G	140	J	G	71		

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01	MPT-AC-GW-DPW06S-01	MPT-AC-GW-DPW07D-01	MPT-AC-GW-DPW07I-01
SAMPLE DATE:	01/13/00	01/13/00	01/12/00	01/12/00
LABORATORY ID:	A0A140133002	A0A140133001	A0A130126003	A0A130126002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
DISSOLVED METHANE												
METHANE	230			330			120			400		

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01	MPT-AC-GW-DPW09D-01	MPT-AC-GW-DPW09I-01	MPT-AC-GW-DPW10I-01
SAMPLE DATE:	01/12/00	01/14/00	01/14/00	01/13/00
LABORATORY ID:	A0A130126001	A0A150116003	A0A150116002	A0A140133006
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
DISSOLVED METHANE												
METHANE	1300			370			37			820		

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02					
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			/ /		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
DISSOLVED METHANE												
METHANE	1600	J	G	960	J	G	0.14	J	P			

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A140133 003

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7F3J111
Dilution factor: 1
Moisture %:NA

Date Received: 01/14/00
Date Extracted:01/27/00
Date Analyzed: 01/27/00

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DPW06D-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	71	B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A140133 002

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7F3G111
Dilution factor: 1
Moisture %:NA

Date Received: 01/14/00
Date Extracted:01/27/00
Date Analyzed: 01/27/00

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DPW06I-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	300	E B

TETRA TECH NUS, INC.

Lab Name: QUANTERRA
SDG Number: MP003

Matrix: (soil/water) WATER
Lab Sample ID: A0A140133 002
Method: RSK SOP-175
Dissolved Gases in Water
mg/L

Sample WT/Vol: 40 / mL
Date Received: 01/14/00
Work Order: D7F3G211
Date Extracted: 01/27/00
Dilution factor: 10
Date Analyzed: 01/27/00
Moisture %: NA

QC Batch: 0029115
Client Sample Id: MPT-AC-GW-DPW06I-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	230	D B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA SDG Number: MP003

Matrix: (soil/water) WATER Lab Sample ID:A0A140133 001
Method: RSK SOP-175
Dissolved Gases in Water mg/L

Sample WT/Vol: 40 / mL Date Received: 01/14/00
Work Order: D7F33211 Date Extracted:01/27/00
Dilution factor: 1 Date Analyzed: 01/27/00
Moisture %:NA

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DPW06S-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	420	E B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A140133 001

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7F33111
Dilution factor: 10
Moisture %:NA

Date Received: 01/14/00
Date Extracted:01/27/00
Date Analyzed: 01/27/00

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DPW06S-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
~~74-84-0~~	~~Ethane~~	~~5.0~~	~~U~~
~~74-85-1~~	~~Ethene~~	~~5.0~~	~~U~~
74-82-8	Methane	330	D B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A130126 003

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7CRJ111
Dilution factor: 1
Moisture %:NA

Date Received: 01/13/00
Date Extracted:01/25/00
Date Analyzed: 01/25/00

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DPW07D-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	120	B E

TETRA TECH NUS, INC.

Lab Name:QUANTERRA | SDG Number: MP003

Matrix: (soil/water) WATER | Lab Sample ID:A0A130126 003
Method: RSK SOP-175
Dissolved Gases in Water | mg/L

Sample WT/Vol: 38 / mL | Date Received: 01/13/00
Work Order: D7CRJ211 | Date Extracted:01/25/00
Dilution factor: 2 | Date Analyzed: 01/26/00
Moisture %:NA

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DPW07D-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	120	B D

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A130126 002

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7CRG111
Dilution factor: 1
Moisture %:NA

Date Received: 01/13/00
Date Extracted:01/25/00
Date Analyzed: 01/25/00

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DPW07I-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	440	B E

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A130126 002

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7CRG211
Dilution factor: 6
Moisture %:NA

Date Received: 01/13/00
Date Extracted:01/25/00
Date Analyzed: 01/26/00

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DPW07I-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	400	B D

TETRA TECH NUS, INC.

Lab Name: QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID: A0A130126 001

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7CR5111
Dilution factor: 1
Moisture %: NA

Date Received: 01/13/00
Date Extracted: 01/25/00
Date Analyzed: 01/25/00

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DPW07S-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	900	B E

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A130126 001

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7CR5211
Dilution factor: 50
Moisture %:NA

Date Received: 01/13/00
Date Extracted:01/25/00
Date Analyzed: 01/26/00

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DPW07S-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	1300	B D

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A150116 003

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7GD0111
Dilution factor: 1
Moisture %:NA

Date Received: 01/15/00
Date Extracted:01/27/00
Date Analyzed: 01/27/00

QC Batch: 0029116

Client Sample Id: MPT-AC-GW-DPW09D-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	390	E

TETRA TECH NUS, INC.

Lab Name: QUANTERRA
SDG Number: MP003

Matrix: (soil/water) WATER
Lab Sample ID: A0A150116 003
Method: RSK SOP-175
Dissolved Gases in Water
mg/L

Sample WT/Vol: 40 / mL
Date Received: 01/15/00
Work Order: D7GD0211
Date Extracted: 01/27/00
Dilution factor: 6
Date Analyzed: 01/27/00
Moisture %: NA

QC Batch: 0029116
Client Sample Id: MPT-AC-GW-DPW09D-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	370	D

TETRA TECH NUS, INC.

Lab Name: QUANTERRA
SDG Number: MP003

Matrix: (soil/water) WATER
Lab Sample ID: A0A150116 002
Method: RSK SOP-175
Dissolved Gases in Water
mg/L

Sample WT/Vol: 40 / mL
Date Received: 01/15/00
Work Order: D7GCW111
Date Extracted: 01/27/00
Dilution factor: 1
Date Analyzed: 01/27/00
Moisture %: NA

QC Batch: 0029116

Client Sample Id: MPT-AC-GW-DPW09I-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	37	

TETRA TECH NUS, INC.

Lab Name: QUANTERRA
SDG Number: MP003

Matrix: (soil/water) WATER
Lab Sample ID: A0A140133 006
Method: RSK SOP-175
Dissolved Gases in Water
mg/L

Sample WT/Vol: 40 / mL
Date Received: 01/14/00
Work Order: D7F46111
Date Extracted: 01/27/00
Dilution factor: 1
Date Analyzed: 01/27/00
Moisture %: NA

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DPW10I-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	840	E B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA SDG Number: MP003

Matrix: (soil/water) WATER Lab Sample ID:A0A140133 006
Method: RSK SOP-175
Dissolved Gases in Water mg/L

Sample WT/Vol: 40 / mL Date Received: 01/14/00
Work Order: D7F46211 Date Extracted:01/27/00
Dilution factor: 50 Date Analyzed: 01/27/00
Moisture %:NA

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DPW10I-01 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	820	D B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A130126 006

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7CT2111
Dilution factor: 1
Moisture %:NA

Date Received: 01/13/00
Date Extracted:01/25/00
Date Analyzed: 01/26/00

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DUP/4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	1000	B E

TETRA TECH NUS, INC.

Lab Name: QUANTERRA
SDG Number: MP003

Matrix: (soil/water) WATER
Lab Sample ID: A0A130126 006
Method: RSK SOP-175
Dissolved Gases in Water
mg/L

Sample WT/Vol: 38 / mL
Date Received: 01/13/00
Work Order: D7CT2211
Date Extracted: 01/25/00
Dilution factor: 50
Date Analyzed: 01/26/00
Moisture %: NA

QC Batch: 0027293

Client Sample Id: MPT-AC-GW-DU04 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	1600	B

TETRA TECH NUS, INC.

Lab Name: QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID: A0A140133 004

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7F3X111
Dilution factor: 1
Moisture %: NA

Date Received: 01/14/00
Date Extracted: 01/27/00
Date Analyzed: 01/27/00

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DU05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	800	E B

TETRA TECH NUS, INC.

Lab Name: QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID: A0A140133 004

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7F3X211
Dilution factor: 50
Moisture %: NA

Date Received: 01/14/00
Date Extracted: 01/27/00
Date Analyzed: 01/27/00

QC Batch: 0029115

Client Sample Id: MPT-AC-GW-DU05 -RE 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	960	D B

TETRA TECH NUS, INC.

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:A0A150116 005

mg/L

Sample WT/Vol: 40 / mL
Work Order: D7GD6111
Dilution factor: 1
Moisture %:NA

Date Received: 01/15/00
Date Extracted:01/27/00
Date Analyzed: 01/28/00

QC Batch: 0029116

Client Sample Id: MPT-AC-GW-EB02

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
74-82-8	Methane	0.14	J

APPENDIX C
SUPPORT DOCUMENTATION

CASE NARRATIVE

DISSOLVED GASSES

MP003

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

TETRA TECH NUS, INC.
METHOD BLANK COMPOUNDS

Lab Name:QUANTERRA

SDG Number: MP003

Matrix: (soil/water) WATER
Method: RSK SOP-175
Dissolved Gases in Water

Lab Sample ID:I0A270000 293

mg/L

Sample WT/Vol: 38 / mL
Work Order: D7X1D101
Dilution factor: 1
Moisture %:NA

Date Received: 01/13/00
Date Extracted:01/25/00
Date Analyzed: 01/25/00

QC Batch: 0027293

Client Sample Id: INTRA-LAB BLANK

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) mg/L	Q
74-82-8	Methane	0.20	J

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **TERRY HANSEN** **DATE: APRIL 20, 2000**

FROM: **SEAN NIXON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC/SVOC/PEST/PCB/HERB/ORGANOPHOSPHORUS PEST**
CTO 094 NS, MAYPORT, FLORIDA
SDG MP003

SAMPLES 18/Aqueous

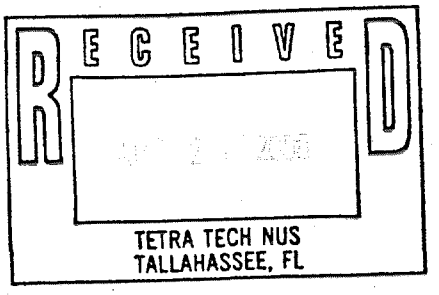
MPT-AC-GW-DPW03S-01	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW05S-01
MPT-AC-GW-DPW06D-01	MPT-AC-GW-DPW06I-01	MPT-AC-GW-DPW06S-01
MPT-AC-GW-DPW07D-01	MPT-AC-GW-DPW07I-01	MPT-AC-GW-DPW07S-01
MPT-AC-GW-DPW09D-01	MPT-AC-GW-DPW09I-01	MPT-AC-GW-DPW10I-01
MPT-AC-GW-DU04	MPT-AC-GW-DU05	MPT-AC-GW-EB02
TRIP BLANK TB-5	TRIP BLANK TB-6 (011300)	TRIP BLANK TB06 (011400)

OVERVIEW

The sample set for CTO 094, NS Mayport, Florida, Sample Delivery Group (SDG) MP003 consists of eighteen (18) aqueous environmental samples including three (3) trip blanks and 1 equipment blank. All of the samples were analyzed for Appendix IX volatiles. All of the samples, except the trip blanks, were analyzed for Appendix IX semivolatiles, pesticides/PCBs, selected herbicides, and selected organophosphorus pesticides. Two field duplicate pairs, samples DPW04S/DU04 and DPW06S/DU05, were included in this SDG.

The samples were collected by Tetra Tech NUS on January 12 - 14, 2000 and analyzed by Severn Trent Laboratories – North Canton. The analyses for volatiles, semivolatiles, pesticides, PCBs, herbicides, and organophosphorus pesticides were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria, using Test Methods for Evaluating Solid Wastes, SW-846 Methods 8260B, 8270C, 8081A, 8082, 8151A, and 8141A respectively. The data in this SDG were validated with regard to the following parameters:

- Data Completeness
- * Holding Times
- * GC/MS tuning and system performance
- Initial/continuing calibrations
- Laboratory method/field quality control blank results
- * Surrogate spike recoveries
- * Internal standard performance
- Matrix Spike/Matrix Spike Duplicate results (MS/MSD)
- Laboratory Control Samples/Blank Spike Analyses
- Field duplicate precision
- * Compound identification
- * Compound quantitation
- * Detection limits



The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

Volatiles

The initial calibration of 01/12/00 contained Relative Response Factors less than the 0.05 quality control limit for acrolein, acetonitrile, isobutanol, and propionitrile. The nondetected results for the aforementioned compounds were rejected, UR, in the affected samples (all samples).

The continuing calibration of 01/17/00 contained Percent Differences (%Ds) greater than the 25% quality control limit for trans-1,4-dichloro-2-butene, vinyl acetate, and 1,2-dibromom-3-chloropropane. The nondetected results for the aforementioned compounds were qualified as estimated, UJ, in the affected samples (03S, 04S, 07D, 07I, DU04, TB-5).

The continuing calibration of 01/18/00 contained %Ds greater than the 25% quality control limit for trans-1,4-dichloro-2-butene and methacrylonitrile. The nondetected results for the aforementioned compounds were qualified as estimated, UJ, in the affected samples (06D, 06I, 06S, 10I, DU05, TB-6-011300, and TB-6-011400).

The continuing calibration of 01/19/00 contained %Ds greater than the 25% quality control limit for chloromethane, chloroethane, and methacrylonitrile. The nondetected results for the aforementioned compounds were qualified as estimated, UJ, in the affected samples (05S, 07S, 09D, and EB02).

The continuing calibration of 01/20/00 contained a %D greater than the 25% quality control limit for methacrylonitrile. The nondetected result for the aforementioned compound was qualified as estimated, UJ, in the affected sample (09I).

The following compounds were detected in the laboratory method blank/trip blanks at the following concentrations.

Compound	Maximum Concentration	Action Level
Acetone*	7.6 ug/L	76 ug/L
Benzene	0.24 ug/L	1.2 ug/L
2-Butanone*	2.4 ug/L	24 ug/L
4-Methyl-2-pentanone*	0.85 ug/L	4.2 ug/L
Chloromethane*	0.18 ug/L	0.9 ug/L
Methylene chloride*	0.42 ug/L	4.2 ug/L
Ethylbenzene*	0.079 ug/L	0.4 ug/L
Toluene*	0.49 ug/L	2.4 ug/L
1,1,2,2-tetrachloroethane*	0.12 ug/L	0.6 ug/L

* - Maximum concentration found in field quality control blank.

Blank Actions

Value < Reporting Limit (RL); report RL followed by a U.
Value > RL and < action level; report value followed by a U.
Value > RL and > action level; report value unqualified.

Sample aliquot and dilution factors were considered prior to the application of the action levels. Positive results reported less than the action levels for acetone, benzene, chloromethane, ethylbenzene, methylene chloride, 1,1,2,2-tetrachloroethane, and toluene were qualified according to the blank action table. It should be noted that field quality control blanks were not qualified for laboratory blank or field quality control blank contamination. The equipment blank contained some contaminants and concentrations thereof that were indicative of a potable water source. These compounds were not used to establish blank action levels.

Semivolatiles

The initial calibration of 01/12/00 contained an RRF less than the 0.05 quality control limit for 4-nitroquinoline-1-oxide. The nondetected results for 4-nitroquinoline-1-oxide were qualified as rejected, UR, in the affected samples (all samples).

The continuing calibrations of 01/20/00, 01/21/00, and 01/24/00 contained RRFs less than the 0.05 quality control limit for 4-nitroquinoline-1-oxide. The nondetected results for 4-nitroquinoline-1-oxide were qualified as rejected, UR, in the affected samples (all samples).

The continuing calibration of 01/21/00 contained a %D greater than the 25% quality control limit for p-phenylenediamine. The nondetected result for p-phenylenediamine was qualified as estimated, UJ, in the affected sample (EB02).

The continuing calibration of 01/24/00 contained %Ds greater than the 25% quality control limit for 2,4-dinitrophenol, 2-acetylaminofluorene, and a,a, dimethylphenethylamine. The nondetected results for the aforementioned compounds were qualified as estimated, UJ, in the affected samples (03S, 04S, 07D, 07I, 07S, DU04)

The LCSs and MS/MSDs yielded %Rs less than the 10% quality control limit for hexachlorocyclopentadiene and dimethylphthalate. The nondetected results for the aforementioned compounds were rejected, UR, in the affected samples.

The following compound was detected in the laboratory method blank at the following concentration:

Compound	Maximum Concentration	Action Level
Bis(2-ethylhexyl)phthalate	7.5 ug/L	75 ug/L

Sample aliquot and dilution factors were considered prior to the application of the action level. No positive results were reported for bis(2-ethylhexyl)phthalate. It should be noted that field quality control blanks were not qualified for laboratory blank or field quality control blank contamination.

Pesticides

A continuing calibration for Kepone and Isodrin was not analyzed on 01/19/00. The nondetected results for Kepone and Isodrin were qualified as estimated, UJ, for all of the samples analyzed on 01/19/00.

The continuing calibration of 01/18/00 at 0056 contained %Ds greater than the 15% quality control limit for Kepone and Isodrin on both analytical columns. The nondetected results for the aforementioned compounds were qualified as estimated, UJ, in the affected samples.

Organophosphorus Pesticides

The continuing calibration of 01/29/00 at 0705 contained %Ds greater than the 15% quality control limit for o,o,o-triethyl phophorothioate and parathion. The nondetected results for the aforementioned compounds were qualified as estimated, UJ, in the affected samples (05S, 06D, 06I, 06S, 09D, 09I, 10I, DU04, DU05, and EB02)

Additional Comments

Positive results reported below the RL were qualified as estimated, J.

The semivolatile compound hexachlorophene was not reported, nor were analyses performed for it.

The volatile MS/MSD analyses of sample 09I yielded %Rs above the quality control limits for several compounds. No action was taken for these MS/MSD noncompliances.

Several compounds in the semivolatile LCS and MS/MSD analyses yielded %Rs below the quality control limits. No action was taken for LCS and MS/MSD noncompliances that were not gross in nature.

A semivolatile initial calibration contained a %RSD greater than the 30% quality control limit for 2,4-dinitrophenol. Because only nondetected results were reported for 2,4-dinitrophenol in the affected samples, no action was taken.

The herbicide LCSs yielded %Rs less than the quality control limit for Dinoseb. No action was taken for these LCS noncompliances.

The herbicide MS/MSD analyses yielded %Rs less than the quality control limits for 2,4,5-T, 2,4,5-TP, 2,4-D, and Dinoseb. Furthermore, the Relative Percent Differences (RPDs) for 2,4-DB and 2,4,5-T exceeded the quality control limits. No action was taken for these LCS or MS/MSD noncompliances.

The PCB continuing calibration verification contained %Ds greater than the 15% quality control limit, but only on one column. No action was taken.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Nondetected results for acrolein, acetonitrile, isobutanol, propionitrile, and 4-nitroquinoline-1-oxide were rejected for RRF less than 0.05. blank contamination was noted for several compounds. Several nondetected results were qualified for continuing calibration noncompliances.

Other Factors Affecting Data Quality: Nondetected results for hexachlorocyclopentadiene and dimethylphthalate were rejected for poor MS/MSD and LCS %Rs.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Review (10/99), and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96). The text of this report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Sean T. Nixon
Tetra Tech NUS
Chemist/Data Validator

Joseph A. Samchuck
Tetra Tech NUS
Data Validation 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

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	UJ	C	1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	10	U	B	10	U	B	10	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U		1	U	A	1	U	A	1	U	A
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	1	U		1	U		1	U		0.62	J	P
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	UJ	C	1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	UJ	C	1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	U		1	U		1	U		1	U	
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U	B	1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	U		1	U		1	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U		1	U		1	U		1	U	B
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U		1	U		1	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	UJ	C	1	UJ	C	1	U		1	UJ	C
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	UJ	C	1	UJ	C	1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	A	1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U		1	UJ	C	1	UJ	C
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	10	U	B	10	U	B	10	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U		1	U	A	1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	0.54	J	P	1	U		1	U		0.24	J	P
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		1	U		1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	U		1	U		1	U		1	U	
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	UJ	C	1	UJ	C	1	U		1	U	
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U	B	1	U		1	U		1	U	
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U	B	1	U		1	U	B	1	U	
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	U		1	U		1	UJ	C	1	UJ	C
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		0.33	J	P	1	U	
1,1-DICHLOROETHENE	1	U		1	U		0.18	J	P	1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	U		1	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		13			1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
2-BUTANONE	10	U		10	U		10	U		10	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		1	U		1	U	
2-HEXANONE	10	U		10	U		10	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		10	U		10	U	
ACETONE	10	U	B	10	U	B	10	U	B	10	U	B
ACETONITRILE	20	UR	C	20	UR	C	20	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	10	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		10	U		10	U	
ALLYL CHLORIDE	1	U		1	U		1	U		1	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	2	U		2	U		2	U		2	U	
CARBON DISULFIDE	0.15	J	P	0.13	J	P	0.2	J	P	0.48	J	P
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	UJ	C	1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		0.1	J	P
CHLOROMETHANE	1	U		1	U	B	1	U		1	U	
CHLOROPRENE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		12			0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		1	U		1	U	
DIBROMOMETHANE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	U		1	U		1	U		1	U	
ETHYL METHACRYLATE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
IODOMETHANE	1	U		1	U		1	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	50	UR	C	50	UR	C
METHACRYLONITRILE	1	U		1	UJ	C	1	UJ	C	1	UJ	C
METHYL METHACRYLATE	1	U		1	U		1	U		1	U	
METHYLENE CHLORIDE	1	U		1	U	B	1	U		1	U	B
PROPIONITRILE	4	UR	C	4	UR	C	4	UR	C	4	UR	C
STYRENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	1	U		1	U	B	1	U		1	U	B
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.83			0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	UJ	C	1	U		1	U		1	UJ	C
TRICHLOROETHENE	1	U		1	U		0.99	J	P	1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		2	U		2	U	
VINYL ACETATE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	
XYLENES, TOTAL	1	U		1	U		1	U		1	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02			TRIP BLANK TB-5		
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			01/12/00		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005			A0A130126007		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U		2	U		1	U	
1,1,1-TRICHLOROETHANE	1	U		1	U		2	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	A	1	U		2	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		2	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		2	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		2	U		1	U	
1,2,3-TRICHLOROPROPANE	1	U		1	U		2	U		1	UJ	C
1,2-DIBROMO-3-CHLOROPROPANE	1	UJ	C	1	U		2	U		1	U	
1,2-DIBROMOETHANE	1	U		1	U		2	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		2	U		1	U	
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U		2	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		2	U		1	U	
2-BUTANONE	10	U		10	U		11	J	P	2.4	J	P
2-CHLOROETHYL VINYL ETHER	1	U		1	U		2	U		1	U	
2-HEXANONE	10	U		10	U		20	U		10	U	
4-METHYL-2-PENTANONE	10	U		10	U		20	U		0.85	J	P
ACETONE	10	U	B	10	U	B	58			7.6	J	P
ACETONITRILE	20	UR	C	20	UR	C	40	UR	C	20	UR	C
ACROLEIN	10	UR	C	10	UR	C	20	UR	C	10	UR	C
ACRYLONITRILE	10	U		10	U		20	U		10	U	
ALLYL CHLORIDE	1	U		1	U		2	U		1	U	
BENZENE	1	U	A	1	U		0.23	J	P	0.092	J	P
BROMODICHLOROMETHANE	1	U		1	U		2	U		1	U	
BROMOFORM	1	U		1	U		2	U		1	U	
BROMOMETHANE	2	U		2	U		4	U		2	U	
CARBON DISULFIDE	0.35	J	P	0.58	J	P	2	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		2	U		1	U	
CHLOROBENZENE	1	U		1	U		2	U		1	U	
CHLOROETHANE	1	U		1	U		2	UJ	C	1	U	
CHLOROFORM	1	U		0.12	J	P	0.26	J	P	1	U	
CHLOROMETHANE	1	U		1	U		2	UJ	C	0.18	J	P
CHLOROPRENE	1	U		1	U		2	U		1	U	
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		1	U		0.5	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		2	U		1	U	

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SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02			TRIP BLANK TB-5		
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			01/12/00		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005			A0A130126007		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U		2	U		1	U	
DIBROMOMETHANE	1	U		1	U		2	U		1	U	
DICHLORODIFLUOROMETHANE	1	U		1	U		2	U		1	U	
ETHYL METHACRYLATE	1	U		1	U		2	U		1	U	
ETHYLBENZENE	1	U		1	U		2	U		0.079	J	P
IODOMETHANE	1	U		1	U		2	U		1	U	
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C	100	UR	C	50	UR	C
METHACRYLONITRILE	1	U		1	UJ	C	2	UJ	C	1	U	
METHYL METHACRYLATE	1	U		1	U		2	U		1	U	
METHYLENE CHLORIDE	1	U		1	U	B	2.4			0.15	J	P
PROPIONITRILE	4	UR	C	4	UR	C	8	UR	C	4	UR	C
STYRENE	1	U		1	U		2	U		1	U	
TETRACHLOROETHENE	1	U		1	U		2	U		1	U	
TOLUENE	1	U	B	1	U	B	0.36	J	P	0.49	J	P
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U		1	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		2	U		1	U	
TRANS-1,4-DICHLORO-2-BUTENE	1	UJ	C	1	UJ	C	2	U		1	UJ	C
TRICHLOROETHENE	1	U		1	U		2	U		1	U	
TRICHLOROFLUOROMETHANE	2	U		2	U		4	U		2	U	
VINYL ACETATE	1	UJ	C	1	U		2	U		1	UJ	C
VINYL CHLORIDE	1	U		1	U		2	U		1	U	
XYLENES, TOTAL	1	U		1	U		2	U		1	U	

SAMPLE NUMBER:	TRIP BLANK TB-6(011300)			TRIP BLANK TB-6(011400)			/ /			/ /		
SAMPLE DATE:	01/13/00			01/14/00								
LABORATORY ID:	A0A140133005			A0A150116006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U							
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							
1,2,3-TRICHLOROPROPANE	1	U		1	U							
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U							
1,2-DIBROMOETHANE	1	U		1	U							
1,2-DICHLOROETHANE	1	U		1	U							
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U							
1,2-DICHLOROPROPANE	1	U		1	U							
2-BUTANONE	10	U		10	U							
2-CHLOROETHYL VINYL ETHER	1	U		1	U							
2-HEXANONE	10	U		10	U							
4-METHYL-2-PENTANONE	10	U		10	U							
ACETONE	1.2	J	P	2.5	J	P						
ACETONITRILE	20	UR	C	20	UR	C						
ACROLEIN	10	UR	C	10	UR	C						
ACRYLONITRILE	10	U		10	U							
ALLYL CHLORIDE	1	U		1	U							
BENZENE	0.074	J	P	0.08	J	P						
BROMODICHLOROMETHANE	1	U		1	U							
BROMOFORM	1	U		1	U							
BROMOMETHANE	2	U		2	U							
CARBON DISULFIDE	1	U		1	U							
CARBON TETRACHLORIDE	1	U		1	U							
CHLOROBENZENE	1	U		1	U							
CHLOROETHANE	1	U		1	U							
CHLOROFORM	1	U		1	U							
CHLOROMETHANE	1	U		1	U							
CHLOROPRENE	1	U		1	U							
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
CIS-1,3-DICHLOROPROPENE	1	U		1	U							

SAMPLE NUMBER:	TRIP BLANK TB-6(011300)			TRIP BLANK TB-6(011400)			/ /			/ /		
SAMPLE DATE:	01/13/00			01/14/00								
LABORATORY ID:	A0A140133005			A0A150116006								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	0.0 %			0.0 %			100.0 %			100.0 %		
UNITS:	UG/L			UG/L								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
DIBROMOCHLOROMETHANE	1	U		1	U							
DIBROMOMETHANE	1	U		1	U							
DICHLORODIFLUOROMETHANE	1	U		1	U							
ETHYL METHACRYLATE	1	U		1	U							
ETHYLBENZENE	1	U		1	U							
IODOMETHANE	1	U		1	U							
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C						
METHACRYLONITRILE	1	UJ	C	1	UJ	C						
METHYL METHACRYLATE	1	U		1	U							
METHYLENE CHLORIDE	0.41	J	P	0.42	J	P						
PROPIONITRILE	4	U		4	UR	C						
STYRENE	1	U		1	U							
TETRACHLOROETHENE	1	U		1	U							
TOLUENE	0.41	J	P	0.44	J	P						
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
TRANS-1,3-DICHLOROPROPENE	1	U		1	U							
TRANS-1,4-DICHLORO-2-BUTENE	1	UJ	C	1	UJ	C						
TRICHLOROETHENE	1	U		1	U							
TRICHLOROFLUOROMETHANE	2	U		2	U							
VINYL ACETATE	1	U		1	U							
VINYL CHLORIDE	1	U		1	U							
XYLENES, TOTAL	1	U		1	U							

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SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	UJ	C	25	UJ	C	25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

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SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW05S-01	MPT-AC-GW-DPW06D-01
SAMPLE DATE:	01/12/00	01/12/00	01/14/00	01/13/00
LABORATORY ID:	A0A130126004	A0A130126005	A0A150116001	A0A140133003
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	UJ	C	50	U		50	U	
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		38			10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW05S-01	MPT-AC-GW-DPW06D-01
SAMPLE DATE:	01/12/00	01/12/00	01/14/00	01/13/00
LABORATORY ID:	A0A130126004	A0A130126005	A0A150116001	A0A140133003
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		46			10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	U		25	U		25	UJ	C	25	UJ	C
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	U		10	U		10	UJ	C	10	UJ	C
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	U		50	U		50	UJ	C	50	UR	C
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	U		10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,2-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3,5-TRINITROBENZENE	10	U		10	U		10	U		10	U	
1,3-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,3-DINITROBENZENE	10	U		10	U		10	U		10	U	
1,4-DICHLOROBENZENE	10	U		10	U		10	U		10	U	
1,4-DIOXANE	10	U		10	U		10	U		10	U	
1,4-NAPHTHOQUINONE	10	U		10	U		10	U		10	U	
1-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U		10	U	
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,4-DIMETHYLPHENOL	10	U		10	U		10	U		10	U	
2,4-DINITROPHENOL	25	UJ	C	25	U		25	U		25	U	
2,4-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2,6-DICHLOROPHENOL	10	U		10	U		10	U		10	U	
2,6-DINITROTOLUENE	10	U		10	U		10	U		10	U	
2-ACETYLAMINOFLUORENE	10	UJ	C	10	U		10	U		10	U	
2-CHLORONAPHTHALENE	10	U		10	U		10	U		10	U	
2-CHLOROPHENOL	10	U		10	U		10	U		10	U	
2-METHYLNAPHTHALENE	10	U		10	U		10	U		10	U	
2-METHYLPHENOL	10	U		10	U		10	U		10	U	
2-NAPHTHYLAMINE	10	U		10	U		10	U		10	U	
2-NITROANILINE	25	U		25	U		25	U		25	U	
2-NITROPHENOL	10	U		10	U		10	U		10	U	
2-PICOLINE	10	U		10	U		10	U		10	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U		10	U	
3-METHYLCHOLANTHRENE	10	U		10	U		10	U		10	U	
3-METHYLPHENOL	10	U		10	U		10	U		10	U	
3-NITROANILINE	25	U		25	U		25	U		25	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U		25	U	
4-AMINOBIPHENYL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-CHLOROANILINE	10	U		10	U		10	U		10	U	
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U		10	U	
4-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-NITROANILINE	25	U		25	U		25	U		25	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C	10	UR	C
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U		10	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U		10	U	
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	U		50	U		50	U	
ACENAPHTHENE	10	U		10	U		10	U		10	U	
ACENAPHTHYLENE	10	U		10	U		10	U		10	U	
ACETOPHENONE	10	U		10	U		10	U		10	U	
ANILINE	10	U		10	U		10	U		10	U	
ANTHRACENE	10	U		10	U		10	U		10	U	
ARAMITE	10	U		10	U		10	U		10	U	
BENZO(A)ANTHRACENE	10	U		10	U		10	U		10	U	
BENZO(A)PYRENE	10	U		10	U		10	U		10	U	
BENZO(B)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U		10	U	
BENZO(K)FLUORANTHENE	10	U		10	U		10	U		10	U	
BENZYL ALCOHOL	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U		10	U	
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U		10	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U		10	U	
CARBAZOLE	10	U		10	U		10	U		10	U	
CHLOROBENZILATE	10	U		10	U		10	U		10	U	
CHRYSENE	10	U		10	U		10	U		10	U	
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U		10	U	
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U		20	U	
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U		10	U	
DIBENZOFURAN	10	U		10	U		10	U		10	U	
DIETHYL PHTHALATE	10	U		10	U		10	UR	DE	10	U	
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	U		10	UR	DE
DIPHENYLAMINE	10	U		10	U		10	U		10	U	
ETHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
FLUORANTHENE	10	U		10	U		10	U		10	U	
FLUORENE	10	U		10	U		10	U		10	U	
HEXACHLOROBENZENE	10	U		10	U		10	U		10	U	
HEXACHLOROBUTADIENE	10	U		10	U		10	U		10	U	
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE	10	UR	DE
HEXACHLOROETHANE	10	U		10	U		10	U		10	U	
HEXACHLOROPROPENE	10	U		10	U		10	U		10	U	
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U		10	U	
ISOPHORONE	10	U		10	U		10	U		10	U	
ISOSAFROLE	10	U		10	U		10	U		10	U	
METHAPYRILENE	10	U		10	U		10	U		10	U	
METHYL METHANESULFONATE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U		10	U	
N-NITROSOMORPHOLINE	10	U		10	U		10	U		10	U	
N-NITROSOPIPERIDINE	10	U		10	U		10	U		10	U	
N-NITROSOPYRROLIDINE	10	U		10	U		10	U		10	U	
NAPHTHALENE	10	U		10	U		10	U		10	U	
NITROBENZENE	10	U		10	U		10	U		10	U	
O-TOLUIDINE	10	U		10	U		10	U		10	U	
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U		10	U	
P-PHENYLENEDIAMINE	10	U		10	U		10	U		10	U	
PENTACHLOROBENZENE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01	MPT-AC-GW-DPW09D-01	MPT-AC-GW-DPW09I-01	MPT-AC-GW-DPW10I-01
SAMPLE DATE:	01/12/00	01/14/00	01/14/00	01/13/00
LABORATORY ID:	A0A130126001	A0A150116003	A0A150116002	A0A140133006
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U		50	U	
PENTACHLORONITROBENZENE	10	U		10	U		10	U		10	U	
PENTACHLOROPHENOL	10	U		10	U		10	U		10	U	
PHENACETIN	10	U		10	U		10	U		10	U	
PHENANTHRENE	10	U		10	U		10	U		10	U	
PHENOL	10	U		10	U		10	U		10	U	
PRONAMIDE	10	U		10	U		10	U		10	U	
PYRENE	10	U		10	U		10	U		10	U	
PYRIDINE	10	U		10	U		10	U		10	U	
SAFROLE	10	U		10	U		10	U		10	U	

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02			/ /		
SAMPLE DATE:	01/12/00			01/13/00			01/14/00					
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U		10	U		10	U				
1,2,4-TRICHLOROBENZENE	10	U		10	U		10	U				
1,2-DICHLOROBENZENE	10	U		10	U		10	U				
1,3,5-TRINITROBENZENE	10	U		10	U		10	U				
1,3-DICHLOROBENZENE	10	U		10	U		10	U				
1,3-DINITROBENZENE	10	U		10	U		10	U				
1,4-DICHLOROBENZENE	10	U		10	U		10	U				
1,4-DIOXANE	10	U		10	U		10	U				
1,4-NAPHTHOQUINONE	10	U		10	U		10	U				
1-NAPHTHYLAMINE	10	U		10	U		10	U				
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U		10	U		10	U				
2,3,4,6-TETRACHLOROPHENOL	10	U		10	U		10	U				
2,4,5-TRICHLOROPHENOL	10	U		10	U		10	U				
2,4,6-TRICHLOROPHENOL	10	U		10	U		10	U				
2,4-DICHLOROPHENOL	10	U		10	U		10	U				
2,4-DIMETHYLPHENOL	10	U		10	U		10	U				
2,4-DINITROPHENOL	25	UJ	C	25	U		25	U				
2,4-DINITROTOLUENE	10	U		10	U		10	U				
2,6-DICHLOROPHENOL	10	U		10	U		10	U				
2,6-DINITROTOLUENE	10	U		10	U		10	U				
2-ACETYLAMINOFLUORENE	10	UJ	C	10	U		10	U				
2-CHLORONAPHTHALENE	10	U		10	U		10	U				
2-CHLOROPHENOL	10	U		10	U		10	U				
2-METHYLNAPHTHALENE	10	U		10	U		10	U				
2-METHYLPHENOL	10	U		10	U		10	U				
2-NAPHTHYLAMINE	10	U		10	U		10	U				
2-NITROANILINE	25	U		25	U		25	U				
2-NITROPHENOL	10	U		10	U		10	U				
2-PICOLINE	10	U		10	U		10	U				
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U				
3,3'-DIMETHYLBENZIDINE	10	U		10	U		10	U				
3-METHYLCHOLANTHRENE	10	U		10	U		10	U				
3-METHYLPHENOL	10	U		10	U		10	U				
3-NITROANILINE	25	U		25	U		25	U				

SAMPLE NUMBER:	MPT-AC-GW-DU04	MPT-AC-GW-DU05	MPT-AC-GW-EB02	
SAMPLE DATE:	01/12/00	01/13/00	01/14/00	/ /
LABORATORY ID:	A0A130126006	A0A140133004	A0A150116005	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW06S-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
4,6-DINITRO-2-METHYLPHENOL	25	U		25	U		25	U				
4-AMINOBIPHENYL	10	U		10	U		10	U				
4-BROMOPHENYL PHENYL ETHER	10	U		10	U		10	U				
4-CHLORO-3-METHYLPHENOL	10	U		10	U		10	U				
4-CHLOROANILINE	10	U		10	U		10	U				
4-CHLOROPHENYL PHENYL ETHER	10	U		10	U		10	U				
4-METHYLPHENOL	10	U		10	U		10	U				
4-NITROANILINE	25	U		25	U		25	U				
4-NITROPHENOL	25	U		25	U		25	U				
4-NITROQUINOLINE-1-OXIDE	10	UR	C	10	UR	C	10	UR	C			
5-NITRO-O-TOLUIDINE	10	U		10	U		10	U				
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	U		10	U		10	U				
A,A-DIMETHYLPHENETHYLAMINE	50	UJ	C	50	U		50	U				
ACENAPHTHENE	10	U		10	U		10	U				
ACENAPHTHYLENE	10	U		10	U		10	U				
ACETOPHENONE	10	U		10	U		10	U				
ANILINE	10	U		10	U		10	U				
ANTHRACENE	10	U		10	U		10	U				
ARAMITE	10	U		10	U		10	U				
BENZO(A)ANTHRACENE	10	U		10	U		10	U				
BENZO(A)PYRENE	10	U		10	U		10	U				
BENZO(B)FLUORANTHENE	10	U		10	U		10	U				
BENZO(G,H,I)PERYLENE	10	U		10	U		10	U				
BENZO(K)FLUORANTHENE	10	U		10	U		10	U				
BENZYL ALCOHOL	10	U		10	U		10	U				
BIS(2-CHLOROETHOXY)METHANE	10	U		10	U		10	U				
BIS(2-CHLOROETHYL)ETHER	10	U		10	U		10	U				
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U				
BUTYLBENZYL PHTHALATE	10	U		10	U		10	U				
CARBAZOLE	10	U		10	U		10	U				
CHLOROBENZILATE	10	U		10	U		10	U				
CHRYSENE	10	U		10	U		10	U				
DI-N-BUTYL PHTHALATE	10	U		10	U		10	U				
DI-N-OCTYL PHTHALATE	10	U		10	U		10	U				

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02					
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			/ /		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
DIALLATE	20	U		20	U		20	U				
DIBENZO(A,H)ANTHRACENE	10	U		10	U		10	U				
DIBENZOFURAN	10	U		10	U		10	U				
DIETHYL PHTHALATE	10	U		10	U		10	U				
DIMETHYL PHTHALATE	10	UR	DE	10	UR	DE	10	UR	DE			
DIPHENYLAMINE	10	U		10	U		10	U				
ETHYL METHANESULFONATE	10	U		10	U		10	U				
FLUORANTHENE	10	U		10	U		10	U				
FLUORENE	10	U		10	U		10	U				
HEXACHLOROBENZENE	10	U		10	U		10	U				
HEXACHLOROBUTADIENE	10	U		10	U		10	U				
HEXACHLOROCYCLOPENTADIENE	10	UR	DE	10	UR	DE	10	UR	DE			
HEXACHLOROETHANE	10	U		10	U		10	U				
HEXACHLOROPROPENE	10	U		10	U		10	U				
INDENO(1,2,3-CD)PYRENE	10	U		10	U		10	U				
ISOPHORONE	10	U		10	U		10	U				
ISOSAFROLE	10	U		10	U		10	U				
METHAPYRILENE	10	U		10	U		10	U				
METHYL METHANESULFONATE	10	U		10	U		10	U				
N-NITROSO-DI-N-BUTYLAMINE	10	U		10	U		10	U				
N-NITROSO-DI-N-PROPYLAMINE	10	U		10	U		10	U				
N-NITROSODIETHYLAMINE	10	U		10	U		10	U				
N-NITROSODIMETHYLAMINE	10	U		10	U		10	U				
N-NITROSODIPHENYLAMINE	10	U		10	U		10	U				
N-NITROSOMETHYLETHYLAMINE	10	U		10	U		10	U				
N-NITROSOMORPHOLINE	10	U		10	U		10	U				
N-NITROSOPIPERIDINE	10	U		10	U		10	U				
N-NITROSOPYRROLIDINE	10	U		10	U		10	U				
NAPHTHALENE	10	U		10	U		10	U				
NITROBENZENE	10	U		10	U		10	U				
O-TOLUIDINE	10	U		10	U		10	U				
P-DIMETHYLAMINOAZOBENZENE	10	U		10	U		10	U				
P-PHENYLENEDIAMINE	10	U		10	U		10	UJ	C			
PENTACHLOROBENZENE	10	U		10	U		10	U				

SAMPLE NUMBER:	MPT-AC-GW-DU04	MPT-AC-GW-DU05	MPT-AC-GW-EB02	
SAMPLE DATE:	01/12/00	01/13/00	01/14/00	/ /
LABORATORY ID:	A0A130126006	A0A140133004	A0A150116005	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW06S-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
PENTACHLOROETHANE	50	U		50	U		50	U				
PENTACHLORONITROBENZENE	10	U		10	U		10	U				
PENTACHLOROPHENOL	10	U		10	U		10	U				
PHENACETIN	10	U		10	U		10	U				
PHENANTHRENE	10	U		10	U		10	U				
PHENOL	10	U		10	U		1.3	J	P			
PRONAMIDE	10	U		10	U		10	U				
PYRENE	10	U		10	U		10	U				
PYRIDINE	10	U		10	U		10	U				
SAFROLE	10	U		10	U		10	U				

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SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	U	
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	2	U		2	U		2	U		2	U	

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	U	
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	2	U		2	U		2	U		2	U	

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SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDE	0.05	U		0.05	U		0.05	U		0.05	U	
4,4'-DDT	0.05	U		0.05	U		0.05	U		0.05	U	
ALDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
AROCLOR-1016	1	U		1	U		1	U		1	U	
AROCLOR-1221	1	U		1	U		1	U		1	U	
AROCLOR-1232	1	U		1	U		1	U		1	U	
AROCLOR-1242	1	U		1	U		1	U		1	U	
AROCLOR-1248	1	U		1	U		1	U		1	U	
AROCLOR-1254	1	U		1	U		1	U		1	U	
AROCLOR-1260	1	U		1	U		1	U		1	U	
BETA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DELTA-BHC	0.05	U		0.05	U		0.05	U		0.05	U	
DIELDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN I	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN II	0.05	U		0.05	U		0.05	U		0.05	U	
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U		0.05	U	
ENDRIN KETONE	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U		0.05	U	
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR	0.05	U		0.05	U		0.05	U		0.05	U	
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U		0.05	U	
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
METHOXYCHLOR	0.1	U		0.1	U		0.1	U		0.1	U	
TOXAPHENE	2	U		2	U		2	U		2	U	

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02					
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			/ /		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.05	U		0.05	U		0.05	U				
4,4'-DDE	0.05	U		0.05	U		0.05	U				
4,4'-DDT	0.05	U		0.05	U		0.05	U				
ALDRIN	0.05	U		0.05	U		0.05	U				
ALPHA-BHC	0.05	U		0.05	U		0.05	U				
ALPHA-CHLORDANE	0.05	U		0.05	U		0.05	U				
AROCLOR-1016	1	U		1	U		1	U				
AROCLOR-1221	1	U		1	U		1	U				
AROCLOR-1232	1	U		1	U		1	U				
AROCLOR-1242	1	U		1	U		1	U				
AROCLOR-1248	1	U		1	U		1	U				
AROCLOR-1254	1	U		1	U		1	U				
AROCLOR-1260	1	U		1	U		1	U				
BETA-BHC	0.05	U		0.05	U		0.05	U				
DELTA-BHC	0.05	U		0.05	U		0.05	U				
DIELDRIN	0.05	U		0.05	U		0.05	U				
ENDOSULFAN I	0.05	U		0.05	U		0.05	U				
ENDOSULFAN II	0.05	U		0.05	U		0.05	U				
ENDOSULFAN SULFATE	0.05	U		0.05	U		0.05	U				
ENDRIN	0.05	U		0.05	U		0.05	U				
ENDRIN ALDEHYDE	0.05	U		0.05	U		0.05	U				
ENDRIN KETONE	0.05	U		0.05	U		0.05	U				
GAMMA-BHC (LINDANE)	0.05	U		0.05	U		0.05	U				
GAMMA-CHLORDANE	0.05	U		0.05	U		0.05	U				
HEPTACHLOR	0.05	U		0.05	U		0.05	U				
HEPTACHLOR EPOXIDE	0.05	U		0.05	U		0.05	U				
ISODRIN	0.1	UJ	C	0.1	UJ	C	0.1	UJ	C			
KEPONE	1	UJ	C	1	UJ	C	1	UJ	C			
METHOXYCHLOR	0.1	U		0.1	U		0.1	U				
TOXAPHENE	2	U		2	U		2	U				

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
ORGANOPHOSPHOROUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	U		1.0	U	
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	U		1.0	U		1.0	U	
METHYL PARATHION	1.0	U		1.0	U		1.0	U		1.0	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
PARATHION	1.0	U		1.0	U		1.0	UJ	C	1.0	UJ	C
PHORATE	1.0	U		1.0	U		1.0	U		1.0	U	
SULFOTEP	1.0	U		1.0	U		1.0	U		1.0	U	
THIONAZIN	1.0	U		1.0	U		1.0	U		1.0	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01	MPT-AC-GW-DPW06S-01	MPT-AC-GW-DPW07D-01	MPT-AC-GW-DPW07I-01
SAMPLE DATE:	01/13/00	01/13/00	01/12/00	01/12/00
LABORATORY ID:	A0A140133002	A0A140133001	A0A130126003	A0A130126002
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHOROUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	U		1.0	U	
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	U		1.0	U		1.0	U	
METHYL PARATHION	1.0	U		1.0	U		1.0	U		1.0	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	UJ	C	1.0	UJ	C	1.0	U		1.0	U	
PARATHION	1.0	UJ	C	1.0	UJ	C	1.0	U		1.0	U	
PHORATE	1.0	U		1.0	U		1.0	U		1.0	U	
SULFOTEP	1.0	U		1.0	U		1.0	U		1.0	U	
THIONAZIN	1.0	U		1.0	U		1.0	U		1.0	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
ORGANOPHOSPHOROUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	U		1.0	U	
DISULFOTON	1.0	U		1.0	U		1.0	U		1.0	U	
FAMPHUR	1.0	U		1.0	U		1.0	U		1.0	U	
METHYL PARATHION	1.0	U		1.0	U		1.0	U		1.0	U	
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	U		1.0	UJ	C	1.0	UJ	C	1.0	UJ	C
PARATHION	1.0	U		1.0	UJ	C	1.0	UJ	C	1.0	UJ	C
PHORATE	1.0	U		1.0	U		1.0	U		0.42	J	P
SULFOTEP	1.0	U		1.0	U		1.0	U		0.40	J	P
THIONAZIN	1.0	U		1.0	U		1.0	U		0.50	J	P

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DU04			MPT-AC-GW-DU05			MPT-AC-GW-EB02					
SAMPLE DATE:	01/12/00			01/13/00			01/14/00			/ /		
LABORATORY ID:	A0A130126006			A0A140133004			A0A150116005					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW06S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHOROUS PESTICIDES												
DIMETHOATE	1.0	U		1.0	U		1.0	U				
DISULFOTON	1.0	U		1.0	U		1.0	U				
FAMPHUR	1.0	U		1.0	U		1.0	U				
METHYL PARATHION	1.0	U		1.0	U		1.0	U				
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	UJ	C	1.0	UJ	C	1.0	UJ	C			
PARATHION	1.0	UJ	C	1.0	UJ	C	1.0	UJ	C			
PHORATE	1.0	U		1.0	U		1.0	U				
SULFOTEP	1.0	U		1.0	U		1.0	U				
THIONAZIN	1.0	U		1.0	U		1.0	U				

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW03S-01			MPT-AC-GW-DPW04S-01			MPT-AC-GW-DPW05S-01			MPT-AC-GW-DPW06D-01		
SAMPLE DATE:	01/12/00			01/12/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126004			A0A130126005			A0A150116001			A0A140133003		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW06I-01			MPT-AC-GW-DPW06S-01			MPT-AC-GW-DPW07D-01			MPT-AC-GW-DPW07I-01		
SAMPLE DATE:	01/13/00			01/13/00			01/12/00			01/12/00		
LABORATORY ID:	A0A140133002			A0A140133001			A0A130126003			A0A130126002		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	U	

CTO094 - NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP003

SAMPLE NUMBER:	MPT-AC-GW-DPW07S-01			MPT-AC-GW-DPW09D-01			MPT-AC-GW-DPW09I-01			MPT-AC-GW-DPW10I-01		
SAMPLE DATE:	01/12/00			01/14/00			01/14/00			01/13/00		
LABORATORY ID:	A0A130126001			A0A150116003			A0A150116002			A0A140133006		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	1	U		1	U		1	U		1	U	
2,4,5-TP (SILVEX)	1	U		1	U		1	U		1	U	
2,4-D	4	U		4	U		4	U		4	U	
DINOSEB	0.6	U		0.6	U		0.6	U		0.6	U	

SAMPLE NUMBER:	MPT-AC-GW-DU04	MPT-AC-GW-DU05	MPT-AC-GW-EB02	
SAMPLE DATE:	01/12/00	01/13/00	01/14/00	/ /
LABORATORY ID:	A0A130126006	A0A140133004	A0A150116005	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:	MPT-AC-GW-DPW04S-01	MPT-AC-GW-DPW06S-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U		1	U		1	U				
2,4,5-TP (SILVEX)	1	U		1	U		1	U				
2,4-D	4	U		4	U		4	U				
DINOSEB	0.6	U		0.6	U		0.6	U				

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**DECEMBER 7, 2000**
FROM:	**JENNIFER M. MALLE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, CYANIDE, AND TIN**
CTO-091 NS MAYPORT, FLORIDA
SDG – MP024

SAMPLES: 2/Soil

MPT-AC-SU-01-05 MPT-AC-SU-02-05

Overview

The sample set for CTO 091, NS Mayport, SDG MP024, consists of two (2) soil environmental samples.

All samples were analyzed for Target Analyte List (TAL) metals, cyanide and tin. The samples were collected by TetraTech NUS on August 2, 2000 and analyzed by Severn Trent Laboratories under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All metals analyses, with the exception to mercury, were conducted using SW846 method 6010B. Mercury analyses were conducted under SW846 method 74701. Cyanide analyses were conducted under SW846 9012A.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
* • ICP Interference Check Sample
• Matrix Spike / Matrix Spike Duplicate Recoveries
* • Matrix Spike Duplicate Relative Percent Differences
* • Laboratory Control Sample Recoveries
• ICP Serial Dilution
* • Sample Quanitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Affected samples : All

Analyte	Maximum Concentration	Action Level (soil)
Aluminum	31.3 ug/L	15.65 mg/kg
Barium [(1)]	0.15 mg/kg	0.75 mg/kg
Beryllium	1.7 ug/L	0.85 mg/kg
Calcium [(1)]	45.4 mg/kg	227 mg/kg
Chromium	6.8 ug/L	3.4 mg/kg
Copper	2.2 ug/L	1.1 mg/kg
Iron	44.5 ug/L	22.25 mg/kg
Magnesium [(1)]	5.1 mg/kg	25.5 mg/kg
Manganese	2.2 ug/L	1.1 mg/kg
Nickel	11.1 ug/L	5.55 mg/kg
Thallium	6.2 ug/L	3.1 mg/kg
Tin [(1)]	2.1 ug/L	1.05 mg/kg
Zinc	5.1 ug/L	2.55 mg/kg

[(1)] - Maximum concentration present in a soil preparation blank

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration in evaluation for blank contamination. Positive results less than the blank action level for chromium and copper were qualified, "U", as a result of blank contamination. No validation action was required for the remaining analytes as the results reported were either greater than the blank action level or were nondetected.

Matrix Spike / Matrix Spike Duplicate Recoveries

The Matrix Spike/Matrix Spike Duplicate Percent Recoveries (%Rs) were less than the 75% quality control limits for calcium. The positive results reported for calcium were qualified as estimated, "J".

The Matrix Spike/Matrix Spike Duplicate %Rs were greater than the 125% quality control limits for aluminum. The positive results reported for aluminum were qualified as estimated, "J".

ICP Serial Dilution Recoveries

The ICP Serial Dilution Percent Difference (%D) reported for zinc was greater than 10% quality control limits. The positive results reported for zinc were qualified as estimated, "J".

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0H030201 **Matrix.....: SOLID**
Date Sampled...: 08/02/00 11:05 Date Received..: 08/03/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Cyanide		WO#: DH9H3103-MS/DH9H3104-MSD				MS Lot-Sample #: A0H030178-003	
	16	(12 - 147)			SW846 9012A	08/15-08/16/00	0228569
	0.0 N,*	(12 - 147)	200	(0-99)	SW846 9012A	08/15-08/16/00	0228569

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

Sample not from this SDG - therefore no goals.

Notes

The Matrix Spike/Matrix Spike Duplicate %Rs for cyanide were less than the 30% quality control limits. However, validation action was not required since the sample analyzed for the MS/MSD was not from this SDG.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory/preparation blanks.

Other Factors Affecting Data Quality: MS/MSD noncompliance was noted for aluminum and calcium. Serial dilution %D was greater than 10% for zinc.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy Installation Restoration Chemical Data Quality Manual" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Jennifer M. Malle
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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05			MPT-AC-SU-02-05								
SAMPLE DATE:	08/02/00			08/02/00			/ /			/ /		
LABORATORY ID:	A0H030201001			A0H030201002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	82.6 %			75.9 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	434	J	D	167	J	D						
ANTIMONY	0.52	U		0.57	U							
ARSENIC	0.75			0.47	U							
BARIUM	6.1			3.7								
BERYLLIUM	0.024	U		0.026	U							
CADMIUM	0.051			0.053								
CALCIUM	4590	J	D	995	J	D						
CHROMIUM	2.8	U	A	1.3	U	A						
COBALT	0.27	U		0.29	U							
COPPER	0.23	U		0.73	U	A						
IRON	648			183								
LEAD	1.5			2.2								
MAGNESIUM	115			38.5								
MANGANESE	6.8			4.5								
MERCURY	0.02	U		0.022	U							
NICKEL	0.23	U		0.25	U							
POTASSIUM	34.5			21.8								
SELENIUM	0.52	U		0.57	U							
SILVER	0.38	U		0.41	U							
SODIUM	69.3			57.8	U							
THALLIUM	0.64	U		0.7	U							
TIN	2.1			2.2								
VANADIUM	1.3			0.97								
ZINC	3.7	J	I	38.2	J	I						

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05			MPT-AC-SU-02-05								
SAMPLE DATE:	08/02/00			08/02/00			/ /			/ /		
LABORATORY ID:	A0H030201001			A0H030201002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	82.6 %			75.9 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
CYANIDE, TOTAL	0.61	U		0.66	U							

APPENDIX B

Results as Reported by the Laboratory

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DH9PW **Client ID:** MPT-AC-SU-01-05

Matrix: Soil **Units:** mg/kg **Prep Date:** 8/21/00 **Prep Batch:** 0234118

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 17.4

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	308.22	2.3	24.2	434	N	1	ICPST	8/22/00	0:07
Antimony	206.84	0.52	1.2	0.52	U	1	ICPST	8/22/00	0:07
Arsenic	189.04	0.44	1.2	0.75	B	1	ICPST	8/22/00	0:07
Barium	493.41	0.048	24.2	6.1	B	1	ICPST	8/22/00	0:07
Beryllium	313.04	0.024	0.61	0.024	U	1	ICPST	8/22/00	0:07
Cadmium	226.50	0.048	0.24	0.051	B	1	ICPST	8/22/00	0:07
Calcium	317.93	0.99	605	4590	N	1	ICPST	8/22/00	0:07
Chromium	267.72	0.24	0.61	2.8		1	ICPST	8/22/00	13:24
Cobalt	228.62	0.27	6.1	0.27	U	1	ICPST	8/22/00	0:07
Copper	324.75	0.23	3.0	0.23	U	1	ICPST	8/22/00	0:07
Iron	271.44	3.3	12.1	648		1	ICPST	8/22/00	0:07
Lead	220.35	0.16	0.36	1.5		1	ICPST	8/22/00	0:07
Magnesium	279.08	1.6	605	115	B	1	ICPST	8/22/00	0:07
Manganese	257.61	0.048	1.8	6.8		1	ICPST	8/22/00	0:07
Mercury	253.7	0.020	0.12	0.020	U	1	CVAA	8/21/00	15:48
Nickel	231.60	0.23	4.8	0.23	U	1	ICPST	8/22/00	0:07
Potassium	766.49	6.3	605	34.5	B	1	ICPST	8/22/00	0:07
Selenium	196.03	0.52	0.61	0.52	U	1	ICPST	8/22/00	0:07
Silver	328.07	0.38	0.61	0.38	U	1	ICPST	8/22/00	0:07
Sodium	330.23	53.2	605	69.3	B	1	ICPST	8/22/00	0:07
Thallium	190.86	0.64	1.2	0.64	U	1	ICPST	8/22/00	0:07
Tin	189.99	0.34	12.1	2.1	B	1	ICPST	8/22/00	0:07
Vanadium	292.40	0.17	6.1	1.3	B	1	ICPST	8/22/00	0:07
Zinc	213.86	0.073	2.4	3.7	L	1	ICPST	8/22/00	0:07

Comments: Lot #: A0H030201 Sample #: 1

Version 3.63.6 Beta

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DH9R6 **Client ID:** MPT-AC-SU-02-05

Matrix: Soil **Units:** mg/kg **Prep Date:** 8/21/00 **Prep Batch:** 0234118

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 24.1

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	308.22	2.5	26.4	167	N	1	ICPST	8/22/00	0:42
Antimony	206.84	0.57	1.3	0.57	U	1	ICPST	8/22/00	0:42
Arsenic	189.04	0.47	1.3	0.47	U	1	ICPST	8/22/00	0:42
Barium	493.41	0.053	26.4	3.7	B	1	ICPST	8/22/00	0:42
Beryllium	313.04	0.026	0.66	0.026	U	1	ICPST	8/22/00	0:42
Cadmium	226.50	0.053	0.26	0.053	U	1	ICPST	8/22/00	0:42
Calcium	317.93	1.1	659	995	N	1	ICPST	8/22/00	0:42
Chromium	267.72	0.26	0.66	1.3		1	ICPST	8/22/00	0:42
Cobalt	228.62	0.29	6.6	0.29	U	1	ICPST	8/22/00	0:42
Copper	324.75	0.25	3.3	0.73	B	1	ICPST	8/22/00	0:42
Iron	271.44	3.6	13.2	183		1	ICPST	8/22/00	0:42
Lead	220.35	0.17	0.40	2.2		1	ICPST	8/22/00	0:42
Magnesium	279.08	1.8	659	38.5	B	1	ICPST	8/22/00	0:42
Manganese	257.61	0.053	2.0	4.5		1	ICPST	8/22/00	0:42
Mercury	253.7	0.022	0.13	0.022	U	1	CVAA	8/21/00	15:53
Nickel	231.60	0.25	5.3	0.25	U	1	ICPST	8/22/00	0:42
Potassium	766.49	6.9	659	21.8	B	1	ICPST	8/22/00	0:42
Selenium	196.03	0.57	0.66	0.57	U	1	ICPST	8/22/00	0:42
Silver	328.07	0.41	0.66	0.41	U	1	ICPST	8/22/00	0:42
Sodium	330.23	57.8	659	57.8	U	1	ICPST	8/22/00	0:42
Thallium	190.86	0.70	1.3	0.70	U	1	ICPST	8/22/00	0:42
Tin	189.99	0.37	13.2	2.2	B	1	ICPST	8/22/00	0:42
Vanadium	292.40	0.18	6.6	0.97	B	1	ICPST	8/22/00	0:42
Zinc	213.86	0.079	2.6	38.2	L	1	ICPST	8/22/00	0:42

Comments: Lot #: A0H030201 Sample #: 2

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL

Form 1 Equivalent

TETRA TECH EMI, INC.

Client Sample ID: MPT-AC-SU-01-05

General Chemistry

Lot-Sample #...: A0H030201-001 Work Order #...: DH9PW Matrix.....: SO
Date Sampled...: 08/02/00 10:40 Date Received..: 08/03/00
% Moisture.....: 17

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.61	mg/kg	SW846 9012A	08/15-08/16/00	0228569
	Dilution Factor: 1					
Percent Solids	82.6	10.0	%	MCAWW 160.3 MOD	08/04-08/07/00	0217328
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SU-02-05

General Chemistry

Lot-Sample #...: A0H030201-002 Work Order #...: DH9R6 Matrix.....: SO
Date Sampled...: 08/02/00 11:20 Date Received..: 08/03/00
% Moisture.....: 24

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.66	mg/kg	SW846 9012A	08/15-08/16/00	0228569
	Dilution Factor: 1					
Percent Solids	75.9	10.0	%	MCAWW 160.3 MOD	08/04-08/07/00	0217328
	Dilution Factor: 1					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

APPENDIX C

Support Documentation

STL North Canton

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** | **PAGE** 1 **OF** 1

PROJECT NO: N0123	**SITE NAME:** NS Mayport	**PROJECT MANAGER AND PHONE NUMBER** T. Hansen	**LABORATORY NAME AND CONTACT:** Quanterra
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER AND PHONE NUMBER** T. Thompson	**ADDRESS** 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER Fed Ex 7926 2824 7128	**CITY, STATE** N Canton, OH

STANDARD TAT ☒
RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TCL VOC	TCL SVOC	TAL Metals	TCL Pesticides	TCL PCBs	Cyanide			COMMENTS
8-2	1040	MPT-AC-SU-01-05	S	G	6			X	X	X	X	X	X			Cool to 4°C
8-2	1120	MPT-AC-SU-02-05	S	G	6			X	X	X	X	X	X			

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	8-2-00	1700	1. RECEIVED BY	8-3-00	920
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS 2.6°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

12

MP024

HOLDING TIME
09/01/00

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	CN	08/02/00	08/15/00	08/16/00	13	1	14
MG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	CN	08/02/00	08/15/00	08/16/00	13	1	14
MG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	HG	08/02/00	08/21/00	08/21/00	19	0	19
MG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	HG	08/02/00	08/21/00	08/21/00	19	0	19
MG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	M	08/02/00	08/21/00	08/22/00	19	1	20
MG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	M	08/02/00	08/21/00	08/22/00	19	1	20
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	OS	08/02/00	08/04/00	08/09/00	2	5	7
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	OS	08/02/00	08/04/00	08/09/00	2	5	7
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	OV	08/02/00	08/08/00	08/08/00	6	0	6
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	OV	08/02/00	08/08/00	08/08/00	6	0	6
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	PCB	08/02/00	08/04/00	08/10/00	2	6	8
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	PCB	08/02/00	08/04/00	08/10/00	2	6	8
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	PEST	08/02/00	08/04/00	08/08/00	2	4	6
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	PEST	08/02/00	08/04/00	08/08/00	2	4	6

SDG NARRATIVE
MP024

The following report contains the analytical results for two solid samples submitted to STL North Canton by Tetra Tech NUS, Inc. from the NS Mayport Site, project number N0123. The samples were received August 3, 2000, according to documented sample acceptance procedures.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

Please refer to individual analytical sections for laboratory specific narratives.

SAMPLE RECEIVING

The cooler was received at the laboratory at a temperature of 2.6° C.

(See STL's Cooler Receipt Form for additional information.)

ANALYTICAL METHODS SUMMARY

A0H030201

PARAMETER	ANALYTICAL METHOD
Cyanide, Total	SW846 9012A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Organochlorine Pesticides	SW846 8081A
PCBs by SW-846 8082	SW846 8082
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SDG NARRATIVE
MP024

METALS

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Sample(s) that contain results between the IDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are ± the standard reporting limit (SRL).

Serial dilution of a sample in this lot indicates that physical and chemical interferences were present. Refer to the sample report pages for the affected analytes.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg10821b.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 8/21/00 10:00 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

Version 3.63.6 Beta

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i50822a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 8/22/00 10:02 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Chromium	267.716	5	2.0	U								

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i60821a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 8/21/00 8:23 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	18.8	U								
Antimony	206.838	10	4.3	U								
Arsenic	189.042	10	3.6	U								
Barium	493.409	200	0.5	B								
Beryllium	313.042	5	0.5	B								
Cadmium	226.502	2	0.4	U								
Calcium	317.933	5000	37.7	B								
Chromium	267.716	5	2.0	U								
Cobalt	228.616	50	2.2	U								
Copper	324.753	25	1.9	U								
Iron	271.441	100	27.3	U								
Lead	220.353	3	1.3	U								
Magnesium	279.078	5000	21.5	B								
Manganese	257.61	15	0.5	B								
Nickel	231.604	40	1.9	U								
Potassium	766.491	5000	52.4	U								
Selenium	196.026	5	4.3	U								
Silver	328.068	5	3.1	U								
Sodium	330.232	5000	439.0	U								
Thallium	190.864	10	5.3	U								
Tin	189.989	100	2.8	U								
Vanadium	292.402	50	1.4	U								
Zinc	213.856	20	1.1	B								

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg10821b.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CklCCB 8/21/00 10:04 AM		CklCCB 8/21/00 10:20 AM		CklCCB 8/21/00 10:35 AM		CklCCB 8/21/00 10:51 AM		CklCCB 8/21/00 11:06 AM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

Version 3.63.6 Beta

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg10821b.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 8/21/00 11:21 AM Found	Q	Ck1CCB 8/21/00 11:37 AM Found	Q	Ck1CCB 8/21/00 11:54 AM Found	Q	Ck1CCB 8/21/00 12:10 PM Found	Q	Ck1CCB 8/21/00 12:22 PM Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg10821b.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CklCCB 8/21/00 12:39 PM		CklCCB 8/21/00 12:53 PM		CklCCB 8/21/00 3:22 PM		CklCCB 8/21/00 3:37 PM		CklCCB 8/21/00 3:51 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg10821b.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 8/21/00 4:09 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i50822a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 8/22/00 10:57 AM		CCB 8/22/00 11:24 AM		CCB 8/22/00 12:30 PM		CCB 8/22/00 1:37 PM		CCB 8/22/00 2:44 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Chromium	267.716	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i60821a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 8/21/00 8:55 AM Found	Q	CCB 8/21/00 10:01 AM Found	Q	CCB 8/21/00 11:09 AM Found	Q	CCB 8/21/00 12:08 PM Found	Q	CCB 8/21/00 1:13 PM Found	Q
Aluminum	308.215	200	31.3	B	18.8	U	18.8	U	18.8	U	-33.0	B
Antimony	206.838	10	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U
Arsenic	189.042	10	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U
Barium	493.409	200	0.9	B	1.0	B	1.0	B	0.8	B	0.9	B
Beryllium	313.042	5	0.9	B	0.9	B	0.9	B	0.9	B	1.1	B
Cadmium	226.502	2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Calcium	317.933	5000	50.0	B	34.8	B	29.0	B	16.4	B	8.2	U
Chromium	267.716	5	2.0	U	3.4	B	6.3		2.0	U	2.0	U
Cobalt	228.616	50	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U
Copper	324.753	25	1.9	U	2.2	B	1.9	U	1.9	U	-2.1	B
Iron	271.441	100	27.3	U	31.3	B	31.7	B	27.3	U	27.3	U
Lead	220.353	3	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Magnesium	279.078	5000	49.2	B	24.4	B	24.8	B	25.9	B	19.9	B
Manganese	257.61	15	0.8	B	2.2	B	2.1	B	0.8	B	0.8	B
Nickel	231.604	40	1.9	U	10.9	B	11.1	B	1.9	U	1.9	U
Potassium	766.491	5000	52.4	U	52.4	U	52.4	U	52.4	U	52.4	U
Selenium	196.026	5	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U
Silver	328.068	5	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Sodium	330.232	5000	439.0	U	439.0	U	439.0	U	439.0	U	439.0	U
Thallium	190.864	10	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U
Tin	189.989	100	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U
Vanadium	292.402	50	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Zinc	213.856	20	1.3	B	2.4	B	2.4	B	1.6	B	1.7	B

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i60821a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 8/21/00 2:12 PM		CCB 8/21/00 2:59 PM		CCB 8/21/00 3:20 PM		CCB 8/21/00 4:26 PM		CCB 8/21/00 4:47 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	-51.0	B	-90.0	B	18.8	U	18.8	U	18.8	U
Antimony	206.838	10	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U
Arsenic	189.042	10	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U
Barium	493.409	200	0.8	B	0.9	B	1.2	B	1.1	B	0.9	B
Beryllium	313.042	5	1.3	B	1.7	B	1.1	B	0.9	B	0.8	B
Cadmium	226.502	2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Calcium	317.933	5000	-13.0	B	62.2	B	46.8	B	83.0	B	90.6	B
Chromium	267.716	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Cobalt	228.616	50	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U
Copper	324.753	25	-3.2	B	-3.3	B	2.0	B	1.9	U	1.9	U
Iron	271.441	100	33.0	B	30.0	B	27.3	U	27.3	U	28.5	B
Lead	220.353	3	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Magnesium	279.078	5000	23.9	B	47.5	B	24.9	B	44.4	B	41.8	B
Manganese	257.61	15	0.9	B	1.2	B	1.2	B	1.1	B	1.2	B
Nickel	231.604	40	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Potassium	766.491	5000	52.4	U	52.4	U	52.4	U	52.4	U	52.4	U
Selenium	196.026	5	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U
Silver	328.068	5	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Sodium	330.232	5000	439.0	U	439.0	U	439.0	U	439.0	U	439.0	U
Thallium	190.864	10	5.3	U	5.3	U	6.2	B	5.3	U	5.3	U
Tin	189.989	100	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U
Vanadium	292.402	50	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Zinc	213.856	20	1.2	B	5.1	B	3.5	B	3.4	B	3.3	B

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i60821a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 8/21/00 9:13 PM Found	Q	CCB 8/21/00 10:16 PM Found	Q	CCB 8/21/00 11:21 PM Found	Q	CCB 8/22/00 12:26 AM Found	Q	CCB 8/22/00 1:34 AM Found	Q
Aluminum	308.215	200	18.8	U	18.8	U	18.8	U	18.8	U	18.8	U
Antimony	206.838	10	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U
Arsenic	189.042	10	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U
Barium	493.409	200	1.1	B	1.0	B	0.9	B	0.9	B	1.0	B
Beryllium	313.042	5	1.1	B	0.9	B	0.9	B	1.0	B	1.0	B
Cadmium	226.502	2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Calcium	317.933	5000	18.6	B	20.2	B	36.8	B	14.6	B	23.4	B
Chromium	267.716	5	6.7		6.4		6.8		2.0	U	2.0	U
Cobalt	228.616	50	2.2	U	2.2	U	2.2	U	2.2	U	2.2	U
Copper	324.753	25	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Iron	271.441	100	41.1	B	37.2	B	44.5	B	27.3	U	27.3	U
Lead	220.353	3	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Magnesium	279.078	5000	28.4	B	23.8	B	23.5	B	26.1	B	25.7	B
Manganese	257.61	15	1.4	B	1.2	B	1.2	B	1.0	B	1.1	B
Nickel	231.604	40	3.5	B	3.7	B	3.6	B	1.9	U	1.9	U
Potassium	766.491	5000	52.4	U	52.4	U	52.4	U	52.4	U	52.4	U
Selenium	196.026	5	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U
Silver	328.068	5	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Sodium	330.232	5000	439.0	U	439.0	U	439.0	U	439.0	U	439.0	U
Thallium	190.864	10	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U
Tin	189.989	100	3.3	B	2.8	U	2.8	U	2.8	U	3.0	B
Vanadium	292.402	50	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
Zinc	213.856	20	1.6	B	1.2	B	1.0	B	1.4	B	1.1	B

STL North Canton

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: DJ5J7B

Matrix: Soil **Units:** mg/kg **Prep Date:** 8/21/00 **Prep Batch:** 0234118

Weight: 1.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	308.215	1.9	20.0	-2.4	B	1	ICPST	8/21/00	23:56
Antimony	206.838	0.43	1.0	0.43	U	1	ICPST	8/21/00	23:56
Arsenic	189.042	0.36	1.0	0.36	U	1	ICPST	8/21/00	23:56
Barium	493.409	0.040	20.0	0.15	B	1	ICPST	8/21/00	23:56
Beryllium	313.042	0.020	0.50	0.020	U	1	ICPST	8/21/00	23:56
Cadmium	226.502	0.040	0.20	0.040	U	1	ICPST	8/21/00	23:56
Calcium	317.933	0.82	500	45.4	B	1	ICPST	8/21/00	23:56
Chromium	267.716	0.20	0.50	0.20	U	1	ICPST	8/22/00	13:12
Cobalt	228.616	0.22	5.0	0.22	U	1	ICPST	8/21/00	23:56
Copper	324.753	0.19	2.5	0.19	U	1	ICPST	8/21/00	23:56
Iron	271.441	2.7	10.0	2.7	U	1	ICPST	8/21/00	23:56
Lead	220.353	0.13	0.30	0.13	U	1	ICPST	8/21/00	23:56
Magnesium	279.078	1.3	500	5.1	B	1	ICPST	8/21/00	23:56
Manganese	257.61	0.040	1.5	0.11	B	1	ICPST	8/21/00	23:56
Mercury	253.7	0.017	0.10	0.017	U	1	CVAA	8/21/00	15:45
Nickel	231.604	0.19	4.0	0.19	U	1	ICPST	8/21/00	23:56
Potassium	766.491	5.2	500	5.2	U	1	ICPST	8/21/00	23:56
Selenium	196.026	0.43	0.50	0.43	U	1	ICPST	8/21/00	23:56
Silver	328.068	0.31	0.50	0.31	U	1	ICPST	8/21/00	23:56
Sodium	330.232	43.9	500	43.9	U	1	ICPST	8/21/00	23:56
Thallium	190.864	0.53	1.0	0.53	U	1	ICPST	8/21/00	23:56
Tin	189.989	0.28	10.0	2.1	B	1	ICPST	8/21/00	23:56
Vanadium	292.402	0.14	5.0	0.14	U	1	ICPST	8/21/00	23:56
Zinc	213.856	0.060	2.0	0.46	B	1	ICPST	8/21/00	23:56

Comments: Lot #: A0H030201

Version 3.63.6 Beta

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: DH9PWS

Original Sample ID: DH9PW **Client ID:** MPT-AC-SU-01-05S

Matrix: Soil **Units:** mg/kg **Prep Date:** 8/21/00 **Prep Batch:** 0234118

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 17.4

Element	WL/ Mass	OS Conc	O	MS Conc	O	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Aluminum	308.2	434		786	N	242.13	145.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Antimony	206.8	0.52	U	49.7		60.533	82.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Arsenic	189.0	0.75	B	207		242.13	85.2	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Barium	493.4	6.1	B	221		242.13	88.7	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Beryllium	313.0	0.024	U	5.6		6.0533	92.7	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Cadmium	226.5	0.051	B	5.5		6.0533	90.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Calcium	317.9	4590		9610		6053.3	82.8	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Chromium	267.7	2.8		25.3		24.213	93.1	1	1	ICPST	8/22/00	13:24	8/22/00	0:30
Cobalt	228.6	0.27	U	53.4		60.533	88.2	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Copper	324.8	0.23	U	27.4		30.266	90.5	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Iron	271.4	648		817	NC	121.07		1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Lead	220.4	1.5		54.8		60.533	88.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Magnesium	279.1	115	B	5970		6053.3	96.8	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Manganese	257.6	6.8		63.4		60.533	93.4	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Mercury	253.7	0.020	U	0.18		0.2018	89.4	1	1	CVAA	8/21/00	15:48	8/21/00	15:49
Nickel	231.6	0.23	U	54.3		60.533	89.7	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Potassium	766.5	34.5	B	6150		6053.3	101.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Selenium	196.0	0.52	U	221		242.13	91.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Silver	328.1	0.38	U	5.9		6.0533	98.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Sodium	330.2	69.3	B	5750		6053.3	93.9	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Thallium	190.9	0.64	U	221		242.13	91.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Tin	190	2.1	B	214		242.13	87.6	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Vanadium	292.4	1.3	B	56.4		60.533	91.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:30
Zinc	213.9	3.7		59.9		60.533	92.9	1	1	ICPST	8/22/00	0:07	8/22/00	0:30

Comments: Lot #: A0H030201 Sample #: 1

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID: DH9PWD

Original Sample ID: DH9PW **Client ID:** MPT-AC-SU-01-05D

Matrix: Soil **Units:** mg/kg **Prep Date:** 8/21/00 **Prep Batch:** 0234118

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 17.4

Element	WL/ Mass	OS Conc	O	MSD Conc	O	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.2	434	N	772	N	242.13	139.4	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Antimony	206.8	0.52	U	50.4		60.533	83.3	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Arsenic	189.0	0.75	B	210		242.13	86.3	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Barium	493.4	6.1	B	223		242.13	89.7	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Beryllium	313.0	0.024	U	5.7		6.0533	94.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Cadmium	226.5	0.051	B	5.6		6.0533	91.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Calcium	317.9	4590		8760	N	6053.3	68.8	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Chromium	267.7	2.8		25.3		24.213	93.3	1	1	ICPST	8/22/00	13:24	8/22/00	0:35
Cobalt	228.6	0.27	U	54.1		60.533	89.4	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Copper	324.8	0.23	U	27.8		30.266	91.7	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Iron	271.4	648		798	NC	121.07		1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Lead	220.4	1.5		55.6		60.533	89.4	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Magnesium	279.1	115	B	5950		6053.3	96.4	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Manganese	257.6	6.8		63.5		60.533	93.5	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Mercury	253.7	0.020	U	0.18		0.2018	90.7	1	1	CVAA	8/21/00	15:48	8/21/00	15:52
Nickel	231.6	0.23	U	55.1		60.533	91.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Potassium	766.5	34.5	B	6070		6053.3	99.7	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Selenium	196.0	0.52	U	223		242.13	91.9	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Silver	328.1	0.38	U	6.0		6.0533	99.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Sodium	330.2	69.3	B	5700		6053.3	93.0	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Thallium	190.9	0.64	U	224		242.13	92.3	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Tin	190	2.1	B	216		242.13	88.4	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Vanadium	292.4	1.3	B	57.0		60.533	92.1	1	1	ICPST	8/22/00	0:07	8/22/00	0:35
Zinc	213.9	3.7		60.3		60.533	93.5	1	1	ICPST	8/22/00	0:07	8/22/00	0:35

Comments: Lot #: A0H030201 Sample #: 1

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: DH9PWL

Original Sample ID: DH9PW **Client ID:** MPT-AC-SU-01-05

Matrix: Soil **Units:** mg/kg **Prep Date:** 8/21/00 **Prep Batch:** 0234118

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 17.4

Element	WL/ Mass	OS Conc	O	Serial Dilution Conc	O	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	434	N	460		6.0 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Antimony	206.838	0.52	U	2.6	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Arsenic	189.042	0.75	B	2.2	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Barium	493.409	6.1	B	6.5	B	6.7 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Beryllium	313.042	0.024	U	0.12	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Cadmium	226.502	0.051	B	0.24	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Calcium	317.933	4590	N	4870		6.1 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Chromium	267.716	2.8		3.1			1	5	ICPST	8/22/00	13:24	8/22/00	13:42
Cobalt	228.616	0.27	U	1.3	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Copper	324.753	0.23	U	1.2	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Iron	271.441	648		696		7.5 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Lead	220.353	1.5		2.0			1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Magnesium	279.078	115	B	119	B	3.4 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Manganese	257.61	6.8		7.5	B	9.2 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Nickel	231.604	0.23	U	1.2	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Potassium	766.491	34.5	B	42.7	B		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Selenium	196.026	0.52	U	2.6	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Silver	328.068	0.38	U	1.9	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Sodium	330.232	69.3	B	266	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Thallium	190.864	0.64	U	3.2	U		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Tin	189.989	2.1	B	2.2	B		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Vanadium	292.402	1.3	B	1.4	B		1	5	ICPST	8/22/00	0:07	8/22/00	0:12
Zinc	213.856	3.7		19.2	L	421.6 %	1	5	ICPST	8/22/00	0:07	8/22/00	0:12

Comments:

Version 3.63.6 Beta

U Result is less than the IDL
B Result is between IDL and RL
L Serial dilution percent difference not within limits

Form 9 Equivalent

STL North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA **Units:** ug/L

Element	Wavelength /Mass	Reporting Limit	IDL	Date of IDL
Mercury	253.70	0.6	0.10	7/7/00

STL North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ug/L

Element	Wavelength /Mass	Reporting Limit	IDL	Date of IDL
Aluminum	308.21	200	18.8	7/14/00
Antimony	206.84	10	4.3	7/14/00
Arsenic	189.04	10	3.6	7/14/00
Barium	493.41	200	0.40	7/14/00
Beryllium	313.04	5	0.20	7/14/00
Cadmium	226.50	2	0.40	7/14/00
Calcium	317.93	5000	8.2	7/14/00
Chromium	267.72	5	2.0	7/14/00
Cobalt	228.62	50	2.2	7/14/00
Copper	324.75	25	1.9	7/14/00
Iron	271.44	100	27.3	7/14/00
Lead	220.35	3	1.3	7/14/00
Magnesium	279.08	5000	13.4	7/14/00
Manganese	257.61	15	0.40	7/14/00
Nickel	231.60	40	1.9	7/14/00
Potassium	766.49	5000	52.4	7/14/00
Selenium	196.03	5	4.3	7/14/00
Silver	328.07	5	3.1	7/14/00
Sodium	330.23	5000	439	7/14/00
Thallium	190.86	10	5.3	7/14/00
Tin	189.99	100	2.8	7/14/00
Vanadium	292.40	50	1.4	7/14/00
Zinc	213.86	20	0.60	7/14/00

Analysis Run Log ICP-I6

: Instrument Upload Run Log - Page 1 :
: Started Tue Aug 22 09:00:34 2000 by COUNTSK :
: Data File: UPL$CAN_DATA_ROOT:<TJA>I60821A.ARC;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	S0	1	21-AUG-2000	08:01:00			I6
2	CALSTD	1	21-AUG-2000	08:06:00			I6
3	CAL	1	21-AUG-2000	08:10:00			I6
4	S100	1	21-AUG-2000	08:14:00			I6
5	ICV	1	21-AUG-2000	08:17:00			I6
6	ICB	1	21-AUG-2000	08:23:00			I6
7	CRI	1	21-AUG-2000	08:28:00			I6
8	ICSA	1	21-AUG-2000	08:35:00			I6
9	ICSAB	1	21-AUG-2000	08:42:00			I6
10	CCV	1	21-AUG-2000	08:48:00			I6
11	CCB	1	21-AUG-2000	08:55:00			I6
12	DHDT8	5	21-AUG-2000	09:00:00	0230333	A0H040195	I6
13	DHDTJ	2	21-AUG-2000	09:04:00	0230333	A0H040195	I6
14	DHDTJ	5	21-AUG-2000	09:09:00	0230333	A0H040195	I6
15	DHDV0	5	21-AUG-2000	09:14:00	0230333	A0H040195	I6
16	DHDV8	5	21-AUG-2000	09:19:00	0230333	A0H040195	I6
17	DJ1WJB	1	21-AUG-2000	09:27:00	0230331	A0H170000	I6
18	DJ1WJC	1	21-AUG-2000	09:31:00	0230331	A0H170000	I6
19	DJ16D	1	21-AUG-2000	09:38:00	0230331	A0H170161	I6
20	DJ16DL	1	21-AUG-2000	09:43:00			I6
21	DJ16DS	1	21-AUG-2000	09:48:00	0230331	A0H170161	I6
22	CCV	1	21-AUG-2000	09:54:00			I6
23	CCB	1	21-AUG-2000	10:01:00			I6
24	DJ16DD	1	21-AUG-2000	10:06:00	0230331	A0H170161	I6
25	DJ16X	1	21-AUG-2000	10:12:00	0230331	A0H170161	I6
26	DJ173	1	21-AUG-2000	10:17:00	0230331	A0H170161	I6
27	DJ179	1	21-AUG-2000	10:22:00	0230331	A0H170161	I6
28	DJ20DB	1	21-AUG-2000	10:28:00	0230342	A0H170000	I6
29	DJ20DC	1	21-AUG-2000	10:33:00	0230342	A0H170000	I6
30	DJ17D	1	21-AUG-2000	10:40:00	0230342	A0H170161	I6
31	DJ17DL	1	21-AUG-2000	10:45:00			I6
32	DJ17DS	1	21-AUG-2000	10:49:00	0230342	A0H170161	I6
33	DJ17DD	1	21-AUG-2000	10:55:00	0230342	A0H170161	I6
34	CCV	1	21-AUG-2000	11:02:00			I6
35	CCB	1	21-AUG-2000	11:09:00			I6
36	DHR5P	1	21-AUG-2000	11:13:00	0230100	A0H120178	I6
37	DHR5PL	1	21-AUG-2000	11:18:00			I6
38	DHR5T	1	21-AUG-2000	11:23:00	0230100	A0H120178	I6
39	DHRK2	1	21-AUG-2000	11:28:00	0230100	A0H140103	I6
40	DHRKE	1	21-AUG-2000	11:33:00	0230100	A0H140103	I6
41	DHRKH	1	21-AUG-2000	11:37:00	0230100	A0H140103	I6
42	DHRKK	1	21-AUG-2000	11:42:00	0230100	A0H140103	I6
43	DHRKN	1	21-AUG-2000	11:47:00	0230100	A0H140103	I6
44	DHRKV	1	21-AUG-2000	11:52:00	0230100	A0H140103	I6

(continued)

: Instrument Upload Run Log - Page 2 :
: Started Tue Aug 22 09:00:35 2000 by COUNTSK :
: Data File: UPL$CAN_DATA_ROOT:<TJA>I60821A.ARC;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	DHRL7	1	21-AUG-2000	11:57:00	0230100	A0H140103	I6
46	CCV	1	21-AUG-2000	12:01:00			I6
47	CCB	1	21-AUG-2000	12:08:00			I6
48	DHRN8	1	21-AUG-2000	12:13:00	0230100	A0H140103	I6
49	DHHRX	1	21-AUG-2000	12:18:00	0230100	A0H080191	I6
50	DHHRX	5	21-AUG-2000	12:23:00	0230100	A0H080191	I6
51	DHHRXS	5	21-AUG-2000	12:27:00	0230100	A0H080191	I6
52	DHHRXD	5	21-AUG-2000	12:32:00	0230100	A0H080191	I6
53	DHHRXF	1	21-AUG-2000	12:39:00	0230100	A0H080191	I6
54	DHHW8	1	21-AUG-2000	12:44:00	0230100	A0H080191	I6
55	DHHW8F	1	21-AUG-2000	12:48:00	0230100	A0H080191	I6
56	DJ1VXB	1	21-AUG-2000	12:55:00	0230328	A0H170000	I6
57	DJ1VXC	1	21-AUG-2000	13:00:00	0230328	A0H170000	I6
58	CCV	1	21-AUG-2000	13:06:00	—		I6
59	CCB	1	21-AUG-2000	13:13:00			I6
60	DJ0TQ	1	21-AUG-2000	13:18:00	0230328	A0H170120	I6
61	DJ0TQL	1	21-AUG-2000	13:23:00			I6
62	DJ0TR	1	21-AUG-2000	13:27:00	0230328	A0H170120	I6
63	DJ0TV	1	21-AUG-2000	13:32:00	0230328	A0H170120	I6
64	DJ0TW	1	21-AUG-2000	13:37:00	0230328	A0H170120	I6
65	DJ0TX	1	21-AUG-2000	13:42:00	0230328	A0H170120	I6
66	DJ0V0	1	21-AUG-2000	13:47:00	0230328	A0H170120	I6
67	DJ0V1	1	21-AUG-2000	13:51:00	0230328	A0H170120	I6
68	DJ0V2	1	21-AUG-2000	13:56:00	0230328	A0H170120	I6
69	DJ0V3	1	21-AUG-2000	14:01:00	0230328	A0H170120	I6
70	CCV	1	21-AUG-2000	14:06:00	—		I6
71	CCB	1	21-AUG-2000	14:12:00			I6
72	DHRR1	1	21-AUG-2000	14:17:00	0230328	A0H140113	I6
73	DHRRF	1	21-AUG-2000	14:22:00	0230328	A0H140113	I6
74	DHRRG	1	21-AUG-2000	14:27:00	0230328	A0H140113	I6
75	DHRRGS	1	21-AUG-2000	14:32:00	0230328	A0H140113	I6
76	DHRRGD	1	21-AUG-2000	14:36:00	0230328	A0H140113	I6
77	DHRRJ	1	21-AUG-2000	14:43:00	0230328	A0H140113	I6
78	DHRRK	1	21-AUG-2000	14:48:00	0230328	A0H140113	I6
79	CCV	1	21-AUG-2000	14:53:00	—		I6
80	CCB	1	21-AUG-2000	14:59:00			I6
81	CCV	1	21-AUG-2000	15:15:00			I6
82	CCB	1	21-AUG-2000	15:20:00			I6
83	DJ1WJB	1	21-AUG-2000	15:24:00	0230331	A0H170000	I6
84	DJ1WJC	1	21-AUG-2000	15:29:00	0230331	A0H170000	I6
85	DJ179	5	21-AUG-2000	15:36:00	0230331	A0H170161	I6
86	DHDV0	20	21-AUG-2000	15:42:00	0230333	A0H040195	I6
87	DHDV8	20	21-AUG-2000	15:47:00	0230333	A0H040195	I6
88	DHRR1	1	21-AUG-2000	15:54:00	0230328	A0H140113	I6

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:       Instrument Upload                                    Run Log - Page  3 :
:       Started Tue Aug 22 09:00:35 2000 by COUNTSK                            :
:       Data File: UPL$CAN_DATA_ROOT:<TJA>I60821A.ARC;1                        :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	DHRRF	1	21-AUG-2000	15:59:00	0230328	A0H140113	I6
90	DHRRG	1	21-AUG-2000	16:03:00	0230328	A0H140113	I6
91	DHRRGS	1	21-AUG-2000	16:08:00	0230328	A0H140113	I6
92	DHRRGD	1	21-AUG-2000	16:13:00	0230328	A0H140113	I6
93	CCV	1	21-AUG-2000	16:20:00			I6
94	CCB	1	21-AUG-2000	16:26:00			I6
95	DHRRJ	1	21-AUG-2000	16:31:00	0230328	A0H140113	I6
96	DHRRK	1	21-AUG-2000	16:36:00	0230328	A0H140113	I6
97	CCV	1	21-AUG-2000	16:41:00			I6
98	CCB	1	21-AUG-2000	16:47:00			I6
99	CCV	1	21-AUG-2000	21:06:00			I6
100	CCB	1	21-AUG-2000	21:13:00			I6
101	DJ34HBT	1	21-AUG-2000	21:18:00	0234099	A0H180000	I6
102	DJ5H4BT	1	21-AUG-2000	21:23:00	0234099	A0H210000	I6
103	DJ5H4CT	1	21-AUG-2000	21:27:00	0234099	A0H210000	I6
104	DJ5H4LT	1	21-AUG-2000	21:32:00	0234099	A0H210000	I6
105	DJ17RT	1	21-AUG-2000	21:39:00	0234099	A0H170161	I6
106	DJ17RTL	1	21-AUG-2000	21:44:00			I6
107	DJ186T	1	21-AUG-2000	21:48:00	0234099	A0H170161	I6
108	DJ188T	1	21-AUG-2000	21:53:00	0234099	A0H170161	I6
109	DJ18CT	1	21-AUG-2000	21:58:00	0234099	A0H170161	I6
110	DJ5J9B	1	21-AUG-2000	22:05:00	0234119	A0H210000	I6
111	CCV	1	21-AUG-2000	22:09:00			I6
112	CCB	1	21-AUG-2000	22:16:00			I6
113	DJ5J9C	1	21-AUG-2000	22:21:00	0234119	A0H210000	I6
114	DH9GA	1	21-AUG-2000	22:27:00	0234119	MP022	I6
115	DH9GAL	1	21-AUG-2000	22:32:00			I6
116	DH9GAS	1	21-AUG-2000	22:37:00	0234119	MP022	I6
117	DH9GAD	1	21-AUG-2000	22:42:00	0234119	MP022	I6
118	DH9HM	1	21-AUG-2000	22:48:00	0234119	MP022	I6
119	DH9HV	1	21-AUG-2000	22:53:00	0234119	MP022	I6
120	DH9J2	1	21-AUG-2000	22:58:00	0234119	MP022	I6
121	DH9LH	1	21-AUG-2000	23:03:00	0234119	MP022	I6
122	DH9M9	1	21-AUG-2000	23:08:00	0234119	MP022	I6
123	CCV	1	21-AUG-2000	23:14:00			I6
124	CCB	1	21-AUG-2000	23:21:00			I6
125	DH9MH	1	21-AUG-2000	23:26:00	0234119	MP022	I6
126	DH9MJ	1	21-AUG-2000	23:30:00	0234119	MP022	I6
127	DH9MK	1	21-AUG-2000	23:35:00	0234119	MP022	I6
128	DHD3R	1	21-AUG-2000	23:40:00	0234119	MP022	I6
129	DHD48	1	21-AUG-2000	23:45:00	0234119	MP022	I6
130	DHD49	1	21-AUG-2000	23:50:00	0234119	MP022	I6
131	DJ5J7B	1	21-AUG-2000	23:56:00	0234118	A0H210000	I6
132	DJ5J7C	1	22-AUG-2000	00:01:00	0234118	A0H210000	I6

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:       Instrument Upload                                    Run Log - Page  4 :
:       Started Tue Aug 22 09:00:35 2000 by COUNTSK                            :
:       Data File: UPL$CAN_DATA_ROOT:<TJA>I60821A.ARC;1                        :
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#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
133	DH9PW	1	22-AUG-2000	00:07:00	0234118	MP024	I6
134	DH9PWL	1	22-AUG-2000	00:12:00			I6
135	CCV	1	22-AUG-2000	00:19:00			I6
136	CCB	1	22-AUG-2000	00:26:00			I6
137	DH9PWS	1	22-AUG-2000	00:30:00	0234118	MP024	I6
138	DH9PWD	1	22-AUG-2000	00:35:00	0234118	MP024	I6
139	DH9R6	1	22-AUG-2000	00:42:00	0234118	MP024	I6
140	DJ5J1B	1	22-AUG-2000	00:48:00	0234114	A0H210000	I6
141	DJ5J1C	1	22-AUG-2000	00:53:00	0234114	A0H210000	I6
142	DHRK8	1	22-AUG-2000	01:00:00	0234114	A0H140103	I6
143	DHRK8L	1	22-AUG-2000	01:05:00			I6
144	DHRK8S	1	22-AUG-2000	01:09:00	0234114	A0H140103	I6
145	DHRK8D	1	22-AUG-2000	01:14:00	0234114	A0H140103	I6
146	DHRKF	1	22-AUG-2000	01:21:00	0234114	A0H140103	I6
147	CCV	1	22-AUG-2000	01:27:00			I6
148	CCB	1	22-AUG-2000	01:34:00			I6
149	DHRKJ	1	22-AUG-2000	01:39:00	0234114	A0H140103	I6
150	DHRKN	1	22-AUG-2000	01:44:00	0234114	A0H140103	I6
151	DHRKQ	1	22-AUG-2000	01:48:00	0234114	A0H140103	I6
152	DHRKV	1	22-AUG-2000	01:53:00	0234114	A0H140103	I6
153	DHRL9	1	22-AUG-2000	01:58:00	0234114	A0H140103	I6
154	DHRLC	1	22-AUG-2000	02:03:00	0234114	A0H140103	I6
155	DHRLN	1	22-AUG-2000	02:08:00	0234114	A0H140103	I6
156	DHRLX	1	22-AUG-2000	02:12:00	0234114	A0H140103	I6
157	DHRM0	1	22-AUG-2000	02:17:00	0234114	A0H140103	I6
158	DHRM1	1	22-AUG-2000	02:22:00	0234114	A0H140103	I6
159	CCV	1	22-AUG-2000	02:29:00			I6
160	CCB	1	22-AUG-2000	02:35:00			I6
161	DHRM2	1	22-AUG-2000	02:40:00	0234114	A0H140103	I6
162	DHRM4	1	22-AUG-2000	02:45:00	0234114	A0H140103	I6
163	DHRM5	1	22-AUG-2000	02:50:00	0234114	A0H140103	I6
164	DHRM6	1	22-AUG-2000	02:54:00	0234114	A0H140103	I6
165	DHRM7	1	22-AUG-2000	02:59:00	0234114	A0H140103	I6
166	DHRM8	1	22-AUG-2000	03:04:00	0234114	A0H140103	I6
167	DHRM9	1	22-AUG-2000	03:09:00	0234114	A0H140103	I6
168	DHRML	1	22-AUG-2000	03:14:00	0234114	A0H140103	I6
169	DJ5HKB	1	22-AUG-2000	03:21:00	0234113	A0H210000	I6
170	DJ5HXC	1	22-AUG-2000	03:26:00	0234113	A0H210000	I6
171	CCV	1	22-AUG-2000	03:31:00			I6
172	CCB	1	22-AUG-2000	03:38:00			I6
173	DJ40P	1	22-AUG-2000	03:43:00	0234113	A0H180216	I6
174	DJ40PL	1	22-AUG-2000	03:47:00			I6
175	DJ40V	1	22-AUG-2000	03:52:00	0234113	A0H180216	I6
176	DHWRC	1	22-AUG-2000	03:57:00	0234113	A0H160123	I6

VOID MR 8-29-00

(continued)

Analysis Run Log

ICP-I5

: Instrument Upload Run Log - Page 1 :
: Started Wed Aug 23 07:12:15 2000 by CORDELIM :
: Data File: UPL$CAN_DATA_ROOT:<TJA>I50822A.ARC;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1	1	22-AUG-2000	09:43:00			I5
2	CALSTD	1	22-AUG-2000	09:48:00			I5
3	CAL	1	22-AUG-2000	09:53:00			I5
4	ICV	1	22-AUG-2000	09:57:00			I5
5	ICB	1	22-AUG-2000	10:02:00			I5
6	CRI	1	22-AUG-2000	10:07:00			I5
7	CALSTD	1	22-AUG-2000	10:12:00			I5
8	CAL	1	22-AUG-2000	10:17:00			I5
9	ICSA	1	22-AUG-2000	10:24:00			I5
10	ICSAB	1	22-AUG-2000	10:44:00			I5
11	CCV	1	22-AUG-2000	10:50:00			I5
12	CCB	1	22-AUG-2000	10:57:00			I5
13	DGV2M	1	22-AUG-2000	11:03:00	0230315	A0G260232	I5
14	DGV2MX	1	22-AUG-2000	11:08:00	0230315	A0G260232	I5
15	CCV	1	22-AUG-2000	11:17:00			I5
16	CCB	1	22-AUG-2000	11:24:00			I5
17	DJ5J9B	1	22-AUG-2000	11:29:00	0234119	A0H210000	I5
18	DJ5J9C	1	22-AUG-2000	11:34:00	0234119	A0H210000	I5
19	DH9GA	1	22-AUG-2000	11:40:00	0234119	MP022	I5
20	DH9GAL	1	22-AUG-2000	11:45:00			I5
21	DH9GAS	1	22-AUG-2000	11:50:00	0234119	MP022	I5
22	DH9GAD	1	22-AUG-2000	11:55:00	0234119	MP022	I5
23	DH9HM	1	22-AUG-2000	12:02:00	0234119	MP022	I5
24	DH9HV	1	22-AUG-2000	12:07:00	0234119	MP022	I5
25	DH9J2	1	22-AUG-2000	12:12:00	0234119	MP022	I5
26	DH9LH	1	22-AUG-2000	12:17:00	0234119	MP022	I5
27	CCV	1	22-AUG-2000	12:24:00			I5
28	CCB	1	22-AUG-2000	12:30:00			I5
29	DH9M9	1	22-AUG-2000	12:35:00	0234119	MP022	I5
30	DH9MH	1	22-AUG-2000	12:40:00	0234119	MP022	I5
31	DH9MJ	1	22-AUG-2000	12:45:00	0234119	MP022	I5
32	DH9MK	1	22-AUG-2000	12:51:00	0234119	MP022	I5
33	DHD3R	1	22-AUG-2000	12:56:00	0234119	MP022	I5
34	DHD48	1	22-AUG-2000	13:01:00	0234119	MP022	I5
35	DHD49	1	22-AUG-2000	13:06:00	0234119	MP022	I5
36	DJ5J7B	1	22-AUG-2000	13:12:00	0234118	A0H210000	I5
37	DJ5J7C	1	22-AUG-2000	13:17:00	0234118	A0H210000	I5
38	DH9PW	1	22-AUG-2000	13:24:00	0234118	MP024	I5
39	CCV	1	22-AUG-2000	13:31:00			I5
40	CCB	1	22-AUG-2000	13:37:00			I5
41	DH9PWL	1	22-AUG-2000	13:42:00			I5
42	DHPH7	5	22-AUG-2000	13:49:00	0230320	A0H110166	I5
43	DHPH7L	1	22-AUG-2000	13:54:00			I5
44	DHPH7S	5	22-AUG-2000	13:59:00	0230320	A0H110166	I5

(continued)

: Instrument Upload Run Log - Page 2 :
: Started Wed Aug 23 07:12:15 2000 by CORDELLM :
: Data File: UPL$CAN_DATA_ROOT:<TJA>I50822A.ARC;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	DHPH7D	5	22-AUG-2000	14:04:00	0230320	A0H110166	I5
46	DHQMHT	2	22-AUG-2000	14:09:00	0234109	A0H120116	I5
47	DHQMHTL	1	22-AUG-2000	14:14:00			I5
48	DHRKM	2	22-AUG-2000	14:21:00	0234114	A0H140103	I5
49	DHRM1	4	22-AUG-2000	14:26:00	0234114	A0H140103	I5
50	DHRM4	1	22-AUG-2000	14:31:00	0234114	A0H140103	I5
51	CCV	1	22-AUG-2000	14:37:00			I5
52	CCB	1	22-AUG-2000	14:44:00			I5
53	CCV	1	22-AUG-2000	14:58:00			I5
54	CCB	1	22-AUG-2000	15:04:00			I5
55	DGV2M	2	22-AUG-2000	15:10:00	0230315	A0G260232	I5
56	CCV	1	22-AUG-2000	15:25:00			I5
57	CCB	1	22-AUG-2000	15:32:00			I5
58	DGV2M	2	22-AUG-2000	15:37:00	0230315	A0G260232	I5
59	DGV2ML	1	22-AUG-2000	15:42:00			I5
60	DGV2MX	2	22-AUG-2000	15:47:00	0230315	A0G260232	I5
61	DHPH7	10	22-AUG-2000	15:52:00	0230320	A0H110166	I5
62	DHPH7L	1	22-AUG-2000	15:57:00			I5
63	DHPH7S	10	22-AUG-2000	16:02:00	0230320	A0H110166	I5
64	DHPH7D	10	22-AUG-2000	16:07:00	0230320	A0H110166	I5
65	CCV	1	22-AUG-2000	16:14:00			I5
66	CCB	1	22-AUG-2000	16:21:00			I5
67	CCV	1	22-AUG-2000	16:26:00			I5
68	CCB	1 VOID	22-AUG-2000	16:32:00			I5
69	DHRKH	1 MR	22-AUG-2000	16:49:00	0230100	A0H140103	I5
70	DHRKV	1	22-AUG-2000	16:54:00	0230100	A0H140103	I5
71	DHRL7	1	22-AUG-2000	16:59:00	0230100	A0H140103	I5
72	DJ78QB	1 8-29-00	22-AUG-2000	17:05:00	0235156	A0H220000	I5
73	DJ78QC	1	22-AUG-2000	17:10:00	0235156	A0H220000	I5
74	DJ750	1	22-AUG-2000	17:17:00	0235156	A0H220117	I5
75	DJ750L	1	22-AUG-2000	17:22:00			I5
76	DJ751	1	22-AUG-2000	17:27:00	0235156	A0H220119	I5
77	DJ751S	1	22-AUG-2000	17:32:00	0235156	A0H220119	I5
78	DJ751D	1	22-AUG-2000	17:37:00	0235156	A0H220119	I5
79	CCV	1	22-AUG-2000	17:44:00			I5
80	CCB	1	22-AUG-2000	17:50:00			I5
81	DJ755	1	22-AUG-2000	18:02:00	0235156	A0H220119	I5
82	DHV6E	1	22-AUG-2000	18:07:00	0230101	A0H150142	I5
83	DHV6ES	1	22-AUG-2000	18:12:00	0230101	A0H150142	I5
84	DHV6ED	1	22-AUG-2000	18:19:00	0230101	A0H150142	I5
85	DHXT5	1	22-AUG-2000	18:25:00	0230101	A0H160246	I5
86	DHXTM	1	22-AUG-2000	18:30:00	0230101	A0H160246	I5
87	DHXTP	1	22-AUG-2000	18:35:00	0230101	A0H160246	I5
88	DHXTR	1	22-AUG-2000	18:40:00	0230101	A0H160246	I5

(continued)

Analysis Run Log

CVAA

Hg-H1

: Instrument Upload Run Log - Page 1 :
: Started Mon Aug 21 15:01:56 2000 by IRWINS :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG10821B.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1REP1	1	21-AUG-2000	09:51:07			H1
2	STD2REP1	1	21-AUG-2000	09:52:24			H1
3	STD3REP1	1	21-AUG-2000	09:53:52			H1
4	STD4REP1	1	21-AUG-2000	09:55:28			H1
5	STD5REP1	1	21-AUG-2000	09:56:44			H1
6	STD6REP1	1	21-AUG-2000	09:58:00			H1
7	CK5ICV	1	21-AUG-2000	09:59:12			H1
8	CK4ICB	1	21-AUG-2000	10:00:20			H1
9	CK3CRA	1	21-AUG-2000	10:01:28			H1
10	CK2CCV	1	21-AUG-2000	10:02:36			H1
11	CK1CCB	1	21-AUG-2000	10:04:21			H1
12	DHX2MB	1	21-AUG-2000	10:05:48			H1
13	DHX2MC	1	21-AUG-2000	10:07:14			H1
14	DHG5C	1	21-AUG-2000	10:08:59			H1
15	DHG5F	1	21-AUG-2000	10:10:24			H1
16	DHG5G	1	21-AUG-2000	10:11:32			H1
17	DHG5L	1	21-AUG-2000	10:12:37			H1
18	DHG5N	1	21-AUG-2000	10:14:04			H1
19	DHG5V	1	21-AUG-2000	10:15:10			H1
20	DHG5X	1	21-AUG-2000	10:16:19			H1
21	DHG58	1	21-AUG-2000	10:17:29			H1
22	CK2CCV	1	21-AUG-2000	10:18:49			H1
23	CK1CCB	1	21-AUG-2000	10:20:29			H1
24	DHG58S	1	21-AUG-2000	10:21:35			H1
25	DHG58D	1	21-AUG-2000	10:22:50			H1
26	DHG6A	1	21-AUG-2000	10:24:04			H1
27	DHG6D	1	21-AUG-2000	10:25:14			H1
28	DHG6G	1	21-AUG-2000	10:26:49			H1
29	DHG6K	1	21-AUG-2000	10:27:57			H1
30	DHG6N	1	21-AUG-2000	10:29:28			H1
31	DHG6P	1	21-AUG-2000	10:30:46			H1
32	DHG6R	1	21-AUG-2000	10:31:53			H1
33	DHG6T	1	21-AUG-2000	10:33:00			H1
34	CK2CCV	1	21-AUG-2000	10:34:26			H1
35	CK1CCB	1	21-AUG-2000	10:35:53			H1
36	DHG61	1	21-AUG-2000	10:36:58			H1
37	DHG65	1	21-AUG-2000	10:38:35			H1
38	DHG67	1	21-AUG-2000	10:39:52			H1
39	DHG70	1	21-AUG-2000	10:41:22			H1
40	DJ1X8B	1	21-AUG-2000	10:42:37			H1
41	DJ1X8C	1	21-AUG-2000	10:43:42			H1
42	DJ11Q	1	21-AUG-2000	10:45:30			H1
43	DJ121	1	21-AUG-2000	10:46:36			H1
44	DHDRA	1	21-AUG-2000	10:47:41	0230333	A0H040195	H1

(continued)

: Instrument Upload Run Log - Page 2 :
: Started Mon Aug 21 15:01:56 2000 by IRWINS :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG10821B.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	DHDRM	1	21-AUG-2000	10:49:11	0230333	A0H040195	H1
46	CK2CCV	1	21-AUG-2000	10:50:27			H1
47	CK1CCB	1	21-AUG-2000	10:51:42			H1
48	DHDTJ	1	21-AUG-2000	10:52:50	0230333	A0H040195	H1
49	DHDT8	1	21-AUG-2000	10:53:57	0230333	A0H040195	H1
50	DHDV0	1	21-AUG-2000	10:55:03	0230333	A0H040195	H1
51	DHDV8	1	21-AUG-2000	10:56:09	0230333	A0H040195	H1
52	DJ12M	1	21-AUG-2000	10:57:26			H1
53	DJ12MS	1	21-AUG-2000	10:58:33			H1
54	DJ12MD	1	21-AUG-2000	10:59:51			H1
55	DJ12Q	1	21-AUG-2000	11:01:11			H1
56	DJ12R	1	21-AUG-2000	11:02:39			H1
57	DHRMT	1	21-AUG-2000	11:03:49	0230333	A0H140103	H1
58	CK2CCV	1	21-AUG-2000	11:05:04			H1
59	CK1CCB	1	21-AUG-2000	11:06:21			H1
60	DHRN3	1	21-AUG-2000	11:07:26	0230333	A0H140103	H1
61	DHRN6	1	21-AUG-2000	11:08:45	0230333	A0H140103	H1
62	DJ1R3B	1	21-AUG-2000	11:09:54	0230315	A0H170000	H1
63	DJ1R3C	1	21-AUG-2000	11:11:10	0230315	A0H170000	H1
64	DGV2M	1	21-AUG-2000	11:12:41	0230315	A0G260232	H1
65	DGV2MX	1	21-AUG-2000	11:13:58	0230315	A0G260232	H1
66	DGV2MS	1	21-AUG-2000	11:15:04	0230315	A0G260232	H1
67	DJ1RNB	1	21-AUG-2000	11:16:12	0230316	A0H170000	H1
68	DJ1RNC	1	21-AUG-2000	11:17:27	0230316	A0H170000	H1
69	DHWNA	1	21-AUG-2000	11:18:35	0230316	A0H160109	H1
70	CK2CCV	1	21-AUG-2000	11:19:52			H1
71	CK1CCB	1	21-AUG-2000	11:21:36			H1
72	DHWNC	1	21-AUG-2000	11:22:51	0230316	A0H160109	H1
73	DHWNE	1	21-AUG-2000	11:24:02	0230316	A0H160109	H1
74	DHWNG	1	21-AUG-2000	11:25:20	0230316	A0H160109	H1
75	DHWNH	1	21-AUG-2000	11:26:30	0230316	A0H160109	H1
76	DHWNN	1	21-AUG-2000	11:28:06	0230316	A0H160109	H1
77	DHWNV	1	21-AUG-2000	11:29:26	0230316	A0H160109	H1
78	DHWNW	1	21-AUG-2000	11:30:34	0230316	A0H160109	H1
79	DHWN1	1	21-AUG-2000	11:31:43	0230316	A0H160109	H1
80	DHWN1S	1	21-AUG-2000	11:32:49	0230316	A0H160109	H1
81	DHWN1D	1	21-AUG-2000	11:35:15	0230316	A0H160109	H1
82	CK2CCV	1	21-AUG-2000	11:36:24			H1
83	CK1CCB	1	21-AUG-2000	11:37:34			H1
84	DHWN9	1	21-AUG-2000	11:39:32	0230316	A0H160109	H1
85	DJ0QN	1	21-AUG-2000	11:40:38	0230316	A0H170114	H1
86	DJ0R0	1	21-AUG-2000	11:42:16	0230316	A0H170114	H1
87	DJ0R1	1	21-AUG-2000	11:43:56	0230316	A0H170114	H1
88	DJ0R2	1	21-AUG-2000	11:45:04	0230316	A0H170114	H1

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:       Instrument Upload                                    Run Log - Page  3 :
:       Started Mon Aug 21 15:01:56 2000 by IRWINS                             :
:       Data File: UPL$CAN_DATA_ROOT:<LHG>HG10821B.PRN;1                       :
```

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	DJ0R3	1	21-AUG-2000	11:46:30	0230316	A0H170114	H1
90	DJ0R4	1	21-AUG-2000	11:47:37	0230316	A0H170114	H1
91	DJ0R5	1	21-AUG-2000	11:49:17	0230316	A0H170114	H1
92	DJ0R6	1	21-AUG-2000	11:50:48	0230316	A0H170114	H1
93	DJ0R8	1	21-AUG-2000	11:52:05	0230316	A0H170114	H1
94	CK2CCV	1	21-AUG-2000	11:53:22			H1
95	CK1CCB	1	21-AUG-2000	11:54:41			H1
96	DJ0R7	1	21-AUG-2000	11:55:47	0230316	A0H170114	H1
97	DJ1VDB	1	21-AUG-2000	11:56:54	0230320	A0H170000	H1
98	DJ1VD	1	21-AUG-2000	11:58:01			H1
99	DHPHW	1	21-AUG-2000	11:59:08	0230320	A0H110166	H1
100	DHPH7	1	21-AUG-2000	12:00:14	0230320	A0H110166	H1
101	DHPH7S	1	21-AUG-2000	12:01:44	0230320	A0H110166	H1
102	DHPH7D	1	21-AUG-2000	12:03:32	0230320	A0H110166	H1
103	DJ1VXB	1	21-AUG-2000	12:05:01	0230328	A0H170000	H1
104	DJ1VXC	1	21-AUG-2000	12:06:58	0230328	A0H170000	H1
105	DHRRF	1	21-AUG-2000	12:08:05	0230328	A0H140113	H1
106	CK2CCV	1	21-AUG-2000	12:09:13			H1
107	CK1CCB	1	21-AUG-2000	12:10:20			H1
108	DHRRG	1	21-AUG-2000	12:11:25	0230328	A0H140113	H1
109	DHRRGS	1	21-AUG-2000	12:12:32	0230328	A0H140113	H1
110	DHRRGD	1	21-AUG-2000	12:13:43	0230328	A0H140113	H1
111	DHRRJ	1	21-AUG-2000	12:14:53	0230328	A0H140113	H1
112	DHRRK	1	21-AUG-2000	12:16:10	0230328	A0H140113	H1
113	DHRR1	1	21-AUG-2000	12:17:21	0230328	A0H140113	H1
114	DJ1WJB	1	21-AUG-2000	12:18:39	0230331	A0H170000	H1
115	DJ1WJC	1	21-AUG-2000	12:19:51	0230331	A0H170000	H1
116	CK2CCV	1	21-AUG-2000	12:20:57			H1
117	CK1CCB	1	21-AUG-2000	12:22:08			H1
118	CK2CCV	1	21-AUG-2000	12:38:04			H1
119	CK1CCB	1	21-AUG-2000	12:39:09			H1
120	DGV2M	10	21-AUG-2000	12:40:15	0230315	A0G260232	H1
121	DGV2MS	10	21-AUG-2000	12:41:19	0230315	A0G260232	H1
122	DGV2MD	10	21-AUG-2000	12:43:16			H1
123	DJ16D	1	21-AUG-2000	12:44:26	0230331	A0H170161	H1
124	DJ16DS	1	21-AUG-2000	12:46:00	0230331	A0H170161	H1
125	DJ16DD	1	21-AUG-2000	12:47:06	0230331	A0H170161	H1
126	DJ16X	1	21-AUG-2000	12:48:23	0230331	A0H170161	H1
127	DJ173	1	21-AUG-2000	12:49:30	0230331	A0H170161	H1
128	DJ179	1	21-AUG-2000	12:50:36	0230331	A0H170161	H1
129	CK2CCV	1	21-AUG-2000	12:51:52			H1
130	CK1CCB	1	21-AUG-2000	12:53:00			H1
131	CK2CCV	1	21-AUG-2000	15:21:03			H1
132	CK1CCB	1	21-AUG-2000	15:22:29			H1

(continued)

Avge	14243	--	--	--	--	--	--
SDev	81.67083	--	--	--	--	--	--
%RSD	.5734204	--	--	--	--	--	--
#1	14185	--	--	--	--	--	--
#2	14300	--	--	--	--	--	--

Method: TOTAL Sample Name: DH9R6 Operator: MJC
Run Time: 08/22/00 00:42:14 MPT-AC-SU-02-05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	-.6876	1266.	3.215	9.496	27.76	-1.237	7550.
SDev	.0886	14.	.392	1.232	.08	.020	4.
%RSD	12.89	1.143	12.20	12.97	.2906	1.589	.0529
#1	-.6249	1276.	2.938	10.37	27.82	-1.223	7553.
#2	-.7502	1256.	3.493	8.625	27.70	-1.251	7547.
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2000.	500000.	10000.	50000.	25000.	4000.	600000.
Low	-1000.	-5000.	-5000.	-1000.	-5000.	-1000.	-1000.

Elem	Cd	Co	Cr	Cu	Fe	K	Mg
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	.0325	1.355	9.873	5.532	1392.	165.1	291.9
SDev	.0801	.176	.655	.066	2.	22.3	2.0
%RSD	246.8	12.99	6.631	1.190	.1221	13.52	.6769
#1	.0891	1.479	10.34	5.579	1393.	180.9	293.3
#2	-.0242	1.230	9.410	5.486	1391.	149.3	290.5
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2500.	50000.	50000.	30000.	600000.	600000.	600000.
Low	-1000.	-1000.	-1000.	-1000.	-1000.	-10000.	-10000.

Elem	Mn	Mo	Na3302	Ni	Pb	Se	Sb
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	34.16	.8912	291.5	1.427	16.92	1.183	2.572
SDev	.13	.2480	103.0	.266	.08	.940	.533
%RSD	.3921	27.83	35.34	18.62	.4599	79.51	20.71
#1	34.25	1.067	364.4	1.615	16.97	.5178	2.196
#2	34.07	.7158	218.7	1.239	16.86	1.848	2.949
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	50000.	50000.	600000.	50000.	15000.	10000.	10000.
Low	-1000.	-1000.	-10000.	-1000.	-1000.	-1000.	-1000.

Elem	Sn	Tl	V	Zn	2203/1	2203/2	2068/2
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	16.55	3.090	7.396	290.1	19.67	15.54	2.809
SDev	.31	.079	.109	.4	2.22	.99	.099
%RSD	1.863	2.546	1.471	.1397	11.30	6.389	3.539

$16.92\ \mu g/L \left(\frac{1L}{1000mL}\right)\left(\frac{100mL}{1.0g}\right)\left(\frac{1000g}{1kg}\right)\left(\frac{1mg}{1000\mu g}\right)\left(\frac{1}{.820}\right) = 2.2\ mg/kg$

JMM 10/9/00

SDG NARRATIVE
MP024

GENERAL CHEMISTRY

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS/Sample Duplicate Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A0H030201 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids		Work Order #: DHDGP101		MB Lot-Sample #:	A0H040000-328	
	ND	10.0	%	MCAWW 160.3 MOD	08/04-08/07/00	0217328
		Dilution Factor: 1				
Total Cyanide		Work Order #: DHWEF101		MB Lot-Sample #:	A0H150000-569	
	ND	0.50	mg/kg	SW846 9012A	08/15-08/16/00	0228569
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **T. HANSEN** **DATE:** **NOVEMBER 30, 2000**

FROM: **DOUGLAS S. SCHLOER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOA / SVOA / PEST / PCB**
CTO 091, NS MAYPORT
SDG MP024

SAMPLES: 2 / Solid / VOA / SVOA / PEST / PCB

MPT-AC-SU-01-05 MPT-AC-SU-02-05

OVERVIEW

The sample set for CTO 091, NS Mayport; SDG MP024 consists of two (2) solid environmental samples. The samples were analyzed for Appendix IX volatile, semivolatile, organochlorine pesticides, and polychlorinated biphenyl organic compounds. No field duplicate pairs were included in this SDG.

The samples were collected by TetraTech NUS on August 2nd, 2000 and analyzed by Severn Trent Laboratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8260B, 8270C, 8081A and 8082 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data completeness
- * Holding times
- * GC/MS Tuning
- Initial and continuing calibration
- * Blank results
- Surrogate spike recoveries
- Blank Spike / Blank Spike Duplicate results
- * Detection Limits
- * Compound Quantitation
- * Compound Identification

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A.

VOA

Initial calibration Relative Response Factors (RRFs) fell below the 0.05 quality control limit for acrolein, acrylonitrile, acetonitrile, isobutyl alcohol and propionitrile on 8/1/00, on instrument A3I503. Only nondetected results were reported for the aforementioned compounds and these were rejected (UR) in the affected samples.

Line	Vial	SampleName	SampleAmount	ISTDAmt	Multiplier	Dilution
26	26	DH2LH10A				
27	27	DH2M010A				
28	28	DH2M110A				
29	29	DH2M210A				
30	30	DH2M410A				
31	31	DH3HF101				
32	32	DH3HF102,2				
33	33	DH3HF103,2				
34	34	DH184103				
35	35	DH193103				
36	36	DH199103				
37	37	DH19J103				
38	38	DH1C7103				
39	39	PRIMER				
40	40	1660 0.5 pass 5				
41	41	DH0F6103				
42	42	DH0F3103				
43	43	DH0EW103				
44	44	DHFE1101				
45	45	DHFE1102				
46	46	DHFE1103				
47	47	DHDNH101				
48	48	DHDNP101				
49	49	DHDNQ101				
50	50	DHDNT101				
51	51	DHDNV101				
52	52	DHF2F102,50				
53	53	DHF2H102,20				
54	54	DHF2J102,5				
55	55	DHF2K102				
56	56	PRIMER				
57	57	1660 0.5 pass 5				
58	58	DHF2L102				
59	59	DHF2M102				
60	60	DH9R1101				
61	61	DH9R1102				
62	62	DH9R1103				
63	63	DH9GA102				
64	64	DH9HM102				
65	65	DH9HV102				
66	66	DH9J2102				
67	67	DH9LH102				
68	68	DH9M9102,2				
69	69	DH9MH102				
70	70	DH9MJ102				
71	71	DH9MK102				
72	72	DH9PW103				
73	73	DH9R6103				
74	74	PRIMER				
75	75	1660 0.5 pass 5				
76	76	DHDGJ101 rerun closer fails				
77	77	DHDGJ102,5				
78	78	DHDCW104				
79	79	DHDD3104				
80	80	DHDD4104				
81	81	DHDD810A				

An initial calibration % Relative Standard Deviation (%RSD) exceeded the 30% (but<50%) quality control limit for chloroethane on 8/1/00, on instrument A3I503. Only nondetected results were reported for chloroethane, which do not require qualification based on this calibration noncompliance.

Continuing calibration verification RRFs fell below the 0.05 quality control limit for acrolein, acrylonitrile and acetonitrile on 8/8/00, 10:39, on instrument A3I503. Only nondetected results were reported for the aforementioned compounds and these were rejected (UR) in the affected samples.

A continuing calibration verification % Difference (%D) exceeded the 25% quality control limit for vinyl acetate on 8/8/00, 10:39, on instrument A3I503. Only nondetected results were reported for vinyl acetate and these were qualified as estimated (UJ) in the affected samples.

Continuing calibration verification RRFs fell below the 0.05 quality control limit for isobutyl alcohol and propionitrile on 8/8/00, 10:12, on instrument A3I503. Only nondetected results were reported for isobutyl alcohol and propionitrile and these were rejected (UR) in the affected samples.

A continuing calibration verification %D exceeded the 25% quality control limit for 1,2-dibromo-3-chloropropane on 8/8/00, 10:12, on instrument A3I503, Only nondetected results were reported for 1,2-dibromo-3-chloropropane and these were qualified as estimated (UJ) in the affected samples.

SVOA

Initial calibration %RSDs exceeded the 30% (but<50%) quality control limit for p-phenylaminediamine and 4-nitroquinoline-1-oxide on 8/9/00, on instrument A4HP9. Only nondetected results were reported for p-phenylaminediamine and 4-nitroquinoline-1-oxide, which do not require qualification based on these calibration noncompliances.

Continuing calibration verification %Ds exceeded the 25% quality control limit for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol on 8/9/00, 11:24, on instrument A4HP9. Only nondetected results were reported for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol and these were qualified as estimated (UJ) in the affected samples.

A continuing calibration verification RRF fell below the 0.05 quality control limit for 1,3,5-trinitrobenzene on 8/9/00, 12:02, on instrument A4HP9. Only nondetected results were reported for 1,3,5-trinitrobenzene and these were rejected (UR) in the affected samples.

On 8/9/00, 12:02, on instrument A4HP9, continuing calibration verification %Ds exceeded the 25% quality control limit for 1,3,5-trinitrobenzene, Dinoseb, 1,3-dinitrobenzene and 4-nitroquinoline-1-oxide. Only nondetected results were reported for 4-nitroquinoline-1-oxide, Dinoseb and 1,3-dinitrobenzene and these were qualified as estimated (UJ) in the affected samples. Additionally, the nondetected results reported for 1,3,5-trinitrobenzene were previously qualified for the RRF noncompliance above and did not require further qualification.

PEST

Surrogate recovery of decachlorobiphenyl (DCB) in sample MPT-AC-SU-02-05 was reported as 0%. Upon examination sample chromatograms from both analytical columns, it has been determined that DCB was present on both analytical columns and the laboratory erroneously did not report a recovery for DCB.

Sample results were not qualified as a result of this surrogate non-compliance.

A continuing calibration verification % Drift (%D) exceeded the 15% quality control limit on one analytical column for 4,4'-DDD on 8/8/00, 13:46, on instrument A2HP5. Only nondetected results were reported for 4,4'-DDD, which do not require qualification based on this calibration noncompliance.

A continuing calibration verification %D exceeded the 15% quality control limit on one analytical column for 4,4'-DDD on 8/8/00, 20:48, on instrument A2HP5. Only nondetected results were reported for 4,4'-DDD, which do not require qualification based on this calibration noncompliance.

A continuing calibration verification %D exceeded the 15% quality control limit on one analytical column for Toxaphene on 8/8/00, 21:10, on instrument A2HP5. Only nondetected results were reported for Toxaphene, which do not require qualification based on this calibration noncompliance.

PCB

All data quality parameters were met for this fraction.

Additional Comments

Positive results below the reporting limit were qualified as estimated, (J), due to uncertainty near the detection limit.

It should be noted that according to the laboratory statement of work (SOW) both the volatile and semivolatile fraction both were to contain 1,2-dichlorbenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene. Since this would create data management problems, the laboratory reported these compounds in the semivolatile fraction only. It was not necessary to qualify any data based on this issue.

The analytical SOW listed pentachloroethane to be analyzed and reported as a volatile compound but the laboratory analyzed and reported this compound as a semivolatile compound. It was not necessary to qualify any data based on this issue.

The laboratory reported allyl chloride, which according to the analytical SOW was not a required volatile target compound. Because allyl chloride is an Appendix IX compound it was determined that this compound should remain in the database.

The laboratory reported Dinoseb, a,a-dimethylphenethylamine, chlorobenzilate, diallate, and N-nitrosopiperidine, which according to the analytical SOW were not required semivolatile target compounds. Because the aforementioned are Appendix IX compounds it was determined that these compounds should remain in the database.

The laboratory did not report hexachlorophene as requested in the analytical SOW. This compound is unstable and could not be analyzed.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Laboratory Control Sample (LCS) % recoveries of the volatile compounds: acetone, chloroethane, 2-butanone and 2-hexanone fell outside quality control limits on instrument A3I503.

LCS % recoveries of the volatile compounds: acetone, chloroethane, 2-hexanone and 4-methyl-2-pentanone fell outside quality control limits on instrument A3UX9.

Initial and continuing calibration of several volatile and semivolatile compounds did not meet quality control criteria.

The laboratory failed to quantitate results on one analytical column for the surrogate decachlorobiphenyl in the pesticide sample MPT-AC-SU-02-05. As a result, DCB was reported as 0% recovery in the aforementioned sample.

The laboratory did not evaluate the % difference between analytical columns for positive pesticide results.

Other Factors Affecting Data Quality: None

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines "Navy IRCDQM" (Sept 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS

Douglas S. Schloer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation 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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05	MPT-AC-SU-02-05		
SAMPLE DATE:	08/02/00	08/02/00	/ /	/ /
LABORATORY ID:	A0H030201001	A0H030201002		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	83.0 %	76.0 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	5.9	U		7.3	U							
1,1,1-TRICHLOROETHANE	5.9	U		7.3	U							
1,1,2,2-TETRACHLOROETHANE	5.9	U		7.3	U							
1,1,2-TRICHLOROETHANE	5.9	U		7.3	U							
1,1-DICHLOROETHANE	5.9	U		7.3	U							
1,1-DICHLOROETHENE	5.9	U		7.3	U							
1,2,3-TRICHLOROPROPANE	5.9	U		7.3	U							
1,2-DIBROMO-3-CHLOROPROPANE	12	UJ	C	15	UJ	C						
1,2-DIBROMOETHANE	5.9	U		7.3	U							
1,2-DICHLOROETHANE	5.9	U		7.3	U							
1,2-DICHLOROETHENE (TOTAL)	5.9	U		7.3	U							
1,2-DICHLOROPROPANE	5.9	U		7.3	U							
2-BUTANONE	24	U		29	U							
2-CHLOROETHYL VINYL ETHER	59	U		73	U							
2-HEXANONE	24	U		29	U							
4-METHYL-2-PENTANONE	24	U		29	U							
ACETONE	24	U		29	U							
ACETONITRILE	120	UR	C	150	UR	C						
ACROLEIN	120	UR	C	150	UR	C						
ACRYLONITRILE	120	UR	C	150	UR	C						
ALLYL CHLORIDE	12	U		15	U							
BENZENE	5.9	U		7.3	U							
BROMODICHLOROMETHANE	5.9	U		7.3	U							
BROMOFORM	5.9	U		7.3	U							
BROMOMETHANE	12	U		15	U							
CARBON DISULFIDE	5.9	U		7.3	U							
CARBON TETRACHLORIDE	5.9	U		7.3	U							
CHLOROBENZENE	5.9	U		7.3	U							
CHLOROETHANE	12	U		15	U							
CHLOROFORM	5.9	U		7.3	U							
CHLOROMETHANE	12	U		15	U							
CHLOROPRENE	5.9	U		7.3	U							
CIS-1,2-DICHLOROETHENE	3	U		3.7	U							

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05	MPT-AC-SU-02-05		
SAMPLE DATE:	08/02/00	08/02/00	/ /	/ /
LABORATORY ID:	A0H030201001	A0H030201002		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	83.0 %	76.0 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
CIS-1,3-DICHLOROPROPENE	5.9	U		7.3	U							
DIBROMOCHLOROMETHANE	5.9	U		7.3	U							
DIBROMOMETHANE	5.9	U		7.3	U							
DICHLORODIFLUOROMETHANE	12	U		15	U							
ETHYL METHACRYLATE	5.9	U		7.3	U							
ETHYLBENZENE	5.9	U		7.3	U							
IODOMETHANE	5.9	U		7.3	U							
ISOBUTYL ALCOHOL	240	UR	C	290	UR	C						
METHACRYLONITRILE	5.9	U		7.3	U							
METHYL METHACRYLATE	5.9	U		7.3	U							
METHYL TERT-BUTYL ETHER	24	U		29	U							
METHYLENE CHLORIDE	5.9	U		7.3	U							
PROPIONITRILE	24	UR	C	29	UR	C						
STYRENE	5.9	U		7.3	U							
TETRACHLOROETHENE	5.9	U		7.3	U							
TOLUENE	5.9	U		7.3	U							
TRANS-1,2-DICHLOROETHENE	3	U		3.7	U							
TRANS-1,3-DICHLOROPROPENE	5.9	U		7.3	U							
TRANS-1,4-DICHLORO-2-BUTENE	5.9	U		7.3	U							
TRICHLOROETHENE	5.9	U		7.3	U							
TRICHLOROFLUOROMETHANE	12	U		15	U							
VINYL ACETATE	12	UJ	C	15	UJ	C						
VINYL CHLORIDE	12	U		15	U							
XYLENES, TOTAL	5.9	U		7.3	U							

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05			MPT-AC-SU-02-05								
SAMPLE DATE:	08/02/00			08/02/00			/ /			/ /		
LABORATORY ID:	A0H030201001			A0H030201002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	83.0 %			76.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	400	U		430	U							
1,2,4-TRICHLOROBENZENE	400	U		430	U							
1,2-DICHLOROBENZENE	400	UR	C	430	UR	C						
1,3,5-TRINITROBENZENE	1900	U		2100	U							
1,3-DICHLOROBENZENE	400	U		430	U							
1,3-DINITROBENZENE	400	UJ	C	430	UJ	C						
1,4-DICHLOROBENZENE	400	U		430	U							
1,4-DIOXANE	400	U		430	U							
1,4-NAPHTHOQUINONE	1900	U		2100	U							
1-NAPHTHYLAMINE	400	U		430	U							
2,2'-OXYBIS(1-CHLOROPROPANE)	400	U		430	U							
2,3,4,6-TETRACHLOROPHENOL	1900	U		2100	U							
2,4,5-TRICHLOROPHENOL	400	U		430	U							
2,4,6-TRICHLOROPHENOL	400	U		430	U							
2,4-DICHLOROPHENOL	400	U		430	U							
2,4-DIMETHYLPHENOL	400	U		430	U							
2,4-DINITROPHENOL	1900	UJ	C	2100	UJ	C						
2,4-DINITROTOLUENE	400	U		430	U							
2,6-DICHLOROPHENOL	400	U		430	U							
2,6-DINITROTOLUENE	400	U		430	U							
2-ACETYLAMINOFLUORENE	4000	U		4300	U							
2-CHLORONAPHTHALENE	400	U		430	U							
2-CHLOROPHENOL	400	U		430	U							
2-METHYLNAPHTHALENE	400	U		430	U							
2-METHYLPHENOL	400	U		430	U							
2-NAPHTHYLAMINE	400	U		430	U							
2-NITROANILINE	1900	U		2100	U							
2-NITROPHENOL	400	U		430	U							
2-PICOLINE	800	U		870	U							
3,3'-DICHLOROBENZIDINE	1900	U		2100	U							
3,3'-DIMETHYLBENZIDINE	1900	U		2100	U							
3-METHYLCHOLANTHRENE	800	U		870	U							
3-METHYLPHENOL	400	U		430	U							

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05			MPT-AC-SU-02-05								
SAMPLE DATE:	08/02/00			08/02/00			/ /			/ /		
LABORATORY ID:	A0H030201001			A0H030201002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	83.0 %			76.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
3-NITROANILINE	1900	U		2100	U							
4,6-DINITRO-2-METHYLPHENOL	1900	UJ	C	2100	UJ	C						
4-AMINOBIPHENYL	1900	U		2100	U							
4-BROMOPHENYL PHENYL ETHER	400	U		430	U							
4-CHLORO-3-METHYLPHENOL	400	U		430	U							
4-CHLOROANILINE	400	U		430	U							
4-CHLOROPHENYL PHENYL ETHER	400	U		430	U							
4-METHYLPHENOL	400	U		430	U							
4-NITROANILINE	1900	U		2100	U							
4-NITROPHENOL	1900	U		2100	U							
4-NITROQUINOLINE-1-OXIDE	4000	UJ	C	4300	UJ	C						
5-NITRO-O-TOLUIDINE	800	U		870	U							
7,12-DIMETHYLBENZ(A)ANTHRACENE	800	U		870	U							
A,A-DIMETHYLPHENETHYLAMINE	1900	U		2100	U							
ACENAPHTHENE	400	U		430	U							
ACENAPHTHYLENE	400	U		430	U							
ACETOPHENONE	400	U		430	U							
ANILINE	400	U		430	U							
ANTHRACENE	400	U		430	U							
ARAMITE	800	U		870	U							
BENZO(A)ANTHRACENE	400	U		430	U							
BENZO(A)PYRENE	400	U		430	U							
BENZO(B)FLUORANTHENE	400	U		430	U							
BENZO(G,H,I)PERYLENE	400	U		430	U							
BENZO(K)FLUORANTHENE	400	U		430	U							
BENZYL ALCOHOL	400	U		430	U							
BIS(2-CHLOROETHOXY)METHANE	400	U		430	U							
BIS(2-CHLOROETHYL)ETHER	400	U		430	U							
BIS(2-ETHYLHEXYL)PHTHALATE	400	U		430	U							
BUTYLBENZYL PHTHALATE	400	U		430	U							
CARBAZOLE	400	U		430	U							
CHLOROBENZILATE	400	U		430	U							
CHRYSENE	400	U		430	U							

SAMPLE NUMBER:	MPT-AC-SU-01-05			MPT-AC-SU-02-05								
SAMPLE DATE:	08/02/00			08/02/00			/ /			/ /		
LABORATORY ID:	A0H030201001			A0H030201002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	83.0 %			76.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
DI-N-BUTYL PHTHALATE	400	U		430	U							
DI-N-OCTYL PHTHALATE	400	U		430	U							
DIALLATE	800	U		870	U							
DIBENZO(A,H)ANTHRACENE	400	U		430	U							
DIBENZOFURAN	400	U		430	U							
DIETHYL PHTHALATE	400	U		430	U							
DIMETHYL PHTHALATE	400	U		430	U							
DINOSEB	800	UJ	C	870	UJ	C						
DIPHENYLAMINE	400	U		430	U							
ETHYL METHANESULFONATE	400	U		430	U							
FLUORANTHENE	400	U		430	U							
FLUORENE	400	U		430	U							
HEXACHLOROBENZENE	400	U		430	U							
HEXACHLOROBUTADIENE	400	U		430	U							
HEXACHLOROCYCLOPENTADIENE	1900	U		2100	U							
HEXACHLOROETHANE	400	U		430	U							
HEXACHLOROPROPENE	4000	U		4300	U							
INDENO(1,2,3-CD)PYRENE	400	U		430	U							
ISOPHORONE	400	U		430	U							
ISOSAFROLE	800	U		870	U							
METHAPYRILENE	1900	U		2100	U							
METHYL METHANESULFONATE	400	U		430	U							
N-NITROSO-DI-N-BUTYLAMINE	400	U		430	U							
N-NITROSO-DI-N-PROPYLAMINE	400	U		430	U							
N-NITROSODIETHYLAMINE	400	U		430	U							
N-NITROSODIMETHYLAMINE	400	U		430	U							
N-NITROSODIPHENYLAMINE	400	U		430	U							
N-NITROSOMETHYLETHYLAMINE	400	U		430	U							
N-NITROSOMORPHOLINE	400	U		430	U							
N-NITROSOPIPERIDINE	400	U		430	U							
N-NITROSOPYRROLIDINE	400	U		430	U							
NAPHTHALENE	400	U		430	U							
NITROBENZENE	400	U		430	U							

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05			MPT-AC-SU-02-05								
SAMPLE DATE:	08/02/00			08/02/00			/ /			/ /		
LABORATORY ID:	A0H030201001			A0H030201002								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	83.0 %			76.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
O-TOLUIDINE	800	U		870	U							
P-DIMETHYLAMINOAZOBENZENE	800	U		870	U							
P-PHENYLENEDIAMINE	4000	U		4300	U							
PENTACHLOROBENZENE	400	U		430	U							
PENTACHLOROETHANE	1900	U		2100	U							
PENTACHLORONITROBENZENE	1900	U		2100	U							
PENTACHLOROPHENOL	1900	U		2100	U							
PHENACETIN	800	U		870	U							
PHENANTHRENE	400	U		430	U							
PHENOL	400	U		430	U							
PRONAMIDE	800	U		870	U							
PYRENE	400	U		430	U							
PYRIDINE	800	U		870	U							
SAFROLE	800	U		870	U							

NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP024

SAMPLE NUMBER:	MPT-AC-SU-01-05	MPT-AC-SU-02-05		
SAMPLE DATE:	08/02/00	08/02/00	/ /	/ /
LABORATORY ID:	A0H030201001	A0H030201002		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	83.0 %	76.0 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	2.1	U		2.2	U							
4,4'-DDE	1.1	J	P	2.9								
4,4'-DDT	2.1	U		3.2								
ALDRIN	2.1	U		2.2	U							
ALPHA-BHC	2.1	U		2.2	U							
ALPHA-CHLORDANE	2.1	U		2.2	U							
AROCLOR-1016	40	U		43	U							
AROCLOR-1221	40	U		43	U							
AROCLOR-1232	40	U		43	U							
AROCLOR-1242	40	U		43	U							
AROCLOR-1248	40	U		43	U							
AROCLOR-1254	40	U		43	U							
AROCLOR-1260	40	U		43	U							
BETA-BHC	2.1	U		2.2	U							
DELTA-BHC	2.1	U		2.2	U							
DIELDRIN	2.1	U		2.2	U							
ENDOSULFAN I	2.1	U		2.2	U							
ENDOSULFAN II	2.1	U		2.2	U							
ENDOSULFAN SULFATE	2.1	U		2.2	U							
ENDRIN	2.1	U		2.2	U							
ENDRIN ALDEHYDE	2.1	U		2.2	U							
ENDRIN KETONE	2.1	U		2.2	U							
GAMMA-BHC (LINDANE)	2.1	U		2.2	U							
GAMMA-CHLORDANE	2.1	U		2.2	U							
HEPTACHLOR	2.1	U		2.2	U							
HEPTACHLOR EPOXIDE	2.1	U		2.2	U							
ISODRIN	4	U		4.3	U							
KEPONE	40	U		43	U							
METHOXYCHLOR	4	U		4.3	U							
TOXAPHENE	81	U		88	U							

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 08/03/00
Work Order: DH9PW102 Date Extracted:08/08/00
Dilution factor: 0.98 Date Analyzed: 08/08/00
Moisture %:17

QC Batch: 0222101

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	24	U
75-05-8	Acetonitrile	120	U
107-02-8	Acrolein	120	U
107-13-1	Acrylonitrile	120	U
71-43-2	Benzene	5.9	U
75-27-4	Bromodichloromethane	5.9	U
75-25-2	Bromoform	5.9	U
74-83-9	Bromomethane	12	U
75-15-0	Carbon disulfide	5.9	U
56-23-5	Carbon tetrachloride	5.9	U
108-90-7	Chlorobenzene	5.9	U
126-99-8	Chloroprene	5.9	U
124-48-1	Dibromochloromethane	5.9	U
96-12-8	1,2-Dibromo-3-chloropropane	12	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl vinyl ether	59	U
67-66-3	Chloroform	5.9	U
74-87-3	Chloromethane	12	U
107-05-1	Allyl chloride	12	U
74-95-3	Dibromomethane	5.9	U
110-57-6	trans-1,4-Dichloro-2-butene	5.9	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	5.9	U
107-06-2	1,2-Dichloroethane	5.9	U
75-35-4	1,1-Dichloroethene	5.9	U
156-59-2	cis-1,2-Dichloroethene	3.0	U
156-60-5	trans-1,2-Dichloroethene	3.0	U
540-59-0	1,2-Dichloroethene (total)	5.9	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 08/03/00
Work Order: DH9PW102 Date Extracted:08/08/00
Dilution factor: 0.98 Date Analyzed: 08/08/00
Moisture %:17

QC Batch: 0222101

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
78-87-5	1,2-Dichloropropane	5.9	U
10061-01-5	cis-1,3-Dichloropropene	5.9	U
10061-02-6	trans-1,3-Dichloropropene	5.9	U
100-41-4	Ethylbenzene	5.9	U
97-63-2	Ethyl methacrylate	5.9	U
75-69-4	Trichlorofluoromethane	12	U
591-78-6	2-Hexanone	24	U
74-88-4	Iodomethane	5.9	U
78-83-1	Isobutyl alcohol	240	U
126-98-7	Methacrylonitrile	5.9	U
75-09-2	Methylene chloride	5.9	U
80-62-6	Methyl methacrylate	5.9	U
107-12-0	Propionitrile	24	U
100-42-5	Styrene	5.9	U
630-20-6	1,1,1,2-Tetrachloroethane	5.9	U
79-34-5	1,1,2,2-Tetrachloroethane	5.9	U
127-18-4	Tetrachloroethene	5.9	U
108-88-3	Toluene	5.9	U
71-55-6	1,1,1-Trichloroethane	5.9	U
79-00-5	1,1,2-Trichloroethane	5.9	U
79-01-6	Trichloroethene	5.9	U
96-18-4	1,2,3-Trichloropropane	5.9	U
108-05-4	Vinyl acetate	12	U
75-01-4	Vinyl chloride	12	U
1330-20-7	Xylenes (total)	5.9	U
1634-04-4	Methyl tert-butyl ether	24	U
106-93-4	1,2-Dibromoethane (EDB)	5.9	U
78-93-3	2-Butanone (MEK)	24	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 08/03/00
Work Order: DH9PW102 Date Extracted:08/08/00
Dilution factor: 0.98 Date Analyzed: 08/08/00
Moisture %:17

QC Batch: 0222101

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-10-1	4-Methyl-2-pentanone (MIBK)	24	U

FORM I

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 08/03/00
Work Order: DH9R6102 Date Extracted:08/08/00
Dilution factor: 1.11 Date Analyzed: 08/08/00
Moisture %:24

QC Batch: 0222101

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	29	U
75-05-8	Acetonitrile	150	U
107-02-8	Acrolein	150	U
107-13-1	Acrylonitrile	150	U
71-43-2	Benzene	7.3	U
75-27-4	Bromodichloromethane	7.3	U
75-25-2	Bromoform	7.3	U
74-83-9	Bromomethane	15	U
75-15-0	Carbon disulfide	7.3	U
56-23-5	Carbon tetrachloride	7.3	U
108-90-7	Chlorobenzene	7.3	U
126-99-8	Chloroprene	7.3	U
124-48-1	Dibromochloromethane	7.3	U
96-12-8	1,2-Dibromo-3-chloropropane	15	U
75-00-3	Chloroethane	15	U
110-75-8	2-Chloroethyl vinyl ether	73	U
67-66-3	Chloroform	7.3	U
74-87-3	Chloromethane	15	U
107-05-1	Allyl chloride	15	U
74-95-3	Dibromomethane	7.3	U
110-57-6	trans-1,4-Dichloro-2-butene	7.3	U
75-71-8	Dichlorodifluoromethane	15	U
75-34-3	1,1-Dichloroethane	7.3	U
107-06-2	1,2-Dichloroethane	7.3	U
75-35-4	1,1-Dichloroethene	7.3	U
156-59-2	cis-1,2-Dichloroethene	3.7	U
156-60-5	trans-1,2-Dichloroethene	3.7	U
540-59-0	1,2-Dichloroethene (total)	7.3	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 08/03/00
Work Order: DH9R6102 Date Extracted:08/08/00
Dilution factor: 1.11 Date Analyzed: 08/08/00
Moisture %:24

QC Batch: 0222101

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
78-87-5	1,2-Dichloropropane	7.3	U
10061-01-5	cis-1,3-Dichloropropene	7.3	U
10061-02-6	trans-1,3-Dichloropropene	7.3	U
100-41-4	Ethylbenzene	7.3	U
97-63-2	Ethyl methacrylate	7.3	U
75-69-4	Trichlorofluoromethane	15	U
591-78-6	2-Hexanone	29	U
74-88-4	Iodomethane	7.3	U
78-83-1	Isobutyl alcohol	290	U
126-98-7	Methacrylonitrile	7.3	U
75-09-2	Methylene chloride	7.3	U
80-62-6	Methyl methacrylate	7.3	U
107-12-0	Propionitrile	29	U
100-42-5	Styrene	7.3	U
630-20-6	1,1,1,2-Tetrachloroethane	7.3	U
79-34-5	1,1,2,2-Tetrachloroethane	7.3	U
127-18-4	Tetrachloroethene	7.3	U
108-88-3	Toluene	7.3	U
71-55-6	1,1,1-Trichloroethane	7.3	U
79-00-5	1,1,2-Trichloroethane	7.3	U
79-01-6	Trichloroethene	7.3	U
96-18-4	1,2,3-Trichloropropane	7.3	U
108-05-4	Vinyl acetate	15	U
75-01-4	Vinyl chloride	15	U
1330-20-7	Xylenes (total)	7.3	U
1634-04-4	Methyl tert-butyl ether	29	U
106-93-4	1,2-Dibromoethane (EDB)	7.3	U
78-93-3	2-Butanone (MEK)	29	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 08/03/00
Work Order: DH9R6102 Date Extracted:08/08/00
Dilution factor: 1.11 Date Analyzed: 08/08/00
Moisture %:24

QC Batch: 0222101

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-10-1	4-Methyl-2-pentanone (MIBK)	29	U

FORM I

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9PW110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:17

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	400	U
208-96-8	Acenaphthylene	400	U
98-86-2	Acetophenone	400	U
53-96-3	2-Acetylaminofluorene	4000	U
92-67-1	4-Aminobiphenyl	1900	U
62-53-3	Aniline	400	U
120-12-7	Anthracene	400	U
56-55-3	Benzo(a)anthracene	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
191-24-2	Benzo(ghi)perylene	400	U
50-32-8	Benzo(a)pyrene	400	U
100-51-6	Benzyl alcohol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
111-44-4	bis(2-Chloroethyl) ether	400	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	400	U
117-81-7	bis(2-Ethylhexyl) phthalate	400	U
101-55-3	4-Bromophenyl phenyl ether	400	U
85-68-7	Butyl benzyl phthalate	400	U
106-47-8	4-Chloroaniline	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-58-7	2-Chloronaphthalene	400	U
95-57-8	2-Chlorophenol	400	U
7005-72-3	4-Chlorophenyl phenyl ether	400	U
218-01-9	Chrysene	400	U
2303-16-4	Diallate	800	U
53-70-3	Dibenz(a,h)anthracene	400	U
132-64-9	Dibenzofuran	400	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9PW110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:17

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
84-74-2	Di-n-butyl phthalate	400	U
95-50-1	1,2-Dichlorobenzene	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
91-94-1	3,3'-Dichlorobenzidine	1900	U
120-83-2	2,4-Dichlorophenol	400	U
87-65-0	2,6-Dichlorophenol	400	U
84-66-2	Diethyl phthalate	400	U
60-11-7	p-Dimethylaminoazobenzene	800	U
57-97-6	7,12-Dimethylbenz(a)anthrace	800	U
119-93-7	3,3'-Dimethylbenzidine	1900	U
105-67-9	2,4-Dimethylphenol	400	U
131-11-3	Dimethyl phthalate	400	U
117-84-0	Di-n-octyl phthalate	400	U
99-65-0	1,3-Dinitrobenzene	400	U
534-52-1	4,6-Dinitro-2-methylphenol	1900	U
51-28-5	2,4-Dinitrophenol	1900	U
121-14-2	2,4-Dinitrotoluene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	800	U
123-91-1	1,4-Dioxane	400	U
122-39-4	Diphenylamine	400	U
62-50-0	Ethyl methanesulfonate	400	U
206-44-0	Fluoranthene	400	U
86-73-7	Fluorene	400	U
118-74-1	Hexachlorobenzene	400	U
87-68-3	Hexachlorobutadiene	400	U
77-47-4	Hexachlorocyclopentadiene	1900	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9PW110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:17

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-72-1	Hexachloroethane	400	U
1888-71-7	Hexachloropropene	4000	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
78-59-1	Isophorone	400	U
120-58-1	Isosafrole	800	U
91-80-5	Methapyrilene	1900	U
95-53-4	o-Toluidine	800	U
56-49-5	3-Methylcholanthrene	800	U
66-27-3	Methyl methanesulfonate	400	U
91-57-6	2-Methylnaphthalene	400	U
95-48-7	2-Methylphenol	400	U
108-39-4	3-Methylphenol	400	U
106-44-5	4-Methylphenol	400	U
91-20-3	Naphthalene	400	U
130-15-4	1,4-Naphthoquinone	1900	U
134-32-7	1-Naphthylamine	400	U
91-59-8	2-Naphthylamine	400	U
88-74-4	2-Nitroaniline	1900	U
99-09-2	3-Nitroaniline	1900	U
100-01-6	4-Nitroaniline	1900	U
98-95-3	Nitrobenzene	400	U
88-75-5	2-Nitrophenol	400	U
100-02-7	4-Nitrophenol	1900	U
56-57-5	4-Nitroquinoline-1-oxide	4000	U
924-16-3	N-Nitrosodi-n-butylamine	400	U
55-18-5	N-Nitrosodiethylamine	400	U
62-75-9	N-Nitrosodimethylamine	400	U
621-64-7	N-Nitrosodi-n-propylamine	400	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9PW110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:17

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
86-30-6	N-Nitrosodiphenylamine	400	U
10595-95-6	N-Nitrosomethylethylamine	400	U
59-89-2	N-Nitrosomorpholine	400	U
100-75-4	N-Nitrosopiperidine	400	U
930-55-2	N-Nitrosopyrrolidine	400	U
99-55-8	5-Nitro-o-toluidine	800	U
608-93-5	Pentachlorobenzene	400	U
76-01-7	Pentachloroethane	1900	U
82-68-8	Pentachloronitrobenzene	1900	U
87-86-5	Pentachlorophenol	1900	U
62-44-2	Phenacetin	800	U
85-01-8	Phenanthrene	400	U
108-95-2	Phenol	400	U
106-50-3	p-Phenylene diamine	4000	U
109-06-8	2-Picoline	800	U
23950-58-5	Pronamide	800	U
129-00-0	Pyrene	400	U
110-86-1	Pyridine	800	U
94-59-7	Safrole	800	U
95-94-3	1,2,4,5-Tetrachlorobenzene	400	U
58-90-2	2,3,4,6-Tetrachlorophenol	1900	U
120-82-1	1,2,4-Trichlorobenzene	400	U
95-95-4	2,4,5-Trichlorophenol	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
99-35-4	1,3,5-Trinitrobenzene	1900	U
86-74-8	Carbazole	400	U
510-15-6	Chlorobenzilate	400	U
122-09-8	a,a-Dimethylphenethylamine	1900	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9PW110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:17

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
140-57-8	Aramite	800	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9R6110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:24

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	430	U
208-96-8	Acenaphthylene	430	U
98-86-2	Acetophenone	430	U
53-96-3	2-Acetylaminofluorene	4300	U
92-67-1	4-Aminobiphenyl	2100	U
62-53-3	Aniline	430	U
120-12-7	Anthracene	430	U
56-55-3	Benzo(a)anthracene	430	U
205-99-2	Benzo(b)fluoranthene	430	U
207-08-9	Benzo(k)fluoranthene	430	U
191-24-2	Benzo(ghi)perylene	430	U
50-32-8	Benzo(a)pyrene	430	U
100-51-6	Benzyl alcohol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
111-44-4	bis(2-Chloroethyl) ether	430	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	430	U
117-81-7	bis(2-Ethylhexyl) phthalate	430	U
101-55-3	4-Bromophenyl phenyl ether	430	U
85-68-7	Butyl benzyl phthalate	430	U
106-47-8	4-Chloroaniline	430	U
59-50-7	4-Chloro-3-methylphenol	430	U
91-58-7	2-Chloronaphthalene	430	U
95-57-8	2-Chlorophenol	430	U
7005-72-3	4-Chlorophenyl phenyl ether	430	U
218-01-9	Chrysene	430	U
2303-16-4	Diallate	870	U
53-70-3	Dibenz(a,h)anthracene	430	U
132-64-9	Dibenzofuran	430	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9R6110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:24

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
84-74-2	Di-n-butyl phthalate	430	U
95-50-1	1,2-Dichlorobenzene	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
91-94-1	3,3'-Dichlorobenzidine	2100	U
120-83-2	2,4-Dichlorophenol	430	U
87-65-0	2,6-Dichlorophenol	430	U
84-66-2	Diethyl phthalate	430	U
60-11-7	p-Dimethylaminoazobenzene	870	U
57-97-6	7,12-Dimethylbenz(a)anthrace	870	U
119-93-7	3,3'-Dimethylbenzidine	2100	U
105-67-9	2,4-Dimethylphenol	430	U
131-11-3	Dimethyl phthalate	430	U
117-84-0	Di-n-octyl phthalate	430	U
99-65-0	1,3-Dinitrobenzene	430	U
534-52-1	4,6-Dinitro-2-methylphenol	2100	U
51-28-5	2,4-Dinitrophenol	2100	U
121-14-2	2,4-Dinitrotoluene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	870	U
123-91-1	1,4-Dioxane	430	U
122-39-4	Diphenylamine	430	U
62-50-0	Ethyl methanesulfonate	430	U
206-44-0	Fluoranthene	430	U
86-73-7	Fluorene	430	U
118-74-1	Hexachlorobenzene	430	U
87-68-3	Hexachlorobutadiene	430	U
77-47-4	Hexachlorocyclopentadiene	2100	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9R6110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:24

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-72-1	Hexachloroethane	430	U
1888-71-7	Hexachloropropene	4300	U
193-39-5	Indeno(1,2,3-cd)pyrene	430	U
78-59-1	Isophorone	430	U
120-58-1	Isosafrole	870	U
91-80-5	Methapyrilene	2100	U
95-53-4	o-Toluidine	870	U
56-49-5	3-Methylcholanthrene	870	U
66-27-3	Methyl methanesulfonate	430	U
91-57-6	2-Methylnaphthalene	430	U
95-48-7	2-Methylphenol	430	U
108-39-4	3-Methylphenol	430	U
106-44-5	4-Methylphenol	430	U
91-20-3	Naphthalene	430	U
130-15-4	1,4-Naphthoquinone	2100	U
134-32-7	1-Naphthylamine	430	U
91-59-8	2-Naphthylamine	430	U
88-74-4	2-Nitroaniline	2100	U
99-09-2	3-Nitroaniline	2100	U
100-01-6	4-Nitroaniline	2100	U
98-95-3	Nitrobenzene	430	U
88-75-5	2-Nitrophenol	430	U
100-02-7	4-Nitrophenol	2100	U
56-57-5	4-Nitroquinoline-1-oxide	4300	U
924-16-3	N-Nitrosodi-n-butylamine	430	U
55-18-5	N-Nitrosodiethylamine	430	U
62-75-9	N-Nitrosodimethylamine	430	U
621-64-7	N-Nitrosodi-n-propylamine	430	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9R6110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:24

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
86-30-6	N-Nitrosodiphenylamine	430	U
10595-95-6	N-Nitrosomethylethylamine	430	U
59-89-2	N-Nitrosomorpholine	430	U
100-75-4	N-Nitrosopiperidine	430	U
930-55-2	N-Nitrosopyrrolidine	430	U
99-55-8	5-Nitro-o-toluidine	870	U
608-93-5	Pentachlorobenzene	430	U
76-01-7	Pentachloroethane	2100	U
82-68-8	Pentachloronitrobenzene	2100	U
87-86-5	Pentachlorophenol	2100	U
62-44-2	Phenacetin	870	U
85-01-8	Phenanthrene	430	U
108-95-2	Phenol	430	U
106-50-3	p-Phenylene diamine	4300	U
109-06-8	2-Picoline	870	U
23950-58-5	Pronamide	870	U
129-00-0	Pyrene	430	U
110-86-1	Pyridine	870	U
94-59-7	Safrole	870	U
95-94-3	1,2,4,5-Tetrachlorobenzene	430	U
58-90-2	2,3,4,6-Tetrachlorophenol	2100	U
120-82-1	1,2,4-Trichlorobenzene	430	U
95-95-4	2,4,5-Trichlorophenol	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
99-35-4	1,3,5-Trinitrobenzene	2100	U
86-74-8	Carbazole	430	U
510-15-6	Chlorobenzilate	430	U
122-09-8	a,a-Dimethylphenethylamine	2100	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO Lab Sample ID:A0H030201 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.02 / g Date Received: 08/03/00
Work Order: DH9R6110 Date Extracted:08/04/00
Dilution factor: 1 Date Analyzed: 08/09/00
Moisture %:24

QC Batch: 0216337

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
140-57-8	Aramite	870	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO
Method: SW846 8081A
Pesticides (8081A)

Lab Sample ID:A0H030201 001

Sample WT/Vol: 30.02 / g
Work Order: DH9PW104
Dilution factor: 1
Moisture %:17

Date Received: 08/03/00
Date Extracted:08/04/00
Date Analyzed: 08/08/00

QC Batch: 0216335

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
53494-70-5	Endrin ketone	2.1	U
309-00-2	Aldrin	2.1	U
319-84-6	alpha-BHC	2.1	U
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
72-54-8	4,4'-DDD	2.1	U
72-55-9	4,4'-DDE	1.1	J
50-29-3	4,4'-DDT	2.1	U
60-57-1	Dieldrin	2.1	U
959-98-8	Endosulfan I	2.1	U
33213-65-9	Endosulfan II	2.1	U
1031-07-8	Endosulfan sulfate	2.1	U
72-20-8	Endrin	2.1	U
7421-93-4	Endrin aldehyde	2.1	U
76-44-8	Heptachlor	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
465-73-6	Isodrin	4.0	U
143-50-0	Kepone	40	U
72-43-5	Methoxychlor	4.0	U
8001-35-2	Toxaphene	81	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO
Method: SW846 8081A
Pesticides (8081A)

Lab Sample ID:A0H030201 002

Sample WT/Vol: 30.14 / g
Work Order: DH9R6104
Dilution factor: 1
Moisture %:24

Date Received: 08/03/00
Date Extracted:08/04/00
Date Analyzed: 08/08/00

QC Batch: 0216335

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
53494-70-5	Endrin ketone	2.2	U
309-00-2	Aldrin	2.2	U
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
72-54-8	4,4'-DDD	2.2	U
72-55-9	4,4'-DDE	2.9	
50-29-3	4,4'-DDT	3.2	
60-57-1	Dieldrin	2.2	U
959-98-8	Endosulfan I	2.2	U
33213-65-9	Endosulfan II	2.2	U
1031-07-8	Endosulfan sulfate	2.2	U
72-20-8	Endrin	2.2	U
7421-93-4	Endrin aldehyde	2.2	U
76-44-8	Heptachlor	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
465-73-6	Isodrin	4.3	U
143-50-0	Kepone	43	U
72-43-5	Methoxychlor	4.3	U
8001-35-2	Toxaphene	88	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO
Lab Sample ID:A0H030201 001
Method: SW846 8082
PCBs (8082)

Sample WT/Vol: 30.02 / g
Date Received: 08/03/00
Work Order: DH9PW103
Date Extracted:08/04/00
Dilution factor: 1
Date Analyzed: 08/10/00
Moisture %:17

QC Batch: 0216336

Client Sample Id: MPT-AC-SU-01-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	40	U
11104-28-2	Aroclor 1221	40	U
11141-16-5	Aroclor 1232	40	U
53469-21-9	Aroclor 1242	40	U
12672-29-6	Aroclor 1248	40	U
11097-69-1	Aroclor 1254	40	U
11096-82-5	Aroclor 1260	40	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP024

Matrix: (soil/water) SO
Method: SW846 8082
PCBs (8082)

Lab Sample ID:A0H030201 002

Sample WT/Vol: 30.14 / g
Work Order: DH9R6103
Dilution factor: 1
Moisture %:24

Date Received: 08/03/00
Date Extracted:08/04/00
Date Analyzed: 08/10/00

QC Batch: 0216336

Client Sample Id: MPT-AC-SU-02-05

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	43	U
11104-28-2	Aroclor 1221	43	U
11141-16-5	Aroclor 1232	43	U
53469-21-9	Aroclor 1242	43	U
12672-29-6	Aroclor 1248	43	U
11097-69-1	Aroclor 1254	43	U
11096-82-5	Aroclor 1260	43	U

APPENDIX C

SUPPORT DOCUMENTATION

MP024

HOLDING TIME
09/01/00

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	CN	08/02/00	08/15/00	08/16/00	13	1	14
MG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	CN	08/02/00	08/15/00	08/16/00	13	1	14
MG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	HG	08/02/00	08/21/00	08/21/00	19	0	19
MG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	HG	08/02/00	08/21/00	08/21/00	19	0	19
MG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	M	08/02/00	08/21/00	08/22/00	19	1	20
MG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	M	08/02/00	08/21/00	08/22/00	19	1	20
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	OS	08/02/00	08/04/00	08/09/00	2	5	7
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	OS	08/02/00	08/04/00	08/09/00	2	5	7
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	OV	08/02/00	08/08/00	08/08/00	6	0	6
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	OV	08/02/00	08/08/00	08/08/00	6	0	6
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	PCB	08/02/00	08/04/00	08/10/00	2	6	8
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	PCB	08/02/00	08/04/00	08/10/00	2	6	8
UG/KG	MPT-AC-SU-01-05	A0H030201001	NORMAL	MP024	PEST	08/02/00	08/04/00	08/08/00	2	4	6
UG/KG	MPT-AC-SU-02-05	A0H030201002	NORMAL	MP024	PEST	08/02/00	08/04/00	08/08/00	2	4	6

SDG NARRATIVE
MP024

The following report contains the analytical results for two solid samples submitted to STL North Canton by Tetra Tech NUS, Inc. from the NS Mayport Site, project number N0123. The samples were received August 3, 2000, according to documented sample acceptance procedures.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

Please refer to individual analytical sections for laboratory specific narratives.

SAMPLE RECEIVING

The cooler was received at the laboratory at a temperature of 2.6° C.

(See STL's Cooler Receipt Form for additional information.)

North Canton Facility

Client: Tetra Tech Project: IMPORT Quote#:

Cooler Received on: 8-3-00 Opened on: 8-3-00 by: (Signature)

Fedx [X] Client Drop Off [ ] UPS [ ] Airborne [ ]
Other:

Cooler [ ] Safe [ ] Foam Box [ ] Client Cooler [X] Other:

STL Shipper No#:

1. Were custody seals on the outside of the cooler and intact? Yes [X] No [ ]
   If YES, Quantity 1 Location OVRHD
   Were the custody seals signed and dated? Yes [X] No [ ] NA [ ]
2. Shipper's packing slip attached to this form? Yes [X] No [ ]
3. Were custody papers included inside the cooler and relinquished? Yes [X] No [ ]
4. Did you sign the custody papers in the appropriate place? Yes [X] No [ ]
5. Packing material used:

Peanuts [ ] Bubble Wrap [X] Vermiculite [ ] Foam [ ] None [ ] Other :

6. Cooler temperature upon receipt 2.0 °C (see back of form for multiple coolers/temp)

METHOD: Temperature Vial [X] Coolant [ ] Against Bottles [ ]

COOLANT: Wet Ice [X] Blue Ice [ ] Dry Ice [ ] Water [ ] None [ ]

7. Were all the bottles sealed in separate plastic bags? Yes [ ] No [X]
8. Did all bottles arrive in good condition (Unbroken)? Yes [X] No [ ]
9. Did all bottle labels and tags agree with the custody papers? Yes [X] No [ ]
10. Were samples at the correct pH? Yes [ ] No [ ] NA [X]
11. Were correct bottles used for the tests indicated? Yes [X] No [ ]
12. Were air bubbles >6 mm in any VOA vials? Yes [ ] No [ ] NA [X]
13. Was a sufficient amount of sample sent in each bottle? Yes [X] No [ ]

Contacted PM Date: by: via Voice Mail [ ] Verbal [ ] Other [ ]

Concerning:

√	MACRO	MACRO
1. CHAIN OF CUSTODY		
√	SR1A	Samples were received under proper custody procedures and without discrepancies.
	SR1B	The chain of custody and sample bottles did not agree. The following discrepancies occurred
2. SAMPLE CONDITION		
	SR2A	Sample(s) were received or requested after the recommended holding time had expired.
	SR2B	Sample(s) were received with insufficient volume
	SR2C	Sample(s) were received in a broken container.
3. SAMPLE PRESERVATION		
	SR3A	Sample(s) were further preserved in sample receiving to meet recommended pH level(s).
	SR3B	Sample(s) were received with bubble > 6 mm in diameter (cc: PM)
4. NCM		
	SR4A	NCM has been generated. Refer to Clouseau for details
5. Other Anomalies (see below or back)		

Revision 13, June 19, 2000
SOP: NC-SC-0005, Sample Receiving
n:\qaqc\narrativ\stl\cooler_stl.doc

STL North Canton

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 1

PROJECT NO: N0123	SITE NAME: NS Mayport	PROJECT MANAGER AND PHONE NUMBER: T. Hansen	LABORATORY NAME AND CONTACT: Quanterra
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: T. Thompson	ADDRESS: 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER: Fed Ex 7926 2824 7128	CITY, STATE: N Canton, OH

STANDARD TAT ☒
RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: TCL VOC	TCL SVOC	TAL Metals	TCL Pesticides	TCL PCBs	Cyanide		COMMENTS
8-2	1040	MPT-AC-SU-01-05	S	G	6			X	X	X	X	X	X		Cool to 4°C
8-2	1120	MPT-AC-SU-02-05	S	G	6			X	X	X	X	X	X		

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	8-2-00	1700	1. RECEIVED BY	8-3-00	920
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: 2.6°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

12

SDG NARRATIVE
MP024

GC/MS VOLATILES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Samples in this lot were preserved by freezing in water due to samples effervescing when preserved with sodium bisulfate.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

Lab File ID: BFB493X BFB Injection Date: 08/01/00

Instrument ID: A3I503 BFB Injection Time: 0813

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.4
75	30.0 - 60.0% of mass 95	46.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.3 (0.4)1
174	50.0 - 120.0% of mass 95	75.5
175	5.0 - 9.0% of mass 174	5.7 (7.6)1
176	Greater than 95.0%, but less than 101.0% of mass 174	73.6 (97.5)1
177	5.0 - 9.0% of mass 176	5.1 (6.9)2

1-Value is % of mass 174 2-Value is % of mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	1000NG-IC	VOX3465	08/01/00	0826
02	VSTD100	500NG-IC	VOX3466	08/01/00	0856
03	VSTD050	250NG-IC	VOX3467	08/01/00	0926
04	VSTD020	100NG-IC	VOX3468	08/01/00	0957
05	VSTD005	25NG-IC	VOX3469	08/01/00	1027
06	VSTD200	1000NG-A9IC	VOX3470	08/01/00	1058
07	VSTD100	500NG-A9IC	VOX3471	08/01/00	1128
08	VSTD050	250NG-A9IC	VOX3472	08/01/00	1201
09	VSTD020	100NG-A9IC	VOX3473	08/01/00	1229
10	VSTD005	25NG-A9IC	VOX3474	08/01/00	1259
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

INITIAL CALIBRATION DATA

Start Cal Date : 01-AUG-2000 08:26
End Cal Date : 01-AUG-2000 12:59
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/can/msv/a3i503.i/X00801B.b/8260S503-3.m
Cal Date : 01-Aug-2000 13:27 kardohes
Curve Type : Average

Calibration File Names:
Level 1: /chem/can/msv/a3i503.i/X00801B.b/VOX3474.d
Level 2: /chem/can/msv/a3i503.i/X00801B.b/VOX3473.d
Level 3: /chem/can/msv/a3i503.i/X00801B.b/VOX3472.d
Level 4: /chem/can/msv/a3i503.i/X00801B.b/VOX3471.d
Level 5: /chem/can/msv/a3i503.i/X00801B.b/VOX3470.d

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD	
	8 Dichlorodifluoromethane	0.26209	0.22506	0.22185	0.25974	0.22468	0.23868	8.526	
	9 Chloromethane	0.21889	0.21089	0.20328	0.20673	0.19936	0.20783	3.612	
	10 Vinyl Chloride	0.22200	0.21988	0.21169	0.22044	0.21545	0.21789	1.943	
	11 Bromomethane	0.25954	0.21225	0.17764	0.17502	0.17380	0.19965	18.581	
	12 Chloroethane	0.16859	0.14512	0.11658	0.09046	0.08130	0.12041	30.438	
	13 Trichlorofluoromethane	0.58291	0.55991	0.51095	0.46107	0.40040	0.50305	14.733	
	14 Acrolein	0.01389	0.01441	0.01413	0.01179	0.00933	0.01271	16.940	<-
	15 Acetone	0.08191	0.07104	0.06620	0.05477	0.04943	0.06467	20.023	
	16 1,1-Dichloroethene	0.31420	0.29730	0.27046	0.23300	0.19415	0.26182	18.600	
	17 Methylene Chloride	0.33172	0.31558	0.29258	0.28235	0.25603	0.29565	9.941	
	18 Carbon Disulfide	0.92450	0.88894	0.83872	0.79782	0.68873	0.82774	11.047	
	19 Acrylonitrile	0.03808	0.03897	0.03923	0.03553	0.03271	0.03690	7.493	
	20 trans-1,2-Dichloroethene	0.35857	0.34356	0.32326	0.30549	0.26804	0.31978	11.015	
	21 Vinyl acetate	0.35657	0.37468	0.40788	0.39341	0.38157	0.38282	5.054	
	22 1,1-Dichloroethane	0.64164	0.62742	0.58292	0.57405	0.53368	0.59194	7.327	
	23 2-Butanone	0.13753	0.09967	0.09426	0.09432	0.09250	0.10366	18.453	
	24 cis-1,2-dichloroethene	0.36278	0.35593	0.33743	0.32378	0.29107	0.33420	8.553	
M	25 1,2-Dichloroethene (total)	0.36067	0.34974	0.33034	0.31464	0.27956	0.32699	9.750	
	26 Chloroform	0.73245	0.71533	0.67516	0.66155	0.62404	0.68171	6.343	
	27 1,1,1-Trichloroethane	0.65868	0.63859	0.60456	0.59526	0.57022	0.61346	5.738	
	28 Carbon Tetrachloride	0.68829	0.65045	0.60411	0.59547	0.58287	0.62424	7.044	
	29 1,2-Dichloroethane	0.41916	0.41687	0.39776	0.39012	0.39072	0.40293	3.505	
	30 Benzene	0.91422	0.88484	0.84809	0.84579	0.81475	0.86154	4.472	
	31 Trichloroethene	0.47409	0.44923	0.43448	0.43426	0.41680	0.44177	4.846	
	32 1,2-Dichloropropane	0.39887	0.39185	0.38046	0.37671	0.36501	0.38258	3.455	
	33 Bromodichloromethane	0.75612	0.75542	0.71490	0.71165	0.71266	0.73015	3.208	

0.3665 (100)
0.12041
30.43

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

INITIAL CALIBRATION DATA

Start Cal Date : 01-AUG-2000 08:26
End Cal Date : 01-AUG-2000 12:59
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/can/msv/a3i503.i/X00801B.b/8260S503-3.m
Cal Date : 01-Aug-2000 13:27 kardohes
Curve Type : Average

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD	
	34 2-Chloroethyl vinyl ether	0.13250	0.14106	0.15789	0.15407	0.16159	0.14942	8.182	
	35 4-Methyl-2-pentanone	0.24367	0.25086	0.26453	0.26037	0.27820	0.25953	5.100	
	36 cis-1,3-Dichloropropene	0.51591	0.54479	0.54495	0.55409	0.56355	0.54466	3.275	
	37 Toluene	1.23105	1.20597	1.14362	1.17268	1.13272	1.17721	3.516	
	38 trans-1,3-Dichloropropene	0.48976	0.51761	0.52499	0.54496	0.55247	0.52596	4.701	
	39 2-Hexanone	0.19595	0.21785	0.22507	0.22699	0.24659	0.22249	8.206	
	40 1,1,2-Trichloroethane	0.42638	0.41049	0.39599	0.38268	0.38379	0.39987	4.654	
	41 Tetrachloroethene	0.53934	0.51600	0.49177	0.50686	0.48496	0.50779	4.226	
	42 Dibromochloromethane	0.81484	0.82247	0.77904	0.76772	0.74701	0.78622	4.055	
	43 Chlorobenzene	1.11554	1.05148	0.99210	1.00537	0.97265	1.02743	5.565	
	44 Ethylbenzene	0.49592	0.46339	0.44397	0.45172	0.43840	0.45868	4.977	
	45 m + p-Xylene	0.61450	0.58710	0.55408	0.55429	0.54834	0.57166	4.969	
	46 Xylene-o	0.60296	0.58671	0.55466	0.56129	0.55172	0.57147	3.913	
M	47 Xylenes (total)	0.61068	0.58697	0.55428	0.55663	0.54947	0.57160	4.610	
	48 Styrene	0.97229	0.96090	0.92748	0.93427	0.92065	0.94312	2.368	
	49 Bromoform	0.54772	0.58426	0.58755	0.58983	0.60381	0.58264	3.586	
	50 1,1,2,2-Tetrachloroethane	1.06477	1.05753	1.06447	1.03045	0.98630	1.04070	3.220	
	51 1,3-Dichlorobenzene	1.73332	1.56563	1.50509	1.54371	1.49723	1.56900	6.121	
	52 1,4-Dichlorobenzene	2.01523	1.63622	1.54776	1.56597	1.53435	1.65990	12.198	
	53 1,2-Dichlorobenzene	1.64002	1.45894	1.40046	1.36743	1.31161	1.43569	8.782	
	54 Freon-113	0.53902	0.47835	0.42915	0.38059	0.33708	0.43284	18.360	
	55 Acetonitrile	0.00642	0.00852	0.00852	0.00823	0.00978	0.00829	14.567	<-
	56 Iodomethane	1.06418	0.96543	0.87169	0.78251	0.65636	0.86803	18.224	
	57 3-Chloropropene	0.12937	0.13033	0.12505	0.14137	0.11984	0.12919	6.172	
	58 2-Chloro-1,3-butadiene	0.43917	0.44707	0.42528	0.46706	0.38996	0.43370	6.628	
	59 Propionitrile	0.00769	0.01374	0.01445	0.01747	0.01504	0.01368	26.521	<-
	60 Methacrylonitrile	0.10944	0.10134	0.09143	0.11541	0.09828	0.10318	9.119	
	61 Isobutanol	0.00734	0.00786	0.00703	0.00810	0.00661	0.00739	8.168	<-
	62 Methyl Methacrylate	0.22517	0.23794	0.22980	0.27618	0.23349	0.24051	8.517	
	63 1,4-Dioxane	0.00214	0.00214	0.00204	0.00209	0.00222	0.00213	3.151	<-
	64 Dibromomethane	0.34822	0.34400	0.32937	0.31758	0.31385	0.33060	4.641	
	65 Ethyl Methacrylate	0.39314	0.43272	0.45709	0.46493	0.48241	0.44606	7.748	
	66 1,2-Dibromoethane	0.58975	0.60525	0.59315	0.59324	0.59635	0.59555	0.991	

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

INITIAL CALIBRATION DATA

Start Cal Date : 01-AUG-2000 08:26
End Cal Date : 01-AUG-2000 12:59
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/can/msv/a3i503.i/X00801B.b/8260S503-3.m
Cal Date : 01-Aug-2000 13:27 kardohes
Curve Type : Average

Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD	
67 1,1,1,2-Tetrachloroethane	0.60437	0.61335	0.59170	0.64935	0.52146	0.59605	7.866	
68 1,2,3-Trichloropropane	0.93332	0.91110	0.91353	0.92071	0.92846	0.92142	1.030	
69 1,4-Dichloro-2-butene	0.18236	0.18848	0.20038	0.20174	0.21151	0.19689	5.854	
70 Pentachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
71 Benzyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
72 1,2-Dibromo-3-chloropropane	0.31215	0.29346	0.27359	0.30104	0.23078	0.28221	11.340	
73 Ethanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
74 n-Butanol	0.00403	0.00480	0.00467	0.00577	0.00486	0.00482	12.854	<-
75 Ethyl Acetate	0.23216	0.22461	0.20754	0.25054	0.21264	0.22550	7.552	
76 Cyclohexanone	0.02251	0.02143	0.01953	0.02362	0.01984	0.02138	8.140	
77 Ethyl Ether	0.18028	0.17321	0.15966	0.17891	0.14015	0.16644	10.097	
78 Methyl tert-butyl ether	0.58961	0.62652	0.61613	0.58165	0.53649	0.59008	5.962	
79 Tetrahydrofuran	0.06859	0.06797	0.06611	0.05913	0.05521	0.06340	9.348	
80 Dichlorofluoromethane	0.69190	0.69002	0.64681	0.70907	0.57128	0.66181	8.397	
81 2-Nitropropane	0.05994	0.06210	0.05706	0.06776	0.05586	0.06054	7.786	
82 tert-Butyl Alcohol	0.01737	0.01720	0.01874	0.01764	0.01722	0.01763	3.641	
83 Cyclohexane	0.50549	0.46521	0.45509	0.45748	0.43840	0.46433	5.383	
84 Hexane	0.38838	0.36992	0.35695	0.35638	0.34165	0.36266	4.831	
85 Isopropyl Ether	1.12852	1.16176	1.06626	1.10695	0.86793	1.06628	10.895	
86 2,2-Dichloropropane	0.51577	0.51494	0.49988	0.50240	0.46875	0.50035	3.810	
87 1,1-Dichloropropene	0.50135	0.47775	0.45926	0.45687	0.43181	0.46541	5.565	
88 1,3-Dichloropropane	0.62168	0.63083	0.61193	0.61060	0.60848	0.61670	1.521	
89 Isopropylbenzene	1.66753	1.64858	1.59401	1.66085	1.66088	1.64637	1.826	
90 Bromobenzene	1.03579	0.98049	0.94785	0.95023	0.89315	0.96150	5.420	
91 2-Chlorotoluene	0.78804	0.70503	0.66520	0.68369	0.66789	0.70197	7.217	
92 n-Propylbenzene	0.75030	0.71167	0.67199	0.69675	0.68697	0.70354	4.245	
93 4-Chlorotoluene	0.80771	0.73427	0.68866	0.67519	0.65523	0.71221	8.535	
94 1,3,5-Trimethylbenzene	2.21992	2.07198	1.98260	2.00024	1.98337	2.05162	4.923	
95 tert-Butylbenzene	2.56443	2.38024	2.31202	2.38463	2.29086	2.38643	4.513	
96 1,2,4-Trimethylbenzene	2.28425	2.11178	2.08476	2.17771	2.11120	2.15394	3.738	
97 sec-Butylbenzene	3.32815	3.04955	2.97539	3.10461	2.99382	3.09030	4.603	
98 4-Isopropyltoluene	2.71927	2.39164	2.31745	2.39716	2.33994	2.43309	6.721	
99 n-Butylbenzene	2.45039	2.23182	2.20827	2.28768	2.26268	2.28817	4.176	

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

INITIAL CALIBRATION DATA

Start Cal Date : 01-AUG-2000 08:26
End Cal Date : 01-AUG-2000 12:59
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem/can/msv/a3i503.i/X00801B.b/8260S503-3.m
Cal Date : 01-Aug-2000 13:27 kardohes
Curve Type : Average

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD	
100	1,2,4-Trichlorobenzene	1.35917	1.09980	1.06268	1.04657	1.00136	1.11392	12.710	
101	Naphthalene	2.39231	1.70625	1.59079	1.46112	1.37876	1.70585	23.656	
102	Hexachlorobutadiene	0.93159	0.79545	0.77524	0.79857	0.87038	0.83424	7.824	
103	1,2,3-Trichlorobenzene	1.44596	1.06475	0.99493	0.95596	0.90922	1.07417	20.063	
104	Isopropyl Alcohol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
105	N-Propanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
106	Isopropyl Acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
107	N-Propyl Acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
108	N-Butyl acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
109	Dimethoxymethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
110	3,3,5-Trimethylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
111	Bromochloromethane	0.23808	0.23391	0.22267	0.21415	0.20009	0.22178	6.920	
112	Paraldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
135	1-Chlorohexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
136	Chloropicrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
137	1,3,5-Trichlorobenzene	1.67896	1.35530	1.28252	1.27405	1.26238	1.37064	12.851	
138	Methyl Acetate	0.17563	0.16572	0.15904	0.14805	0.14043	0.15777	8.845	
139	Methylcyclohexane	0.53261	0.48546	0.47562	0.48004	0.47253	0.48925	5.052	
$ 4	1,2-Dichloroethane-d4	0.36305	0.36383	0.35307	0.33686	0.33838	0.35104	3.696	
$ 5	Toluene-d8	1.08320	1.08705	1.05086	1.04891	0.99353	1.05271	3.564	
$ 6	Bromofluorobenzene	0.91426	0.85221	0.82297	0.82810	0.83745	0.85100	4.356	
$ 7	Dibromofluoromethane	0.62211	0.60886	0.56695	0.54418	0.49521	0.56746	9.013	

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

Lab File ID: BFB498X BFB Injection Date: 08/08/00

Instrument ID: A3I503 BFB Injection Time: 0959

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	48.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 120.0% of mass 95	79.0
175	5.0 - 9.0% of mass 174	6.1 (7.7)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.2 (97.8)1
177	5.0 - 9.0% of mass 176	5.3 (6.9)2

1-Value is % of mass 174 2-Value is % of mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	250NG-A9CC	VOX3625	08/08/00	1012
02	VSTD050	250NG-CC	VOX3626	08/08/00	1039
03	DHJLN-CHK	DHJLN102	VOX3627	08/08/00	1109
04	DHJLN-BLK	DHJLN101	VOX3629	08/08/00	1210
05	MPT-AC-SU-01	DH9PW102	VOX3645	08/08/00	2015
06	MPT-AC-SU-02	DH9R6102	VOX3646	08/08/00	2045
07					
08					
09					
10					
11					
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14					
15					
16					
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20					
21					
22					

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3i503.i Injection Date: 08-AUG-2000 10:39
Lab File ID: VOX3626.d Init. Cal. Date(s): 01-AUG-2000 01-AUG-2000
Analysis Type: SOIL Init. Cal. Times: 08:26 12:59
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: /chem/can/msv/a3i503.i/X00808A.b/8260S503-3.m

	COMPOUND	RRF / AMOUNT	RF250	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
$	4 1,2-Dichloroethane-d4	0.35104	0.42489	0.010	-21.0	50.0	Averaged	
$	5 Toluene-d8	1.05271	1.14897	0.010	-9.1	50.0	Averaged	
$	6 Bromofluorobenzene	0.85100	0.95723	0.010	-12.5	50.0	Averaged	
$	7 Dibromofluoromethane	0.56746	0.66393	0.010	-17.0	50.0	Averaged	
	8 Dichlorodifluoromethane	0.23868	0.22170	0.010	7.1	50.0	Averaged	
	9 Chloromethane	0.20783	0.18947	0.100	8.8	50.0	Averaged	
	10 Vinyl Chloride	0.21789	0.19698	0.010	9.6	20.0	Averaged	
	11 Bromomethane	0.19965	0.19065	0.010	4.5	50.0	Averaged	
	12 Chloroethane	0.12041	0.12943	0.010	-7.5	50.0	Averaged	
	13 Trichlorofluoromethane	0.50305	0.65241	0.010	-29.7	50.0	Averaged	
	14 Acrolein	0.01271	0.01295	0.010	-1.8	50.0	Averaged	
	16 1,1-Dichloroethene	0.26182	0.30229	0.050	-15.5	20.0	Averaged	
	15 Acetone	0.06467	0.07985	0.010	-23.5	50.0	Averaged	
	54 Freon-113	0.43284	0.44147	0.010	-2.0	50.0	Averaged	
	56 Iodomethane	0.86803	0.81541	0.010	6.1	50.0	Averaged	
	18 Carbon Disulfide	0.82774	0.84415	0.010	-2.0	50.0	Averaged	
	55 Acetonitrile	0.00829	0.00854	0.010	-2.9	50.0	Averaged	<-
	17 Methylene Chloride	0.29565	0.30187	0.010	-2.1	50.0	Averaged	
	19 Acrylonitrile	0.03690	0.03813	0.010	-3.3	50.0	Averaged	
	78 Methyl tert-butyl ether	0.59008	0.65186	0.010	-10.5	50.0	Averaged	
	84 Hexane	0.36266	0.31470	0.010	13.2	50.0	Averaged	
	21 Vinyl acetate	0.38282	0.21882	0.010	42.8	50.0	Averaged	
	22 1,1-Dichloroethane	0.59194	0.60014	0.100	-1.4	50.0	Averaged	
	23 2-Butanone	0.10366	0.10520	0.010	-1.5	50.0	Averaged	
	20 trans-1,2-Dichloroethene	0.31978	0.33928	0.010	-6.1	50.0	Averaged	
	24 cis-1,2-dichloroethene	0.33420	0.34173	0.010	-2.3	50.0	Averaged	
M	25 1,2-Dichloroethene (total)	0.32699	0.34050	0.010	-4.1	50.0	Averaged	
	86 2,2-Dichloropropane	0.50035	0.55560	0.010	-11.0	50.0	Averaged	
	111 Bromochloromethane	0.22178	0.22753	0.010	-2.6	50.0	Averaged	
	79 Tetrahydrofuran	0.06340	0.06077	0.010	4.2	50.0	Averaged	
	26 Chloroform	0.68171	0.71348	0.010	-4.7	20.0	Averaged	
	27 1,1,1-Trichloroethane	0.61346	0.69059	0.010	-12.6	50.0	Averaged	
	87 1,1-Dichloropropene	0.46541	0.47552	0.010	-2.2	50.0	Averaged	
	28 Carbon Tetrachloride	0.62424	0.70093	0.010	-12.3	50.0	Averaged	
	29 1,2-Dichloroethane	0.40293	0.46057	0.010	-14.3	50.0	Averaged	

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3i503.i Injection Date: 08-AUG-2000 10:39
Lab File ID: VOX3626.d Init. Cal. Date(s): 01-AUG-2000 01-AUG-2000
Analysis Type: SOIL Init. Cal. Times: 08:26 12:59
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: /chem/can/msv/a3i503.i/X00808A.b/8260S503-3.m

	COMPOUND	RRF / AMOUNT	RF250	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
	30 Benzene	0.86154	0.85554	0.010	0.7	50.0	Averaged	
	31 Trichloroethene	0.44177	0.48082	0.010	-8.8	50.0	Averaged	
	32 1,2-Dichloropropane	0.38258	0.38025	0.010	0.6	20.0	Averaged	
	63 1,4-Dioxane	0.00213	0.00197	0.010	7.3	50.0	Averaged	<-
	64 Dibromomethane	0.33060	0.35557	0.010	-7.6	50.0	Averaged	
	33 Bromodichloromethane	0.73015	0.77423	0.010	-6.0	50.0	Averaged	
	34 2-Chloroethyl vinyl ether	0.14942	0.16423	0.010	-9.9	50.0	Averaged	
	36 cis-1,3-Dichloropropene	0.54466	0.54543	0.010	-0.1	50.0	Averaged	
	35 4-Methyl-2-pentanone	0.25953	0.28355	0.010	-9.3	50.0	Averaged	
	37 Toluene	1.17721	1.12422	0.010	4.5	20.0	Averaged	
	38 trans-1,3-Dichloropropene	0.52596	0.50082	0.010	4.8	50.0	Averaged	
	65 Ethyl Methacrylate	0.44606	0.43550	0.010	2.4	50.0	Averaged	
	40 1,1,2-Trichloroethane	0.39987	0.39234	0.010	1.9	50.0	Averaged	
	88 1,3-Dichloropropane	0.61670	0.60584	0.010	1.8	50.0	Averaged	
	41 Tetrachloroethene	0.50779	0.51611	0.010	-1.6	50.0	Averaged	
	39 2-Hexanone	0.22249	0.23529	0.010	-5.8	50.0	Averaged	
	42 Dibromochloromethane	0.78622	0.81595	0.010	-3.8	50.0	Averaged	
	66 1,2-Dibromoethane	0.59555	0.58095	0.010	2.5	50.0	Averaged	
	43 Chlorobenzene	1.02743	1.01523	0.300	1.2	50.0	Averaged	
	44 Ethylbenzene	0.45868	0.45472	0.010	0.9	20.0	Averaged	
	45 m + p-Xylene	0.57166	0.58299	0.010	-2.0	50.0	Averaged	
	46 Xylene-o	0.57147	0.58975	0.010	-3.2	50.0	Averaged	
M	47 Xylenes (total)	0.57160	0.58524	0.010	-2.4	50.0	Averaged	
	48 Styrene	0.94312	0.96418	0.010	-2.2	50.0	Averaged	
	49 Bromoform	0.58264	0.62784	0.100	-7.8	50.0	Averaged	
	89 Isopropylbenzene	1.64637	1.71284	0.010	-4.0	50.0	Averaged	
	50 1,1,2,2-Tetrachloroethane	1.04070	0.90967	0.300	12.6	50.0	Averaged	
	90 Bromobenzene	0.96150	0.94505	0.010	1.7	50.0	Averaged	
	68 1,2,3-Trichloropropane	0.92142	0.88553	0.010	3.9	50.0	Averaged	
	69 1,4-Dichloro-2-butene	0.19689	0.16222	0.010	17.6	50.0	Averaged	
	92 n-Propylbenzene	0.70354	0.66666	0.010	5.2	50.0	Averaged	
	91 2-Chlorotoluene	0.70197	0.65806	0.010	6.3	50.0	Averaged	
	94 1,3,5-Trimethylbenzene	2.05162	2.02508	0.010	1.3	50.0	Averaged	
	93 4-Chlorotoluene	0.71221	0.67459	0.010	5.3	50.0	Averaged	
	95 tert-Butylbenzene	2.38643	2.31703	0.010	2.9	50.0	Averaged	
	96 1,2,4-Trimethylbenzene	2.15394	2.11059	0.010	2.0	50.0	Averaged	

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3i503.i
Lab File ID: VOX3626.d
Analysis Type: SOIL
Lab Sample ID: 250NG-CC
Method: /chem/can/msv/a3i503.i/X00808A.b/8260S503-3.m

Injection Date: 08-AUG-2000 10:39
Init. Cal. Date(s): 01-AUG-2000 01-AUG-2000
Init. Cal. Times: 08:26 12:59
Quant Type: ISTD

COMPOUND	RRF / AMOUNT	RF250	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
97 sec-Butylbenzene	3.09030	2.97014	0.010	3.9	50.0	Averaged
51 1,3-Dichlorobenzene	1.56900	1.50767	0.010	3.9	50.0	Averaged
52 1,4-Dichlorobenzene	1.65990	1.55194	0.010	6.5	50.0	Averaged
53 1,2-Dichlorobenzene	1.43569	1.41738	0.010	1.3	50.0	Averaged
98 4-Isopropyltoluene	2.43309	2.33256	0.010	4.1	50.0	Averaged
99 n-Butylbenzene	2.28817	2.25937	0.010	1.3	50.0	Averaged
137 1,3,5-Trichlorobenzene	1.37064	1.26684	0.010	7.6	50.0	Averaged
100 1,2,4-Trichlorobenzene	1.11392	1.14521	0.010	-2.8	50.0	Averaged
102 Hexachlorobutadiene	0.83424	0.85362	0.010	-2.3	50.0	Averaged
101 Naphthalene	1.70585	1.36376	0.010	20.1	50.0	Averaged
103 1,2,3-Trichlorobenzene	1.07417	1.05178	0.010	2.1	50.0	Averaged
82 tert-Butyl Alcohol	0.01763	0.01717	0.010	2.6	50.0	Averaged
138 Methyl Acetate	0.15777	0.15682	0.010	0.6	50.0	Averaged
139 Methylcyclohexane	0.48925	0.44143	0.010	9.8	50.0	Averaged
83 Cyclohexane	0.46433	0.39625	0.010	14.7	50.0	Averaged

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3i503.i Injection Date: 08-AUG-2000 10:12
Lab File ID: VOX3625.d Init. Cal. Date(s): 01-AUG-2000 01-AUG-2000
Analysis Type: SOIL Init. Cal. Times: 08:26 12:59
Lab Sample ID: 250NG-A9CC Quant Type: ISTD
Method: /chem/can/msv/a3i503.i/X00808A.b/8260S503-3.m

COMPOUND	RRF / AMOUNT	RF250	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
57 3-Chloropropene	0.12919	0.13305	0.010	-3.0	50.0	Averaged	
58 2-Chloro-1,3-butadiene	0.43370	0.49980	0.010	-15.2	50.0	Averaged	
59 Propionitrile	0.01368	0.01470	0.010	-7.5	50.0	Averaged	
60 Methacrylonitrile	0.10318	0.09796	0.010	5.1	50.0	Averaged	
61 Isobutanol	0.00739	0.00751	0.010	-1.7	50.0	Averaged	<-
62 Methyl Methacrylate	0.24051	0.24379	0.010	-1.4	50.0	Averaged	
67 1,1,1,2-Tetrachloroethane	0.59605	0.62782	0.010	-5.3	50.0	Averaged	
72 1,2-Dibromo-3-chloropropane	0.28221	0.20144	0.010	28.6	50.0	Averaged	
74 n-Butanol	0.00482	0.00471	0.010	2.4	50.0	Averaged	<-
75 Ethyl Acetate	0.22550	0.21880	0.010	3.0	50.0	Averaged	
76 Cyclohexanone	0.02138	0.02177	0.010	-1.8	50.0	Averaged	
77 Ethyl Ether	0.16644	0.18040	0.010	-8.4	50.0	Averaged	
80 Dichlorofluoromethane	0.66181	0.78765	0.010	-19.0	50.0	Averaged	
81 2-Nitropropane	0.06054	0.02307	0.010	61.9	50.0	Averaged	<-
85 Isopropyl Ether	1.06628	1.21579	0.010	-14.0	50.0	Averaged	

SEVERN TRENT LABORATORIES, INC. - NORTH CANTON

VOLATILE REPORT SW-846 Method

Data file : /chem/can/msv/a3i503.i/X00808A.b/VOX3627.d
Lab Smp Id: SCHECK Client Smp ID: CHECK
Inj Date : 08-AUG-2000 11:09
Operator : 01819 Inst ID: a3i503.i
Smp Info : SCHECK
Misc Info : INCOS50-3,X00808A,8260S503-3,01819
Comment :
Method : /chem/can/msv/a3i503.i/X00808A.b/8260S503-3.m
Meth Date : 09-Aug-2000 04:51 kardohes Quant Type: ISTD
Cal Date : 01-AUG-2000 12:01 Cal File: VOX3472.d
Als bottle: 1 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 1-8260+A9.sub
Target Version: 3.50
Processing Host: hpuxcs3

Concentration Formula: Amt * DF * 1/Vo * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vo	5.00000	Sample Volume
Va	100.00000	Amount of extract

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (UG/KG)
*	1 Fluorobenzene	96	8.327	8.327	(1.000)	122872	250.000	
*	2 Chlorobenzene-d5	117	13.864	13.864	(1.000)	105124	250.000	
*	3 1,4-Dichlorobenzene-d4	152	18.972	18.986	(1.000)	65044	250.000	
$	4 1,2-Dichloroethane-d4	65	7.812	7.812	(0.938)	50219	291.071	58.214
$	5 Toluene-d8	98	11.060	11.060	(0.798)	120328	271.830	54.366
$	6 Bromofluorobenzene	95	16.382	16.396	(1.182)	93203	260.459	52.092
$	7 Dibromofluoromethane	113	7.283	7.297	(0.875)	78115	280.082	56.016
	8 Dichlorodifluoromethane	85	2.447	2.461	(0.294)	19128	163.055	32.611
	9 Chloromethane	50	2.604	2.618	(0.313)	20005	195.847	39.169
	10 Vinyl Chloride	62	2.776	2.790	(0.333)	22055	205.945	41.189
	11 Bromomethane	94	3.148	3.148	(0.378)	22373	228.004	45.601
	12 Chloroethane	64	3.276	3.276	(0.393)	15538	262.556	52.511
	13 Trichlorofluoromethane	101	3.577	3.577	(0.430)	68472	276.943	55.389
	14 Acrolein	56	4.092	4.106	(0.491)	1971	315.498	63.100
	16 1,1-Dichloroethene	96	4.221	4.221	(0.507)	31813	247.222	49.444

503
Batch # 4P 0222101

STL-North Canton
GC/MS VOA Run Log

8/11

Date: 8·8·00

Column	BFB	Analysis	Purge & Trap
Type: DB624 4P so: 1	100 C for 0.1 min	40 C for 2 min so. 1	Trap: 10
Length 75 M	to 200 C @ 20 C/min	to 220 C @ 20 C/min Heated	Purge: 11
I.D. 053 mm - 1 -	Hold ✓ min	to 250 C @ 30 C/min	Desorb: 2 min @ 190C
Flow Rate 15 ml/min		Hold ✓ min	Bake: 6 min @ 210 C

Auto num	Sample ID Workorder#	Method	File Name	Amt purged	Sample prep	Comments	Sample status	Level 2 Review
	BFB		BFB498x	50 ng	direct injection (9:59)		OK	TB
1	App IX std		V0X3625	250 ng		V000801x·19	OK	
2	8260 std		V0X3626	250 ng		V000801x	OK	
3	check		V0X3627	250 ng		dHJLN·102	OK	
4	check		V0X3628	250 ng		↓ 103	OK	
5	blank		V0X3629	5.0 g 5 ml		↓ 101	OK	↓
6	dH2HX·101	4P	V0X3630	6.1 g			OK	
7	dH2J2·101		V0X3631	4.8 g			OK	
8	dH5D4·101		V0X3632	6.5 g		ISLLSS1 (x2)		
9	dH5D8·101		V0X3633	6.3 g			OK	
10	dH5DA·101		V0X3634	5.5 g			OK	
11	dH9TR·102		V0X3635	5.5 g			OK	
12	dH9GA·101	Ed	V0X3636	4.1 g			OK	
13	dH9HM·101		V0X3637	4.5 g			OK	
14	dH9HV·101		V0X3638	4.4 g			OK	
15	~~dH9J2·101~~	not analyzed	V0X3639	3.8 g		ISL ~~x2~~ V000809x	~~OK~~	V000809x
16	dH9LH·101		V0X3640	5.2 g			OK	
17	dH9M9·101		V0X3641	4.4 g			OK	
18	dH9MH·101		V0X3642	4.6 g			OK	
19	dH9MJ·101		V0X3643	4.4 g			OK	
20	dH9MK·101		V0X3644	4.6 g			OK	
21	dH9PW·102		V0X3645	5.1 g			OK	
22	dH9R6·103	↓	V0X3646	4.5 g			OK	
						V000809x		

2901147
0161827
302027
301757
301857
302017

Analyst: SK

№ 082

N:\MSVOA\503 run log

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE____ OF____

CLIENT	JOB NUMBER		
NS Mayport			
SUBJECT: Sample Calc.			
BASED ON: Blank Spike (scheck)	DRAWING NUMBER		
BY: DSS	CHECKED BY	APPROVED BY	DATE: 10/24/00

Fraction : Volatile
Matrix : Soil
Compound : Bromomethane
Form I : 46 ug/kg

$$ug/kg = \frac{Ax\,(Is)(Df)}{Ais\,(\overline{RRF})(Ws)(D)}$$

Ax = 22373 Area

Is = 250 ng

Df = 1

Ais = 122872 Area

$\overline{RRF}$ = 0.19965

Ws = 5.0 g

D = 1

$$ug/kg = \frac{22373\ Area\,(250\ ng)(1)}{122872\ Area\,(0.19965)(5.0\ g)(1)}$$

$$= 45.6\ ng/g \text{ or } ug/kg$$

SDG NARRATIVE
MP024

GC/MS SEMIVOLATILES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

Lab File ID: 9DF0807B DFTPP Injection Date: 08/07/00

Instrument ID: A4HP9 DFTPP Injection Time: 0938

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 60.0% of mass 198	41.8	
68	Less than 2.0% of mass 69	0.8	(1.4)1
69	Mass 69 relative abundance	58.9	
70	Less than 2.0% of mass 69	0.6	(1.0)1
127	40.0 - 60.0% of mass 198	59.4	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 - 9.0% of mass 198	6.4	
275	10.0 - 30.0% of mass 198	16.8	
365	Greater than 1.0% of mass 198	1.5	
441	Present, but less than mass 443	9.3	
442	Greater than 40.0% of mass 198	55.9	
443	17.0 - 23.0% of mass 442	11.0	(19.7)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD005	SSTD005	9SML0807	08/07/00	1000
02	SSTD008	SSTD008	9SM0807	08/07/00	1038
03	SSTD002	SSTD002	9SL0807	08/07/00	1116
04	SSTD025	SSTD025	9HHH0807	08/07/00	1154
05	SSTD020	SSTD020	9SHH0807	08/07/00	1232
06	SSTD016	SSTD016	9SH0807	08/07/00	1311
07	SSTD012	SSTD012	9SMH0807	08/07/00	1349
08					
09					
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SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

Lab File ID: 9DF0808H DFTPP Injection Date: 08/09/00

Instrument ID: A4HP9 DFTPP Injection Time: 0302

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.8
68	Less than 2.0% of mass 69	0.7 (1.2)1
69	Mass 69 relative abundance	54.8
70	Less than 2.0% of mass 69	0.5 (0.9)1
127	40.0 - 60.0% of mass 198	57.1
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	18.6
365	Greater than 1.0% of mass 198	1.7
441	Present, but less than mass 443	10.4
442	Greater than 40.0% of mass 198	63.7
443	17.0 - 23.0% of mass 442	12.3 (19.3)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ASTD002	ASTD002	9AL0808	08/09/00	0324
02	ASTD005	ASTD005	9AML0808	08/09/00	0402
03	ASTD008	ASTD008	9AM0808	08/09/00	0440
04	ASTD012	ASTD012	9AMH0808	08/09/00	0518
05	ASTD016	ASTD016	9AH0808	08/09/00	0556
06	ASTD020	ASTD020	9AHH0808	08/09/00	0635
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\9AL0808.D
Level 2: \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\9AML0808.D
Level 3: \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\9AM0808.D
Level 4: \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\9AMH0808.D
Level 5: \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\9AH0808.D
Level 6: \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\9AHH0808.D
Level 7: \\qcanoh05\dd\chem\MSS\a4hp9.i\00807a.b\9HHH0807.D

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
198 1,4-Dioxane	0.73246	0.66187	0.72177	0.73618	0.66289	0.73007	+++++	0.70754	4.989	<-
7 N-Nitrosomorpholine	0.78150	0.76819	0.75030	0.67116	0.62067	0.61059	+++++	0.70040	10.862	<-
8 Ethyl methanesulfonate	1.47260	1.47879	1.47905	1.47087	1.41533	1.38663	+++++	1.45055	2.729	<-
9 Pyridine	1.79227	1.75234	1.69344	1.65141	1.90766	1.78033	1.88502	1.78035	5.243	
10 N-Nitrosodimethylamine	1.22851	1.26495	1.20990	1.22700	1.19798	1.15632	1.23188	1.21665	2.776	
11 Ethyl methacrylate	1.71207	1.55526	1.56355	1.53986	1.50653	1.43724	1.50521	1.54567	5.481	
12 3-Chloropropionitrile	0.89854	0.86787	0.84353	0.83997	0.83314	0.80797	0.83321	0.84632	3.430	

1.08469 / 1.54560 = 5.479

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
13 Malononitrile	2.34328	2.19802	2.11404	2.11619	2.09355	2.01787	2.06615	2.13558	4.997	
14 2-Picoline	1.91465	1.91507	1.98587	2.00528	1.89193	1.88949	+++++	1.93371	2.560	<-
15 N-Nitrosomethylethylamine	0.88889	0.90934	0.92433	0.98965	0.96251	0.95855	+++++	0.93888	4.015	<-
16 Methyl methanesulfonate	0.96961	0.94721	0.87359	0.92654	0.86838	0.84501	+++++	0.90506	5.491	<-
18 1,3-Dichloro-2-propanol	2.36742	2.31213	2.29400	2.29598	2.15802	2.10089	+++++	2.25474	4.534	<-
19 N-Nitrosodiethylamine	0.86070	0.86465	0.86900	0.88419	0.84411	0.83512	+++++	0.85963	2.054	<-
21 Aniline	2.66572	2.55711	2.50552	2.57081	2.49998	2.40612	2.41947	2.51782	3.583	
22 Phenol	2.29725	2.16987	2.10031	2.04545	1.95950	1.84044	1.79498	2.02969	8.820	
23 bis(2-Chloroethyl)ether	1.90396	1.78341	1.70616	1.62959	1.48833	1.38375	1.32826	1.60335	13.259	
24 2-Chlorophenol	1.48598	1.42544	1.38939	1.41112	1.36868	1.30264	1.27650	1.37996	5.224	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
25 Pentachloroethane	0.46271	0.44224	0.46556	0.47310	0.44809	0.44158			
	+++++						0.45555	2.924	<-
26 1,3-Dichlorobenzene	1.46253	1.39602	1.35380	1.35727	1.30720	1.22842			
	1.23063						1.33370	6.410	
27 1,4-Dichlorobenzene	1.50146	1.43879	1.37568	1.37967	1.32642	1.24553			
	1.23124						1.35697	7.220	
28 1,2-Dichlorobenzene	1.39666	1.32024	1.27878	1.26899	1.17995	1.08974			
	1.03302						1.22391	10.576	
29 Benzyl Alcohol	1.01112	0.98697	0.93741	0.87740	0.79795	0.72581			
	0.68794						0.86066	14.751	
30 2-Methylphenol	1.47695	1.42458	1.39760	1.39405	1.36757	1.31300			
	1.31529						1.38415	4.234	
31 bis(2-Chloroisopropyl)ether	2.52052	2.32622	2.23691	2.17403	2.09388	2.01937			
	2.04269						2.20195	8.067	
32 N-Nitroso-di-n-propylamine	1.33447	1.27001	1.22218	1.18655	1.15490	1.10089			
	1.11705						1.19800	7.014	
M 195 Cresols, total	2.98997	2.86884	2.75502	2.64331	2.48030	2.32050			
	2.27694						2.61927	10.391	
192 4-Methylphenol	1.51302	1.44426	1.35742	1.24926	1.11273	1.00750			
	0.96165						1.23512	17.418	

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
193 3-Methylphenol	1.41158	1.43884	1.40774	1.26744	1.15436	1.09428			
	+++++						1.29571	11.333	<-
34 Hexachloroethane	0.57549	0.55587	0.54021	0.53993	0.53054	0.50679			
	0.50318						0.53600	4.785	
35 Nitrobenzene	0.42989	0.40975	0.40492	0.40333	0.39561	0.37955			
	0.38189						0.40071	4.306	
36 N-Nitrosopyrrolidine	0.85902	0.85867	0.81360	0.70537	0.63208	0.62274			
	+++++						0.74858	14.612	<-
37 Acetophenone	2.15002	2.07891	1.99680	1.84790	1.71591	1.67597			
	1.30132						1.82383	15.962	
39 o-Toluidine	2.38484	2.40264	2.36399	2.17484	1.97895	1.90341			
	+++++						2.20145	9.943	<-
40 N-Nitrosopiperidine	0.19996	0.20440	0.20231	0.20900	0.20256	0.20313			
	+++++						0.20356	1.489	<-
41 Isophorone	0.86844	0.82333	0.79360	0.77544	0.75479	0.72262			
	0.72490						0.78044	6.794	
42 2-Nitrophenol	0.15663	0.15152	0.15467	0.15589	0.14580	0.13356			
	0.12708						0.14645	8.021	
43 2,4-Dimethylphenol	0.32366	0.32149	0.31450	0.30688	0.30327	0.29049			
	0.28887						0.30702	4.527	

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
44 bis(2-Chloroethoxy)methane	0.52905	0.50225	0.48462	0.47555	0.45195	0.42866			
	0.42556						0.47109	6.117	
45 O,O,O-Triethyl phosphorothioa	0.13057	0.13236	0.12787	0.12221	0.11106	0.10910			
	+++++						0.12219	8.194	<-
46 2,4-Toluenediamene	0.04888	0.01783	0.01598	0.02764	0.03148	0.02648			
	0.02623						0.02779	38.898	
47 1,3,5-Trichlorobenzene	0.26232	0.25145	0.23801	0.22887	0.20839	0.19108			
	0.18194						0.22315	13.609	
48 2,4-Dichlorophenol	0.21195	0.21675	0.21827	0.22846	0.22556	0.21836			
	0.21481						0.21917	2.671	
49 Benzoic Acid	+++++	0.09212	0.12317	0.15372	0.13574	0.12741			
	0.13393						0.12768	15.924	<-
50 1,2,4-Trichlorobenzene	0.24109	0.22997	0.22623	0.22638	0.21610	0.20362			
	0.19748						0.22012	6.975	
51 Naphthalene	1.06656	0.99952	0.95780	0.92622	0.86550	0.80373			
	0.76772						0.91244	11.714	
52 4-Chloroaniline	0.37567	0.37931	0.37819	0.39417	0.38777	0.36917			
	0.36573						0.37857	2.620	
53 a,a-Dimethyl-phenethylamine	0.56804	0.82807	0.74455	0.95888	0.93463	1.01917			
	+++++						0.84222	19.752	<-

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
54 2,6-Dichlorophenol	0.22614	0.23197	0.23457	0.22343	0.19718	0.18932			
	+++++						0.21710	8.779	<-
55 Hexachloropropene	0.12527	0.12367	0.11956	0.12314	0.10752	0.10302			
	+++++						0.11703	8.036	<-
56 Hexachlorobutadiene	0.11058	0.10534	0.10263	0.10206	0.09697	0.08991			
	0.08667						0.09917	8.588	
57 1,2,3-Trichlorobenzene	0.23439	0.22623	0.22164	0.21944	0.21213	0.19742			
	0.19094						0.21460	7.272	
58 N-Nitrosodi-n-butylamine	0.28864	0.29973	0.29125	0.27373	0.25532	0.25523			
	+++++						0.27732	6.860	<-
59 4-Chloro-3-Methylphenol	0.24350	0.25983	0.26411	0.27228	0.27189	0.26006			
	0.26121						0.26184	3.687	
60 p-Phenylene diamine	0.10113	0.16605	0.21227	0.33303	0.30972	0.33239			
	+++++						0.24243	40.221	<-
61 Safrole	0.23346	0.23759	0.23386	0.22603	0.20648	0.20348			
	+++++						0.22348	6.644	<-
62 2-Methylnaphthalene	0.60947	0.58628	0.56799	0.54934	0.51726	0.47786			
	0.46187						0.53858	10.256	
63 1-Methylnaphthalene	0.60907	0.58539	0.57104	0.54741	0.51041	0.47301			
	0.45559						0.53599	10.832	

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
64 Hexachlorocyclopentadiene	0.26436	0.26888	0.25883	0.23901	0.21640	0.20180	0.18755	0.23383	13.840	
65 1,2,4,5-Tetrachlorobenzene	0.45275	0.42753	0.42977	0.41007	0.36871	0.34725	+++++	0.40602	9.896	<-
66 2,4,6-Trichlorophenol	0.25320	0.26792	0.26582	0.28340	0.28339	0.27640	0.27869	0.27269	4.041	
67 2,4,5-Trichlorophenol	0.25215	0.26153	0.26914	0.29526	0.29450	0.28966	0.28814	0.27862	6.258	
68 1,2,3,5-Tetrachlorobenzene	0.41980	0.39183	0.36914	0.34622	0.31033	0.28634	0.26894	0.34180	16.346	
69 1,4-Dinitrobenzene	0.12150	0.15539	0.17572	0.19187	0.18767	0.18917	+++++	0.17022	16.103	<-
70 2-Chloronaphthalene	1.07177	0.99740	0.93669	0.87582	0.78012	0.72717	0.68363	0.86751	16.611	
71 Isosafrole 1	0.15000	0.14683	0.15162	0.16114	0.15865	0.15807	+++++	0.15438	3.678	<-
M 188 Isosafrole, Total	1.08906	1.06780	1.05829	0.94070	0.84803	0.81283	+++++	0.96945	12.375	<-
72 Isosafrole 2	0.93906	0.92097	0.90666	0.77956	0.68939	0.65477	+++++	0.81507	15.298	<-

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
73 2-Nitroaniline	0.31469	0.32645	0.33920	0.38105	0.38613	0.38507			
	0.40159						0.36203	9.480	
74 1,2,3,4-Tetrachlorobenzene	0.37450	0.35452	0.34529	0.35837	0.34482	0.32959			
	0.32214						0.34703	5.089	
75 1,4-Naphthoquinone	0.38758	0.44120	0.44317	0.44887	0.41900	0.41172			
	+++++						0.42526	5.539	<-
76 Dimethylphthalate	1.08006	1.04684	1.01462	1.04272	1.03161	1.00557			
	1.00938						1.03297	2.546	
77 m-Dinitrobenzene	0.14745	0.18806	0.20153	0.21420	0.20943	0.21213			
	+++++						0.19547	12.985	<-
78 2,6-Dinitrotoluene	0.19865	0.20693	0.21074	0.21704	0.20093	0.18549			
	0.17556						0.19933	7.273	
79 Acenaphthylene	1.86462	1.76884	1.66997	1.59585	1.43718	1.34064			
	1.26063						1.56253	14.372	
80 1,2-Dinitrobenzene	0.10095	0.10624	0.11200	0.12911	0.13452	0.13872			
	0.14428						0.12369	13.826	
81 3-Nitroaniline	0.21949	0.21836	0.22729	0.28539	0.29163	0.30279			
	0.32357						0.26693	16.491	
82 Acenaphthene	1.10749	1.06142	1.00732	0.98135	0.92380	0.87639			
	0.85439						0.97316	9.655	

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
83 2,4-Dinitrophenol	+++++	+++++	0.05592	0.08521	0.09573	0.10723	0.11561	0.09194	25.220	<-
84 Pentachlorobenzene	0.37048	0.35917	0.35838	0.33097	0.29634	0.28570	+++++	0.33351	10.658	<-
85 4-Nitrophenol	+++++	0.05212	0.06735	0.09640	0.09058	0.10489	0.11357	0.08749	26.703	<-
86 Dibenzofuran	1.39995	1.32112	1.26648	1.27785	1.21276	1.15358	1.13574	1.25250	7.453	
87 2,4-Dinitrotoluene	0.24171	0.26306	0.27383	0.32228	0.32812	0.33182	0.34849	0.30133	13.607	
88 2,3,4,6-Tetrachlorophenol	0.15861	0.18950	0.19872	0.21333	0.19730	0.19698	+++++	0.19241	9.507	<-
89 1-Naphthylamine	0.94800	0.98874	1.03922	1.10009	1.01258	1.00378	+++++	1.01540	5.048	<-
90 Zinophos	0.36499	0.36735	0.37080	0.34990	0.31696	0.30414	+++++	0.34569	8.225	<-
91 2,3,5,6-Tetrachlorophenol	0.18758	0.20168	0.20865	0.22510	0.22258	0.21879	0.21911	0.21192	6.373	
92 2-Naphthylamine	0.88107	0.75858	0.85398	0.95485	0.91411	0.92221	+++++	0.88080	7.860	<-

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
93 Diethylphthalate	1.16910	1.14296	1.09747	1.10305	1.07547	1.03322			
	1.03127						1.09322	4.738	
94 Fluorene	1.14593	1.10037	1.05732	1.04184	0.97246	0.91924			
	0.88591						1.01758	9.369	
95 4-Chlorophenyl-phenylether	0.44509	0.43264	0.42155	0.43171	0.40728	0.38762			
	0.37031						0.41374	6.496	
96 4-Nitroaniline	0.19019	0.17698	0.21001	0.27826	0.28785	0.30243			
	0.32771						0.25335	23.600	
97 5-Nitro-o-toluidine	0.25114	0.29638	0.32068	0.35220	0.33415	0.33163			
	+++++						0.31436	11.453	<-
98 4,6-Dinitro-2-methylphenol	0.05351	0.06923	0.08202	0.10282	0.11052	0.11273			
	0.11981						0.09295	26.917	
99 N-Nitrosodiphenylamine	0.57890	0.55598	0.54260	0.54835	0.52346	0.49476			
	0.48987						0.53342	6.110	
100 1,2-Diphenylhydrazine	1.29036	1.19491	1.13494	1.08884	1.05340	0.99582			
	0.96828						1.10379	10.254	
101 Diphenylamine	0.57890	0.55598	0.54260	0.54835	0.52346	0.49476			
	0.48987						0.53342	6.110	
102 Tetraethyl dithiopyrophosphat	0.09849	0.09827	0.09814	0.08580	0.07933	0.07633			
	+++++						0.08939	11.439	<-

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
103 Diallate 1	1.20164	1.04367	1.00474	0.81857	0.74105	0.68974	+++++	0.91657	21.659	<-
M 189 Diallate, Total	3.33095	3.17424	3.01574	2.49866	2.24119	2.16675	+++++	2.73792	18.258	<-
104 Phorate	0.24409	0.22858	0.22583	0.18946	0.17072	0.15805	+++++	0.20279	17.237	<-
105 1,3,5-Trinitrobenzene	0.03701	0.04951	0.05926	0.06633	0.06629	0.06763	+++++	0.05767	21.159	<-
106 4-Bromophenyl-phenylether	0.16807	0.16791	0.16345	0.16448	0.15836	0.15015	0.14681	0.15989	5.314	
107 Hexachlorobenzene	0.18342	0.17255	0.17029	0.16328	0.15600	0.14673	0.14355	0.16226	8.893	
108 Phenacetin	0.38561	0.44744	0.48126	0.47882	0.45719	0.44883	+++++	0.44986	7.709	<-
109 Diallate 2	0.19819	0.19005	0.19603	0.19530	0.19555	0.19160	+++++	0.19445	1.558	<-
110 Dimethoate	0.55931	0.57093	0.59467	0.55770	0.51859	0.50747	+++++	0.55144	5.939	<-
111 Pentachlorophenol	0.07364	0.09060	0.09749	0.10499	0.11021	0.10894	0.10863	0.09921	13.451	

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	50.000 Level 7								
112 Pentachloronitrobenzene	0.06511	0.06917	0.07242	0.06897	0.06679	0.06299			
	+++++						0.06757	4.937	<-
113 4-Aminobiphenyl	0.52861	0.50524	0.60120	0.70742	0.67371	0.64974			
	+++++						0.61099	13.256	<-
114 Pronamide	0.35025	0.34801	0.36000	0.33188	0.30955	0.29922			
	+++++						0.33315	7.284	<-
115 Phenanthrene	1.12448	1.05402	1.01497	0.98574	0.91122	0.84444			
	0.82799						0.96612	11.376	
116 Anthracene	1.06463	1.03769	0.99531	0.97576	0.90360	0.85021			
	0.81290						0.94858	10.042	
117 Dinoseb	0.09613	0.12361	0.14217	0.13815	0.12730	0.12423			
	+++++						0.12526	12.915	<-
118 Disulfoton	0.83056	0.75218	0.72692	0.59014	0.52983	0.48887			
	+++++						0.65308	20.870	<-
119 Carbazole	0.90753	0.84891	0.80711	0.89549	0.86264	0.83062			
	0.82988						0.85460	4.276	
120 Di-n-Butylphthalate	1.40625	1.44301	1.36724	1.28928	1.21253	1.12063			
	1.09516						1.27630	10.811	
121 4-Nitroquinoline 1-oxide	0.03443	0.06272	0.07781	0.10347	0.09652	0.09492			
	+++++						0.07831	33.347	<-

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Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
122 Methapyrilene	0.47644	0.47956	0.42200	0.43564	0.37891	0.37559	+++++	0.42802	10.581	<-
123 Fluoranthene	0.92369	0.89686	0.87920	0.86168	0.79440	0.74009	0.73076	0.83238	9.284	
124 Benzidine	0.27181	0.27258	0.25882	0.51353	0.67275	0.78373	1.13247	0.55796	58.945	<-
125 Pyrene	1.78511	1.76063	1.67027	1.80462	1.95055	1.97991	2.19673	1.87826	9.429	
126 Aramite 1	0.11229	0.11649	0.12262	0.11571	0.12509	0.12772	+++++	0.11999	5.037	<-
M 191 Aramite, Total	0.32408	0.37844	0.39319	0.40808	0.37471	0.38975	+++++	0.37804	7.659	<-
127 Aramite 2	0.15443	0.16440	0.17536	0.16251	0.17388	0.17819	+++++	0.16813	5.450	<-
128 p-Dimethylamino azobenzene	0.32625	0.34581	0.36928	0.34793	0.35299	0.35061	+++++	0.34881	3.970	<-
129 p-Chlorobenzilate	0.75887	0.73262	0.74121	0.63323	0.63747	0.62827	+++++	0.68861	8.943	<-
130 Famphur	0.53657	0.41092	0.37744	0.22011	0.18948	0.18332	+++++	0.31964	45.155	<-

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
	50.000 Level 7								
131 Butylbenzylphthalate	0.83961	0.92207	0.88895	1.00209	1.12958	1.18005			
	1.37630						1.04838	18.205	
132 3,3'-Dimethylbenzidine	0.35566	0.25033	0.34045	0.39862	0.41356	0.42562			
	+++++						0.36404	17.801	<-
133 3,3'-Dimethoxybenzidine	0.14615	0.13621	0.13045	0.20055	0.22116	0.22651			
	0.23390						0.18499	24.701	
134 2-Acetylaminofluorene	0.35998	0.42532	0.47121	0.51592	0.49877	0.49624			
	+++++						0.46124	12.741	<-
135 3,3'-Dichlorobenzidine	0.32800	0.32709	0.32710	0.36876	0.37114	0.37469			
	0.40583						0.35752	8.593	
136 Benzo(a)Anthracene	1.16520	1.16138	1.14020	1.28655	1.36902	1.41939			
	1.61619						1.30828	13.299	
137 Chrysene	1.12439	1.11661	1.09655	1.25902	1.33689	1.41124			
	1.60419						1.27841	14.653	
138 4,4'-Methylene bis(o-chloroan	0.17859	0.16669	0.16529	0.19621	0.20163	0.20780			
	0.23753						0.19339	13.272	
139 bis(2-ethylhexyl)Phthalate	1.26644	1.39117	1.29223	1.40073	1.55784	1.60023			
	1.81189						1.47436	13.148	
140 Di-n-octylphthalate	2.17684	2.54048	2.48537	2.27919	2.39029	2.23552			
	2.21414						2.33169	6.076	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
141 Benzo(b)fluoranthene	1.21737	1.22012	1.19925	1.23166	1.22043	1.20437	1.19948	1.21324	1.020	
142 Benzo(k)fluoranthene	1.23764	1.24273	1.22412	1.22126	1.25552	1.13834	1.15819	1.21111	3.699	
143 7,12-dimethylbenz[a]anthracen	0.78283	0.80102	0.69067	0.81080	0.80610	0.82133	+++++	0.78546	6.130	<-
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 Benzo(a)pyrene	1.03151	1.02361	1.02496	1.06934	1.07548	1.03486	1.04905	1.04412	3.023	
148 3-Methylcholanthrene	0.68277	0.69671	0.60405	0.76690	0.76325	0.75767	+++++	0.71189	8.987	<-
149 Indeno(1,2,3-cd)pyrene	0.90059	0.75931	0.78367	1.00224	1.02126	0.97874	1.03630	0.92602	12.354	
150 Dibenz(a,h)anthracene	0.70098	0.72743	0.76391	0.82163	0.83856	0.80779	0.85171	0.78743	7.324	
151 Benzo(g,h,i)perylene	0.78129	0.76020	0.79912	0.82516	0.84541	0.81139	0.87440	0.81385	4.746	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	50.000 Level 7	RRF	% RSD	
199 3-Picoline	1.65828	1.77375	1.86743	1.93404	1.72815	1.76112	+++++	1.78713	5.538	<-
200 N,N-Dimethylacetamide	1.41496	1.49564	1.52017	1.52235	1.43313	1.41560	+++++	1.46698	3.504	<-
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
203 Diphenyl ether	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
204 6-Methylchrysene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
205 Benzenethiol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
207 Indene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
208 Dibenz(a,j)acridine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
209 Benzaldehyde	1.32163	1.22158	1.17024	1.14977	1.09159	1.01308	0.86718	1.11930	13.178	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
	50.000 Level 7							
210 Caprolactam	0.09605	0.10314	0.10646	0.11430	0.11558	0.11074		
	0.11475						0.10871	6.670
211 1,1'-Biphenyl	1.09232	1.04239	0.98402	0.96610	0.90854	0.86617		
	0.84515						0.95781	9.485
212 Atrazine	0.16395	0.16484	0.15949	0.16240	0.16005	0.15132		
	0.14970						0.15882	3.785
$ 154 Nitrobenzene-d5	0.41038	0.39705	0.39787	0.40789	0.40448	0.39255		
	0.39613						0.40091	1.667
$ 155 2-Fluorobiphenyl	1.13278	1.07623	1.03497	1.03383	0.98682	0.94139		
	0.91747						1.01764	7.403
$ 156 Terphenyl-d14	0.97898	0.97074	0.95470	1.03237	1.11410	1.13646		
	1.25424						1.06308	10.363
$ 157 Phenol-d5	2.06532	1.93548	1.90020	1.89215	1.84253	1.75933		
	1.75425						1.87847	5.739
$ 158 2-Fluorophenol	1.60979	1.54474	1.50328	1.52193	1.50067	1.44747		
	1.45282						1.51153	3.684
$ 159 2,4,6-Tribromophenol	0.08121	0.08640	0.09039	0.09904	0.09896	0.09767		
	0.09981						0.09335	7.927
$ 186 2-Chlorophenol-d4	1.31760	1.26620	1.23788	1.23709	1.17995	1.09807		
	1.05384						1.19866	7.853

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 07-AUG-2000 10:00
End Cal Date : 09-AUG-2000 06:35
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00808c.b\8270c.m
Cal Date : 09-Aug-2000 08:37 gruberj
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
	50.000 Level 7							
$ 187 1,2-Dichlorobenzene-d4	0.89668	0.86252	0.81763	0.75685	0.66665	0.59504		
	0.55445						0.73569	18.115

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

Lab File ID: 9DF0809A DFTPP Injection Date: 08/09/00

Instrument ID: A4HP9 DFTPP Injection Time: 1103

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.3
68	Less than 2.0% of mass 69	0.9 (1.7)1
69	Mass 69 relative abundance	56.3
70	Less than 2.0% of mass 69	0.7 (1.2)1
127	40.0 - 60.0% of mass 198	56.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	16.9
365	Greater than 1.0% of mass 198	1.4
441	Present, but less than mass 443	9.3
442	Greater than 40.0% of mass 198	57.6
443	17.0 - 23.0% of mass 442	11.0 (19.2)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD008	SSTD008	9SM0809	08/09/00	1124
02	ASTD008	ASTD008	9AM0809	08/09/00	1202
03	DH9RGBLK	DH9RG101	DH9RG101	08/09/00	1240
04	DH9RGCHK	DH9RG102	DH9RG102	08/09/00	1318
05	MPT-AC-SU-02	DH9R6110	DH9R6110	08/09/00	1823
06	MPT-AC-SU-01	DH9PW110	DH9PW110	08/09/00	1901
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

8-16-00

Data File: \\qcanoh05\dd\chem\MSS\a4hp9.i\00809a.b\9SM0809.D Page 1
Report Date: 09-Aug-2000 12:27

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 09-AUG-2000 11:24
Lab File ID: 9SM0809.D Init. Cal. Date(s): 07-AUG-2000 09-AUG-2000
Analysis Type: Init. Cal. Times: 10:00 06:35
Lab Sample ID: sstd008 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp9.i\00809a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
9	Pyridine	1.78035	1.58939	0.010	-10.7	50.0
10	N-Nitrosodimethylamine	1.21665	1.08798	0.010	-10.6	50.0
11	Ethyl methacrylate	1.54567	1.37957	0.010	-10.7	50.0
12	3-Chloropropionitrile	0.84632	0.85023	0.010	0.5	50.0
13	Malononitrile	2.13558	1.89670	0.010	-11.2	50.0
209	Benzaldehyde	1.11930	1.06954	0.010	-4.4	50.0
21	Aniline	2.51782	2.55399	0.010	1.4	50.0
22	Phenol	2.02969	2.08641	0.010	2.8	20.0
23	bis(2-Chloroethyl)ether	1.60335	1.62651	0.010	1.4	50.0
24	2-Chlorophenol	1.37996	1.33667	0.010	-3.1	50.0
26	1,3-Dichlorobenzene	1.33370	1.33803	0.010	0.3	50.0
27	1,4-Dichlorobenzene	1.35697	1.34578	0.010	-0.8	20.0
28	1,2-Dichlorobenzene	1.22391	1.23394	0.010	0.8	50.0
29	Benzyl Alcohol	0.86066	0.94910	0.010	10.3	50.0
30	2-Methylphenol	1.38415	1.49044	0.010	7.7	50.0
31	bis(2-Chloroisopropyl)ether	2.20195	2.28939	0.010	4.0	50.0
37	Acetophenone	1.82383	1.84119	0.010	1.0	50.0
32	N-Nitroso-di-n-propylamine	1.19800	1.10743	0.050	-7.6	50.0
192	4-Methylphenol	1.23512	1.38623	0.010	12.2	50.0
34	Hexachloroethane	0.53600	0.56837	0.010	6.0	50.0
35	Nitrobenzene	0.40071	0.37336	0.010	-6.8	50.0
41	Isophorone	0.78044	0.76088	0.010	-2.5	50.0
42	2-Nitrophenol	0.14645	0.13041	0.010	-11.0	20.0
43	2,4-Dimethylphenol	0.30702	0.34654	0.010	12.9	50.0
44	bis(2-Chloroethoxy)methane	0.47109	0.48711	0.010	3.4	50.0
46	2,4-Toluenediamene	0.02779	0.02528	0.010	-9.0	50.0
47	1,3,5-Trichlorobenzene	0.22315	0.23892	0.010	7.1	50.0
48	2,4-Dichlorophenol	0.21917	0.23930	0.010	9.2	20.0
49	Benzoic Acid	0.12768	0.09192	0.010	-28.0	50.0
50	1,2,4-Trichlorobenzene	0.22012	0.23352	0.010	6.1	50.0
51	Naphthalene	0.91244	0.90366	0.010	-1.0	50.0
52	4-Chloroaniline	0.37857	0.40404	0.010	6.7	50.0
56	Hexachlorobutadiene	0.09917	0.10178	0.010	2.6	20.0
210	Caprolactam	0.10871	0.11781	0.010	8.4	50.0
57	1,2,3-Trichlorobenzene	0.21460	0.22557	0.010	5.1	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 09-AUG-2000 11:24
Lab File ID: 9SM0809.D Init. Cal. Date(s): 07-AUG-2000 09-AUG-2000
Analysis Type: Init. Cal. Times: 10:00 06:35
Lab Sample ID: sstd008 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp9.i\00809a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
59	4-Chloro-3-Methylphenol	0.26184	0.30585	0.010	16.8	20.0
62	2-Methylnaphthalene	0.53858	0.54672	0.010	1.5	50.0
63	1-Methylnaphthalene	0.53599	0.54100	0.010	0.9	50.0
64	Hexachlorocyclopentadiene	0.23383	0.24182	0.050	3.4	50.0
66	2,4,6-Trichlorophenol	0.27269	0.29109	0.010	6.7	20.0
67	2,4,5-Trichlorophenol	0.27862	0.30902	0.010	10.9	50.0
211	1,1'-Biphenyl	0.95781	0.95365	0.010	-0.4	50.0
68	1,2,3,5-Tetrachlorobenzene	0.34180	0.37097	0.010	8.5	50.0
70	2-Chloronaphthalene	0.86751	0.88843	0.010	2.4	50.0
73	2-Nitroaniline	0.36203	0.32658	0.010	-9.8	50.0
74	1,2,3,4-Tetrachlorobenzene	0.34703	0.36318	0.010	4.7	50.0
76	Dimethylphthalate	1.03297	1.04043	0.010	0.7	50.0
78	2,6-Dinitrotoluene	0.19933	0.17592	0.010	-11.7	50.0
79	Acenaphthylene	1.56253	1.59568	0.010	2.1	50.0
80	1,2-Dinitrobenzene	0.12369	0.10212	0.010	-17.4	50.0
81	3-Nitroaniline	0.26693	0.24307	0.010	-8.9	50.0
82	Acenaphthene	0.97316	0.96547	0.010	-0.8	20.0
83	2,4-Dinitrophenol	0.09194	0.05692	0.050	-38.1	50.0
85	4-Nitrophenol	0.08749	0.10021	0.050	14.5	50.0
86	Dibenzofuran	1.25250	1.29803	0.010	3.6	50.0
87	2,4-Dinitrotoluene	0.30133	0.26197	0.010	-13.1	50.0
91	2,3,5,6-Tetrachlorophenol	0.21192	0.20708	0.010	-2.3	50.0
93	Diethylphthalate	1.09322	1.08588	0.010	-0.7	50.0
94	Fluorene	1.01758	1.04283	0.010	2.5	50.0
95	4-Chlorophenyl-phenylether	0.41374	0.44750	0.010	8.2	50.0
96	4-Nitroaniline	0.25335	0.24422	0.010	-3.6	50.0
98	4,6-Dinitro-2-methylphenol	0.09295	0.06617	0.010	-28.8	50.0
99	N-Nitrosodiphenylamine	0.53342	0.51795	0.010	-2.9	20.0
100	1,2-Diphenylhydrazine	1.10379	1.01841	0.010	-7.7	50.0
106	4-Bromophenyl-phenylether	0.15989	0.15688	0.010	-1.9	50.0
107	Hexachlorobenzene	0.16226	0.15644	0.010	-3.6	50.0
212	Atrazine	0.15882	0.16345	0.010	2.9	50.0
111	Pentachlorophenol	0.09921	0.08947	0.010	-9.8	20.0
115	Phenanthrene	0.96612	0.96256	0.010	-0.4	50.0
116	Anthracene	0.94858	0.94337	0.010	-0.5	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 09-AUG-2000 11:24
Lab File ID: 9SM0809.D Init. Cal. Date(s): 07-AUG-2000 09-AUG-2000
Analysis Type: Init. Cal. Times: 10:00 06:35
Lab Sample ID: sstd008 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp9.i\00809a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
	119 Carbazole	0.85460	0.85366	0.010	-0.1	50.0
	120 Di-n-Butylphthalate	1.27630	1.29190	0.010	1.2	50.0
	123 Fluoranthene	0.83238	0.89196	0.010	7.2	20.0
	124 Benzidine	0.55796	0.37096	0.010	-33.5	50.0
	125 Pyrene	1.87826	1.73471	0.010	-7.6	50.0
	131 Butylbenzylphthalate	1.04838	0.96270	0.010	-8.2	50.0
	133 3,3'-Dimethoxybenzidine	0.18499	0.17905	0.010	-3.2	50.0
	135 3,3'-Dichlorobenzidine	0.35752	0.33531	0.010	-6.2	50.0
	136 Benzo(a)Anthracene	1.30828	1.21551	0.010	-7.1	50.0
	137 Chrysene	1.27841	1.14579	0.010	-10.4	50.0
	138 4,4'-Methylene bis(o-chloro	0.19339	0.19434	0.010	0.5	50.0
	139 bis(2-ethylhexyl)Phthalate	1.47436	1.38674	0.010	-5.9	50.0
	140 Di-n-octylphthalate	2.33169	2.45575	0.010	5.3	20.0
	141 Benzo(b)fluoranthene	1.21324	1.16743	0.010	-3.8	50.0
	142 Benzo(k)fluoranthene	1.21111	1.15184	0.010	-4.9	50.0
	146 Benzo(a)pyrene	1.04412	0.97527	0.010	-6.6	20.0
	149 Indeno(1,2,3-cd)pyrene	0.92602	0.73816	0.010	-20.3	50.0
	150 Dibenz(a,h)anthracene	0.78743	0.67832	0.010	-13.9	50.0
	151 Benzo(g,h,i)perylene	0.81385	0.73255	0.010	-10.0	50.0
\$	154 Nitrobenzene-d5	0.40091	0.35842	0.010	-10.6	50.0
\$	155 2-Fluorobiphenyl	1.01764	1.04419	0.010	2.6	50.0
\$	156 Terphenyl-d14	1.06308	0.95287	0.010	-10.4	50.0
\$	157 Phenol-d5	1.87847	1.91487	0.010	1.9	50.0
\$	158 2-Fluorophenol	1.51153	1.55770	0.010	3.1	50.0
\$	159 2,4,6-Tribromophenol	0.09335	0.09281	0.010	-0.6	50.0
\$	186 2-Chlorophenol-d4	1.19866	1.19320	0.010	-0.5	50.0
\$	187 1,2-Dichlorobenzene-d4	0.73569	0.75444	0.010	2.5	50.0
M	195 Cresols, total	2.61927	2.87668	0.010	9.8	50.0
	101 Diphenylamine	0.53342	0.51795	0.010	-2.9	50.0

8-10-00

Data File: \\qcanoh05\dd\chem\MSS\a4hp9.i\00809a.b\9AM0809.D Page 1
Report Date: 09-Aug-2000 12:47

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 09-AUG-2000 12:02
Lab File ID: 9AM0809.D Init. Cal. Date(s): 07-AUG-2000 09-AUG-2000
Analysis Type: Init. Cal. Times: 10:00 06:35
Lab Sample ID: astd008 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp9.i\00809a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
	7 N-Nitrosomorpholine	0.70040	0.76840	0.010	9.7	50.0
	8 Ethyl methanesulfonate	1.45055	1.24734	0.010	-14.0	50.0
	14 2-Picoline	1.93371	1.99134	0.010	3.0	50.0
	15 N-Nitrosomethylethylamine	0.93888	0.90504	0.010	-3.6	50.0
	16 Methyl methanesulfonate	0.90506	0.85350	0.010	-5.7	50.0
	18 1,3-Dichloro-2-propanol	2.25474	2.00372	0.010	-11.1	50.0
	19 N-Nitrosodiethylamine	0.85963	0.85627	0.010	-0.4	50.0
	25 Pentachloroethane	0.45555	0.42674	0.010	-6.3	50.0
	36 N-Nitrosopyrrolidine	0.74858	0.75958	0.010	1.5	50.0
	37 Acetophenone	1.82383	1.91550	0.010	5.0	50.0
	39 o-Toluidine	2.20145	2.24275	0.010	1.9	50.0
	40 N-Nitrosopiperidine	0.20356	0.21066	0.010	3.5	50.0
	45 O,O,O-Triethyl phosphorothi	0.12219	0.12890	0.010	5.5	50.0
	53 a,a-Dimethyl-phenethylamine	0.84222	0.76646	0.010	-9.0	50.0
	54 2,6-Dichlorophenol	0.21710	0.23986	0.010	10.5	50.0
	55 Hexachloropropene	0.11703	0.11707	0.010	0.0	50.0
	58 N-Nitrosodi-n-butylamine	0.27732	0.27420	0.010	-1.1	50.0
	60 p-Phenylene diamine	0.24243	0.24943	0.010	2.9	50.0
	61 Safrole	0.22348	0.23054	0.010	3.2	50.0
	65 1,2,4,5-Tetrachlorobenzene	0.40602	0.39022	0.010	-3.9	50.0
	71 Isosafrole 1	0.15438	0.14302	0.010	-7.4	50.0
M	188 Isosafrole, Total	0.96945	0.93167	0.010	-3.9	50.0
	72 Isosafrole 2	0.81507	0.78865	0.010	-3.2	50.0
	75 1,4-Naphthoquinone	0.42526	0.41751	0.010	-1.8	50.0
	84 Pentachlorobenzene	0.33351	0.31133	0.010	-6.7	50.0
	89 1-Naphthylamine	1.01540	0.93545	0.010	-7.9	50.0
	92 2-Naphthylamine	0.88080	0.75335	0.010	-14.5	50.0
	90 Zinophos	0.34569	0.33302	0.010	-3.7	50.0
	102 Tetraethyl dithiopyrophosph	0.08939	0.08390	0.010	-6.1	50.0
	103 Diallate 1	0.91657	0.83108	0.010	-9.3	50.0
M	189 Diallate, Total	2.73792	2.68367	0.010	-2.0	50.0
	109 Diallate 2	0.19445	0.17141	0.010	-11.8	50.0
	104 Phorate	0.20279	0.19327	0.010	-4.7	50.0
	105 1,3,5-Trinitrobenzene	0.05767	0.03023	0.010	-47.6	50.0
	108 Phenacetin	0.44986	0.40401	0.010	-10.2	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp9.i Injection Date: 09-AUG-2000 12:02
Lab File ID: 9AM0809.D Init. Cal. Date(s): 07-AUG-2000 09-AUG-2000
Analysis Type: Init. Cal. Times: 10:00 06:35
Lab Sample ID: astd008 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp9.i\00809a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D	
	110 Dimethoate	0.55144	0.48189	0.010	-12.6	50.0	
	112 Pentachloronitrobenzene	0.06757	0.05229	0.010	-22.6	50.0	
	113 4-Aminobiphenyl	0.61099	0.48450	0.010	-20.7	50.0	
	114 Pronamide	0.33315	0.30872	0.010	-7.3	50.0	
	117 Dinoseb	0.12526	0.07016	0.010	-44.0	50.0	
	118 Disulfoton	0.65308	0.63015	0.010	-3.5	50.0	
	121 4-Nitroquinoline 1-oxide	0.07831	0.05639	0.010	-28.0	50.0	
	122 Methapyrilene	0.42802	0.37086	0.010	-13.4	50.0	
	126 Aramite 1	0.11999	0.11000	0.010	-8.3	50.0	
M	191 Aramite, Total	0.37804	0.39779	0.010	5.2	50.0	
	127 Aramite 2	0.16813	0.15597	0.010	-7.2	50.0	
	128 p-Dimethylamino azobenzene	0.34881	0.31089	0.010	-10.9	50.0	
	129 p-Chlorobenzilate	0.68861	0.56864	0.010	-17.4	50.0	
	130 Famphur	0.31964	0.26275	0.010	-17.8	50.0	
	132 3,3'-Dimethylbenzidine	0.36404	0.32662	0.010	-10.3	50.0	
	134 2-Acetylaminofluorene	0.46124	0.40592	0.010	-12.0	50.0	
	143 7,12-dimethylbenz[a]anthrac	0.78546	0.78611	0.010	0.1	50.0	
	144 Hexachlorophene	++++	++++	0.010	++++	50.0	<-
	145 Hexachlorophene product	++++	++++	0.010	++++	50.0	<-
	148 3-Methylcholanthrene	0.71189	0.69820	0.010	-1.9	50.0	
	193 3-Methylphenol	1.29571	1.38353	0.010	6.8	50.0	
	69 1,4-Dinitrobenzene	0.17022	0.10714	0.010	-37.1	50.0	
	77 m-Dinitrobenzene	0.19547	0.13767	0.010	-29.6	50.0	
	198 1,4-Dioxane	0.70754	0.73945	0.010	4.5	50.0	
	88 2,3,4,6-Tetrachlorophenol	0.19241	0.17365	0.010	-9.8	50.0	
	97 5-Nitro-o-toluidine	0.31436	0.26799	0.010	-14.8	50.0	
	199 3-Picoline	1.78713	1.82560	0.010	2.2	50.0	
	200 N,N-Dimethylacetamide	1.46698	1.52314	0.010	3.8	50.0	

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE _____ OF _____

CLIENT	JOB NUMBER		
NS Mayport			
SUBJECT	Sample Calc.		
BASED ON	Blank Spike (DH9R6102)	DRAWING NUMBER	
BY	CHECKED BY	APPROVED BY	DATE
DSS			10/24/00

Fraction : Semivolatile
Matrix : Soil
Compound : Aniline
Form I : 876.59 ug/kg
Quantitation Report.

$$ug/kg = \frac{A_x (I_s)(D_f)(V_t)(GPC)}{A_{is} (RRF)(V_i)(W_s)(D)}$$

A_x = 1333512 Area

I_s = 8.0 ng

D_f = 1

V_t = 5.0 mL = 5000 uL

GPC = 1

A_{is} = 402797 Area

$\overline{RRF}$ = 2.51782

V_i = 2.0 uL

W_s = 30.0 g

D = 1

$$ug/kg = \frac{1333512\ \text{Area}\ (8.0\ ng)(1)(5000\ uL)(1)}{402797\ \text{Area}\ (2.51782)(2.0\ uL)(30.0\ g)(1)}$$

$$= 876.55\ ng/g \text{ or } ug/kg$$

STL - North Canton

Semivolatile REPORT SW-846 Method 8270

Data file : \\qcanoh05\dd\chem\MSS\a4hp9.i\00809a.b\DH9RG102.D
Lab Smp Id: DH9RG102 Client Smp ID: INTRA-LAB CHECK
Inj Date : 09-AUG-2000 13:18
Operator : 001710 Inst ID: a4hp9.i
Smp Info : dh9rg102,00809a.b,8270c,2-8270.sub
Misc Info :
Comment :
Method : \\QCANOH05\dd\chem\MSS\a4hp9.i\00809a.b\8270c.m
Meth Date : 09-Aug-2000 14:35 gruberj Quant Type: ISTD
Cal Date : 09-AUG-2000 06:35 Cal File: 9AHH0808.D
Als bottle: 2 QC Sample: METHOD SPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 2-8270.sub
Target Version: 4.04
Processing Host: CANPMSSV02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	5000.000	Volume of final extract (uL) (1000 low, 2
Vi	2.000	Volume injected (uL)
Ws	30.000	Weight of sample extracted (g)
M	0.000	% Moisture

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/kg)
* 1	1,4-Dichlorobenzene-d4	152	7.258	7.262	(1.000)	402797	8.00000	
* 2	Naphthalene-d8	136	9.614	9.618	(1.000)	1553703	8.00000	
* 3	Acenaphthene-d10	164	13.108	13.112	(1.000)	771435	8.00000	
* 4	Phenanthrene-d10	188	16.094	16.093	(1.000)	1061456	8.00000	
* 5	Chrysene-d12	240	21.458	21.456	(1.000)	620134	8.00000	
* 6	Perylene-d12	264	24.134	24.138	(1.000)	471177	8.00000	
9	Pyridine	79	3.417	3.347	(0.471)	1324988	14.7812	1231.8
10	N-Nitrosodimethylamine	74	3.407	3.357	(0.469)	896718	14.6384	1219.9
11	Ethyl methacrylate	69	Compound Not Detected.					
12	3-Chloropropionitrile	54	Compound Not Detected.					
13	Malononitrile	66	Compound Not Detected.					
21	Aniline	93	6.735	6.734	(0.928)	1333512	10.5190	876.59
22	Phenol	94	6.697	6.685	(0.923)	1735636	16.9837	1415.3

Quanterra Incorporated — **INSTRUMENT: A4HP9** — Page: 90

North Canton — **GC/MS SEMIVOLATILE RUN LOG** — DATE: 8-9-00

COLUMN TYPE: RXT-5 — ANALYSIS 40 deg. C for 1.5 min. — CASE NO. _____

LENGTH: 30m — to 320 deg. C @ 11.5 deg. C/min — SDG NO. _____

ID: .32 mm — hold for 2.7 min.

FILM THICKNESS: .5 MICRONS — F.D.= 2.5 — E.T.= 27:53 — I.S.# 23Cb — TUNE: DFTPP

FILE NAME	LOT # / FILE NAME	SAMPLE PREP	D.F.	QUAL	COMMENTS	ANALYST
9DF0809A	SV2265			OK	(11:03)	
9SM0809	SV2358			OK	Cal Std OK mw Checked by: 8-10-00	
9AM0809	SV2264	* 2nd Source Confirming		OK		
DH9RG101	B	8-4 30g-5-1	5x	OK		
DH9RG102	C			OK		
DH7ME102				OK		
DH7ME111	MS			OK		
DH7ME112	MSD			OK		
DH9MH10X				OK		
DH9MJ10X				OK		
DH9LH10X				OK		
DH9M910X			50:100	OK		
DH9R610			5x	OK		
DH9PW110				OK		
DH9GA10X				OK		
DH9HV10X				OK		
DH9HM10X				OK		
DH9J210X				OK		
DHAF610A				OK		
DHAFQ10C				OK		
DH9MK10X				Recon	out of time	

8-9-00

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 8/16/00
Time: 7:49:32

QC BATCH: 0216337

PREP DATE: 8/04/00
COMP DATE: 8/04/00

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH'S INIT	PH'S ADJ1	PH'S ADJ2	SOLVENTS EXTRACTION	SOLVENTS VOL	SOLVENTS EXCHANGE	SOLVENTS VOL	SPIKE STANDARD/ SURROGATE ID
8/14/00	8/21/00	A0H030175-003 DH9HV-1-0X	D	13	QL	SOLID	30.02g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/14/00	8/21/00	A0H030175-004 DH9J2-1-0X	D	13	QL	SOLID	30.16g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/15/00	8/22/00	A0H030185-001 DH9LH-1-0X	D	13	QL	SOLID	30.05g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/15/00	8/22/00	A0H030185-003 DH9MH-1-0X	D	13	QL	SOLID	30.10g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/15/00	8/22/00	A0H030185-004 DH9MJ-1-0X	D	13	QL	SOLID	30.18g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/15/00	8/22/00	A0H030185-005 DH9MK-1-0X	D	13	QL	SOLID	30.06g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/15/00	8/22/00	A0H030185-002 DH9M9-1-0X	D	13	QL	SOLID	30.08g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/16/00	8/23/00	A0H030201-001 DH9PW-1-10	D	13	QL	SOLID	30.02g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/14/00	0/00/00	A0H030000-337 DH9RG-1-01B		13	QL	SOLID	30.00g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SUP #90291
COMMENTS:															
8/14/00	0/00/00	A0H030000-337 DH9RG-1-02C		13	QL	SOLID	30.00g 5.00mL	NA	NA	NA	DCM/ACE	300.0		.0	0.5ML SPIKE #89303 0.5ML SUP #90291
COMMENTS:															

SDG NARRATIVE
MP024

GC SEMIVOLATILES – 8081A

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

GC Column: CLP PESTICIDES ID: 0.53 (mm) Init. Calib. Date(s): 07/31/00 08/07/

Instrument ID: A2HP5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	MEAN SURROGATE RT FROM INITIAL CALIBRATION					
	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
01		T0X3	08/07/00	1302		
02	PEM	PEM	08/08/00	1324		
03	AB3	AB3	08/08/00	1346		
04	MPT-AC-SU-01	DH9PW104	08/08/00	1644		
05	DH9QQBLK	DH9QQ101	08/08/00	1706		
06	DH9QQCHK	DH9QQ102	08/08/00	1728		
07	MPT-AC-SU-02	DH9R6104	08/08/00	1750		
08	DH9QQCHKDUP	DH9QQ103	08/08/00	1813		
09	PEM	PEM	08/08/00	2026		
10	AB3	AB3	08/08/00	2048		
11	TOX3	TOX3	08/08/00	2110		
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Sequence: C:\HPCHEM\3\SEQUENCE\00807A.S

Line	Vial	SampleName	SampleAmount	ISTDAmt	Multiplier	Dilution
33	33	DH7AW103,2				
34	34	DH7AW102,2				
35	35	DH7AW101				
36	36	DH6W1101				
37	37	DH6VT101				
38	38	DHD96101				
39	39	DHD96102,5				
40	40	DHD96103,5				
41	41	DH7MT105				
42	42	DH7MW105				
a 43	43	DH7NW105				
44	44	PEM				
45	45	AB3				
46	46	DH7N1105				
47	47	DHDCW103				
48	48	DHDDC103				
49	49	DHDDL103				
50	50	DHDD3103				
51	51	DHDD4103				
52	52	DHDD8107				
53	53	DHDD8108,2				
54	54	DHDD8109,2				
55	55	DHDGG101				
56	56	DHDGG102,2				
57	57	DH9GA103				
58	58	DH9HM103				
59	59	PEM				
60	60	AB3				
61	61	1660 .5				
62	62	DGX87101,5				
63	63	DGX87101,2				
64	64	DGV30101,5				
65	65	DGV30101,10				
66	66	DGX7T101,25				
67	67	DGX7T101,50				
68	68	DGRR3101,20				
69	69	DGRR3101,25				
70	70	DGRPL101,10				
71	71	DH5ED104,20				
72	72	DH5ED10K,20				
73	73	DH5ED104,25				
74	74	DH5ED10K,25				
75	75	HEX				
76	76	PEM				
77	77	AB3				
78	78	DH9HV103				
79	79	DH9J2103				
80	80	DH9LH103				
81	81	DH9MH103				
82	82	DH9MJ103				
83	83	DH9MK103				
84	84	DH9M9103				
85	85	DH9PW104				
86	86	DH9QQ101				
87	87	DH9QQ102				
88	88	DH9R6104				

SW846 8081A METHOD BLANK SUMMARY

BLANK WORKORDER NO.: DH9QQ101

Lab Name: Severn Trent Laboratories, Inc.

Lab Code: QESCAN

SDG Number: MP024

Lab File ID: 086f8601.

Lot Number: A0H030201

Matrix: SOLID

Extraction Method: 3540C

Date Extracted: 08/04/00

Date Analyzed(1): 08/08/00

Date Analyzed(2): N/A

Time Analyzed(1): 17:06

Time Analyzed(2): N/A

Instrument ID(1): P5

Instrument ID(2): N/A

GC Column(1): N/A ID: N/A GC Column(2): N/A ID: N/A

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	CLIENT ID.	SAMPLE WORK ORDER #	DATE ANALYZED(1)	DATE ANALYZED(2)
01	MPT-AC-SU-01-05	DH9PW104	08/08/00	N/A
02	CHECK SAMPLE	DH9QQ102 C	08/08/00	N/A
03	DUPLICATE CHECK	DH9QQ103 L	08/08/00	N/A
04	MPT-AC-SU-02-05	DH9R6104	08/08/00	N/A
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

COMMENTS:

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 077f7701.d
Analysis Type: NONE
Injection Date: 08-AUG-2000 13:46
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/00807a.b/pesthp5a.

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0254	1.4	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0255	2.0	15.0	
0	beta-BHC	0.0250	0.0248	0.6	15.0	
0	delta-BHC	0.0250	0.0250	0.0	15.0	
0	Heptachlor	0.0250	0.0265	6.1	15.0	
0	Aldrin	0.0250	0.0262	4.9	15.0	
0	Heptachlor epoxide	0.0250	0.0266	6.4	15.0	
0	gamma-Chlordane	0.0250	0.0263	5.3	15.0	
0	alpha-Chlordane	0.0250	0.0265	5.9	15.0	
0	4,4'-DDE	0.0250	0.0272	8.8	15.0	
0	Endosulfan sulfate	0.0250	0.0266	6.3	15.0	
0	Endosulfan I	0.0250	0.0267	6.7	15.0	
0	Endrin ketone	0.0250	0.0283	13.2	15.0	
0	Dieldrin	0.0250	0.0273	9.1	15.0	
0	Endrin	0.0250	0.0284	13.6	15.0	
0	4,4'-DDD	0.0250	0.0296	18.4	15.0	<-
0	Endosulfan II	0.0250	0.0275	9.9	15.0	
0	4,4'-DDT	0.0250	0.0250	0.2	15.0	
0	Endrin aldehyde	0.0250	0.0285	14.2	15.0	
0	Methoxychlor	0.0250	0.0279	11.6	15.0	
29	Tetrachloro-m-xylene	0.0250	0.0247	1.4	15.0	
30	Decachlorobiphenyl	0.0250	0.0296	18.2	15.0	<-

Data File: /chem/can/gcs/a2hp5.i/00807a-r.b/077f7701.d
Report Date: 08/10/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 077f7701.d
Analysis Type: NONE

Injection Date: 08-AUG-2000 13:46
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/00807a-r.b/pesthp5

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0257	2.7	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0260	4.1	15.0	
0	beta-BHC	0.0250	0.0256	2.4	15.0	
0	delta-BHC	0.0250	0.0257	2.7	15.0	
0	Heptachlor	0.0250	0.0278	11.1	15.0	
0	Aldrin	0.0250	0.0257	2.8	15.0	
0	Heptachlor epoxide	0.0250	0.0260	4.2	15.0	
0	gamma-Chlordane	0.0250	0.0256	2.6	15.0	
0	alpha-Chlordane	0.0250	0.0257	3.0	15.0	
0	4,4'-DDE	0.0250	0.0259	3.8	15.0	
0	Methoxychlor	0.0250	0.0272	8.7	15.0	
0	Endosulfan I	0.0250	0.0257	2.8	15.0	
0	Endrin ketone	0.0250	0.0272	8.7	15.0	
0	Dieldrin	0.0250	0.0260	3.9	15.0	
0	Endrin	0.0250	0.0276	10.5	15.0	
0	4,4'-DDD	0.0250	0.0287	14.7	15.0	
0	Endosulfan II	0.0250	0.0265	6.0	15.0	
0	4,4'-DDT	0.0250	0.0242	3.2	15.0	
0	Endrin aldehyde	0.0250	0.0278	11.4	15.0	
0	Endosulfan sulfate	0.0250	0.0259	3.5	15.0	
29	Tetrachloro-m-xylene	0.0250	0.0253	1.2	15.0	
30	Decachlorobiphenyl	0.0250	0.0294	17.8	15.0	<-

Data File: /chem/can/gcs/a2hp5.i/00807a.b/095f9501.d
Report Date: 08/09/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 095f9501.d
Analysis Type: NONE

Injection Date: 08-AUG-2000 20:48
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/00807a.b/pesthp5a

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0255	2.2	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0256	2.3	15.0	
0	beta-BHC	0.0250	0.0250	0.2	15.0	
0	delta-BHC	0.0250	0.0250	0.1	15.0	
0	Heptachlor	0.0250	0.0267	6.8	15.0	
0	Aldrin	0.0250	0.0266	6.3	15.0	
0	Heptachlor epoxide	0.0250	0.0269	7.5	15.0	
0	gamma-Chlordane	0.0250	0.0266	6.5	15.0	
0	alpha-Chlordane	0.0250	0.0269	7.6	15.0	
0	4,4'-DDE	0.0250	0.0272	8.9	15.0	
0	Endosulfan sulfate	0.0250	0.0263	5.1	15.0	
0	Endosulfan I	0.0250	0.0270	7.8	15.0	
0	Endrin ketone	0.0250	0.0271	8.4	15.0	
0	Dieldrin	0.0250	0.0274	9.5	15.0	
0	Endrin	0.0250	0.0283	13.3	15.0	
0	4,4'-DDD	0.0250	0.0294	17.6	15.0	<-
0	Endosulfan II	0.0250	0.0271	8.5	15.0	
0	4,4'-DDT	0.0250	0.0236	5.4	15.0	
0	Endrin aldehyde	0.0250	0.0282	12.7	15.0	
0	Methoxychlor	0.0250	0.0256	2.3	15.0	
29	Tetrachloro-m-xylene	0.0250	0.0249	0.3	15.0	
30	Decachlorobiphenyl	0.0250	0.0284	13.4	15.0	

Data File: /chem/can/gcs/a2hp5.i/00807a-r.b/095f9501.d P
Report Date: 08/10/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i Injection Date: 08-AUG-2000 20:48
Lab File ID: 095f9501.d Lab Sample ID: AB3
Analysis Type: NONE Method File: /chem/can/gcs/a2hp5.i/00807a-r.b/pesthp5

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	alpha-BHC	0.0250	0.0259	3.6	15.0
0	gamma-BHC (Lindane)	0.0250	0.0263	5.0	15.0
0	beta-BHC	0.0250	0.0255	1.8	15.0
0	delta-BHC	0.0250	0.0256	2.4	15.0
0	Heptachlor	0.0250	0.0276	10.4	15.0
0	Aldrin	0.0250	0.0260	3.9	15.0
0	Heptachlor epoxide	0.0250	0.0261	4.5	15.0
0	gamma-Chlordane	0.0250	0.0259	3.7	15.0
0	alpha-Chlordane	0.0250	0.0257	2.9	15.0
0	4,4'-DDE	0.0250	0.0259	3.4	15.0
0	Methoxychlor	0.0250	0.0250	0.1	15.0
0	Endosulfan I	0.0250	0.0258	3.4	15.0
0	Endrin ketone	0.0250	0.0265	6.0	15.0
0	Dieldrin	0.0250	0.0263	5.4	15.0
0	Endrin	0.0250	0.0274	9.5	15.0
0	4,4'-DDD	0.0250	0.0284	13.6	15.0
0	Endosulfan II	0.0250	0.0261	4.4	15.0
0	4,4'-DDT	0.0250	0.0224	10.5	15.0
0	Endrin aldehyde	0.0250	0.0272	8.9	15.0
0	Endosulfan sulfate	0.0250	0.0252	0.9	15.0
29	Tetrachloro-m-xylene	0.0250	0.0256	2.3	15.0
30	Decachlorobiphenyl	0.0250	0.0281	12.5	15.0

Data File: /chem/can/gcs/a2hp5.i/00807a.b/096f9601.d
Report Date: 08/10/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 096f9601.d
Analysis Type: NONE

Injection Date: 08-AUG-2000 21:10
Lab Sample ID: TOX3
Method File: /chem/can/gcs/a2hp5.i/00807a.b/pesthp5a.

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
21 Toxaphene	1.0000	1.1578	15.8	15.0	<-

Data File: /chem/can/gcs/a2hp5.i/00807a-r.b/096f9601.d
Report Date: 08/10/2000

P

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 096f9601.d
Analysis Type: NONE

Injection Date: 08-AUG-2000 21:10
Lab Sample ID: TOX3
Method File: /chem/can/gcs/a2hp5.i/00807a-r.b/pesthp5

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
21 Toxaphene	1.0000	1.0398	4.0	15.0

SW846 8081A SURROGATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: QESCAN QESSDG: MP024

Lot #: A0H030201

NO Quals

	CLIENT ID.	SRG01	SRG02	TOT OUT
01	MPT-AC-SU-01-05	61	77	00
02	MPT-AC-SU-02-05	57	0.0*	01
03	METHOD BLK. DH9QQ101	49	72	00
04	LCS DH9QQ102	64	77	00
05	LCSD DH9QQ103	61	78	00

SURROGATES		QC LIMITS
SRG01	= Tetrachloro-m-xylene	(31-131)
SRG02	= Decachlorobiphenyl	(18-145)

\# Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

Data File: /chem/can/gcs/a2hp5.i/00807a.b/085f8501.d

Page 6

Date : 08-AUG-2000 16:44

Client ID: HPT-AC-SU-01-05

Instrument: a2hp5.i

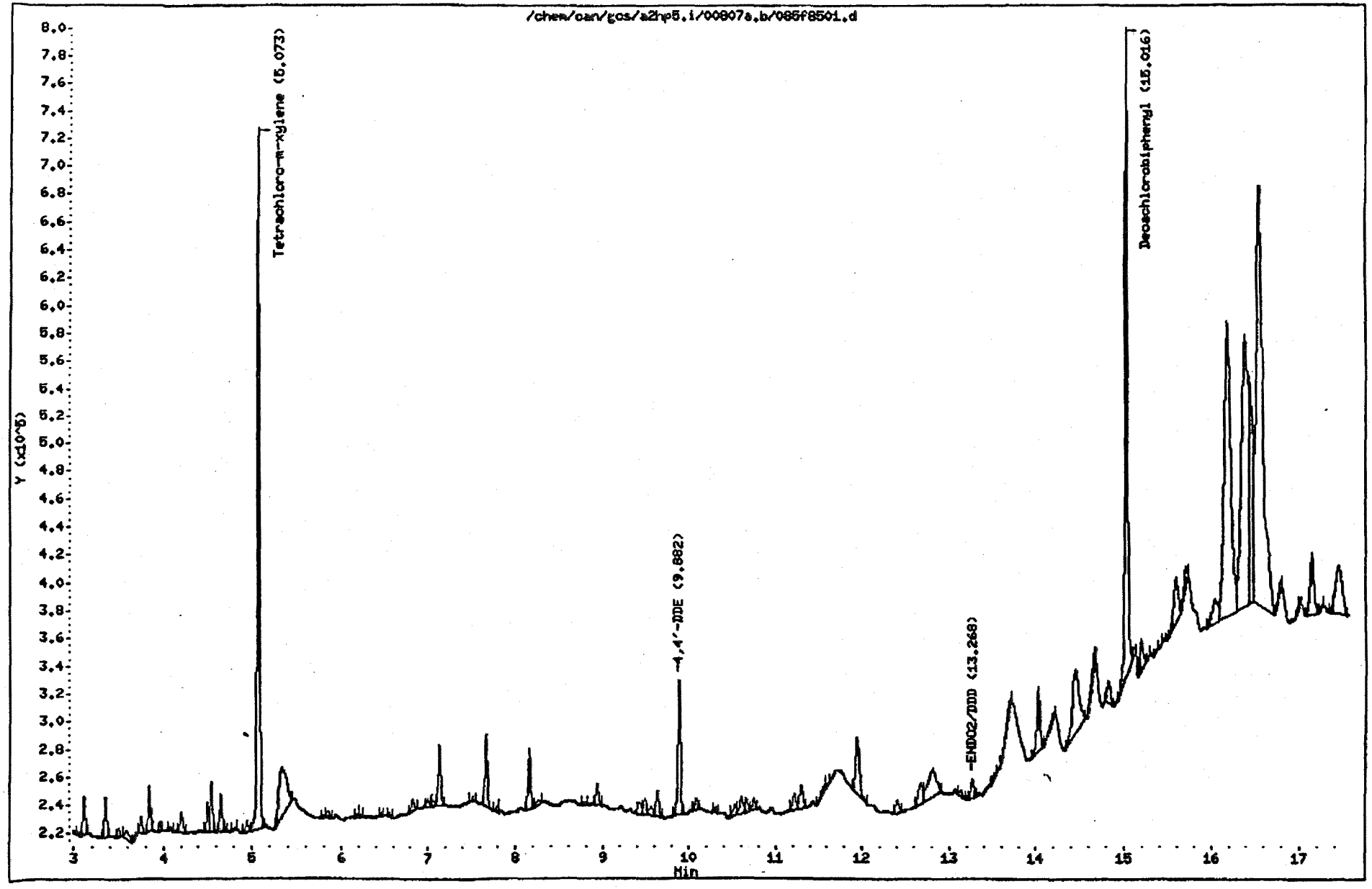
Sample Info: DH9PW104

Volume Injected (uL): 1.0

Operator: 001808

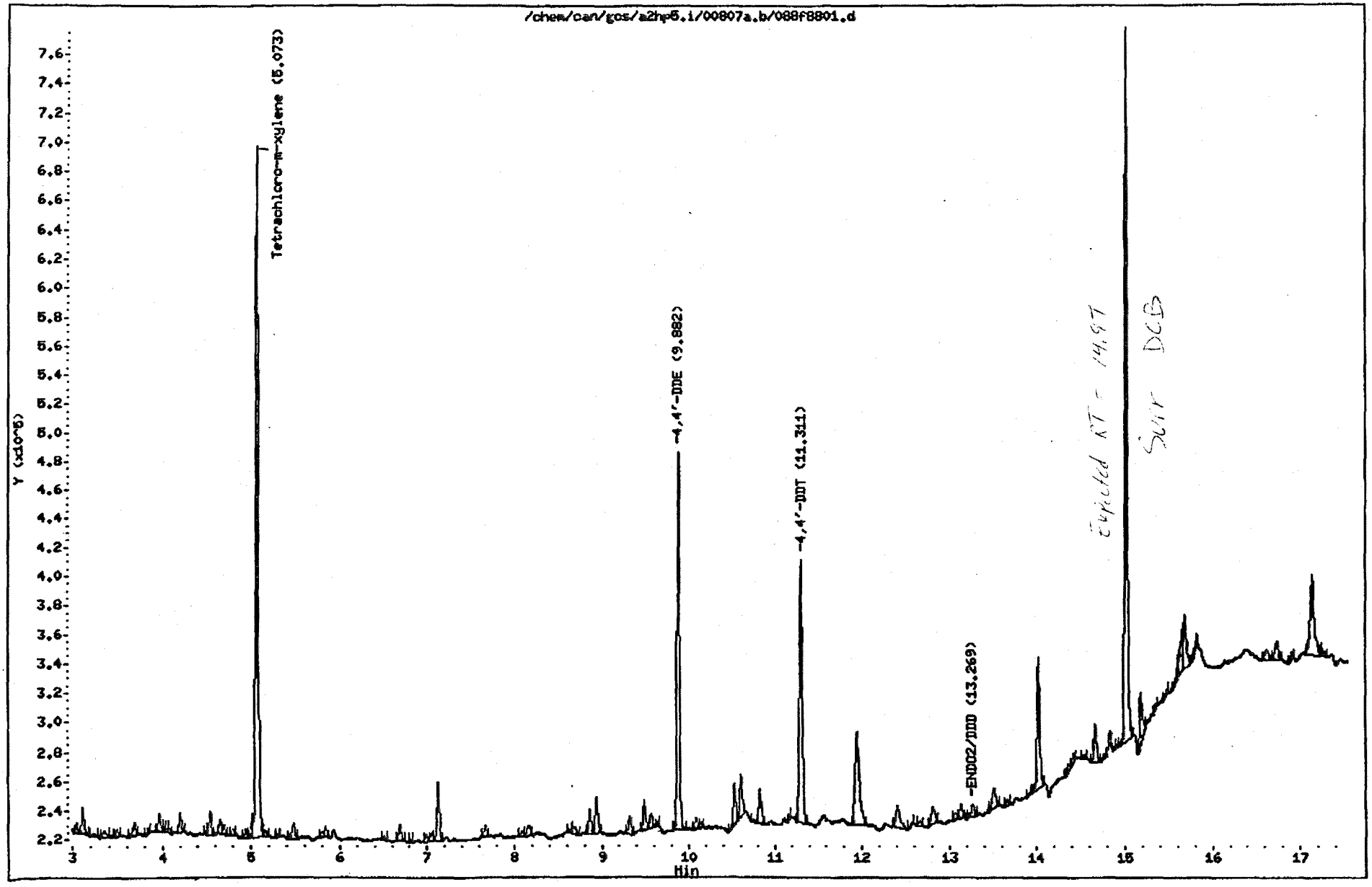
Column phase: clp pesticides

Column diameter: 0.53



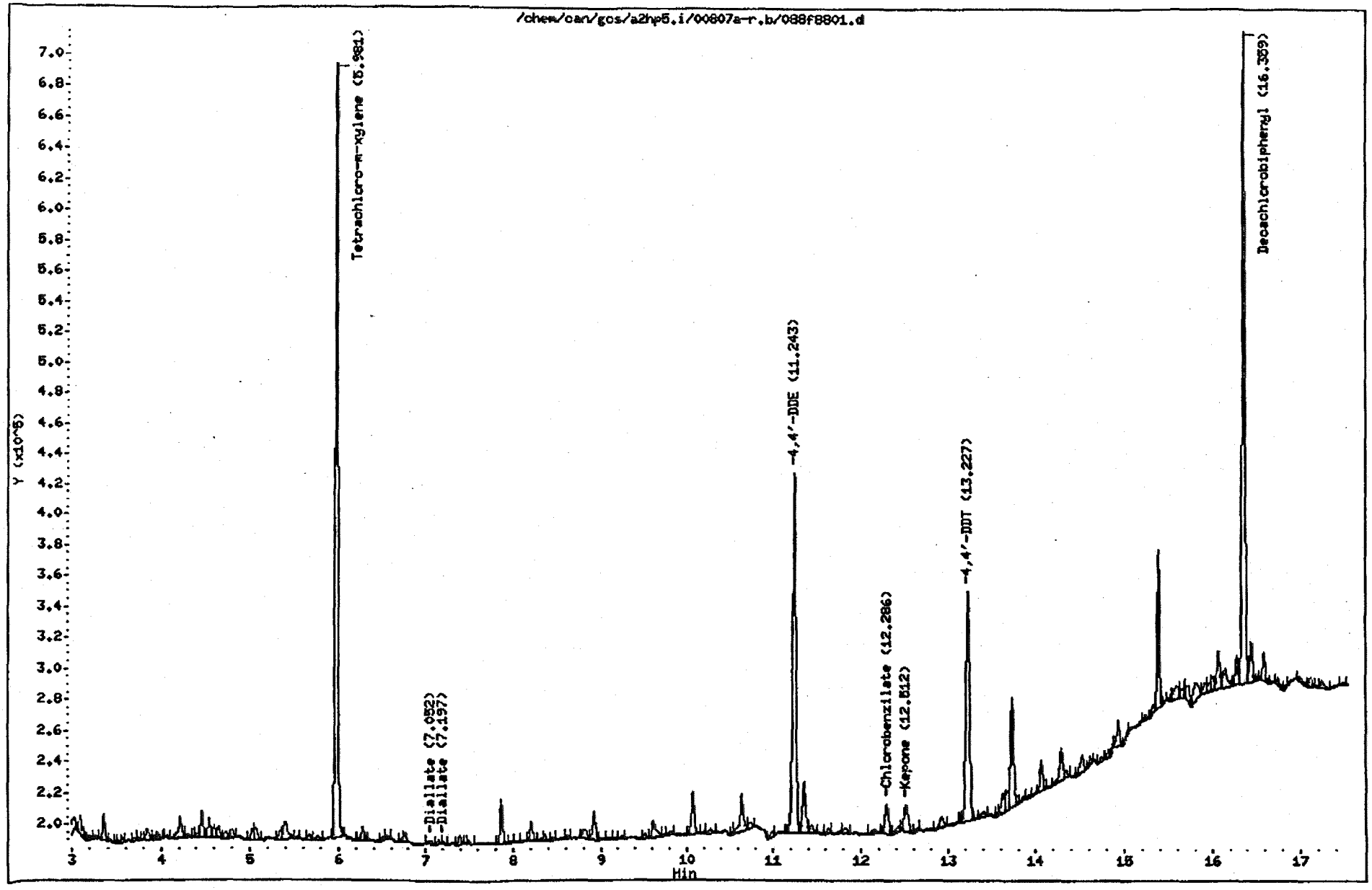
Data File: /chem/can/gcs/a2hp5.i/00807a.b/088f8801.d
Date : 08-AUG-2000 17:50
Client ID: HPT-AC-SU-02-05
Sample Info: DH9R6104
Volume Injected (uL): 1.0
Column phase: clp pesticides

Instrument: a2hp5.i
Operator: 001808
Column diameter: 0.53



Data File: /chem/can/gcs/a2hp5.i/00807a-r.b/088f8801.d
Date : 08-AUG-2000 17:50
Client ID: HPT-AC-SU-02-05
Sample Info: DH9R6104
Volume Injected (uL): 1.0
Column phase: clp pesticides II

Instrument: a2hp5.i
Operator: 001808
Column diameter: 0.53



STL North Canton

SW846 8081A CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: QESCAN SDG No: MP024

Lot #: A0H030000 WO #: DH9QQ102
BATCH: 0216335

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
alpha-BHC	33	25	76	33 - 130	
beta-BHC	33	25	74	51 - 110	
delta-BHC	33	25	76	19 - 142	
gamma-BHC (Lindane)	33	26	77	47 - 130	
Heptachlor	33	26	78	39 - 126	
Aldrin	33	26	78	39 - 122	
Heptachlor epoxide	33	27	82	46 - 125	
Endosulfan I	33	15	46	24 - 113	
Dieldrin	33	28	83	45 - 128	
4,4'-DDE	33	29	87	26 - 157	
Endrin	33	33	98	47 - 133	
Endosulfan II	33	19	57	35 - 124	
4,4'-DDD	33	31	92	39 - 157	
Endosulfan sulfate	33	27	80	36 - 139	
4,4'-DDT	33	27	80	35 - 144	
Methoxychlor	33	26	79	24 - 161	
Endrin ketone	33	26	77	49 - 137	
Endrin aldehyde	33	18	53	27 - 130	
alpha-Chlordane	33	28	83	39 - 145	
gamma-Chlordane	33	28	83	33 - 154	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 20 outside limits

COMMENTS:

FORM III

SW846 8081A CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: QESCAN SDG No: MP024

Lot #: A0H030000 WO #: DH9QQ103
BATCH: 0216335

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
alpha-BHC	33	23	68	33 - 130	
beta-BHC	33	23	68	51 - 110	
delta-BHC	33	15	45	19 - 142	p
gamma-BHC (Lindane)	33	23	70	47 - 130	
Heptachlor	33	24	73	39 - 126	
Aldrin	33	25	74	39 - 122	
Heptachlor epoxide	33	25	76	46 - 125	
Endosulfan I	33	14	43	24 - 113	
Dieldrin	33	25	75	45 - 128	
4,4'-DDE	33	27	81	26 - 157	
Endrin	33	30	91	47 - 133	
Endosulfan II	33	17	52	35 - 124	
4,4'-DDD	33	28	84	39 - 157	
Endosulfan sulfate	33	22	67	36 - 139	
4,4'-DDT	33	25	74	35 - 144	
Methoxychlor	33	25	75	24 - 161	
Endrin ketone	33	23	71	49 - 137	
Endrin aldehyde	33	20	60	27 - 130	
alpha-Chlordane	33	25	76	39 - 145	
gamma-Chlordane	33	26	77	33 - 154	

NOTES(S):

p Relative percent difference (RPD) is outside stated control limits.

* Values outside of QC limits

Spike Recovery: 0 out of 20 outside limits

COMMENTS:

FORM III

COMPOUNDS and EXP. RT REPORT

Operator: 001808 Date Acquired: 08-AUG-2000 16:44
Data File: /chem/can/gcs/a2hp5.i/00807a.b/085f8501.d
Lab Sample ID: DH9PM104
Misc. Info:
Instrument: a2hp5.i
Method: /chem/can/gcs/a2hp5.i/00807a.b/pesthp5a.m
Dilution Factor: 1

MPT-AC-SV-01-05

Compound	RT	Area	Amount	Conc
3) Tetrachloro-m-xylene	5.073	970512	0.012	0.122 ug/Kg
6) Hexachlorobenzene	NOT DETECTED	Expected RT = 5.836		
9) Diallate	NOT DETECTED	Expected RT = 6.063		
10) alpha-BHC	NOT DETECTED	Expected RT = 6.208		
12) gamma-BHC (Lindane)	NOT DETECTED	Expected RT = 6.815		
13) beta-BHC	NOT DETECTED	Expected RT = 7.019		
14) delta-BHC	NOT DETECTED	Expected RT = 7.335		
16) Tech Chlordane	NOT DETECTED	Expected RT = 7.661		
15) Heptachlor	NOT DETECTED	Expected RT = 7.661		
17) Aldrin	NOT DETECTED	Expected RT = 8.158		
18) Isodrin	NOT DETECTED	Expected RT = 8.712		
20) Heptachlor epoxide	NOT DETECTED	Expected RT = 9.193		
21) gamma-Chlordane	NOT DETECTED	Expected RT = 9.423		
22) alpha-Chlordane	NOT DETECTED	Expected RT = 9.640		
23) Endosulfan I	NOT DETECTED	Expected RT = 9.816		
24) 4,4'-DDE	9.882	200196	0.003	0.836 ug/Kg
25) Dieldrin	NOT DETECTED	Expected RT = 10.254		
28) Endrin	NOT DETECTED	Expected RT = 10.553		
27) Toxaphene	NOT DETECTED	Expected RT = 10.631		
30) 4,4'-DDD	NOT DETECTED	Expected RT = 10.814		
31) Chlorobenzilate	NOT DETECTED	Expected RT = 10.908		
29) Kepone	NOT DETECTED	Expected RT = 10.937		
32) Endosulfan II	NOT DETECTED	Expected RT = 10.939		
34) 4,4'-DDT	NOT DETECTED	Expected RT = 11.323		
36) Endrin aldehyde	NOT DETECTED	Expected RT = 11.745		
37) Methoxychlor	NOT DETECTED	Expected RT = 12.470		
38) Endosulfan sulfate	NOT DETECTED	Expected RT = 12.729		
41) ENDO2/DDD	13.268	33597	0.000	0.000 ug/Kg
39) Endrin ketone	NOT DETECTED	Expected RT = 13.271		
42) Decachlorobiphenyl	15.016	943914	0.015	0.153 ug/Kg

% Difference between analytical columns = (0.894 - 0.836 / 0.836) 100 = 6.93

AC-SU-01-05
MPT-4

COMPOUNDS and EXP. RT REPORT

Operator: 001808 Date Acquired: 08-AUG-2000 16:44
Data File: /chem/can/gcs/a2hp5.i/00807a-r.b/085f8501.d
Lab Sample ID: DH9PW104
Misc. Info:
Instrument: a2hp5.i
Method: /chem/can/gcs/a2hp5.i/00807a-r.b/pesthp5b.m
Dilution Factor: 1

Compound	RT	Area	Amount	Conc
4) Tetrachloro-m-xylene	5.979	1035778	0.012	0.122 ug/Kg
3) Hexachlorobenzene	NOT DETECTED	Expected RT = 6.944		
5) Diallate	7.045	7160	0.004	1.400 ug/Kg
11) alpha-BHC	NOT DETECTED	Expected RT = 7.291		
13) gamma-BHC (Lindane)	NOT DETECTED	Expected RT = 7.936		
21) beta-BHC	NOT DETECTED	Expected RT = 8.168		
22) delta-BHC	NOT DETECTED	Expected RT = 8.700		
16) Heptachlor	NOT DETECTED	Expected RT = 8.742		
7) Tech Chlordane	NOT DETECTED	Expected RT = 8.742		
18) Aldrin	NOT DETECTED	Expected RT = 9.323		
14) Isodrin	NOT DETECTED	Expected RT = 9.941		
23) Heptachlor epoxide	NOT DETECTED	Expected RT = 10.347		
26) gamma-Chlordane	NOT DETECTED	Expected RT = 10.595		
28) alpha-Chlordane	NOT DETECTED	Expected RT = 10.848		
24) Endosulfan I	NOT DETECTED	Expected RT = 10.913		
29) 4,4'-DDE	11.244	240682	0.003	0.894 ug/Kg
31) Dieldrin	NOT DETECTED	Expected RT = 11.440		
30) Toxaphene	NOT DETECTED	Expected RT = 11.944		
33) Endrin	NOT DETECTED	Expected RT = 12.042		
27) Chlorobenzilate	NOT DETECTED	Expected RT = 12.245		
25) Kepone	NOT DETECTED	Expected RT = 12.423		
37) 4,4'-DDD	NOT DETECTED	Expected RT = 12.510		
36) Endosulfan II	NOT DETECTED	Expected RT = 12.542		
38) 4,4'-DDT	NOT DETECTED	Expected RT = 13.223		
40) Endrin aldehyde	NOT DETECTED	Expected RT = 13.389		
42) Endosulfan sulfate	NOT DETECTED	Expected RT = 13.880		
43) Methoxychlor	NOT DETECTED	Expected RT = 14.483		
39) Endrin ketone	14.711	433376	0.006	1.892 ug/Kg
45) Decachlorobiphenyl	16.360	1043697	0.016	0.156 ug/Kg

COMPOUNDS and EXP. RT REPORT

Operator: 001808 Date Acquired: 08-AUG-2000 17:50
Data File: /chem/can/gcs/a2hp5.i/00807a.b/088f8801.d
Lab Sample ID: DH9R6104
Misc. Info:
Instrument: a2hp5.i
Method: /chem/can/gcs/a2hp5.i/00807a.b/pesthp5a.m
Dilution Factor: 1

MPF- AC-SV-02-05

Compound	RT	Area	Amount	Conc
3) Tetrachloro-m-xylene	5.073	930079	0.011	0.115 ug/Kg
6) Hexachlorobenzene	NOT DETECTED	Expected RT = 5.836		
9) Diallate	NOT DETECTED	Expected RT = 6.063		
10) alpha-BHC	NOT DETECTED	Expected RT = 6.208		
12) gamma-BHC (Lindane)	NOT DETECTED	Expected RT = 6.815		
13) beta-BHC	NOT DETECTED	Expected RT = 7.019		
14) delta-BHC	NOT DETECTED	Expected RT = 7.335		
16) Tech Chlordane	NOT DETECTED	Expected RT = 7.661		
15) Heptachlor	NOT DETECTED	Expected RT = 7.661		
17) Aldrin	NOT DETECTED	Expected RT = 8.158		
18) Isodrin	NOT DETECTED	Expected RT = 8.712		
20) Heptachlor epoxide	NOT DETECTED	Expected RT = 9.193		
21) gamma-Chlordane	NOT DETECTED	Expected RT = 9.423		
22) alpha-Chlordane	NOT DETECTED	Expected RT = 9.640		
23) Endosulfan I	NOT DETECTED	Expected RT = 9.816		
24) 4,4'-DDE	9.882	535863	0.007	2.228 ug/Kg
25) Dieldrin	NOT DETECTED	Expected RT = 10.254		
28) Endrin	NOT DETECTED	Expected RT = 10.553		
27) Toxaphene	NOT DETECTED	Expected RT = 10.631		
30) 4,4'-DDD	NOT DETECTED	Expected RT = 10.814		
31) Chlorobenzilate	NOT DETECTED	Expected RT = 10.908		
29) Kepone	NOT DETECTED	Expected RT = 10.937		
32) Endosulfan II	NOT DETECTED	Expected RT = 10.939		
34) 4,4'-DDT	11.311	434443	0.007	2.401 ug/Kg
36) Endrin aldehyde	NOT DETECTED	Expected RT = 11.745		
37) Methoxychlor	NOT DETECTED	Expected RT = 12.470		
38) Endosulfan sulfate	NOT DETECTED	Expected RT = 12.729		
41) ENDO2/DDD	13.269	21944	0.000	0.000 ug/Kg
39) Endrin ketone	NOT DETECTED	Expected RT = 13.271		
42) Decachlorobiphenyl	NOT DETECTED	Expected RT = 14.974		

DDE

$$\frac{\%\ D\cdot S}{\frac{2.228 - 2.170}{2.170}\ (100)} = 2.67\%$$

DDT

$$\frac{2.401 - 2.313}{2.313}\ (100) = 3.8\%$$

MPT-AC-SV-02-05

COMPOUNDS and EXP. RT REPORT

Operator: 001808 Date Acquired: 08-AUG-2000 17:50
Data File: /chem/can/gcs/a2hp5.i/00807a-r.b/088f8801.d
Lab Sample ID: DH9R6104
Misc. Info:
Instrument: a2hp5.i
Method: /chem/can/gcs/a2hp5.i/00807a-r.b/pesthp5b.m
Dilution Factor: 1

Compound	RT	Area	Amount	Conc
4) Tetrachloro-m-xylene	5.981	997133	0.012	0.118 ug/Kg
3) Hexachlorobenzene	NOT DETECTED	Expected RT = 6.944		
5) Diallate	7.052	8617	0.005	1.678 ug/Kg
11) alpha-BHC	NOT DETECTED	Expected RT = 7.291		
13) gamma-BHC (Lindane)	NOT DETECTED	Expected RT = 7.936		
21) beta-BHC	NOT DETECTED	Expected RT = 8.168		
22) delta-BHC	NOT DETECTED	Expected RT = 8.700		
16) Heptachlor	NOT DETECTED	Expected RT = 8.742		
7) Tech Chlordane	NOT DETECTED	Expected RT = 8.742		
18) Aldrin	NOT DETECTED	Expected RT = 9.323		
14) Isodrin	NOT DETECTED	Expected RT = 9.941		
23) Heptachlor epoxide	NOT DETECTED	Expected RT = 10.347		
26) gamma-Chlordane	NOT DETECTED	Expected RT = 10.595		
28) alpha-Chlordane	NOT DETECTED	Expected RT = 10.848		
24) Endosulfan I	NOT DETECTED	Expected RT = 10.913		
29) 4,4'-DDE	11.243	586584	0.007	2.170 ug/Kg
31) Dieldrin	NOT DETECTED	Expected RT = 11.440		
30) Toxaphene	NOT DETECTED	Expected RT = 11.944		
33) Endrin	NOT DETECTED	Expected RT = 12.042		
27) Chlorobenzilate	12.286	57538	0.005	1.622 ug/Kg
37) 4,4'-DDD	NOT DETECTED	Expected RT = 12.510		
25) Kepone	12.512	56042	0.005	1.652 ug/Kg
36) Endosulfan II	NOT DETECTED	Expected RT = 12.542		
38) 4,4'-DDT	13.227	418398	0.007	2.313 ug/Kg
40) Endrin aldehyde	NOT DETECTED	Expected RT = 13.389		
42) Endosulfan sulfate	NOT DETECTED	Expected RT = 13.880		
43) Methoxychlor	NOT DETECTED	Expected RT = 14.483		
39) Endrin ketone	NOT DETECTED	Expected RT = 14.681		
45) Decachlorobiphenyl	16.359	926657	0.016	0.155 ug/Kg

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE ____ OF ____

CLIENT	JOB NUMBER		
NS Mayport			
SUBJECT: Sample Calc.			
BASED ON: MPT-AC-SU-02-05 (DH4R6104)	DRAWING NUMBER		
BY: DSS	CHECKED BY	APPROVED BY	DATE: 10/23/00

Fraction: Pesticide
Matrix: Soil
Compound: 4,4'-DDE on Column 5a
Form I: 2.9 ug/kg

$$ug/kg = \frac{A_x (V_t)(DF)(GPC)}{\overline{CF}(V_i)(W_s)(D)}$$

A_x = 535863 Area

V_t = 10000 ul

DF = 1

GPC = 1

$\overline{CF}$ = 79789048 $\frac{Area}{ng}$

V_i = 1.0 ul

W_s = 30.14 g

D = 0.76 % Solid

$$= \frac{535863\ Area\ (10000\ ul)(1)(1)}{79789048\ \frac{Area}{ng}\ (1.0\ ul)(30.14\ g)(0.76)}$$

$$= 2.93\ \frac{ng}{g}\ \text{or}\ ug/kg$$

SEVERN TRENT LABORATORIES, INC.-NORTH CANTON

Data file : /chem/can/gcs/a2hp5.i/00807a.b/088f8801.d
Lab Smp Id: DH9R6104 Client Smp ID: MPT-AC-SU-02-05
Inj Date : 08-AUG-2000 17:50
Operator : 001808 Inst ID: a2hp5.i
Smp Info : DH9R6104
Misc Info :
Comment :
Method : /chem/can/gcs/a2hp5.i/00807a.b/pesthp5a.m
Meth Date : 09-Aug-2000 16:10 lip Quant Type: ESTD
Cal Date : 03-AUG-2000 03:23 Cal File: 050f5001.d
Als bottle: 88
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: pestap9.sub
Target Version: 3.50 Sample Matrix: SOIL

Concentration Formula: Amt * DF * Vt*Vi/Ws * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	10000.00000	Volume of final extract
Vi	1.00000	volume injected
Ws	30.14000	initial volume of sample

Cpnd Variable Local Compound Variable

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	CONCENTRATIONS FINAL (ug/Kg)	TARGET RANGE	RATIO
$ 3 Tetrachloro-m-xylene					CAS #: 877-09-8		
5.023	5.123	-0.100	475827	0.01149	0.1149	80.00- 120.00	100.00
6 Hexachlorobenzene					CAS #: 118-74-1		
Qualifier signal(s) failed ratio test.							
9 Diallate					CAS #: 2303-16-4		
Peaks not detected for Quant. or Qual. signal(s).							

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ng)	CONCENTRATIONS FINAL (ug/Kg)	TARGET RANGE	RATIO
21 gamma-Chlordane					CAS #: 5103-74-2		
Compound Not Detected							
22 alpha-Chlordane					CAS #: 5103-71-9		
Compound Not Detected							
24 4,4'-DDE					CAS #: 72-55-9		
9.867	9.967	-0.100	535863	0.00672	2.228	80.00- 120.00	100.00
23 Endosulfan I					CAS #: 959-98-8		
Compound Not Detected							
25 Dieldrin					CAS #: 60-57-1		
Compound Not Detected							
28 Endrin					CAS #: 72-20-8		
Compound Not Detected							
30 4,4'-DDD					CAS #: 72-54-8		
Compound Not Detected							
41 ENDO2/DDD					CAS #:		
13.218	13.318	-0.100	8320			0.00- 20.00	100.00
32 Endosulfan II					CAS #: 33213-65-9		
Compound Not Detected							
27 Toxaphene					CAS #: 8001-35-2		
Peaks not detected for Quant. or Qual. signal(s).							
16 Tech Chlordane					CAS #: 57-74-9		
Peaks not detected for Quant. or Qual. signal(s).							
34 4,4'-DDT					CAS #: 50-29-3		
11.273	11.373	-0.100	434443	0.00724	2.401	80.00- 120.00	100.00

$\frac{2.228}{0.76} = 2.93$

RQC058

Severn Trent Laboratories, Inc.
EXTRACTION BENCH WORKSHEET

Run Date: 8/06/00
Time: 18:28:44

QC BATCH: 0216335

PREP DATE: 8/04/00
COMP DATE: 8/04/00

EXTR EXPR	ANL DUE	LOT#,MSRUN#/ WORK ORDER	TEST FLGS	EXT	MTH	MATRIX	INIT/FIN WT/VOL	PH*S INIT	PH*S ADJ1	PH*S ADJ2	SOLVENTS EXTRACTION	VOL	EXCHANGE	VOL	SPIKE STANDARD/ SURROGATE ID
8/15/00	8/22/00	A0H030185-005 DH9MK-1-03	D	11	QJ	SOLID	30.18g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML 2/.2 #3732
COMMENTS:															
8/15/00	8/22/00	A0H030185-002 DH9M9-1-03	D	11	QJ	SOLID	30.01g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML 2/.2 #3732
COMMENTS:															
8/16/00	8/23/00	A0H030201-001 DH9PW-1-04	D	11	QJ	SOLID	30.02g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML 2/.2 #3732
COMMENTS:															
8/14/00	0/00/00	A0H030000-335 DH9QQ-1-01B		11	QJ	SOLID	30.00g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML 2/.2 #3732
COMMENTS:															
8/14/00	0/00/00	A0H030000-335 DH9QQ-1-02C		11	QJ	SOLID	30.00g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML NPDES #3734 1.0ML 2/.2 #3732
COMMENTS:															
8/14/00	0/00/00	A0H030000-335 DH9QQ-1-03L	R	11	QJ	SOLID	30.00g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML NPDES #3734 1.0ML 2/.2 #3732
COMMENTS:															
8/16/00	8/23/00	A0H030201-002 DH9R6-1-04	D	11	QJ	SOLID	30.14g 10.00mL	NA	NA	NA	DCM/ACE	300.0	HEXANE	50.0	1.0ML 2/.2 #3732
COMMENTS:															

S/S BY D.T.
DCM #T03281 ACE #H451-T08465 NA2SO4 #8024-T04644
ASSOC. BLK AND SAMPLES W/ 0216336

R = RUSH C = CLP
E = EPA 600 D = EXP.DEL)
M = CLIENT REQ MS/MSD

NUMBER OF WORK ORDERS IN BATCH: 14

SDG NARRATIVE

MP024

GC SEMIVOLATILES – 8082

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP024

GC Column: RTX-CLP PESTICIDES ID: 0.32 (mm) Init. Calib. Date(s): 07/09/00 07

Instrument ID: A2HP2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	MEAN SURROGATE RT FROM INITIAL CALIBRATION					
	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
01		2154 0.5	08/09/00	1005		
02		1248 0.5	08/09/00	1022		
03		1242 0.5	08/09/00	1038		
04		1232 0.5	08/09/00	1055		
05		1660 0.5	08/10/00	0056		
06	DH9R1BLK	DH9R1101	08/10/00	0146		
07	DH9R1CHK	DH9R1102	08/10/00	0203		
08	DH9R1CHKDUP	DH9R1103	08/10/00	0219		
09	MPT-AC-SU-01	DH9PW103	08/10/00	0503		
10	MPT-AC-SU-02	DH9R6103	08/10/00	0520		
11		1660 0.5	08/10/00	0553		
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**FEBRUARY 16, 2001**
FROM:	**ERIN M. FAUST**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, TIN AND CYANIDE**
CTO-094 NS MAYPORT
SAMPLE DELIVERY GROUP (SDG) – MP028

SAMPLES: 1/Aqueous/

MPT-AC-SW01-01

1/Sediment/

MPT-AC-SD01-01

Overview

The sample set for CTO 094, NS Mayport, SDG MP028, consists of one (1) aqueous environmental sample and one (1) sediment environmental sample.

The aqueous sample was analyzed for target analyte list (TAL) metals, tin and cyanide. The sediment sample was analyzed for TAL metals and cyanide. The samples were collected by TetraTech NUS on November 11, 2000 and analyzed by Severn Trent Laboratories under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury were conducted using SW 846 method 6010B. Mercury analyses were conducted using SW 846 method 7470A and 7471A. Cyanide analyses were conducted using SW 846 method 9012A.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
* • Laboratory Control Sample Results
* • ICP Interference Check Sample Results
• Matrix Spike / Matrix Spike Duplicate Recoveries
• Laboratory Duplicate Results
• ICP Serial Dilution Results
* • Sample Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level(aqueous)	Action Level (sediment)
Aluminum	25.4 µg/L	127 µg/L	12.7 mg/kg
Antimony	6.5 µg/L	32.5 µg/L	3.25 mg/kg
Barium[2]	0.14 mg/kg	NA	0.70 mg/kg
Beryllium	0.6 µg/L	3.0 µg/L	0.30 mg/kg
Calcium[2]	16.1 mg/kg	NA	80.5 mg/kg
Chromium	2.6 µg/L	13.0 µg/L	1.3 mg/kg
Iron	38.5 µg/L	192.5 µg/L	19.25 mg/kg
Magnesium[2]	3.8 mg/kg	NA	19.0 mg/kg
Manganese[1]	2.7 µg/L	13.5 µg/L	1.35 mg/kg
Potassium	82.4 µg/L	412 µg/L	41.2 mg/kg
Sodium	579 µg/L	2895 µg/L	289.5 mg/kg
Tin	3.7 µg/L	18.5 µg/L	NA
Thallium[2]	0.65 mg/kg	NA	3.25 mg/kg
Vanadium	2.1 µg/L	10.5 µg/L	1.05 mg/kg
Zinc[2]	1.2 mg/kg	NA	6.0 mg/kg
Zinc[1]	4.1 µg/L	20.5 µg/L	NA

[1] Maximum concentration present in an aqueous preparation blank.
[2] Maximum concentration present in a sediment preparation blank.

An action level of 5X the maximum concentration were used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors and percent solids were taken into consideration when evaluation for blank contamination. Positive results less than the blank action levels for chromium, iron, manganese and zinc in the aqueous matrix and chromium, potassium, vanadium and zinc in the sediment matrix were qualified, "U", as a result of blank contamination and should not be considered present. No qualification action was required for the remaining analytes since all results were either nondetected or greater than the action level.

Matrix Spike/Matrix Spike Duplicate Results

The matrix spike (MS) and matrix spike duplicate (MSD) percent recoveries (%Rs) were >125% quality control limit for aluminum and iron in the sediment matrix. Positive results reported for aluminum and iron in the sediment matrix were qualified as estimated, "J" and should be considered biased high.

ICP Serial Dilution Results

The ICP serial dilution percent difference (%D) was >10% quality control limit for barium in the sediment matrix. The positive result reported for barium in the sediment matrix was qualified as estimated, "J". A direction of bias could not be determined.

Notes

The matrix spike percent recovery was < 75% quality control limit for cyanide in the aqueous matrix. The matrix spike for cyanide was performed on a sample that was not from this SDG, therefore, no validation action was taken.

The matrix spike percent recovery was >125% quality control limit for iron in the aqueous matrix. No validation action was taken since the result reported for iron in the aqueous matrix was qualified "U" as a result of laboratory blank contamination.

Laboratory duplicate imprecision (RPD>20%) from the percent difference between the matrix spike (MS) and matrix spike duplicate (MSD) was noted for zinc in the aqueous matrix. No validation action was taken since the result reported for zinc in the aqueous matrix was qualified "U" as a result of laboratory blank contamination.

Laboratory duplicate imprecision (RPD>20%) from the percent difference between the matrix spike (MS) and matrix spike duplicate (MSD) was noted for cyanide in the aqueous matrix. The matrix spike and matrix spike for cyanide were performed on a sample that was not from this SDG, therefore, no validation action was taken.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: Aluminum and iron were qualified due to MS/MSD noncompliance in the sediment matrix. Barium was qualified due to ICP serial dilution noncompliance in the sediment matrix.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

TetraTech 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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001		
QC_TYPE:	NORMAL		
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	18.8	U										
ANTIMONY	4.3	U										
ARSENIC	3.6	U										
BARIUM	21.6											
BERYLLIUM	0.20	U										
CADMIUM	0.40	U										
CALCIUM	36400											
CHROMIUM	2.5	U	A									
COBALT	2.2	U										
COPPER	1.9	U										
IRON	122	U	A									
LEAD	1.3	U										
MAGNESIUM	10800											
MANGANESE	12.1	U	A									
MERCURY	0.10	U										
NICKEL	1.9	U										
POTASSIUM	2100											
SELENIUM	4.3	U										
SILVER	3.1	U										
SODIUM	8950											
THALLIUM	5.3	U										
TIN	2.8	U										
VANADIUM	1.4	U										
ZINC	7.4	U	A									

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002			
QC_TYPE:	NORMAL			
% SOLIDS:	77.7 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ALUMINUM	317	J	D									
ANTIMONY	0.55	U										
ARSENIC	0.98											
BARIUM	2.4	J	I									
BERYLLIUM	0.03	U										
CADMIUM	0.05	U										
CALCIUM	565											
CHROMIUM	1.3	U	A									
COBALT	0.84											
COPPER	0.25	U										
IRON	493	J	D									
LEAD	0.32											
MAGNESIUM	35.6											
MANGANESE	1.9											
MERCURY	0.02	U										
NICKEL	1.3											
POTASSIUM	13.1	U	A									
SELENIUM	0.55	U										
SILVER	0.40	U										
SODIUM	56.5	U										
THALLIUM	0.68	U										
VANADIUM	0.36	U	A									
ZINC	1.2	U	A									

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002			
QC_TYPE:	NORMAL			
% SOLIDS:	77.7 %	100.0 %	100.0 %	100.0 %
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE, TOTAL(MG/KG)	0.64	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE, TOTAL(UG/L)	19.1											

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DP3PK **Client ID:** MPT-AC-SW01-01

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	308.22	18.8	200	18.8	U	1	ICPST	11/29/00	12:03
Antimony	206.84	4.3	10.0	4.3	U	1	ICPST	11/29/00	12:03
Arsenic	189.04	3.6	10.0	3.6	U	1	ICPST	11/29/00	12:03
Barium	**493.41**	**0.40**	**200**	**21.6**	**B**	**1**	**ICPST**	**11/29/00**	**12:03**
Beryllium	313.04	0.20	5.0	0.20	U	1	ICPST	11/29/00	12:03
Cadmium	226.50	0.40	2.0	0.40	U	1	ICPST	11/29/00	12:03
Calcium	**317.93**	**8.2**	**5000**	**36400**		**1**	**ICPST**	**11/29/00**	**12:03**
Chromium	**267.72**	**2.0**	**5.0**	**2.5**	**B**	**1**	**ICPST**	**11/29/00**	**12:03**
Cobalt	228.62	2.2	7.0	2.2	U	1	ICPST	11/29/00	12:03
Copper	324.75	1.9	25.0	1.9	U	1	ICPST	11/29/00	12:03
Iron	**271.44**	**27.3**	**100**	**122**	**N***	**1**	**ICPST**	**11/29/00**	**12:03**
Lead	220.35	1.3	3.0	1.3	U	1	ICPST	11/29/00	12:03
Magnesium	**279.08**	**13.4**	**5000**	**10800**		**1**	**ICPST**	**11/29/00**	**12:03**
Manganese	**257.61**	**0.40**	**15.0**	**12.1**	**B**	**1**	**ICPST**	**11/29/00**	**12:03**
Mercury	253.7	0.10	0.20	0.10	U	1	CVAA	11/27/00	13:53
Nickel	231.60	1.9	40.0	1.9	U	1	ICPST	11/29/00	12:03
Potassium	**766.49**	**52.4**	**5000**	**2100**	**B**	**1**	**ICPST**	**11/29/00**	**12:03**
Selenium	196.03	4.3	5.0	4.3	U	1	ICPST	11/29/00	12:03
Silver	328.07	3.1	5.0	3.1	U	1	ICPST	11/29/00	12:03
Sodium	**330.23**	**439**	**5000**	**8950**		**1**	**ICPST**	**11/29/00**	**12:03**
Thallium	190.86	5.3	10.0	5.3	U	1	ICPST	11/29/00	12:03
Tin	189.99	2.8	50.0	2.8	U	1	ICPST	11/29/00	12:03
Vanadium	292.40	1.4	7.0	1.4	U	1	ICPST	11/29/00	12:03
Zinc	**213.86**	**0.60**	**20.0**	**7.4**	**B**	**1**	**ICPST**	**11/29/00**	**12:03**

Comments: Lot #: A0K170190 Sample #: 1

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DP3RF **Client ID:** MPT-AC-SD01-01

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 22.3

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	**308.22**	**2.4**	**25.7**	**317**	**N**	**1**	**ICPST**	**11/29/00**	**13:08**
Antimony	206.84	0.55	1.3	0.55	U	1	ICPST	11/29/00	13:08
Arsenic	**189.04**	**0.46**	**1.3**	**0.98**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Barium	**493.41**	**0.052**	**25.7**	**2.4**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Beryllium	313.04	0.026	0.64	0.026	U	1	ICPST	11/29/00	13:08
Cadmium	226.50	0.052	0.26	0.052	U	1	ICPST	11/29/00	13:08
Calcium	**317.93**	**1.1**	**644**	**565**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Chromium	**267.72**	**0.26**	**0.64**	**1.3**		**1**	**ICPST**	**11/29/00**	**13:08**
Cobalt	**228.62**	**0.28**	**0.90**	**0.84**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Copper	324.75	0.25	3.2	0.25	U	1	ICPST	11/29/00	13:08
Iron	**271.44**	**3.5**	**12.9**	**493**	**N**	**1**	**ICPST**	**11/29/00**	**13:08**
Lead	**220.35**	**0.17**	**0.39**	**0.32**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Magnesium	**279.08**	**1.7**	**644**	**35.6**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Manganese	**257.61**	**0.052**	**1.9**	**1.9**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Mercury	253.7	0.022	0.043	0.022	U	1	CVAA	11/28/00	7:46
Nickel	**231.60**	**0.25**	**5.2**	**1.3**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Potassium	**766.49**	**6.7**	**644**	**13.1**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Selenium	196.03	0.55	0.64	0.55	U	1	ICPST	11/29/00	13:08
Silver	328.07	0.40	0.64	0.40	U	1	ICPST	11/29/00	13:08
Sodium	330.23	56.5	644	56.5	U	1	ICPST	11/29/00	13:08
Thallium	190.86	0.68	1.3	0.68	U	1	ICPST	11/29/00	13:08
Vanadium	**292.40**	**0.18**	**0.90**	**0.36**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**
Zinc	**213.86**	**0.077**	**2.6**	**1.2**	**B**	**1**	**ICPST**	**11/29/00**	**13:08**

Comments: Lot #: A0K170190 Sample #: 2

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SW01-01

General Chemistry

Lot-Sample #...: A0K170190-001 **Work Order #...:** DP3PK **Matrix.....:** WG
Date Sampled...: 11/15/00 **Date Received..:** 11/16/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	**19.1**	**10.0**	**ug/L**	**SW846 9012A**	**11/29/00**	**0334161**
	MDL.....: 3.3					

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SD01-01

General Chemistry

Lot-Sample #...: A0K170190-002 Work Order #...: DP3RF Matrix.....: SO
Date Sampled...: 11/15/00 Date Received..: 11/16/00

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.64	mg/kg	SW846 9012A	11/28/00	0333343
	MDL.....: 0.22					
Percent Solids	**77.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**11/17-11/20/00**	**0322423**
	MDL.....: 10.0					

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

APPENDIX C
SUPPORT DOCUMENTATION

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 2

PROJECT NO: N0199	SITE NAME: AOC C	PROJECT MANAGER AND PHONE NUMBER: T. Hansen	LABORATORY NAME AND CONTACT: Quanterra/STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: T. Thompson	ADDRESS: 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER: Fed Ex	CITY, STATE: N Canton, OH

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: App IX VOA	App IX SVOA	App IX Nonhalogenated	App IX Pesticides	App IX Organochlorine Herbicides	App IX Organophosphorous Pesticides	LL TAL Metals + Tin	Cyanide	COMMENTS
							HCl	–	–	–	–	–	–	HNO3	NaOH	
11/15	1245	MPT-AC-SW01-01	SW	G	13			X	X	X	X	X	X	X	X	Cool to 4°C

1. RELINQUISHED BY	DATE 11/15/00	TIME 1700	1. RECEIVED BY		DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY		DATE 11/16/00	TIME 9:15
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY		DATE	TIME

COMMENTS: 3.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

13

STL North Canton

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER | PAGE 2 OF 2

PROJECT NO: N0199	SITE NAME: AOC C	PROJECT MANAGER AND PHONE NUMBER: T. Hansen	LABORATORY NAME AND CONTACT: Quanterra / STL
SAMPLERS (SIGNATURE): Charles Walker		FIELD OPERATIONS LEADER AND PHONE NUMBER: T. Thompson	ADDRESS: 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER: Fed Ex	CITY, STATE: N. Canton, OH

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: CLP TCL VOC	CLP TCL SVOC	CLP TCL Pesticides	CLP TCL PCBs	CLP TAL Metals	Cyanide	App IX PCBs	COMMENTS
11/15	1250	MPT-AC-SD01-01	S	G	5			X	X	X	X	X	X		Cool to 4°C
11/15	1245	MPT-AC-SW01-01	SW	G	13								X		
		TB111500	W		1			X							

1. RELINQUISHED BY	DATE 11/15/00	TIME 1700	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE 11/16/00	TIME 9:15
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: 3.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

STL North Canton

12

MP028

HOLDING TIME
12/22/00

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	CN	11/15/00	11/28/00	11/28/00	13	0	13
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	CN	11/15/00	11/29/00	11/29/00	14	0	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	HERB	11/15/00	11/21/00	11/30/00	6	9	15
MG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	HG	11/15/00	11/27/00	11/28/00	12	1	13
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	HG	11/15/00	11/27/00	11/27/00	12	0	12
MG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	M	11/15/00	11/27/00	11/29/00	12	2	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	M	11/15/00	11/27/00	11/29/00	12	2	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	OPEST	11/15/00	11/21/00	11/29/00	6	8	14
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	OS	11/15/00	11/17/00	11/27/00	2	10	12
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	OS	11/15/00	11/20/00	11/28/00	5	8	13
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	OV	11/15/00	11/28/00	11/28/00	13	0	13
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	OV	11/15/00	11/24/00	11/24/00	9	0	9
UG/L	TB111500	A0K170190003	TRIP BLANK	MP028	OV	11/15/00	11/24/00	11/24/00	9	0	9
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	PCB	11/15/00	11/17/00	11/29/00	2	12	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	PCB	11/15/00	11/20/00	12/04/00	5	14	19
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	PEST	11/15/00	11/17/00	12/03/00	2	16	18
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	PEST	11/15/00	11/20/00	12/03/00	5	13	18

ANALYTICAL METHODS SUMMARY

A0K170190

PARAMETER	ANALYTICAL METHOD
Chlorinated Herbicides by GC	SW846 8151A
Cyanide, Total	SW846 9012A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Organochlorine Pesticides	SW846 8081A
Organophosphorous Compounds by GC	SW846 8141A
PCBs by SW-846 8082	SW846 8082
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A0K170190

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
DP3PK	001	MPT-AC-SW01-01	11/15/00	12:45
DP3RF	002	MPT-AC-SD01-01	11/15/00	12:50
DP3VK	003	TB111500	11/15/00	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

SDG NARRATIVE
MP028

METALS

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Sample(s) that contain results between the IDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are ± the standard reporting limit (SRL).

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP028

GENERAL CHEMISTRY

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS/Sample Duplicate Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 11/27/00 10:53 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.50	100.0								

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11128a.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 11/28/00 7:35 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.57	102.9								

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ICPST **Units:** ug/L

Chart Number: i61129a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICV 11/29/00 9:56 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	12500.0	12518.48	100.1								
Antimony	206.838	250.0	253.14	101.3								
Arsenic	189.042	250.0	254.80	101.9								
Barium	493.409	1000.0	1001.13	100.1								
Beryllium	313.042	1000.0	1040.26	104.0								
Cadmium	226.502	250.0	256.21	102.5								
Calcium	317.933	25000.0	25436.79	101.7								
Chromium	267.716	1000.0	1015.36	101.5								
Cobalt	228.616	1000.0	1009.35	100.9								
Copper	324.753	1000.0	1005.55	100.6								
Iron	271.441	12500.0	13130.23	105.0								
Lead	220.353	250.0	257.61	103.0								
Magnesium	279.078	25000.0	25112.85	100.5								
Manganese	257.61	1000.0	1022.40	102.2								
Nickel	231.604	1000.0	1032.75	103.3								
Potassium	766.491	25000.0	26725.06	106.9								
Selenium	196.026	250.0	256.40	102.6								
Silver	328.068	500.0	500.21	100.0								
Sodium	330.232	25000.0	25515.35	102.1								
Thallium	190.864	500.0	531.42	106.3								
Tin	189.989	1000.0	941.52	94.2								
Vanadium	292.402	1000.0	1006.79	100.7								
Zinc	213.856	1000.0	1031.13	103.1								

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 11/27/00 10:57 AM Found	% Rec	Ck2CCV 11/27/00 11:14 AM Found	% Rec	Ck2CCV 11/27/00 11:29 AM Found	% Rec	Ck2CCV 11/27/00 11:45 AM Found	% Rec	Ck2CCV 11/27/00 11:57 AM Found	% Rec
Mercury	253.7	5.0	5.00	100.0	4.79	95.7	4.86	97.3	4.90	98.0	4.88	97.6

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 11/27/00 12:07 PM Found	% Rec	Ck2CCV 11/27/00 12:12 PM Found	% Rec	Ck2CCV 11/27/00 1:14 PM Found	% Rec	Ck2CCV 11/27/00 1:30 PM Found	% Rec	Ck2CCV 11/27/00 1:45 PM Found	% Rec
Mercury	253.7	5.0	4.86	97.1	4.86	97.3	4.88	97.6	5.07	101.4	5.02	100.4

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 11/27/00 2:00 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.00	100.0								

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11128a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 11/28/00 7:39 AM Found	% Rec	Ck2CCV 11/28/00 7:55 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.13	102.6	5.25	104.9						

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: i61129a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 11/29/00 10:47 AM Found	% Rec	CCV 11/29/00 12:37 PM Found	% Rec	CCV 11/29/00 12:56 PM Found	% Rec	CCV 11/29/00 1:58 PM Found	% Rec	Found	% Rec
Aluminum	308.215	25000.0	24840.52	99.4	24390.89	97.6	24363.28	97.5	24080.36	96.3		
Antimony	206.838	500.0	508.93	101.8	498.42	99.7	495.21	99.0	492.99	98.6		
Arsenic	189.042	500.0	504.89	101.0	500.03	100.0	492.29	98.5	488.69	97.7		
Barium	493.409	2000.0	2003.65	100.2	1982.91	99.1	1984.00	99.2	1956.71	97.8		
Beryllium	313.042	2000.0	2025.53	101.3	1996.11	99.8	1975.30	98.8	1953.79	97.7		
Cadmium	226.502	500.0	507.62	101.5	497.24	99.4	491.78	98.4	486.52	97.3		
Calcium	317.933	50000.0	49958.91	99.9	48622.63	97.2	48523.11	97.0	47990.09	96.0		
Chromium	267.716	2000.0	1999.93	100.0	1959.50	98.0	1946.67	97.3	1924.05	96.2		
Cobalt	228.616	2000.0	2018.57	100.9	1978.48	98.9	1959.40	98.0	1936.09	96.8		
Copper	324.753	2000.0	1976.50	98.8	1950.98	97.5	1960.00	98.0	1933.46	96.7		
Iron	271.441	25000.0	25627.36	102.5	25095.50	100.4	24927.17	99.7	24669.59	98.7		
Lead	220.353	500.0	505.98	101.2	498.09	99.6	488.10	97.6	485.12	97.0		
Magnesium	279.078	50000.0	51121.14	102.2	49888.97	99.8	49505.31	99.0	49075.15	98.2		
Manganese	257.61	2000.0	2012.08	100.6	1971.74	98.6	1955.81	97.8	1935.46	96.8		
Nickel	231.604	2000.0	2029.49	101.5	2005.08	100.3	1967.03	98.4	1946.80	97.3		
Potassium	766.491	50000.0	51065.11	102.1	50450.55	100.9	50238.09	100.5	49867.21	99.7		
Selenium	196.026	500.0	501.67	100.3	494.59	98.9	493.05	98.6	488.69	97.7		
Silver	328.068	1000.0	989.58	99.0	975.17	97.5	973.56	97.4	961.52	96.2		
Sodium	330.232	50000.0	50213.29	100.4	49328.30	98.7	49716.04	99.4	48851.73	97.7		
Thallium	190.864	1000.0	1006.93	100.7	984.65	98.5	982.70	98.3	977.11	97.7		
Tin	189.989	5000.0	4995.37	99.9	4905.95	98.1	4841.58	96.8	4788.60	95.8		
Vanadium	292.402	2000.0	1979.95	99.0	1942.80	97.1	1936.10	96.8	1914.32	95.7		
Zinc	213.856	2000.0	2018.15	100.9	1984.42	99.2	1969.32	98.5	1947.05	97.4		

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 11/27/00 10:55 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	0.1	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11128a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 11/28/00 7:37 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	0.1	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i61129a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 11/29/00 10:02 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	18.8	U								
Antimony	206.838	10	4.3	U								
Arsenic	189.042	10	3.6	U								
Barium	493.409	200	0.4	B								
Beryllium	313.042	5	0.4	B								
Cadmium	226.502	2	0.4	U								
Calcium	317.933	5000	8.2	U								
Chromium	267.716	5	2.6	B								
Cobalt	228.616	7	2.2	U								
Copper	324.753	25	1.9	U								
Iron	271.441	100	27.3	U								
Lead	220.353	3	1.3	U								
Magnesium	279.078	5000	13.4	U								
Manganese	257.61	15	0.5	B								
Nickel	231.604	40	1.9	U								
Potassium	766.491	5000	82.4	B								
Selenium	196.026	5	4.3	U								
Silver	328.068	5	3.1	U								
Sodium	330.232	5000	579.0	B								
Thallium	190.864	10	5.3	U								
Tin	189.989	50	2.8	U								
Vanadium	292.402	7	1.5	B								
Zinc	213.856	20	0.6	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 11/27/00 10:58 AM		Ck1CCB 11/27/00 11:15 AM		Ck1CCB 11/27/00 11:30 AM		Ck1CCB 11/27/00 11:46 AM		Ck1CCB 11/27/00 11:59 AM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CklCCB 11/27/00 12:08 PM		CklCCB 11/27/00 12:14 PM		CklCCB 11/27/00 1:15 PM		CklCCB 11/27/00 1:32 PM		CklCCB 11/27/00 1:46 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11127a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 11/27/00 2:01 PM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	0.1	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11128a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 11/28/00 7:40 AM Found	Q	Ck1CCB 11/28/00 7:56 AM Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.2	0.1	U	0.1	U						

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i61129a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 11/29/00 10:54 AM Found	Q	CCB 11/29/00 12:44 PM Found	Q	CCB 11/29/00 1:03 PM Found	Q	CCB 11/29/00 2:05 PM Found	Q	Found	Q
Aluminum	308.215	200	25.4	B	18.8	U	18.8	U	18.8	U		
Antimony	206.838	10	4.3	U	6.5	B	4.3	U	4.3	U		
Arsenic	189.042	10	3.6	U	3.6	U	3.6	U	3.6	U		
Barium	493.409	200	0.7	B	0.6	B	0.5	B	0.7	B		
Beryllium	313.042	5	0.6	B	0.5	B	0.5	B	0.5	B		
Cadmium	226.502	2	0.4	U	0.4	U	0.4	U	0.4	U		
Calcium	317.933	5000	38.5	B	19.7	B	19.6	B	20.8	B		
Chromium	267.716	5	2.0	U	2.0	U	2.0	U	2.0	U		
Cobalt	228.616	7	2.2	U	2.2	U	2.2	U	2.2	U		
Copper	324.753	25	1.9	U	1.9	U	1.9	U	1.9	U		
Iron	271.441	100	27.3	U	38.5	B	27.3	U	27.3	U		
Lead	220.353	3	1.3	U	1.3	U	1.3	U	1.3	U		
Magnesium	279.078	5000	14.0	B	13.4	U	13.4	U	13.4	U		
Manganese	257.61	15	0.6	B	0.8	B	0.6	B	0.6	B		
Nickel	231.604	40	1.9	U	1.9	U	1.9	U	1.9	U		
Potassium	766.491	5000	52.4	U	52.4	U	52.4	U	52.4	U		
Selenium	196.026	5	4.3	U	4.3	U	4.3	U	4.3	U		
Silver	328.068	5	3.1	U	3.1	U	3.1	U	3.1	U		
Sodium	330.232	5000	439.0	U	439.0	U	439.0	U	439.0	U		
Thallium	190.864	10	5.3	U	5.3	U	5.3	U	5.3	U		
Tin	189.989	50	2.8	U	3.7	B	2.8	U	2.8	U		
Vanadium	292.402	7	1.4	U	2.1	B	1.4	U	1.4	U		
Zinc	213.856	20	0.6	U	0.6	U	0.6	U	0.6	U		

U Result is less than the IDL
B Result is between IDL and RL

STL North Canton

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: DQD17B

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	308.215	18.8	200	-38	B	1	ICPST	11/29/00	11:52
Antimony	206.838	4.3	10.0	4.3	U	1	ICPST	11/29/00	11:52
Arsenic	189.042	3.6	10.0	3.6	U	1	ICPST	11/29/00	11:52
Barium	493.409	0.40	200	0.40	U	1	ICPST	11/29/00	11:52
Beryllium	313.042	0.20	5.0	0.20	U	1	ICPST	11/29/00	11:52
Cadmium	226.502	0.40	2.0	0.40	U	1	ICPST	11/29/00	11:52
Calcium	**317.933**	**8.2**	**5000**	**41.3**	**B**	**1**	**ICPST**	**11/29/00**	**11:52**
Chromium	267.716	2.0	5.0	2.0	U	1	ICPST	11/29/00	11:52
Cobalt	228.616	2.2	7.0	2.2	U	1	ICPST	11/29/00	11:52
Copper	324.753	1.9	25.0	1.9	U	1	ICPST	11/29/00	11:52
Iron	271.441	27.3	100	27.3	U	1	ICPST	11/29/00	11:52
Lead	220.353	1.3	3.0	1.3	U	1	ICPST	11/29/00	11:52
Magnesium	279.078	13.4	5000	13.4	U	1	ICPST	11/29/00	11:52
Manganese	**257.61**	**0.40**	**15.0**	**2.7**	**B**	**1**	**ICPST**	**11/29/00**	**11:52**
Mercury	253.7	0.10	0.20	-0.11	B	1	CVAA	11/27/00	13:51
Nickel	231.604	1.9	40.0	1.9	U	1	ICPST	11/29/00	11:52
Potassium	766.491	52.4	5000	52.4	U	1	ICPST	11/29/00	11:52
Selenium	196.026	4.3	5.0	4.3	U	1	ICPST	11/29/00	11:52
Silver	328.068	3.1	5.0	3.1	U	1	ICPST	11/29/00	11:52
Sodium	330.232	439	5000	439	U	1	ICPST	11/29/00	11:52
Thallium	190.864	5.3	10.0	5.3	U	1	ICPST	11/29/00	11:52
Tin	189.989	2.8	50.0	2.8	U	1	ICPST	11/29/00	11:52
Vanadium	292.402	1.4	7.0	1.4	U	1	ICPST	11/29/00	11:52
Zinc	**213.856**	**0.60**	**20.0**	**4.1**	**B**	**1**	**ICPST**	**11/29/00**	**11:52**

Comments: Lot #: A0K170190

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: DQD13B

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 1.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	308.215	1.9	20.0	1.9	U	1	ICPST	11/29/00	12:25
Antimony	206.838	0.43	1.0	0.43	U	1	ICPST	11/29/00	12:25
Arsenic	189.042	0.36	1.0	0.36	U	1	ICPST	11/29/00	12:25
Barium	**493.409**	**0.040**	**20.0**	**0.14**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**
Beryllium	313.042	0.020	0.50	0.020	U	1	ICPST	11/29/00	12:25
Cadmium	226.502	0.040	0.20	0.040	U	1	ICPST	11/29/00	12:25
Calcium	**317.933**	**0.82**	**500**	**16.1**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**
Chromium	267.716	0.20	0.50	0.20	U	1	ICPST	11/29/00	12:25
Cobalt	228.616	0.22	0.70	0.22	U	1	ICPST	11/29/00	12:25
Copper	324.753	0.19	2.5	0.19	U	1	ICPST	11/29/00	12:25
Iron	**271.441**	**2.7**	**10.0**	**2.9**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**
Lead	220.353	0.13	0.30	0.13	U	1	ICPST	11/29/00	12:25
Magnesium	**279.078**	**1.3**	**500**	**3.8**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**
Manganese	**257.61**	**0.040**	**1.5**	**0.19**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**
Mercury	253.7	0.017	0.033	0.017	U	1	CVAA	11/28/00	7:42
Nickel	231.604	0.19	4.0	0.19	U	1	ICPST	11/29/00	12:25
Potassium	766.491	5.2	500	5.2	U	1	ICPST	11/29/00	12:25
Selenium	196.026	0.43	0.50	0.43	U	1	ICPST	11/29/00	12:25
Silver	328.068	0.31	0.50	0.31	U	1	ICPST	11/29/00	12:25
Sodium	330.232	43.9	500	43.9	U	1	ICPST	11/29/00	12:25
Thallium	**190.864**	**0.53**	**1.0**	**0.65**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**
Vanadium	292.402	0.14	0.70	0.14	U	1	ICPST	11/29/00	12:25
Zinc	**213.856**	**0.060**	**2.0**	**1.2**	**B**	**1**	**ICPST**	**11/29/00**	**12:25**

Comments:

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A0K170190 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQH1Q1AA		MB Lot-Sample #:	A0K280000-343	
	ND	0.50	mg/kg	SW846 9012A	11/28/00	0333343
		Dilution Factor: 1				
Percent Solids		Work Order #: DP4P41AA		MB Lot-Sample #:	A0K170000-423	
	ND	10.0	%	MCAWW 160.3 MOD	11/17-11/20/00	0322423
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A0K170190 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQGV81AA		MB Lot-Sample #:	A0K290000-161	
	ND	10.0	ug/L	SW846 9012A	11/29/00	0334161
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: i61129a.arc **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 11/29/00 10:13 AM Found	Found	Found	Found	Found
Aluminum	308.215		500000	492000				
Antimony	206.838	10		3				
Arsenic	189.042	10		5				
Barium	493.409	200		2				
Beryllium	313.042	5		0				
Cadmium	226.502	2		1				
Calcium	317.933		500000	508000				
Chromium	267.716	5		-3				
Cobalt	228.616	7		4				
Copper	324.753	25		3				
Iron	271.441		200000	199000				
Lead	220.353	3		-3				
Magnesium	279.078		500000	491000				
Manganese	257.61	15		8				
Nickel	231.604	40		3				
Potassium	766.491	5000		42				
Selenium	196.026	5		1				
Silver	328.068	5		1				
Sodium	330.232	5000		130				
Thallium	190.864	10		6				
Tin	189.989	50		-2				
Vanadium	292.402	7		-1				
Zinc	213.856	20		16				

Metals Data Reporting Form

Interference Check Standard AB

Instrument: ICPST **Units:** ug/L

Chart Number: i61129a.arc **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICSAB 11/29/00 10:40 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	500000	478029.8	95.6								
Antimony	206.838	1000	986.1	98.6								
Arsenic	189.042	1000	966.4	96.6								
Barium	493.409	500	504.2	100.8								
Beryllium	313.042	500	497.6	99.5								
Cadmium	226.502	1000	986.1	98.6								
Calcium	317.933	500000	498973.1	99.8								
Chromium	267.716	500	472.7	94.5								
Cobalt	228.616	500	474.3	94.9								
Copper	324.753	500	524.2	104.8								
Iron	271.441	200000	196025.8	98.0								
Lead	220.353	1000	967.2	96.7								
Magnesium	279.078	500000	484974.2	97.0								
Manganese	257.61	500	501.2	100.2								
Nickel	231.604	1000	933.3	93.3								
Potassium	766.491	10000	11405.2	114.1								
Selenium	196.026	1000	975.1	97.5								
Silver	328.068	1000	994.8	99.5								
Sodium	330.232	10000	10369.8	103.7								
Thallium	190.864	1000	976.2	97.6								
Tin	189.989	1000	969.8	97.0								
Vanadium	292.402	500	475.4	95.1								
Zinc	213.856	1000	1016.5	101.6								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed

Form 4 Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: DP3RFS

Original Sample ID: DP3RF **Client ID:** MPT-AC-SD01-01S

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 22.3

Element	WL/ Mass	OS Conc	O	MS Conc	O	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Aluminum	308.2	317		703	N	257.40	149.9	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Antimony	206.8	0.55	U	60.5		64.350	94.0	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Arsenic	189.0	0.98	B	233		257.40	90.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Barium	493.4	2.4	B	241		257.40	92.6	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Beryllium	313.0	0.026	U	6.0		6.4350	92.7	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Cadmium	226.5	0.052	U	6.0		6.4350	93.0	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Calcium	317.9	565	B	6490		6435.0	92.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Chromium	267.7	1.3		25.3		25.740	93.3	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Cobalt	228.6	0.84	B	58.6		64.350	89.8	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Copper	324.8	0.25	U	30.5		32.175	94.9	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Iron	271.4	493		701	N	128.70	161.3	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Lead	220.4	0.32	B	58.9		64.350	91.0	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Magnesium	279.1	35.6	B	5840		6435.0	90.2	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Manganese	257.6	1.9	B	62.0		64.350	93.5	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Mercury	253.7	0.022	U	0.24		0.2145	110.3	1	1	CVAA	11/28/00	7:46	11/28/00	7:47
Nickel	231.6	1.3	B	60.7		64.350	92.3	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Potassium	766.5	13.1	B	5970		6435.0	92.5	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Selenium	196.0	0.55	U	236		257.40	91.7	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Silver	328.1	0.40	U	6.6		6.4350	103.3	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Sodium	330.2	56.5	U	5920		6435.0	91.9	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Thallium	190.9	0.68	U	245		257.40	95.3	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Vanadium	292.4	0.36	B	59.9		64.350	92.5	1	1	ICPST	11/29/00	13:08	11/29/00	13:17
Zinc	213.9	1.2	B	62.3		64.350	95.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:17

Comments: Lot #: A0K170190 Sample #: 2

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID: DP3RFD

Original Sample ID: DP3RF **Client ID:** MPT-AC-SD01-01D

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 22.3

Element	WL/ Mass	OS Conc	Q	MSD Conc	Q	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.2	317	N	654	N	257.40	131.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Antimony	206.8	0.55	U	59.4		64.350	92.3	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Arsenic	189.0	0.98	B	229		257.40	88.6	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Barium	493.4	2.4	B	237		257.40	91.2	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Beryllium	313.0	0.026	U	6.0		6.4350	92.5	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Cadmium	226.5	0.052	U	5.9		6.4350	91.6	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Calcium	317.9	565	B	6390		6435.0	90.4	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Chromium	267.7	1.3		25.0		25.740	91.9	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Cobalt	228.6	0.84	B	57.9		64.350	88.6	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Copper	324.8	0.25	U	29.9		32.175	93.0	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Iron	271.4	493	N	664	N	128.70	132.4	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Lead	220.4	0.32	B	57.9		64.350	89.5	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Magnesium	279.1	35.6	B	5740		6435.0	88.6	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Manganese	257.6	1.9	B	73.6		64.350	111.4	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Mercury	253.7	0.022	U	0.24		0.2145	113.5	1	1	CVAA	11/28/00	7:46	11/28/00	7:48
Nickel	231.6	1.3	B	59.9		64.350	91.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Potassium	766.5	13.1	B	5680		6435.0	88.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Selenium	196.0	0.55	U	231		257.40	89.8	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Silver	328.1	0.40	U	6.5		6.4350	101.5	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Sodium	330.2	56.5	U	5800		6435.0	90.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Thallium	190.9	0.68	U	242		257.40	94.1	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Vanadium	292.4	0.36	B	59.1		64.350	91.4	1	1	ICPST	11/29/00	13:08	11/29/00	13:22
Zinc	213.9	1.2	B	60.3		64.350	92.0	1	1	ICPST	11/29/00	13:08	11/29/00	13:22

Comments: Lot #: A0K170190 Sample #: 2

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: DP3PKS

Original Sample ID: DP3PK **Client ID:** MPT-AC-SW01-01S

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	MS Conc	Q	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Aluminum	308.2	18.8	U	1870		2000	93.3	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Antimony	206.8	4.3	U	496		500	99.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Arsenic	189.0	3.6	U	1920		2000	95.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Barium	493.4	21.6	B	1900		2000	93.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Beryllium	313.0	0.20	U	48.1		50	96.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Cadmium	226.5	0.40	U	47.5		50	95.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Calcium	317.9	36400		83200		50000	93.6	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Chromium	267.7	2.5	B	190		200	93.5	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Cobalt	228.6	2.2	U	464		500	92.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Copper	324.8	1.9	U	238		250	95.4	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Iron	271.4	122		1670	N	1000	154.3	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Lead	220.4	1.3	U	473		500	94.6	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Magnesium	279.1	10800		58400		50000	95.2	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Manganese	257.6	12.1	B	496		500	96.7	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Mercury	253.7	0.10	U	0.93		1	92.5	1	1	CVAA	11/27/00	13:53	11/27/00	13:55
Nickel	231.6	1.9	U	480		500	96.0	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Potassium	766.5	2100	B	51600		50000	98.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Selenium	196.0	4.3	U	1970		2000	98.6	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Silver	328.1	3.1	U	53.5		50	107.0	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Sodium	330.2	8950		57600		50000	97.3	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Thallium	190.9	5.3	U	1980		2000	98.8	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Tin	190	2.8	U	1910		2000	95.6	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Vanadium	292.4	1.4	U	470		500	94.0	1	1	ICPST	11/29/00	12:03	11/29/00	12:13
Zinc	213.9	7.4	B	488		500	96.2	1	1	ICPST	11/29/00	12:03	11/29/00	12:13

Comments: Lot #: A0K170190 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID: DP3PKD

Original Sample ID: DP3PK **Client ID:** MPT-AC-SW01-01D

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	MSD Conc	Q	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.2	18.8	U	1890		2000	94.4	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Antimony	206.8	4.3	U	502		500	100.4	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Arsenic	189.0	3.6	U	1950		2000	97.3	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Barium	493.4	21.6	B	1930		2000	95.3	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Beryllium	313.0	0.20	U	48.8		50	97.7	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Cadmium	226.5	0.40	U	48.3		50	96.6	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Calcium	317.9	36400		84300		50000	95.7	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Chromium	267.7	2.5	B	192		200	94.7	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Cobalt	228.6	2.2	U	472		500	94.4	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Copper	324.8	1.9	U	242		250	96.6	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Iron	271.4	122	N	1160	*	1000	103.5	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Lead	220.4	1.3	U	480		500	95.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Magnesium	279.1	10800		59300		50000	96.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Manganese	257.6	12.1	B	500		500	97.7	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Mercury	253.7	0.10	U	0.96		1	95.8	1	1	CVAA	11/27/00	13:53	11/27/00	13:57
Nickel	231.6	1.9	U	490		500	97.9	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Potassium	766.5	2100	B	52200		50000	100.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Selenium	196.0	4.3	U	2000		2000	100.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Silver	328.1	3.1	U	54.6		50	109.2	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Sodium	330.2	8950		58300		50000	98.7	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Thallium	190.9	5.3	U	2010		2000	100.5	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Tin	190	2.8	U	1940		2000	97.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Vanadium	292.4	1.4	U	477		500	95.4	1	1	ICPST	11/29/00	12:03	11/29/00	12:18
Zinc	213.9	7.4	B	498		500	98.1	1	1	ICPST	11/29/00	12:03	11/29/00	12:18

Comments: Lot #: A0K170190 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Matrix.....:** SO
Date Sampled...: 11/15/00 12:50 **Date Received..:** 11/16/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#: DP3RF1CX-MS/DP3RF1C0-MSD				MS Lot-Sample #: A0K170190-002	
	79	(12 - 147)			SW846 9012A	11/28/00	0333343
	84	(12 - 147)	5.2	(0-99)	SW846 9012A	11/28/00	0333343

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Matrix.....:** SOLID
Date Sampled...: 11/15/00 10:10 **Date Received..:** 11/16/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#: DP5HN1AL-MS/DP5HN1AM-MSD				MS Lot-Sample #: A0K180106-007	
	84	(12 - 147)			SW846 9012A	11/28/00	0333343
	91	(12 - 147)	8.0	(0-99)	SW846 9012A	11/28/00	0333343

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Matrix.....:** WATER
Date Sampled...: 11/15/00 10:10 **Date Received..:** 11/16/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#: DP5HR1AF-MS/DP5HR1AG-MSD				MS Lot-Sample #: A0K180106-008	
	0.0	(25 - 134)			SW846 9012A	11/29/00	0334161
	87 *	(25 - 134)	200	(0-99)	SW846 9012A	11/29/00	0334161

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Relative percent difference (RPD) is outside stated control limits.

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate RPD Report

Matrix Spike Duplicate Sample ID: DP3RFD

Matrix Spike Sample ID: DP3RFS **Client ID:** MPT-AC-SD01-01D

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 22.3

Element	WL/ Mass	MS Conc	Q	MSD Conc	Q	% RPD	MS DF	MSD DF	Instr	MS Anal Date	MS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.215	703	N	654	N	7.1	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Antimony	206.838	60.5		59.4		1.8	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Arsenic	189.042	233		229		1.6	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Barium	493.409	241		237		1.5	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Beryllium	313.042	6.0		6.0		0.2	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Cadmium	226.502	6.0		5.9		1.5	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Calcium	317.933	6490		6390		1.7	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Chromium	267.716	25.3		25.0		1.4	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Cobalt	228.616	58.6		57.9		1.3	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Copper	324.753	30.5		29.9		1.9	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Iron	271.441	701	N	664	N	5.5	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Lead	220.353	58.9		57.9		1.7	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Magnesium	279.078	5840		5740		1.8	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Manganese	257.61	62.0		73.6		17.1	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Mercury	253.7	0.24		0.24		2.9	1	1	CVAA	11/28/00	7:47	11/28/00	7:48
Nickel	231.604	60.7		59.9		1.3	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Potassium	766.491	5970		5680		4.8	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Selenium	196.026	236		231		2.2	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Silver	328.068	6.6		6.5		1.7	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Sodium	330.232	5920		5800		2.0	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Thallium	190.864	245		242		1.3	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Vanadium	292.402	59.9		59.1		1.3	1	1	ICPST	11/29/00	13:17	11/29/00	13:22
Zinc	213.856	62.3		60.3		3.3	1	1	ICPST	11/29/00	13:17	11/29/00	13:22

Comments: Lot #: A0K170190 Sample #: 2

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 6 Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate RPD Report

Matrix Spike Duplicate Sample ID: DP3PKD

Matrix Spike Sample ID: DP3PKS **Client ID:** MPT-AC-SW01-01D

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MS Conc	Q	MSD Conc	Q	% RPD	MS DF	MSD DF	Instr	MS Anal Date	MS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.215	1870		1890		1.2	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Antimony	206.838	496		502		1.3	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Arsenic	189.042	1920		1950		1.4	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Barium	493.409	1900		1930		1.5	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Beryllium	313.042	48.1		48.8		1.6	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Cadmium	226.502	47.5		48.3		1.6	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Calcium	317.933	83200		84300		1.3	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Chromium	267.716	190		192		1.3	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Cobalt	228.616	464		472		1.6	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Copper	324.753	238		242		1.3	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Iron	271.441	1670	N	1160	*	36.1	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Lead	220.353	473		480		1.4	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Magnesium	279.078	58400		59300		1.5	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Manganese	257.61	496		500		1.0	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Mercury	253.7	0.93		0.96		0.0	1	1	CVAA	11/27/00	13:55	11/27/00	13:57
Nickel	231.604	480		490		2.0	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Potassium	766.491	51600		52200		1.2	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Selenium	196.026	1970		2000		1.4	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Silver	328.068	53.5		54.6		2.1	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Sodium	330.232	57600		58300		1.2	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Thallium	190.864	1980		2010		1.8	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Tin	189.989	1910		1940		1.6	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Vanadium	292.402	470		477		1.5	1	1	ICPST	11/29/00	12:13	11/29/00	12:18
Zinc	213.856	488		498		1.9	1	1	ICPST	11/29/00	12:13	11/29/00	12:18

Comments: Lot #: A0K170190 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 6 Equivalent

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Work Order #...:** DP274-SMP DP274-DUP **Matrix.....:** SOLID

Date Sampled...: 11/16/00 13:45 **Date Received..:** 11/17/00

% Moisture.....: 24

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A0K170134-023		
	76.1	76.3	%	0.24	(0-20)	MCAWW 160.3 MOD	11/17-11/20/00	0322423

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Work Order #...:** DP3RF-SMP DP3RF-DUP **Matrix.....:** SO

Date Sampled...: 11/15/00 12:50 **Date Received..:** 11/16/00

% Moisture.....: 22

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A0K170190-002		
	77.7	77.8	%	0.15	(0-20)	MCAWW 160.3 MOD	11/17-11/20/00	0322423

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Work Order #...:** DP3WD-SMP DP3WD-DUP **Matrix.....:** SOLID

Date Sampled...: 11/16/00 11:15 **Date Received..:** 11/17/00

% Moisture.....: 17

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A0K160132-012		
	83.2	82.4	%	1.0	(0-20)	MCAWW 160.3 MOD	11/17-11/20/00	0322423

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

STL North Canton

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: DQD17C

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Aluminum	308.215	2000	1880	94.1		80-120	1	ICPST	11/29/00	11:57
Antimony	206.838	500	501	100.2		80-120	1	ICPST	11/29/00	11:57
Arsenic	189.042	2000	1930	96.6		80-120	1	ICPST	11/29/00	11:57
Barium	493.409	2000	1900	95.1		80-120	1	ICPST	11/29/00	11:57
Beryllium	313.042	50.0	48.8	97.6		80-120	1	ICPST	11/29/00	11:57
Cadmium	226.502	50.0	49.0	97.9		80-120	1	ICPST	11/29/00	11:57
Calcium	317.933	50000	48200	96.4		80-120	1	ICPST	11/29/00	11:57
Chromium	267.716	200	194	97.0		80-120	1	ICPST	11/29/00	11:57
Cobalt	228.616	500	472	94.4		80-120	1	ICPST	11/29/00	11:57
Copper	324.753	250	240	95.9		80-120	1	ICPST	11/29/00	11:57
Iron	271.441	1000	1050	104.6		80-120	1	ICPST	11/29/00	11:57
Lead	220.353	500	483	96.7		80-120	1	ICPST	11/29/00	11:57
Magnesium	279.078	50000	48400	96.9		80-120	1	ICPST	11/29/00	11:57
Manganese	257.61	500	488	97.6		80-120	1	ICPST	11/29/00	11:57
Mercury	253.7	5.0	5.0	99.8		80-120	1	CVAA	11/27/00	13:52
Nickel	231.604	500	492	98.3		80-120	1	ICPST	11/29/00	11:57
Potassium	766.491	50000	50100	100.2		80-120	1	ICPST	11/29/00	11:57
Selenium	196.026	2000	2010	100.6		80-120	1	ICPST	11/29/00	11:57
Silver	328.068	50.0	54.9	109.8		80-120	1	ICPST	11/29/00	11:57
Sodium	330.232	50000	49400	98.9		80-120	1	ICPST	11/29/00	11:57
Thallium	190.864	2000	2020	101.2		80-120	1	ICPST	11/29/00	11:57
Vanadium	292.402	500	478	95.6		80-120	1	ICPST	11/29/00	11:57
Zinc	213.856	500	500	100.1		80-120	1	ICPST	11/29/00	11:57

Comments: Lot #: A0K170190

STL North Canton

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: DQD13C

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 0.5 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Aluminum	308.215	8270	8700	105.2		51-149	1	ICPST	11/29/00	12:29
Antimony	206.838	32.6	17.6	53.9		6-209	1	ICPST	11/29/00	12:29
Arsenic	189.042	185	192	103.8		74-126	1	ICPST	11/29/00	12:29
Barium	493.409	177	166	94.0		77-123	1	ICPST	11/29/00	12:29
Beryllium	313.042	45.0	47.0	104.4		78-122	1	ICPST	11/29/00	12:29
Cadmium	226.502	64.0	69.4	108.4		77-123	1	ICPST	11/29/00	12:29
Calcium	317.933	10500	10700	101.8		75-126	1	ICPST	11/29/00	12:29
Chromium	267.716	143	142	99.2		80-120	1	ICPST	11/29/00	12:29
Cobalt	228.616	212	220	103.8		79-120	1	ICPST	11/29/00	12:29
Copper	324.753	92.7	99.1	106.9		82-118	1	ICPST	11/29/00	12:29
Iron	271.441	12700	14400	113.2		59-141	1	ICPST	11/29/00	12:29
Lead	220.353	119	123	103.3		76-124	1	ICPST	11/29/00	12:29
Magnesium	279.078	2750	2830	102.8		75-125	1	ICPST	11/29/00	12:29
Manganese	257.61	388	408	105.0		80-120	1	ICPST	11/29/00	12:29
Mercury	253.7	1.5	1.7	111.0		57-142	2	CVAA	11/28/00	7:43
Nickel	231.604	74.5	81.2	109.0		78-122	1	ICPST	11/29/00	12:29
Potassium	766.491	3580	3840	107.3		73-127	1	ICPST	11/29/00	12:29
Selenium	196.026	150	169	112.4		74-125	1	ICPST	11/29/00	12:29
Silver	328.068	90.0	91.4	101.5		74.1-126	1	ICPST	11/29/00	12:29
Sodium	330.232	1020	997	97.7	B	68-132	1	ICPST	11/29/00	12:29
Thallium	190.864	80.3	86.9	108.3		57-143	1	ICPST	11/29/00	12:29
Vanadium	292.402	173	171	99.0		68-132	1	ICPST	11/29/00	12:29
Zinc	213.856	273	289	105.9		77-123	1	ICPST	11/29/00	12:29

Comments:

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 7 Equivalent

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K17C190 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQH1Q1AC	LCS Lot-Sample#: A0K280000-343		
	93	(60 - 113)	SW846 9012A	11/28/00	0333343
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K170190 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQGV81AC	LCS Lot-Sample#: A0K290000-161		
	97	(61 - 115)	SW846 9012A	11/29/00	0334161

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

STL North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: DP3PKL

Original Sample ID: DP3PK **Client ID:** MPT-AC-SW01-01

Matrix: Water **Units:** ug/L **Prep Date:** 11/27/00 **Prep Batch:** 0332101

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	OS Conc	Q	Serial Dilution Conc	Q	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	18.8	U	94.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Antimony	206.838	4.3	U	21.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Arsenic	189.042	3.6	U	18.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Barium	493.409	21.6	B	22.7	B	5.4	1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Beryllium	313.042	0.20	U	1.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Cadmium	226.502	0.40	U	2.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Calcium	317.933	36400		37100		1.9	1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Chromium	267.716	2.5	B	10.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Cobalt	228.616	2.2	U	11.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Copper	324.753	1.9	U	9.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Iron	271.441	122	N	142	B		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Lead	220.353	1.3	U	6.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Magnesium	279.078	10800		10900	B	1.1	1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Manganese	257.61	12.1	B	12.9	B	6.6	1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Nickel	231.604	1.9	U	9.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Potassium	766.491	2100	B	2130	B		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Selenium	196.026	4.3	U	21.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Silver	328.068	3.1	U	15.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Sodium	330.232	8950		8540	B		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Thallium	190.864	5.3	U	26.5	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Tin	189.989	2.8	U	14.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Vanadium	292.402	1.4	U	7.0	U		1	5	ICPST	11/29/00	12:03	11/29/00	12:08
Zinc	213.856	7.4	B	19.1	B		1	5	ICPST	11/29/00	12:03	11/29/00	12:08

Comments:

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
L Serial dilution percent difference not within limits

Form 9 Equivalent

STL North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: DP3RFL

Original Sample ID: DP3RF **Client ID:** MPT-AC-SD01-01

Matrix: Soil **Units:** mg/kg **Prep Date:** 11/27/00 **Prep Batch:** 0332098

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 22.3

Element	WL/ Mass	OS Conc	O	Serial Dilution Conc	O	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	317	N	315		0.6	1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Antimony	206.838	0.55	U	2.8	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Arsenic	189.042	0.98	B	2.3	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Barium	493.409	2.4	B	2.7	B	(12.5)	1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Beryllium	313.042	0.026	U	0.13	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Cadmium	226.502	0.052	U	0.26	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Calcium	317.933	565	B	574	B	1.5	1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Chromium	267.716	1.3		1.7	B		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Cobalt	228.616	0.84	B	1.4	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Copper	324.753	0.25	U	1.2	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Iron	271.441	493	N	513		3.9	1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Lead	220.353	0.32	B	0.84	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Magnesium	279.078	35.6	B	35.8	B		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Manganese	257.61	1.9	B	2.1	B		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Nickel	231.604	1.3	B	1.6	B		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Potassium	766.491	13.1	B	33.7	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Selenium	196.026	0.55	U	2.8	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Silver	328.068	0.40	U	2.0	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Sodium	330.232	56.5	U	283	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Thallium	190.864	0.68	U	3.4	U		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Vanadium	292.402	0.36	B	1.4	B		1	5	ICPST	11/29/00	13:08	11/29/00	13:13
Zinc	213.856	1.2	B	2.7	B		1	5	ICPST	11/29/00	13:08	11/29/00	13:13

Comments: _____

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

L Serial dilution percent difference not within limits

Form 9 Equivalent

STL North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA **Units:** ug/L

Element	Wavelength /Mass	Reporting Limit	IDL	Date of IDL
Mercury	253.70	0.2	0.10	10/12/00

STL North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ug/L

Element	Wavelength /Mass	Reporting Limit	IDL	Date of IDL
Aluminum	308.21	200	18.8	7/14/00
Antimony	206.84	10	4.3	7/14/00
Arsenic	189.04	10	3.6	7/14/00
Barium	493.41	200	0.40	7/14/00
Beryllium	313.04	5	0.20	7/14/00
Cadmium	226.50	2	0.40	7/14/00
Calcium	317.93	5000	8.2	7/14/00
Chromium	267.72	5	2.0	7/14/00
Cobalt	228.62	7	2.2	7/14/00
Copper	324.75	25	1.9	7/14/00
Iron	271.44	100	27.3	7/14/00
Lead	220.35	3	1.3	7/14/00
Magnesium	279.08	5000	13.4	7/14/00
Manganese	257.61	15	0.40	7/14/00
Nickel	231.60	40	1.9	7/14/00
Potassium	766.49	5000	52.4	7/14/00
Selenium	196.03	5	4.3	7/14/00
Silver	328.07	5	3.1	7/14/00
Sodium	330.23	5000	439	7/14/00
Thallium	190.86	10	5.3	7/14/00
Tin	189.99	50	2.8	7/14/00
Vanadium	292.40	7	1.4	7/14/00
Zinc	213.86	20	0.60	7/14/00

METALS PREP LOG/BATCH SUMMARY Time: 4:31:25

BATCH NUMBER: 0332101 PREP DATE: 11/27/00
DUE DATE 12/04/00 INITIALS: LPM/KW

LOT NUMBER	WORK ORDER	QC	ICP/WEIGHT	HG/WEIGHT	GFA/WEIGHT	FLA/WEIGH
A0K170190	DP3PK	01	X _____g	X _____g	_____g	_____g
WATER	TO DUE DATE: 12/04/00					
	DP3PKS		_____g	_____g	_____g	_____g
	DP3PKD		_____g	_____g	_____g	_____g
A0K270000	DQD17B	01	X _____g	X _____g	_____g	_____g
WATER	DUE DATE: 0/00/00					
	DQD17C		_____g	_____g	_____g	_____g

50
0.2
0.5
1.0
5.0
10.0
ICB
CRA 0.2
(2) CCV 25 50
(2) CCB
ICV 25 } STD OK1252

STD OK1253

LEVEL 2
BLANK AND CHECK STANDARD ON BATCH ✓
MS/MSD AND PDS ON BATCH ✓
CURVE PREPPED FOR HG
CORRECT SPIKES ADDED ✓
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG ✓

H2O Curve
In 8:30 am
Out 10:30 am

COMMENTS: ICP are TOTAL Rec.
B-BLANK/C-LCS/D-MSD/I-REANALYSIS/L-LCSD/P-SERIAL DLTN/S-MS/X-SAMP DUP/Y-SAMP CONF/Z-PDS
SPIKING WITNESSED BY MV

ICP ELEMENTS WITHIN THE BATCH:

	AG	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE	KX	MG	MN	NA	NI	PB	SB	SE	SN	TL	VX
MS/MSD 1:				(ICP - 1)				(ICP - 2A)			GFAA		(HG)		ODD Ag							
DP3PK																						
MS/MSD 2:				ICP - 1				ICP - 2			GFAA		HG		ODD							
MS/MSD 3:				ICP - 1				ICP - 2			GFAA		HG		ODD							
CHECK :				(ICP - 1)				(ICP - 2A)			GFAA		(HG)		ODD Ag							
DQD17																						
CHECK DUP:				ICP - 1				ICP - 2			GFAA		HG		ODD							

STANDARD NUMBERS																						
				OK1158				OK1241					OK1252			OK1233						

METALS PREP LOG/BATCH SUMMARY Time: 4:28:01

BATCH NUMBER: 0332098 PREP DATE: 11/27/00
DUE DATE 12/04/00 INITIALS: LPM

LOT NUMBER	WORK ORDER	QC	ICP/WEIGHT	HG/WEIGHT	GFA/WEIGHT	FLA/WEIGH
A0K170190 SOLID	DP3RF	50	X 1.00 g	X 0.060 g	____g	____g
	TO DUE DATE: 12/04/00					
	DP3RFS		____g	____g	____g	____g
	DP3RFD		____g	____g	____g	____g
A0K270000 SOLID	DQD13B	50	X ____g	X ____g	____g	____g
	DUE DATE: 0/00/00					
	DQD13C		0.5 g	0.6 g > SOLID LCSS Lot #246	____g	____g

50
0.2
0.5
1.0
5.0
10.0
ICB
CRA 0.2
(2x) CCV 5.0
(2x) CCB
ICV 2.5 > STD OK1252

STD OK1253

LEVEL 2
BLANK AND CHECK STANDARD ON BATCH ✓
MS/MSD AND PDS ON BATCH ✓
CURVE PREPPED FOR HG
CORRECT SPIKES ADDED ✓
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG ✓

SOLID Curve
In 1:55 pm
Out 2:25 pm

COMMENTS: _____
B-BLANK/C-LCS/D-MSD/I-REANALYSIS/L-LCSD/P-SERIAL DLTN/S-MS/X-SAMP DUP/Y-SAMP CONF/Z-PDS
SPIKING WITNESSED BY MK

ICP ELEMENTS WITHIN THE BATCH:

	AG	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE	KX	MG	MN	NA	NI	PB	SB	SE	TL	VX	ZN
MS/MSD 1: DP3RF				ICP - 1				ICP - 2A			GFAA		HG		ODD	Ag						
MS/MSD 2:				ICP - 1				ICP - 2			GFAA		HG		ODD							
MS/MSD 3:				ICP - 1				ICP - 2			GFAA		HG		ODD							
CHECK : DQD13				~~ICP - 1~~ LPM 11.27.00				~~ICP - 2A~~			GFAA		HG		ODD	Ag LPM 11.27.00 SOLID LCSS Lot #246						
CHECK DUP:				ICP - 1				ICP - 2			GFAA		HG		ODD							
STANDARD NUMBERS				OK1158				OK1241			___		OK1252		___ OK1233							

Metals Data Reporting Form

Instrument Runlog

Instrument: ICPST **Chart Number:** i61129a.arc

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
S0		11/29/00	9:38
CALSTD		11/29/00	9:43
CAL 2		11/29/00	9:47
S100		11/29/00	9:51
ICV		11/29/00	9:56
ICB		11/29/00	10:02
CRI		11/29/00	10:07
ICSA		11/29/00	10:13
ZZZZZZ		11/29/00	10:19
ICSAB		11/29/00	10:40
CCV		11/29/00	10:47
CCB		11/29/00	10:54
ZZZZZZ		11/29/00	11:40
ZZZZZZ		11/29/00	11:45
DQD17B		11/29/00	11:52
DQD17C		11/29/00	11:57
DP3PK	MPT-AC-SW01-01	11/29/00	12:03
DP3PKL	MPT-AC-SW01-01	11/29/00	12:08
DP3PKS	MPT-AC-SW01-01S	11/29/00	12:13
DP3PKD	MPT-AC-SW01-01D	11/29/00	12:18
DQD13B		11/29/00	12:25
DQD13C		11/29/00	12:29
CCV		11/29/00	12:37
CCB		11/29/00	12:44
CCV		11/29/00	12:56
CCB		11/29/00	13:03
DP3RF	MPT-AC-SD01-01	11/29/00	13:08
DP3RFL	MPT-AC-SD01-01	11/29/00	13:13
DP3RFS	MPT-AC-SD01-01S	11/29/00	13:17
DP3RFD	MPT-AC-SD01-01D	11/29/00	13:22
ZZZZZZ		11/29/00	13:29
ZZZZZZ		11/29/00	13:34
ZZZZZZ		11/29/00	13:40
ZZZZZZ		11/29/00	13:45
ZZZZZZ		11/29/00	13:50
CCV		11/29/00	13:58
CCB		11/29/00	14:05

Metals Data Reporting Form

Instrument Runlog

Instrument: CVAA **Chart Number:** hg11127a.prn

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
Std1Rep1		11/27/00	10:45
Std2Rep1		11/27/00	10:46
Std3Rep1		11/27/00	10:47
Std4Rep1		11/27/00	10:49
Std5Rep1		11/27/00	10:50
Std6Rep1		11/27/00	10:52
Ck5ICV		11/27/00	10:53
Ck4ICB		11/27/00	10:55
Ck3CRA		11/27/00	10:56
Ck2CCV		11/27/00	10:57
Ck1CCB		11/27/00	10:58
ZZZZZZ		11/27/00	10:59
ZZZZZZ		11/27/00	11:02
ZZZZZZ		11/27/00	11:03
ZZZZZZ		11/27/00	11:05
ZZZZZZ		11/27/00	11:06
ZZZZZZ		11/27/00	11:07
ZZZZZZ		11/27/00	11:09
ZZZZZZ		11/27/00	11:10
ZZZZZZ		11/27/00	11:12
ZZZZZZ		11/27/00	11:13
Ck2CCV		11/27/00	11:14
Ck1CCB		11/27/00	11:15
ZZZZZZ		11/27/00	11:16
ZZZZZZ		11/27/00	11:17
ZZZZZZ		11/27/00	11:19
ZZZZZZ		11/27/00	11:20
ZZZZZZ		11/27/00	11:21
ZZZZZZ		11/27/00	11:23
ZZZZZZ		11/27/00	11:24
ZZZZZZ		11/27/00	11:25
ZZZZZZ		11/27/00	11:27
ZZZZZZ		11/27/00	11:28
Ck2CCV		11/27/00	11:29
Ck1CCB		11/27/00	11:30
ZZZZZZ		11/27/00	11:31
ZZZZZZ		11/27/00	11:32
ZZZZZZ		11/27/00	11:34
ZZZZZZ		11/27/00	11:35

Metals Data Reporting Form

Instrument Runlog

Instrument: CVAA **Chart Number:** hg11127a.prn

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		11/27/00	11:36
ZZZZZZ		11/27/00	11:38
ZZZZZZ		11/27/00	11:40
ZZZZZZ		11/27/00	11:42
ZZZZZZ		11/27/00	11:43
ZZZZZZ		11/27/00	11:44
Ck2CCV		11/27/00	11:45
Ck1CCB		11/27/00	11:46
ZZZZZZ		11/27/00	11:48
ZZZZZZ		11/27/00	11:49
ZZZZZZ		11/27/00	11:50
ZZZZZZ		11/27/00	11:51
ZZZZZZ		11/27/00	11:53
ZZZZZZ		11/27/00	11:54
ZZZZZZ		11/27/00	11:56
Ck2CCV		11/27/00	11:57
Ck1CCB		11/27/00	11:59
Ck2CCV		11/27/00	12:07
Ck1CCB		11/27/00	12:08
ZZZZZZ		11/27/00	12:09
ZZZZZZ		11/27/00	12:11
Ck2CCV		11/27/00	12:12
Ck1CCB		11/27/00	12:14
Ck2CCV		11/27/00	13:14
Ck1CCB		11/27/00	13:15
ZZZZZZ		11/27/00	13:17
ZZZZZZ		11/27/00	13:18
ZZZZZZ		11/27/00	13:19
ZZZZZZ		11/27/00	13:20
ZZZZZZ		11/27/00	13:22
ZZZZZZ		11/27/00	13:23
ZZZZZZ		11/27/00	13:25
ZZZZZZ		11/27/00	13:26
ZZZZZZ		11/27/00	13:28
ZZZZZZ		11/27/00	13:29
Ck2CCV		11/27/00	13:30
Ck1CCB		11/27/00	13:32
ZZZZZZ		11/27/00	13:33
ZZZZZZ		11/27/00	13:34

Metals Data Reporting Form

Instrument Runlog

Instrument: CVAA **Chart Number:** hg11127a.prn

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
ZZZZZZ		11/27/00	13:35
ZZZZZZ		11/27/00	13:36
ZZZZZZ		11/27/00	13:37
ZZZZZZ		11/27/00	13:38
ZZZZZZ		11/27/00	13:40
ZZZZZZ		11/27/00	13:41
ZZZZZZ		11/27/00	13:43
ZZZZZZ		11/27/00	13:44
Ck2CCV		11/27/00	13:45
Ck1CCB		11/27/00	13:46
ZZZZZZ		11/27/00	13:47
ZZZZZZ		11/27/00	13:48
ZZZZZZ		11/27/00	13:49
DQD17B		11/27/00	13:51
DQD17C		11/27/00	13:52
DP3PK	MPT-AC-SW01-01	11/27/00	13:53
DP3PKS	MPT-AC-SW01-01S	11/27/00	13:55
DP3PKD	MPT-AC-SW01-01D	11/27/00	13:57
ZZZZZZ		11/27/00	13:58
ZZZZZZ		11/27/00	13:59
Ck2CCV		11/27/00	14:00
Ck1CCB		11/27/00	14:01

Metals Data Reporting Form

Instrument Runlog

Instrument: CVAA **Chart Number:** hg11128a.prn

Lab Sample Name	Client Sample Name	Date of Analysis	Time of Analysis
Std1Repl		11/28/00	7:28
Std2Repl		11/28/00	7:29
Std3Repl		11/28/00	7:31
Std4Repl		11/28/00	7:32
Std5Repl		11/28/00	7:33
Std6Repl		11/28/00	7:34
Ck5ICV		11/28/00	7:35
Ck4ICB		11/28/00	7:37
Ck3CRA		11/28/00	7:38
Ck2CCV		11/28/00	7:39
Ck1CCB		11/28/00	7:40
DQD13B		11/28/00	7:42
DQD13C		11/28/00	7:43
DP3RF	MPT-AC-SD01-01	11/28/00	7:46
DP3RFS	MPT-AC-SD01-01S	11/28/00	7:47
DP3RFD	MPT-AC-SD01-01D	11/28/00	7:48
ZZZZZZ		11/28/00	7:49
ZZZZZZ		11/28/00	7:51
ZZZZZZ		11/28/00	7:52
ZZZZZZ		11/28/00	7:53
ZZZZZZ		11/28/00	7:54
Ck2CCV		11/28/00	7:55
Ck1CCB		11/28/00	7:56

SDev	.0808	.384	116.7	.615	1.2359	.093	.753
%RSD	14.68	30.50	151.4	43.30	276.9	7.310	68.25
#1	.6075	1.529	-5.451	.9849	-1.320	-1.340	.5712
#2	.4932	.9864	159.6	1.854	.4276	-1.209	1.637
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.0000	.0000	.0000	.0000	.0000	.0000	.0000
Range	10.00	10.00	5000.	40.00	3.000	5.000	5.000

Elem	Sn	Tl	V	Zn	2203/1	2203/2	2068/2
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	2.539	-.6069	1.278	.1776	-.7154	-.3121	2.024
SDev	.543	6.3596	.155	.1806	1.7728	.9679	2.187
%RSD	21.37	1048.	12.15	101.7	247.8	310.2	108.1
#1	2.156	-5.104	1.388	.3053	-1.969	-.9965	.4771
#2	2.923	3.890	1.168	.0498	.5382	.3723	3.570
Errors	QC Pass	QC Pass	QC Pass	QC Pass	NOCHECK	NOCHECK	NOCHECK
Value	.0000	.0000	.0000	.0000			
Range	100.0	10.00	50.00	20.00			

Elem	2068/1	1960/1	1960/2				
Units	PPB	PPB	PPB				
Avge	.6448	-3.482	-.1724				
SDev	.0377	1.378	.5482				
%RSD	5.848	39.57	318.0				
#1	.6181	-4.456	.2152				
#2	.6715	-2.508	-.5600				
Errors	NOCHECK	NOCHECK	NOCHECK				
Value							
Range							

IntStd	1	2	3	4	5	6	7
Mode	Counts	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Y	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	12470	--	--	--	--	--	--
SDev	13.78858	--	--	--	--	--	--
%RSD	.1105763	--	--	--	--	--	--
#1	12460	--	--	--	--	--	--
#2	12480	--	--	--	--	--	--

Method: TOTAL Sample Name: DP3RF MPT-AC-SD01-01 Operator: MJC
Run Time: 11/29/00 13:08:15 qmf 2-8-01
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	.4507	2463.	7.575	7.742	18.93	-.1276	4393.
SDev	.2779	25.	1.082	8.409	2.08	.3144	48.

Cr = 10.17 ug/L × 1mg/1000ug × 1L/1000mL × 100 mL / ~~0.60~~ 1.00 g × 1000g/1kg × 1/0.78 = 1.3 mg/kg
Euf 28-01 Euf 28-C

%RSD	61.66	1.000	14.28	108.6	10.99	246.5	1.093
#1	.2542	2481.	8.340	13.69	20.40	.0948	4427.
#2	.6473	2446.	6.810	1.796	17.46	-.3499	4359.
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2000.	500000.	10000.	50000.	25000.	4000.	600000.
Low	-1000.	-5000.	-5000.	-1000.	-5000.	-1000.	-1000.
Elem	Cd	Co	Cr	Cu	Fe	K	Mg
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	-.3288	6.494	10.17	-5.395	3832.	101.4	276.6
SDev	1.1231	.351	.04	11.289	152.	10.4	58.2
%RSD	341.6	5.411	.3974	209.3	3.964	10.26	21.03
#1	.4654	6.245	10.14	2.588	3940.	94.02	317.7
#2	-1.123	6.742	10.20	-13.38	3725.	108.7	235.4
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2500.	50000.	50000.	30000.	600000.	600000.	600000.
Low	-1000.	-1000.	-1000.	-1000.	-1000.	-10000.	-10000.
Elem	Mn	Mo	Na3302	Ni	Pb	Se	Sb
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	14.64	.8373	207.3	10.08	2.472	2.295	-11.61
SDev	1.17	.5722	97.7	.26	.862	1.712	17.54
%RSD	7.989	68.33	47.12	2.531	34.86	74.60	151.1
#1	15.47	.4327	138.2	9.904	3.081	1.084	.7961
#2	13.81	1.242	276.4	10.26	1.862	3.505	-24.01
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	50000.	50000.	600000.	50000.	15000.	10000.	10000.
Low	-1000.	-1000.	-10000.	-1000.	-1000.	-1000.	-1000.
Elem	Sn	Tl	V	Zn	2203/1	2203/2	2068/2
Units	PPB	PPB	PPB	PPB	PPB	PPB	PPB
Avge	6.281	-12.52	2.764	8.898	27.92	-10.23	12.59
SDev	6.551	16.17	6.812	1.704	41.80	22.16	15.17
%RSD	104.3	129.2	246.5	19.15	149.7	216.6	120.5
#1	10.91	-1.084	7.581	10.10	-1.637	5.436	1.865
#2	1.648	-23.95	-2.053	7.692	57.48	-25.90	23.31
Errors	LC Pass	LC Pass	LC Pass	LC Pass	NOCHECK	NOCHECK	NOCHECK
High	25000.	20000.	50000.	10000.			
Low	-1000.	-1000.	-1000.	-1000.			
Elem	2068/1	1960/1	1960/2				
Units	PPB	PPB	PPB				
Avge	-23.69	20.67	-6.878				
SDev	33.87	31.49	13.156				
%RSD	143.0	152.4	191.3				
#1	.2625	-1.600	2.425				
#2	-47.64	42.94	-16.18				

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **MR. T. HANSEN** **DATE:** **February 20, 2001**

FROM: **SETH STAFFEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOA/SVOA/PEST/PCB/HERB/OPEST**
CTO 094, NS MAYPORT
SDG MP028

SAMPLES: Aqueous

MPT-AC-SW01-01 TB111500

Soil/Sediment

MPT-AC-SD01-01

OVERVIEW

The sample set for CTO 094, SDG MP028; Naval Station (NS) Mayport consists of one (1) soil sample and two (2) aqueous samples which included one (1) trip blank (designated TB). The aqueous sample was analyzed for Appendix IX volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides, polychlorinated biphenyls (PCBs), and herbicides. The soil/sediment sample was analyzed for TCL volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides, polychlorinated biphenyls (PCBs), and herbicides. The trip blank was analyzed for TCL volatile organic compounds only.

The samples were collected on November 15th, 2000 and analyzed by Severn-Trent Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8260B, 8270C, 8151A, 8141A, 8081A, and 8082 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • GC/MS tuning and system performance
• Initial/continuing calibrations
• Laboratory method and field quality control blank results
• Surrogate spike recoveries
• Matrix Spike/Matrix Spike Duplicate Results
* • Laboratory Control Sample Results
* • Internal Standard Performance
* • Compound Identification
* • Compound Quantitation
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

VOLATILE FRACTION

The following compound was detected in the laboratory method blank at the maximum concentration indicated below:

Compound	Concentration	Soil Action Level
Acetone	3.5 µg/kg	35.0 µg/kg

Blank Actions

- Value < Contract Required Quantitation Limit (CRQL); report CRQL followed by a U.
- Value > CRQL and < Action level; report value followed by a U.
- Value > CRQL and > action level; report value unqualified.

Dilution factors, percent solids, and sample aliquots were taken into consideration during the application of all action levels.

The initial calibration on 11/09/00 contained relative response factors (RRFs) that were below the 0.05 quality control limit for acetonitrile, acrolein, propionitrile, and isobutyl alcohol. Only nondetected results were reported for these compounds and these were qualified as rejected (UR).

The continuing calibration on 11/28/00 contained percent differences (%Ds) that exceeded the 25% quality control limit for bromomethane. The nondetected result reported for this compound was qualified as estimated (UJ).

The continuing calibration on 11/24/00 contained RRFs that were below the 0.05 quality control limit for acrolein and acetonitrile. Only nondetected results were reported for these compounds and these were qualified as rejected (UR), in samples MPT-AC-SW01-01 and TB111500.

The continuing calibration on 11/24/00 contained %Ds that exceeded the 25% quality control limit for benzene. Only nondetected results were reported for this compound in the affected samples and these were qualified as estimated (UJ).

SEMIVOLATILE FRACTION

The initial calibration on 11/21/00 contained a %RSD that was >30% but <50% for 1,3,5-trinitrobenzene. No action was warranted based on only nondetected results were reported, and the %RSDs were <50% for this compound.

The continuing calibration on 11/28/00 contained %Ds that exceeded the 25% quality control limits for p-phenylene diamine, 3,3'-dimethylbenzidine, 4-nitroquinoline-1-oxide, 7,12-dimethylbenz(a)anthracene, methapyrilene, and 1,3,5-trinitrobenzene. Nondetected results were reported for these compounds were qualified as estimated (UJ).

PESTICIDE/PCB FRACTION

The continuing calibration %Ds exceeded the 15% quality control limit on 12/02/00 for 4,4'-DDD, kepone, and on 11/24/00 for isodrine. Nondetected results were reported for these compounds were qualified as estimated (UJ).

The MSD surrogate recovery for TCMX was less than the lower quality control limit on both columns. No action was warranted on a quality control sample.

MS/MSD Percent Recovery (%R) was greater than the upper control limit for Aroclor-1260. No action was warranted based on MS/MSD noncompliances alone.

The Matrix Spike/Matrix Spike Duplicate (MS/MSD) Relative Percent Difference (RPD) exceeded the upper control limits for Aroclor 1016 and 1260. No action was warranted based on MS/MSD noncompliances alone.

HERB FRACTION

All data quality parameters were met for this fraction.

OPEST FRACTION

All data quality parameters were met for this fraction.

ADDITIONAL COMMENTS

Several samples contained positive results for compounds below the reporting limits (RL) in the volatile fraction. These results were qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory Performance: Several compounds exceeded the initial and/or continuing calibration criteria in the volatile and semivolatile fraction. Acetone was detected as a blank contaminant.

Other Factors Affecting Data Quality*:* None

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999), and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Seth Staffen

Chemist/Data Validator
Tetra Tech NUS

Joseph A. Samchuck

Data Validation Quality Assurance Officer
TetraTech NUS

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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01	TB111500		
SAMPLE DATE:	11/15/00	11/15/00	/ /	/ /
LABORATORY ID:	A0K170190001	A0K170190003		
QC_TYPE:	NORMAL	TRIP BLANK		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U		1	U							
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		1.1								
1,2,3-TRICHLOROPROPANE	1	U		1	U							
1,2-DIBROMO-3-CHLOROPROPANE	1	U		1	U							
1,2-DIBROMOETHANE	1	U		1	U							
1,2-DICHLOROETHANE	1	U		1	U							
1,2-DICHLOROETHENE (TOTAL)	1	U		1	U							
1,2-DICHLOROPROPANE	1	U		1	U							
2-BUTANONE	10	U		10	U							
2-CHLOROETHYL VINYL ETHER	1	U		1	U							
2-HEXANONE	10	U		10	U							
4-METHYL-2-PENTANONE	10	U		10	U							
ACETONE	10	U	A	10	U	A						
ACETONITRILE	20	UR	C	20	UR	C						
ACROLEIN	10	UR	C	10	UR	C						
ACRYLONITRILE	10	U		10	U							
ALLYL CHLORIDE	1	U		1	U							
BENZENE	1	UJ	C	1	UJ	C						
BROMODICHLOROMETHANE	1.9			1	U							
BROMOFORM	1	U		1	U							
BROMOMETHANE	2	UJ	C	2	UJ	C						
CARBON DISULFIDE	1	U		1	U							
CARBON TETRACHLORIDE	1	U		1	U							
CHLOROBENZENE	1	U		1	U							
CHLOROETHANE	1	U		1	U							
CHLOROFORM	3.9			1	U							
CHLOROMETHANE	1	U		1	U							
CHLOROPRENE	1	U		1	U							
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U							

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SAMPLE NUMBER:	MPT-AC-SW01-01	TB111500		
SAMPLE DATE:	11/15/00	11/15/00	/ /	/ /
LABORATORY ID:	A0K170190001	A0K170190003		
QC_TYPE:	NORMAL	TRIP BLANK		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
CIS-1,3-DICHLOROPROPENE	1	U		1	U							
DIBROMOCHLOROMETHANE	0.98	J	P	1	U							
DIBROMOMETHANE	1	U		1	U							
DICHLORODIFLUOROMETHANE	1	U		1	U							
ETHYL METHACRYLATE	1	U		1	U							
ETHYLBENZENE	1	U		1	U							
IODOMETHANE	1	U		1	U							
ISOBUTYL ALCOHOL	50	UR	C	50	UR	C						
METHACRYLONITRILE	1	U		1	U							
METHYL METHACRYLATE	1	U		1	U							
METHYL TERT-BUTYL ETHER	5	U		5	U							
METHYLENE CHLORIDE	1	U		1	U							
PROPIONITRILE	4	UR	C	4	UR	C						
STYRENE	1	U		1	U							
TETRACHLOROETHENE	1	U		1	U							
TOLUENE	1	U		0.22	J	P						
TRANS-1,2-DICHLOROETHENE	0.5	U		0.5	U							
TRANS-1,3-DICHLOROPROPENE	1	U		1	U							
TRANS-1,4-DICHLORO-2-BUTENE	1	U		1	U							
TRICHLOROETHENE	1	U		1	U							
TRICHLOROFLUOROMETHANE	2	U		2	U							
VINYL ACETATE	1	U		1	U							
VINYL CHLORIDE	1	U		1	U							
XYLENES, TOTAL	1	U		1	U							

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CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002		
QC_TYPE:	NORMAL		
% SOLIDS:	78.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	7.1	U										
1,1,2,2-TETRACHLOROETHANE	7.1	U										
1,1,2-TRICHLOROETHANE	7.1	U										
1,1-DICHLOROETHANE	7.1	U										
1,1-DICHLOROETHENE	1.2	J	P									
1,2-DICHLOROETHANE	7.1	U										
1,2-DICHLOROETHENE (TOTAL)	7.1	U										
1,2-DICHLOROPROPANE	7.1	U										
2-BUTANONE	28	U										
2-HEXANONE	28	U										
4-METHYL-2-PENTANONE	28	U										
ACETONE	28	U	AP									
BENZENE	7.1	U										
BROMODICHLOROMETHANE	7.1	U										
BROMOFORM	7.1	U										
BROMOMETHANE	14	UJ	C									
CARBON DISULFIDE	3.1	J	P									
CARBON TETRACHLORIDE	7.1	U										
CHLOROBENZENE	7.1	U										
CHLOROETHANE	14	U										
CHLOROFORM	7.1	U										
CHLOROMETHANE	14	U										
CIS-1,2-DICHLOROETHENE	3.5	U										
CIS-1,3-DICHLOROPROPENE	7.1	U										
DIBROMOCHLOROMETHANE	7.1	U										
ETHYLBENZENE	7.1	U										
METHYLENE CHLORIDE	7.1	U										
STYRENE	7.1	U										
TETRACHLOROETHENE	1.5	J	P									
TOLUENE	7.1	U										
TRANS-1,2-DICHLOROETHENE	3.5	U										
TRANS-1,3-DICHLOROPROPENE	7.1	U										
TRICHLOROETHENE	7.1	U										

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002			
QC_TYPE:	NORMAL			
% SOLIDS:	78.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
VINYL CHLORIDE	14	U										
XYLENES, TOTAL	7.1	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001		
QC_TYPE:	NORMAL		
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	10	U										
1,2,4-TRICHLOROBENZENE	10	U										
1,2-DICHLOROBENZENE	10	U										
1,3,5-TRINITROBENZENE	10	UJ	C									
1,3-DICHLOROBENZENE	10	U										
1,3-DINITROBENZENE	10	U										
1,4-DICHLOROBENZENE	10	U										
1,4-DIOXANE	10	U										
1,4-NAPHTHOQUINONE	10	U										
1-NAPHTHYLAMINE	10	U										
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U										
2,3,4,6-TETRACHLOROPHENOL	10	U										
2,4,5-TRICHLOROPHENOL	10	U										
2,4,6-TRICHLOROPHENOL	10	U										
2,4-DICHLOROPHENOL	10	U										
2,4-DIMETHYLPHENOL	10	U										
2,4-DINITROPHENOL	25	U										
2,4-DINITROTOLUENE	10	U										
2,6-DICHLOROPHENOL	10	U										
2,6-DINITROTOLUENE	10	U										
2-ACETYLAMINOFLUORENE	10	U										
2-CHLORONAPHTHALENE	10	U										
2-CHLOROPHENOL	10	U										
2-METHYLNAPHTHALENE	10	U										
2-METHYLPHENOL	10	U										
2-NAPHTHYLAMINE	10	U										
2-NITROANILINE	25	U										
2-NITROPHENOL	10	U										
2-PICOLINE	10	U										
2-SEC-BUTYL-4,6-DINITROPHENOL	20	U										
3,3'-DICHLOROBENZIDINE	10	U										
3,3'-DIMETHYLBENZIDINE	10	UJ	C									
3-METHYLCHOLANTHRENE	10	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
3-METHYLPHENOL	10	U										
3-NITROANILINE	25	U										
4,6-DINITRO-2-METHYLPHENOL	25	U										
4-AMINOBIPHENYL	10	U										
4-BROMOPHENYL PHENYL ETHER	10	U										
4-CHLORO-3-METHYLPHENOL	10	U										
4-CHLOROANILINE	10	U										
4-CHLOROPHENYL PHENYL ETHER	10	U										
4-METHYLPHENOL	10	U										
4-NITROANILINE	25	U										
4-NITROPHENOL	25	U										
4-NITROQUINOLINE-1-OXIDE	10	UJ	C									
5-NITRO-O-TOLUIDINE	10	U										
7,12-DIMETHYLBENZ(A)ANTHRACENE	10	UJ	C									
A,A-DIMETHYLPHENETHYLAMINE	50	U										
ACENAPHTHENE	10	U										
ACENAPHTHYLENE	10	U										
ACETOPHENONE	10	U										
ANILINE	10	U										
ANTHRACENE	10	U										
ARAMITE	10	U										
BENZO(A)ANTHRACENE	10	U										
BENZO(A)PYRENE	10	U										
BENZO(B)FLUORANTHENE	10	U										
BENZO(G,H,I)PERYLENE	10	U										
BENZO(K)FLUORANTHENE	10	U										
BENZYL ALCOHOL	10	U										
BIS(2-CHLOROETHOXY)METHANE	10	U										
BIS(2-CHLOROETHYL)ETHER	10	U										
BIS(2-ETHYLHEXYL)PHTHALATE	5	U										
BUTYLBENZYL PHTHALATE	10	U										
CARBAZOLE	10	U										
CHLOROBENZILATE	10	U										

SAMPLE NUMBER:	MPT-AC-SW01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001		
QC_TYPE:	NORMAL		
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
CHRYSENE	10	U										
DI-N-BUTYL PHTHALATE	10	U										
DI-N-OCTYL PHTHALATE	10	U										
DIALLATE	20	U										
DIBENZO(A,H)ANTHRACENE	10	U										
DIBENZOFURAN	10	U										
DIETHYL PHTHALATE	10	U										
DIMETHYL PHTHALATE	10	U										
DIPHENYLAMINE	10	U										
ETHYL METHANESULFONATE	10	U										
FLUORANTHENE	10	U										
FLUORENE	10	U										
HEXACHLOROBENZENE	10	U										
HEXACHLOROBUTADIENE	10	U										
HEXACHLOROCYCLOPENTADIENE	10	U										
HEXACHLOROETHANE	10	U										
HEXACHLOROPROPENE	10	U										
INDENO(1,2,3-CD)PYRENE	10	U										
ISOPHORONE	10	U										
ISOSAFROLE	10	U										
METHAPYRILENE	10	UJ	C									
METHYL METHANESULFONATE	10	U										
N-NITROSO-DI-N-BUTYLAMINE	10	U										
N-NITROSO-DI-N-PROPYLAMINE	10	U										
N-NITROSODIETHYLAMINE	10	U										
N-NITROSODIMETHYLAMINE	10	U										
N-NITROSODIPHENYLAMINE	10	U										
N-NITROSOMETHYLETHYLAMINE	10	U										
N-NITROSOMORPHOLINE	10	U										
N-NITROSOPIPERIDINE	10	U										
N-NITROSOPYRROLIDINE	10	U										
NAPHTHALENE	10	U										
NITROBENZENE	10	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001		
QC_TYPE:	NORMAL		
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
O-TOLUIDINE	10	U										
P-DIMETHYLAMINOAZOBENZENE	10	U										
P-PHENYLENEDIAMINE	10	UJ	C									
PENTACHLOROBENZENE	10	U										
PENTACHLOROETHANE	50	U										
PENTACHLORONITROBENZENE	10	U										
PENTACHLOROPHENOL	10	U										
PHENACETIN	10	U										
PHENANTHRENE	10	U										
PHENOL	10	U										
PRONAMIDE	10	U										
PYRENE	10	U										
PYRIDINE	10	U										
SAFROLE	10	U										
SULFOTEPP	50	U										
THIONAZIN	50	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001		
QC_TYPE:	NORMAL		
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	0.050	UJ	C									
4,4'-DDE	0.050	U										
4,4'-DDT	0.050	U										
ALDRIN	0.050	U										
ALPHA-BHC	0.050	U										
ALPHA-CHLORDANE	0.050	U										
AROCLOR-1016	1.0	U										
AROCLOR-1221	1.0	U										
AROCLOR-1232	1.0	U										
AROCLOR-1242	1.0	U										
AROCLOR-1248	1.0	U										
AROCLOR-1254	1.0	U										
AROCLOR-1260	1.0	U										
BETA-BHC	0.050	U										
DELTA-BHC	0.050	U										
DIELDRIN	0.050	U										
ENDOSULFAN I	0.050	U										
ENDOSULFAN II	0.050	U										
ENDOSULFAN SULFATE	0.050	U										
ENDRIN	0.050	U										
ENDRIN ALDEHYDE	0.050	U										
ENDRIN KETONE	0.050	U										
GAMMA-BHC (LINDANE)	0.050	U										
GAMMA-CHLORDANE	0.050	U										
HEPTACHLOR	0.050	U										
HEPTACHLOR EPOXIDE	0.050	U										
ISODRIN	0.10	UJ	C									
KEPONE	1.0	UJ	C									
METHOXYCHLOR	0.10	U										
TOXAPHENE	2.0	U										

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002		
QC_TYPE:	NORMAL		
% SOLIDS:	78.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	2.2	UJ	C									
4,4'-DDE	2.2	U										
4,4'-DDT	2.2	U										
ALDRIN	2.2	U										
ALPHA-BHC	2.2	U										
ALPHA-CHLORDANE	2.2	U										
AROCLOR-1016	42	U										
AROCLOR-1221	42	U										
AROCLOR-1232	42	U										
AROCLOR-1242	42	U										
AROCLOR-1248	42	U										
AROCLOR-1254	42	U										
AROCLOR-1260	42	U										
BETA-BHC	2.2	U										
DELTA-BHC	2.2	U										
DIELDRIN	2.2	U										
ENDOSULFAN I	2.2	U										
ENDOSULFAN II	2.2	U										
ENDOSULFAN SULFATE	2.2	U										
ENDRIN	2.2	U										
ENDRIN ALDEHYDE	2.2	U										
ENDRIN KETONE	2.2	U										
GAMMA-BHC (LINDANE)	2.2	U										
GAMMA-CHLORDANE	2.2	U										
HEPTACHLOR	2.2	U										
HEPTACHLOR EPOXIDE	2.2	U										
METHOXYCHLOR	4.2	U										
TOXAPHENE	86	U										

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002		
QC_TYPE:	NORMAL		
% SOLIDS:	78.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	420	U										
1,2-DICHLOROBENZENE	420	U										
1,3-DICHLOROBENZENE	420	U										
1,4-DICHLOROBENZENE	420	U										
2,2'-OXYBIS(1-CHLOROPROPANE)	420	U										
2,4,5-TRICHLOROPHENOL	420	U										
2,4,6-TRICHLOROPHENOL	420	U										
2,4-DICHLOROPHENOL	420	U										
2,4-DIMETHYLPHENOL	420	U										
2,4-DINITROPHENOL	2100	U										
2,4-DINITROTOLUENE	420	U										
2,6-DINITROTOLUENE	420	U										
2-CHLORONAPHTHALENE	420	U										
2-CHLOROPHENOL	420	U										
2-METHYLNAPHTHALENE	420	U										
2-METHYLPHENOL	420	U										
2-NITROANILINE	2100	U										
2-NITROPHENOL	420	U										
3,3'-DICHLOROBENZIDINE	2100	U										
3-NITROANILINE	2100	U										
4,6-DINITRO-2-METHYLPHENOL	2100	U										
4-BROMOPHENYL PHENYL ETHER	420	U										
4-CHLORO-3-METHYLPHENOL	420	U										
4-CHLOROANILINE	420	U										
4-CHLOROPHENYL PHENYL ETHER	420	U										
4-METHYLPHENOL	420	U										
4-NITROANILINE	2100	U										
4-NITROPHENOL	2100	U										
ACENAPHTHENE	420	U										
ACENAPHTHYLENE	420	U										
ANTHRACENE	420	U										
BENZO(A)ANTHRACENE	420	U										
BENZO(A)PYRENE	420	U										

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SD01-01		
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190002		
QC_TYPE:	NORMAL		
% SOLIDS:	78.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/KG		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
BENZO(B)FLUORANTHENE	420	U										
BENZO(G,H,I)PERYLENE	420	U										
BENZO(K)FLUORANTHENE	420	U										
BIS(2-CHLOROETHOXY)METHANE	420	U										
BIS(2-CHLOROETHYL)ETHER	420	U										
BIS(2-ETHYLHEXYL)PHTHALATE	420	U										
BUTYLBENZYL PHTHALATE	420	U										
CARBAZOLE	420	U										
CHRYSENE	420	U										
DI-N-BUTYL PHTHALATE	420	U										
DI-N-OCTYL PHTHALATE	420	U										
DIBENZO(A,H)ANTHRACENE	420	U										
DIBENZOFURAN	420	U										
DIETHYL PHTHALATE	420	U										
DIMETHYL PHTHALATE	420	U										
FLUORANTHENE	420	U										
FLUORENE	420	U										
HEXACHLOROBENZENE	420	U										
HEXACHLOROBUTADIENE	420	U										
HEXACHLOROCYCLOPENTADIENE	2100	U										
HEXACHLOROETHANE	420	U										
INDENO(1,2,3-CD)PYRENE	420	U										
ISOPHORONE	420	U										
N-NITROSO-DI-N-PROPYLAMINE	420	U										
N-NITROSODIPHENYLAMINE	420	U										
NAPHTHALENE	420	U										
NITROBENZENE	420	U										
PENTACHLOROPHENOL	420	U										
PHENANTHRENE	420	U										
PHENOL	420	U										
PYRENE	420	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
HERBICIDES												
2,4,5-T	1	U										
2,4,5-TP (SILVEX)	1	U										
2,4-D	4	U										
DINOSEB	0.6	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP028

SAMPLE NUMBER:	MPT-AC-SW01-01			
SAMPLE DATE:	11/15/00	/ /	/ /	/ /
LABORATORY ID:	A0K170190001			
QC_TYPE:	NORMAL			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1.0	U										
DISULFOTON	1.0	U										
FAMPHUR	1.0	U										
METHYL PARATHION	1.0	U										
O,O,O-TRIETHYLPHOSPHOROTHIOATE	1.0	U										
PARATHION	1.0	U										
PHORATE	1.0	U										
SULFOTEP	1.0	U										
THIONAZIN	1.0	U										

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WQ Lab Sample ID:A0K170190 003
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/16/00
Work Order: DP3VK1AA Date Extracted:11/24/00
Dilution factor: 1 Date Analyzed: 11/24/00
Moisture %:

QC Batch: 0330093

Client Sample Id: TB111500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-64-1	Acetone	1.8	J
75-05-8	Acetonitrile	20	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	2.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
126-99-8	Chloroprene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
107-05-1	Allyl chloride	1.0	U
74-95-3	Dibromomethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.1	
156-59-2	cis-1,2-Dichloroethene	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
540-59-0	1,2-Dichloroethene (total)	1.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WQ Lab Sample ID:A0K170190 003
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/16/00
Work Order: DP3VK1AA Date Extracted:11/24/00
Dilution factor: 1 Date Analysed: 11/24/00
Moisture %:

QC Batch: 0330093

Client Sample Id: TB111500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
97-63-2	Ethyl methacrylate	1.0	U
75-69-4	Trichlorofluoromethane	2.0	U
591-78-6	2-Hexanone	10	U
74-88-4	Iodomethane	1.0	U
78-83-1	Isobutyl alcohol	50	U
126-98-7	Methacrylonitrile	1.0	U
75-09-2	Methylene chloride	1.0	U
80-62-6	Methyl methacrylate	1.0	U
107-12-0	Propionitrile	4.0	U
100-42-5	Styrene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.22	J
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
108-05-4	Vinyl acetate	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes (total)	1.0	U
106-93-4	1,2-Dibromoethane (EDB)	1.0	U
78-93-3	2-Butanone (MEK)	10	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WQ Lab Sample ID:A0K170190 003
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/16/00
Work Order: DP3VK1AA Date Extracted:11/24/00
Dilution factor: 1 Date Analyzed: 11/24/00
Moisture %:

QC Batch: 0330093

Client Sample Id: TB111500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
1634-04-4	Methyl tert-butyl ether (MTB	5.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/16/00
Work Order: DP3PK1CA Date Extracted:11/24/00
Dilution factor: 1 Date Analyzed: 11/24/00
Moisture %:

QC Batch: 0330093

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-64-1	**Acetone**	**3.7**	**J**
75-05-8	Acetonitrile	20	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
71-43-2	Benzene	1.0	U
75-27-4	**Bromodichloromethane**	**1.9**	
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	2.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
126-99-8	Chloroprene	1.0	U
124-48-1	**Dibromochloromethane**	**0.98**	**J**
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	**Chloroform**	**3.9**	
74-87-3	Chloromethane	1.0	U
107-05-1	Allyl chloride	1.0	U
74-95-3	Dibromomethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
540-59-0	1,2-Dichloroethene (total)	1.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/16/00
Work Order: DP3PK1CA Date Extracted:11/24/00
Dilution factor: 1 Date Analyzed: 11/24/00
Moisture %:

QC Batch: 0330093

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
97-63-2	Ethyl methacrylate	1.0	U
75-69-4	Trichlorofluoromethane	2.0	U
591-78-6	2-Hexanone	10	U
74-88-4	Iodomethane	1.0	U
78-83-1	Isobutyl alcohol	50	U
126-98-7	Methacrylonitrile	1.0	U
75-09-2	Methylene chloride	1.0	U
80-62-6	Methyl methacrylate	1.0	U
107-12-0	Propionitrile	4.0	U
100-42-5	Styrene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
108-05-4	Vinyl acetate	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes (total)	1.0	U
106-93-4	1,2-Dibromoethane (EDB)	1.0	U
78-93-3	2-Butanone (MEK)	10	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO Lab Sample ID:A0K170190 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/16/00
Work Order: DP3RF1A8 Date Extracted:11/28/00
Dilution factor: 1.1 Date Analyzed: 11/28/00
Moisture %:22

QC Batch: 0333223

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	**Acetone**	4.7	J B
71-43-2	Benzene	7.1	U
75-27-4	Bromodichloromethane	7.1	U
75-25-2	Bromoform	7.1	U
74-83-9	Bromomethane	14	U
78-93-3	2-Butanone	28	U
75-15-0	**Carbon disulfide**	3.1	J
56-23-5	Carbon tetrachloride	7.1	U
108-90-7	Chlorobenzene	7.1	U
124-48-1	Dibromochloromethane	7.1	U
75-00-3	Chloroethane	14	U
67-66-3	Chloroform	7.1	U
74-87-3	Chloromethane	14	U
75-34-3	1,1-Dichloroethane	7.1	U
107-06-2	1,2-Dichloroethane	7.1	U
75-35-4	**1,1-Dichloroethene**	1.2	J
156-59-2	cis-1,2-Dichloroethene	3.5	U
156-60-5	trans-1,2-Dichloroethene	3.5	U
540-59-0	1,2-Dichloroethene (total)	7.1	U
78-87-5	1,2-Dichloropropane	7.1	U
10061-01-5	cis-1,3-Dichloropropene	7.1	U
10061-02-6	trans-1,3-Dichloropropene	7.1	U
100-41-4	Ethylbenzene	7.1	U
591-78-6	2-Hexanone	28	U
75-09-2	Methylene chloride	7.1	U
108-10-1	4-Methyl-2-pentanone	28	U
100-42-5	Styrene	7.1	U
79-34-5	1,1,2,2-Tetrachloroethane	7.1	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO Lab Sample ID:A0K170190 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/16/00
Work Order: DP3RF1A8 Date Extracted:11/28/00
Dilution factor: 1.1 Date Analyzed: 11/28/00
Moisture %:22

QC Batch: 0333223

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
127-18-4	Tetrachloroethene	1.5	J
108-88-3	Toluene	7.1	U
71-55-6	1,1,1-Trichloroethane	7.1	U
79-00-5	1,1,2-Trichloroethane	7.1	U
79-01-6	Trichloroethene	7.1	U
75-01-4	Vinyl chloride	14	U
1330-20-7	Xylenes (total)	7.1	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AA Date Extracted:11/20/00
Dilution factor: 1 Date Analyzed: 11/28/00
Moisture %:

QC Batch: 0325107

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
83-32-9	Acenaphthene	10	U
208-96-8	Acenaphthylene	10	U
98-86-2	Acetophenone	10	U
53-96-3	2-Acetylaminofluorene	10	U
92-67-1	4-Aminobiphenyl	10	U
62-53-3	Aniline	10	U
120-12-7	Anthracene	10	U
56-55-3	Benzo(a)anthracene	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
191-24-2	Benzo(ghi)perylene	10	U
50-32-8	Benzo(a)pyrene	10	U
100-51-6	Benzyl alcohol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
111-44-4	bis(2-Chloroethyl) ether	10	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	10	U
117-81-7	bis(2-Ethylhexyl) phthalate	5.0	U
101-55-3	4-Bromophenyl phenyl ether	10	U
85-68-7	Butyl benzyl phthalate	10	U
106-47-8	4-Chloroaniline	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-58-7	2-Chloronaphthalene	10	U
95-57-8	2-Chlorophenol	10	U
7005-72-3	4-Chlorophenyl phenyl ether	10	U
218-01-9	Chrysene	10	U
2303-16-4	Diallate	20	U
53-70-3	Dibenz(a,h)anthracene	10	U
132-64-9	Dibenzofuran	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AA Date Extracted:11/20/00
Dilution factor: 1 Date Analyzed: 11/28/00
Moisture %:

QC Batch: 0325107

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
84-74-2	Di-n-butyl phthalate	10	U
95-50-1	1,2-Dichlorobenzene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
120-83-2	2,4-Dichlorophenol	10	U
87-65-0	2,6-Dichlorophenol	10	U
84-66-2	Diethyl phthalate	10	U
297-97-2	Thionazin	50	U
60-11-7	p-Dimethylaminoazobenzene	10	U
57-97-6	7,12-Dimethylbenz(a)anthrace	10	U
119-93-7	3,3'-Dimethylbenzidine	10	U
105-67-9	2,4-Dimethylphenol	10	U
131-11-3	Dimethyl phthalate	10	U
117-84-0	Di-n-octyl phthalate	10	U
99-65-0	1,3-Dinitrobenzene	10	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
51-28-5	2,4-Dinitrophenol	25	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	20	U
123-91-1	1,4-Dioxane	10	U
122-39-4	Diphenylamine	10	U
62-50-0	Ethyl methanesulfonate	10	U
206-44-0	Fluoranthene	10	U
86-73-7	Fluorene	10	U
118-74-1	Hexachlorobenzene	10	U
87-68-3	Hexachlorobutadiene	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AA Date Extracted:11/20/00
Dilution factor: 1 Date Analyzed: 11/28/00
Moisture %:

QC Batch: 0325107

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
77-47-4	Hexachlorocyclopentadiene	10	U
67-72-1	Hexachloroethane	10	U
1888-71-7	Hexachloropropene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
78-59-1	Isophorone	10	U
120-58-1	Isosafrole	10	U
91-80-5	Methapyrilene	10	U
95-53-4	o-Toluidine	10	U
56-49-5	3-Methylcholanthrene	10	U
66-27-3	Methyl methanesulfonate	10	U
91-57-6	2-Methylnaphthalene	10	U
95-48-7	2-Methylphenol	10	U
108-39-4	3-Methylphenol	10	U
106-44-5	4-Methylphenol	10	U
91-20-3	Naphthalene	10	U
130-15-4	1,4-Naphthoquinone	10	U
134-32-7	1-Naphthylamine	10	U
91-59-8	2-Naphthylamine	10	U
88-74-4	2-Nitroaniline	25	U
99-09-2	3-Nitroaniline	25	U
100-01-6	4-Nitroaniline	25	U
98-95-3	Nitrobenzene	10	U
88-75-5	2-Nitrophenol	10	U
100-02-7	4-Nitrophenol	25	U
56-57-5	4-Nitroquinoline-1-oxide	10	U
924-16-3	N-Nitrosodi-n-butylamine	10	U
55-18-5	N-Nitrosodiethylamine	10	U
62-75-9	N-Nitrosodimethylamine	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AA Date Extracted:11/20/00
Dilution factor: 1 Date Analyzed: 11/28/00
Moisture %:

QC Batch: 0325107

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
621-64-7	N-Nitrosodi-n-propylamine	10	U
86-30-6	N-Nitrosodiphenylamine	10	U
10595-95-6	N-Nitrosomethylethylamine	10	U
59-89-2	N-Nitrosomorpholine	10	U
100-75-4	N-Nitrosopiperidine	10	U
930-55-2	N-Nitrosopyrrolidine	10	U
99-55-8	5-Nitro-o-toluidine	10	U
608-93-5	Pentachlorobenzene	10	U
76-01-7	Pentachloroethane	50	U
82-68-8	Pentachloronitrobenzene	10	U
87-86-5	Pentachlorophenol	10	U
62-44-2	Phenacetin	10	U
85-01-8	Phenanthrene	10	U
108-95-2	Phenol	10	U
106-50-3	p-Phenylene diamine	10	U
109-06-8	2-Picoline	10	U
23950-58-5	Pronamide	10	U
129-00-0	Pyrene	10	U
110-86-1	Pyridine	10	U
94-59-7	Safrole	10	U
95-94-3	1,2,4,5-Tetrachlorobenzene	10	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	U
3689-24-5	Sulfotepp	50	U
120-82-1	1,2,4-Trichlorobenzene	10	U
95-95-4	2,4,5-Trichlorophenol	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
99-35-4	1,3,5-Trinitrobenzene	10	U
86-74-8	Carbazole	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AA Date Extracted:11/20/00
Dilution factor: 1 Date Analyzed: 11/28/00
Moisture %:

QC Batch: 0325107

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
510-15-6	Chlorobenzilate	10	U
122-09-8	a,a-Dimethylphenethylamine	50	U
140-57-8	Aramite	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO Lab Sample ID:A0K170190 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.05 / g Date Received: 11/16/00
Work Order: DP3RF1AD Date Extracted:11/17/00
Dilution factor: 1 Date Analyzed: 11/27/00
Moisture %:22

QC Batch: 0322349

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl) ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitrosodi-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	2100	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	420	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	2100	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO Lab Sample ID:A0K170190 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.05 / g Date Received: 11/16/00
Work Order: DP3RF1AD Date Extracted:11/17/00
Dilution factor: 1 Date Analyzed: 11/27/00
Moisture %:22

QC Batch: 0322349

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
131-11-3	Dimethyl phthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	2100	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	2100	U
100-02-7	4-Nitrophenol	2100	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethyl phthalate	420	U
7005-72-3	4-Chlorophenyl phenyl ether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	2100	U
534-52-1	4,6-Dinitro-2-methylphenol	2100	U
86-30-6	N-Nitrosodiphenylamine	420	U
101-55-3	4-Bromophenyl phenyl ether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	420	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
86-74-8	Carbazole	420	U
84-74-2	Di-n-butyl phthalate	420	U
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	Butyl benzyl phthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	2100	U
56-55-3	Benzo(a)anthracene	420	U
218-01-9	Chrysene	420	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO Lab Sample ID:A0K170190 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.05 / g Date Received: 11/16/00
Work Order: DP3RF1AD Date Extracted:11/17/00
Dilution factor: 1 Date Analyzed: 11/27/00
Moisture %:22

QC Batch: 0322349

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
117-81-7	bis(2-Ethylhexyl) phthalate	420	U
117-84-0	Di-n-octyl phthalate	420	U
205-99-2	Benzo(b)fluoranthene	420	U
207-08-9	Benzo(k)fluoranthene	420	U
50-32-8	Benzo(a)pyrene	420	U
193-39-5	Indeno(1,2,3-cd)pyrene	420	U
53-70-3	Dibenz(a,h)anthracene	420	U
191-24-2	Benzo(ghi)perylene	420	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8081A
Pesticides (8081A)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AC Date Extracted:11/20/00
Dilution factor: 1 Date Analyzed: 12/03/00
Moisture %:

QC Batch: 0325112

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
309-00-2	Aldrin	0.050	U
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
72-54-8	4,4'-DDD	0.050	U
72-55-9	4,4'-DDE	0.050	U
50-29-3	4,4'-DDT	0.050	U
60-57-1	Dieldrin	0.050	U
959-98-8	Endosulfan I	0.050	U
33213-65-9	Endosulfan II	0.050	U
1031-07-8	Endosulfan sulfate	0.050	U
72-20-8	Endrin	0.050	U
7421-93-4	Endrin aldehyde	0.050	U
53494-70-5	Endrin ketone	0.050	U
76-44-8	Heptachlor	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
465-73-6	Isodrin	0.10	U
143-50-0	Kepone	1.0	U
72-43-5	Methoxychlor	0.10	U
8001-35-2	Toxaphene	2.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG
Method: SW846 8082
PCBs (8082)

Lab Sample ID:A0K170190 001

Sample WT/Vol: 1000 / mL
Work Order: DP3PK1AD
Dilution factor: 1
Moisture %:

Date Received: 11/16/00
Date Extracted:11/20/00
Date Analyzed: 12/04/00

QC Batch: 0325113

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
12674-11-2	Aroclor 1016	1.0	U
11104-28-2	Aroclor 1221	1.0	U
11141-16-5	Aroclor 1232	1.0	U
53469-21-9	Aroclor 1242	1.0	U
12672-29-6	Aroclor 1248	1.0	U
11097-69-1	Aroclor 1254	1.0	U
11096-82-5	Aroclor 1260	1.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO Lab Sample ID:A0K170190 002
Method: SW846 8081A
Pesticides (8081A)

Sample WT/Vol: 30.02 / g Date Received: 11/16/00
Work Order: DP3RF1AE Date Extracted:11/17/00
Dilution factor: 1 Date Analyzed: 12/03/00
Moisture %:22

QC Batch: 0322340

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	2.2	U
72-55-9	4,4'-DDE	2.2	U
72-20-8	Endrin	2.2	U
33213-65-9	Endosulfan II	2.2	U
72-54-8	4,4'-DDD	2.2	U
1031-07-8	Endosulfan sulfate	2.2	U
50-29-3	4,4'-DDT	2.2	U
72-43-5	Methoxychlor	4.2	U
53494-70-5	Endrin ketone	2.2	U
7421-93-4	Endrin aldehyde	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	86	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SO
Method: SW846 8082
PCBs (8082)

Lab Sample ID:A0K170190 002

Sample WT/Vol: 30.02 / g
Work Order: DP3RF1AF
Dilution factor: 1
Moisture %:22

Date Received: 11/16/00
Date Extracted:11/17/00
Date Analyzed: 11/29/00

QC Batch: 0322339

Client Sample Id: MPT-AC-SD01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/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	42	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG Lab Sample ID:A0K170190 001
Method: SW846 8141A
Compounds, Organophosphorus (8141A)

Sample WT/Vol: 1000 / mL Date Received: 11/16/00
Work Order: DP3PK1AF Date Extracted:11/21/00
Dilution factor: 1 Date Analyzed: 11/29/00
Moisture %:

QC Batch: 0326098

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
297-97-2	Thionazin	1.0	U
60-51-5	Dimethoate	1.0	U
298-04-4	Disulfoton	1.0	U
52-85-7	Famphur	1.0	U
298-00-0	Methyl parathion	1.0	U
56-38-2	Parathion	1.0	U
298-02-2	Phorate	1.0	U
3689-24-5	Sulfotepp	1.0	U
126-68-1	O,O,O-Triethyl phosphorothio	1.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) WG
Method: SW846 8151A
Herbicides (8151A)

Lab Sample ID:A0K170190 001

Sample WT/Vol: 500 / mL
Work Order: DP3PK1AE
Dilution factor: 1
Moisture %:

Date Received: 11/16/00
Date Extracted:11/21/00
Date Analyzed: 11/30/00

QC Batch: 0326344

Client Sample Id: MPT-AC-SW01-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
94-75-7	2,4-D	4.0	U
88-85-7	Dinoseb	0.60	U
93-72-1	2,4,5-TP (Silvex)	1.0	U
93-76-5	2,4,5-T	1.0	U

APPENDIX C

SUPPORT DOCUMENTATION

MP028

HOLDING TIME
12/22/00

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	CN	11/15/00	11/28/00	11/28/00	13	0	13
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	CN	11/15/00	11/29/00	11/29/00	14	0	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	HERB	11/15/00	11/21/00	11/30/00	6	9	15
MG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	HG	11/15/00	11/27/00	11/28/00	12	1	13
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	HG	11/15/00	11/27/00	11/27/00	12	0	12
MG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	M	11/15/00	11/27/00	11/29/00	12	2	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	M	11/15/00	11/27/00	11/29/00	12	2	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	OPEST	11/15/00	11/21/00	11/29/00	6	8	14
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	OS	11/15/00	11/17/00	11/27/00	2	10	12
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	OS	11/15/00	11/20/00	11/28/00	5	8	13
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	OV	11/15/00	11/28/00	11/28/00	13	0	13
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	OV	11/15/00	11/24/00	11/24/00	9	0	9
UG/L	TB111500	A0K170190003	TRIP BLANK	MP028	OV	11/15/00	11/24/00	11/24/00	9	0	9
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	PCB	11/15/00	11/17/00	11/29/00	2	12	14
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	PCB	11/15/00	11/20/00	12/04/00	5	14	19
UG/KG	MPT-AC-SD01-01	A0K170190002	NORMAL	MP028	PEST	11/15/00	11/17/00	12/03/00	2	16	18
UG/L	MPT-AC-SW01-01	A0K170190001	NORMAL	MP028	PEST	11/15/00	11/20/00	12/03/00	5	13	18

TETRA TECH NUS, INC.
METHOD BLANK COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP028

Matrix: (soil/water) SOLID Lab Sample ID:A0K280000 223
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/17/00
Work Order: DQFJ71AA Date Extracted:11/28/00
Dilution factor: 1 Date Analyzed: 11/28/00
Moisture %:NA

QC Batch: 0333223

Client Sample Id: INTRA-LAB BLANK

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	3.5	J
71-43-2	Benzene	5.0	U
75-27-4	Bromodichloromethane	5.0	U
75-25-2	Bromoform	5.0	U
74-83-9	Bromomethane	10	U
78-93-3	2-Butanone	20	U
75-15-0	Carbon disulfide	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
108-90-7	Chlorobenzene	5.0	U
124-48-1	Dibromochloromethane	5.0	U
75-00-3	Chloroethane	10	U
67-66-3	Chloroform	5.0	U
74-87-3	Chloromethane	10	U
75-34-3	1,1-Dichloroethane	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
156-59-2	cis-1,2-Dichloroethene	2.5	U
156-60-5	trans-1,2-Dichloroethene	2.5	U
540-59-0	1,2-Dichloroethene (total)	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
100-41-4	Ethylbenzene	5.0	U
591-78-6	2-Hexanone	20	U
75-09-2	Methylene chloride	5.0	U
108-10-1	4-Methyl-2-pentanone	20	U
100-42-5	Styrene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: A0K180106

Lab File ID: BFB004 BFB Injection Date: 11/09/00

Instrument ID: A3UX11 BFB Injection Time: 1727

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.2
75	30.0 - 60.0% of mass 95	46.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.1 (0.2)1
174	50.0 - 120.0% of mass 95	87.7
175	5.0 - 9.0% of mass 174	6.4 (7.3)1
176	Greater than 95.0%, but less than 101.0% of mass 174	85.3 (97.2)1
177	5.0 - 9.0% of mass 176	5.8 (6.8)2

1-Value is % of mass 174 2-Value is % of mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD040	200NG-A9IC	UXJ056	11/09/00	1944
02	VSTD020	100NG-A9IC	UXJ057	11/09/00	2007
03	VSTD010	50NG-A9IC	UXJ058	11/09/00	2030
04	VSTD005	25NG-A9IC	UXJ059	11/09/00	2054
05	VSTD001	5NG-A9IC	UXJ060	11/09/00	2117
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

DP6PJCHKDUP

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP6PJ1AD Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-Chlordane	1	9.71	9.66	9.76	1.026	
	2	11.02	10.97	11.07	0.9842	4.2
4,4'-DDE	1	9.95	9.90	10.00	1.116	
	2	11.43	11.38	11.48	1.070	4.3
Endosulfan I	1	9.90	9.85	9.95	0.8667	
	2	11.09	11.04	11.14	0.8330	4.0
4,4'-DDT	1	11.39	11.34	11.44	1.140	
	2	13.42	13.37	13.47	1.024	11.3
Dieldrin	1	10.29	10.24	10.34	0.9910	
	2	11.63	11.57	11.67	0.9727	1.9
Endrin ketone	1	13.37	13.32	13.42	1.247	
	2	14.82	14.77	14.87	1.238	0.7
Endrin	1	10.64	10.59	10.69	0.7234	
	2	12.28	12.23	12.33	0.6698	8.0
4,4'-DDD	1	10.90	10.85	10.95	1.173	
	2	12.75	12.70	12.80	1.159	1.2

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DP6PJCHKDUP

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP6PJ1AD Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
Endosulfan sulfate	1	12.84	12.79	12.89	1.068	
	2	14.05	14.00	14.10	1.036	3.1
Endosulfan II	1	11.02	10.97	11.07	0.9619	
	2	12.82	12.77	12.87	0.9227	4.2
Methoxychlor	1	12.58	12.53	12.63	1.223	
	2	14.62	14.57	14.67	1.024	19.4
Endrin aldehyde	1	11.84	11.79	11.89	1.064	
	2	13.56	13.51	13.61	1.030	3.3
ENDO2/DDD	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

Report Date : 14-Nov-2000 13:08

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 09-NOV-2000 17:49
End Cal Date : 13-NOV-2000 18:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux11.i\J01113A.b\8260LLUX11.m
Cal Date : 13-Nov-2000 19:08 mccroryj
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ060.D
Level 2: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ059.D
Level 3: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ058.D
Level 4: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ057.D
Level 5: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ056.D

	Compound	5.000 Level 1	25.000 Level 2	50.000 Level 3	100.000 Level 4	200.000 Level 5	RRF	% RSD
	8 Dichlorodifluoromethane	0.13039	0.16870	0.17098	0.16596	0.15636	0.15848	10.512
	9 Chloromethane	0.19748	0.21755	0.21742	0.21591	0.20676	0.21102	4.164
	10 Vinyl Chloride	0.22664	0.23375	0.24633	0.24012	0.22956	0.23528	3.395
	11 Bromomethane	0.19013	0.19275	0.19489	0.18411	0.14969	0.18232	10.246
	12 Chloroethane	0.16072	0.16468	0.16696	0.15991	0.14790	0.16003	4.604
	13 Trichlorofluoromethane	0.34354	0.34758	0.37545	0.37904	0.36385	0.36189	4.420
	14 Dichlorofluoromethane	0.36416	0.40050	0.41829	0.41601	0.41506	0.40280	5.638
	15 Acrolein	0.01812	0.02073	0.02356	0.02305	0.02026	0.02114	10.458
	16 Acetone	0.09420	0.06410	0.06971	0.06480	0.05588	0.06974	20.861
	17 1,1-Dichloroethene	0.18679	0.19636	0.20788	0.20942	0.19733	0.19955	4.652
	18 Freon-113	0.15806	0.22752	0.23706	0.23717	0.22330	0.21662	15.368
	19 Iodomethane	0.38836	0.41908	0.44074	0.42615	0.41203	0.41727	4.635
	20 Carbon Disulfide	0.64547	0.64344	0.68447	0.68966	0.64904	0.66242	3.422
	21 Methylene Chloride	0.22434	0.26383	0.25016	0.24049	0.21893	0.23955	7.696
	22 Acetonitrile	0.02595	0.02436	0.02549	0.02532	0.02234	0.02469	5.826
	23 Acrylonitrile	0.07046	0.07421	0.07934	0.07778	0.06820	0.07400	6.374
	24 Methyl tert-butyl ether	0.65995	0.65988	0.71293	0.71516	0.64298	0.67818	4.936
	25 trans-1,2-Dichloroethene	0.22480	0.22472	0.23847	0.23941	0.22492	0.23046	3.360
	26 Hexane	0.04305	0.06210	0.06875	0.06868	0.06456	0.06143	17.345
	27 Vinyl acetate	0.14285	0.15385	0.15952	0.16471	0.14646	0.15348	5.873
	28 1,1-Dichloroethane	0.36063	0.35489	0.38500	0.38490	0.36258	0.36960	3.868
	29 tert-Butyl Alcohol	0.01521	0.01491	0.01829	0.01769	0.01429	0.01608	11.136
	30 2-Butanone	0.08861	0.07998	0.08980	0.08861	0.07514	0.08443	7.717
M	31 1,2-Dichloroethene (total)	0.23351	0.23049	0.24506	0.24644	0.22980	0.23706	3.403
	32 cis-1,2-dichloroethene	0.24222	0.23627	0.25165	0.25347	0.23467	0.24366	3.539
	33 2,2-Dichloropropane	0.35628	0.35697	0.38305	0.38249	0.36134	0.36803	3.696

Report Date : 14-Nov-2000 13:08

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 09-NOV-2000 17:49
End Cal Date : 13-NOV-2000 18:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux11.i\J01113A.b\8260LLUX11.m
Cal Date : 13-Nov-2000 19:08 mccroryj
Curve Type : Average

	Compound	5.000 Level 1	25.000 Level 2	50.000 Level 3	100.000 Level 4	200.000 Level 5	RRF	% RSD	
	34 Bromochloromethane	0.13032	0.12187	0.13082	0.13010	0.12143	0.12691	3.790	
	35 Chloroform	0.37086	0.36108	0.38738	0.38302	0.35847	0.37216	3.455	
	36 Tetrahydrofuran	0.04737	0.05319	0.05844	0.05530	0.04752	0.05236	9.288	
	37 1,1,1-Trichloroethane	0.34330	0.35782	0.37518	0.37235	0.35273	0.36028	3.722	
	38 1,1-Dichloropropene	0.28176	0.28171	0.30613	0.30195	0.28368	0.29105	4.116	
	39 Carbon Tetrachloride	0.27310	0.28333	0.30096	0.30270	0.28673	0.28937	4.303	
	40 1,2-Dichloroethane	0.29002	0.28981	0.30908	0.30970	0.28107	0.29593	4.326	
	41 Benzene	0.95724	0.88145	0.93657	0.93174	0.87629	0.91666	3.910	
	42 Trichloroethene	0.28275	0.27077	0.28224	0.27898	0.26434	0.27582	2.903	
	43 1,2-Dichloropropane	0.21560	0.20896	0.22314	0.22041	0.20659	0.21494	3.316	
	44 1,4-Dioxane	0.00209	0.00161	0.00233	0.00241	0.00204	0.00210	14.931	<-
	45 Dibromomethane	0.13559	0.12357	0.13589	0.13326	0.12062	0.12979	5.524	
	46 Bromodichloromethane	0.23945	0.24149	0.25436	0.25614	0.24058	0.24641	3.300	
	47 2-Chloroethyl vinyl ether	0.11238	0.12489	0.13247	0.13113	0.11498	0.12317	7.445	
	48 cis-1,3-Dichloropropene	0.34266	0.34849	0.37258	0.37575	0.34955	0.35781	4.249	
	49 4-Methyl-2-pentanone	0.17977	0.16971	0.19008	0.18440	0.15638	0.17607	7.554	
	50 Toluene	1.32366	1.25064	1.31563	1.31198	1.24629	1.28964	2.935	
	51 trans-1,3-Dichloropropene	0.43455	0.40333	0.44252	0.44149	0.40629	0.42563	4.531	
	52 Ethyl Methacrylate	0.32149	0.32770	0.34434	0.35610	0.31244	0.33241	5.305	
	53 1,1,2-Trichloroethane	0.23734	0.23988	0.25130	0.25077	0.22455	0.24077	4.581	
	54 1,3-Dichloropropane	0.44792	0.42155	0.44354	0.44603	0.40208	0.43222	4.609	
	55 Tetrachloroethene	0.29696	0.28913	0.30695	0.30617	0.28589	0.29702	3.231	
	56 2-Hexanone	0.14718	0.14118	0.16272	0.15651	0.12955	0.14743	8.812	
	57 Dibromochloromethane	0.21988	0.21007	0.22584	0.22854	0.22020	0.22091	3.215	
	58 1,2-Dibromoethane	0.26490	0.24665	0.26545	0.26037	0.22991	0.25346	5.994	
	59 Chlorobenzene	0.93501	0.88604	0.92816	0.91881	0.87233	0.90807	3.020	
	60 1,1,1,2-Tetrachloroethane	0.29211	0.28237	0.30243	0.30667	0.29154	0.29503	3.266	
	61 Ethylbenzene	0.50744	0.48202	0.51109	0.50864	0.47849	0.49753	3.191	
	62 m + p-Xylene	0.60459	0.60097	0.62815	0.62933	0.59934	0.61247	2.445	
M	63 Xylenes (total)	0.60495	0.59853	0.63118	0.63325	0.60509	0.61460	2.655	
	64 Xylene-o	0.60565	0.59365	0.63726	0.64108	0.61659	0.61885	3.280	
	65 Styrene	0.96281	0.96789	1.03208	1.04868	1.01234	1.00476	3.807	
	66 Bromoform	0.12004	0.12560	0.13569	0.14013	0.13074	0.13044	6.098	

Report Date : 14-Nov-2000 13:08

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 09-NOV-2000 17:49
End Cal Date : 13-NOV-2000 18:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux11.i\J01113A.b\8260LLUX11.m
Cal Date : 13-Nov-2000 19:08 mccroryj
Curve Type : Average

Compound	5.000 Level 1	25.000 Level 2	50.000 Level 3	100.000 Level 4	200.000 Level 5	RRF	% RSD	
67 Isopropylbenzene	1.59701	1.52549	1.65608	1.66446	1.61259	1.61112	3.456	
68 1,1,2,2-Tetrachloroethane	0.46226	0.46379	0.49037	0.48267	0.40404	0.46063	7.350	
69 1,4-Dichloro-2-butene	0.11468	0.12136	0.14046	0.13755	0.12214	0.12724	8.781	
70 1,2,3-Trichloropropane	0.16756	0.17262	0.17710	0.17409	0.14810	0.16789	6.904	
71 Bromobenzene	0.66549	0.62840	0.65692	0.66144	0.58973	0.64040	4.973	
72 n-Propylbenzene	0.71459	0.69500	0.75884	0.74287	0.68802	0.71987	4.230	
73 2-Chlorotoluene	0.64159	0.60281	0.63789	0.63434	0.58006	0.61934	4.333	
74 1,3,5-Trimethylbenzene	2.11584	2.00920	2.19194	2.23404	2.05225	2.12065	4.415	
75 4-Chlorotoluene	0.70872	0.61725	0.66057	0.65670	0.59809	0.64827	6.616	
76 tert-Butylbenzene	1.96772	1.85957	2.04111	2.07137	1.92491	1.97294	4.354	
77 1,2,4-Trimethylbenzene	2.25676	2.10501	2.28605	2.29046	2.14110	2.21588	3.911	
78 sec-Butylbenzene	2.66899	2.58338	2.80215	2.87253	2.64793	2.71500	4.372	
79 4-Isopropyltoluene	2.49280	2.38590	2.60920	2.63368	2.42964	2.51024	4.332	
80 1,3-Dichlorobenzene	1.44318	1.30584	1.36263	1.39416	1.26270	1.35370	5.262	
81 1,4-Dichlorobenzene	1.45942	1.37934	1.41593	1.42452	1.29948	1.39574	4.362	
82 n-Butylbenzene	2.18914	2.10098	2.31025	2.35265	2.15722	2.22205	4.762	
83 1,2-Dichlorobenzene	1.37331	1.29653	1.38410	1.37343	1.27052	1.33958	3.895	
84 1,2-Dibromo-3-chloropropane	0.11955	0.11114	0.12232	0.12261	0.10396	0.11592	7.019	
85 1,2,4-Trichlorobenzene	1.22547	1.10767	1.16682	1.15864	1.03441	1.13860	6.296	
86 Hexachlorobutadiene	0.54935	0.50032	0.54125	0.53666	0.48055	0.52162	5.688	
87 Naphthalene	2.50728	2.31251	2.47027	2.45045	2.01493	2.35109	8.585	
88 1,2,3-Trichlorobenzene	1.05554	0.97877	1.03919	1.00979	0.89269	0.99520	6.467	
89 Ethyl Ether	0.17163	0.16799	0.17255	0.17050	0.16549	0.16963	1.698	
90 Ethanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
91 3-Chloropropene	0.11559	0.12243	0.11963	0.12150	0.11767	0.11936	2.338	
92 Isopropyl Ether	0.21264	0.21957	0.21938	0.21924	0.21528	0.21722	1.439	
93 2-Chloro-1,3-butadiene	0.32818	0.31911	0.33052	0.34141	0.33462	0.33077	2.487	
94 Propionitrile	0.02214	0.02517	0.02742	0.02753	0.02662	0.02578	8.689	
95 Ethyl Acetate	0.16293	0.15747	0.16625	0.16568	0.16565	0.16360	2.238	
96 Methacrylonitrile	0.12055	0.12419	0.12466	0.12545	0.12122	0.12331	1.775	
97 Isobutanol	0.00533	0.00522	0.00628	0.00611	0.00544	0.00568	8.501	<-
98 Cyclohexane	0.31559	0.39706	0.41891	0.41393	0.39273	0.38764	10.772	
99 n-Butanol	0.00474	0.00434	0.00472	0.00453	0.00401	0.00447	6.771	<-

Report Date : 14-Nov-2000 13:08

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 09-NOV-2000 17:49
End Cal Date : 13-NOV-2000 18:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux11.i\J01113A.b\8260LLUX11.m
Cal Date : 13-Nov-2000 19:08 mccroryj
Curve Type : Average

	Compound	5.000 Level 1	25.000 Level 2	50.000 Level 3	100.000 Level 4	200.000 Level 5	RRF	% RSD	
	100 Methyl Methacrylate	0.15232	0.16306	0.17155	0.16911	0.16839	0.16489	4.654	
	101 2-Nitropropane	0.02656	0.02597	0.02771	0.02902	0.02812	0.02748	4.444	
	102 Chloropicrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	103 Cyclohexanone	0.02772	0.02159	0.02326	0.02172	0.01936	0.02273	13.714	
	104 Pentachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	105 Benzyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	134 Thiophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	135 Crotononitrile(1st Isomer)	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	136 Crotononitrile(2nd Isomer)	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
M	137 Total Crotononitrile	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	138 Paraldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	139 3,3,5-Trimethylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	140 1-Chlorohexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	141 1,3,5-Trichlorobenzene	1.18911	1.20101	1.29466	1.28154	1.17627	1.22852	4.500	
	143 Methyl Acetate	0.15380	0.15847	0.17722	0.17101	0.14860	0.16182	7.390	
	144 Methylcyclohexane	0.34700	0.43074	0.46252	0.45111	0.43362	0.42500	10.706	
	145 Dimethoxymethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
$	4 Dibromofluoromethane	0.20687	0.19701	0.20318	0.20223	0.19024	0.19991	3.225	
$	5 1,2-Dichloroethane-d4	0.23589	0.24141	0.25334	0.23569	0.21784	0.23684	5.409	
$	6 Toluene-d8	1.06592	1.02533	1.07228	1.07840	1.02917	1.05422	2.376	
$	7 Bromofluorobenzene	0.43770	0.42150	0.43680	0.44557	0.42801	0.43391	2.148	

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: A0K180106

Lab File ID: BFB018 BFB Injection Date: 11/24/00

Instrument ID: A3UX11 BFB Injection Time: 0750

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.6
75	30.0 - 60.0% of mass 95	46.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	93.6
175	5.0 - 9.0% of mass 174	6.4 (6.8)1
176	Greater than 95.0%, but less than 101.0% of mass 174	90.2 (96.3)1
177	5.0 - 9.0% of mass 176	6.1 (6.8)2

1-Value is % of mass 174 2-Value is % of mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	50NG-CC	UXJ435	11/24/00	0811
02	VSTD010	50NG-A9CC	UXJ436	11/24/00	0834
03	DQDVK-CHK	DQDVK1AC	UXJ437	11/24/00	0857
04	DQDVK-BLK	DQDVK1AA	UXJ438	11/24/00	0921
05	MPTACSW0101	DP3PK1CA	UXJ439	11/24/00	0944
06	TRIP BLANK	DP3VK1AA	UXJ440	11/24/00	1007
07	MPTACSW0101	DP3PK1CC	UXJ449	11/24/00	1335
08	MPTACSW0101	DP3PK1CD	UXJ450	11/24/00	1358
09					
10					
11					
12					
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14					
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17					
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19					
20					
21					
22					

Data File: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01124A.b\UXJ435.D
Report Date: 24-Nov-2000 08:53

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux11.i Injection Date: 24-NOV-2000 08:11
Lab File ID: UXJ435.D Init. Cal. Date(s): 09-NOV-2000 13-NOV-2000
Analysis Type: WATER Init. Cal. Times: 17:49 18:04
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01124A.b\8260LLUX11.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
$	4 Dibromofluoromethane	0.19991	0.21511	0.010	7.6	50.0
$	5 1,2-Dichloroethane-d4	0.23684	0.23516	0.010	-0.7	50.0
$	6 Toluene-d8	1.05422	1.09559	0.010	3.9	50.0
$	7 Bromofluorobenzene	0.43391	0.43166	0.010	-0.5	50.0
	8 Dichlorodifluoromethane	0.15848	0.16734	0.010	5.6	50.0
	9 Chloromethane	0.21102	0.24297	0.100	15.1	50.0
	10 Vinyl Chloride	0.23528	0.25269	0.010	7.4	20.0
	11 Bromomethane	0.18232	0.20537	0.010	12.6	50.0
	12 Chloroethane	0.16003	0.19123	0.010	19.5	50.0
	13 Trichlorofluoromethane	0.36189	0.35499	0.010	-1.9	50.0
	15 Acrolein	0.02114	0.03128	0.010	47.9	50.0
	16 Acetone	0.06974	0.09954	0.010	42.7	50.0
	17 1,1-Dichloroethene	0.19955	0.22370	0.010	12.1	20.0
	18 Freon-113	0.21662	0.24100	0.010	11.3	50.0
	19 Iodomethane	0.41727	0.43138	0.010	3.4	50.0
	20 Carbon Disulfide	0.66242	0.79615	0.010	20.2	50.0
	21 Methylene Chloride	0.23955	0.24302	0.010	1.4	50.0
	22 Acetonitrile	0.02469	0.02563	0.010	3.8	50.0
	23 Acrylonitrile	0.07400	0.07646	0.010	3.3	50.0
	24 Methyl tert-butyl ether	0.67818	0.69673	0.010	2.7	50.0
	25 trans-1,2-Dichloroethene	0.23046	0.25386	0.010	10.2	50.0
	26 Hexane	0.06143	0.06432	0.010	4.7	50.0
	27 Vinyl acetate	0.15348	0.16456	0.010	7.2	50.0
	28 1,1-Dichloroethane	0.36960	0.39675	0.100	7.3	50.0
	29 tert-Butyl Alcohol	0.01608	0.01617	0.010	0.6	50.0
	30 2-Butanone	0.08443	0.09057	0.010	7.3	50.0
M	31 1,2-Dichloroethene (total)	0.23706	0.25517	0.010	7.6	50.0
	32 cis-1,2-dichloroethene	0.24366	0.25648	0.010	5.3	50.0
	33 2,2-Dichloropropane	0.36803	0.38885	0.010	5.7	50.0
	34 Bromochloromethane	0.12691	0.13418	0.010	5.7	50.0
	35 Chloroform	0.37216	0.39531	0.010	6.2	20.0
	36 Tetrahydrofuran	0.05236	0.05269	0.010	0.6	50.0
	37 1,1,1-Trichloroethane	0.36028	0.39984	0.010	11.0	50.0
	38 1,1-Dichloropropene	0.29105	0.31188	0.010	7.2	50.0
	39 Carbon Tetrachloride	0.28937	0.33931	0.010	17.3	50.0
	40 1,2-Dichloroethane	0.29593	0.31356	0.010	6.0	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01124A.b\UXJ435.D
Report Date: 24-Nov-2000 08:53

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux11.i Injection Date: 24-NOV-2000 08:11
Lab File ID: UXJ435.D Init. Cal. Date(s): 09-NOV-2000 13-NOV-2000
Analysis Type: WATER Init. Cal. Times: 17:49 18:04
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01124A.b\8260LLUX11.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
	41 Benzene	0.91666	1.16217	0.010	26.8	50.0	
	42 Trichloroethene	0.27582	0.28453	0.010	3.2	50.0	
	43 1,2-Dichloropropane	0.21494	0.22453	0.010	4.5	20.0	
	44 1,4-Dioxane	0.00210	0.00229	0.010	9.0	50.0	<-
	45 Dibromomethane	0.12979	0.13227	0.010	1.9	50.0	
	46 Bromodichloromethane	0.24641	0.27327	0.010	10.9	50.0	
	47 2-Chloroethyl vinyl ether	0.12317	0.10711	0.010	-13.0	50.0	
	48 cis-1,3-Dichloropropene	0.35781	0.36372	0.010	1.7	50.0	
	49 4-Methyl-2-pentanone	0.17607	0.17547	0.010	-0.3	50.0	
	50 Toluene	1.28964	1.34795	0.010	4.5	20.0	
	51 trans-1,3-Dichloropropene	0.42563	0.41585	0.010	-2.3	50.0	
	52 Ethyl Methacrylate	0.33241	0.32170	0.010	-3.2	50.0	
	53 1,1,2-Trichloroethane	0.24077	0.24924	0.010	3.5	50.0	
	54 1,3-Dichloropropane	0.43222	0.43546	0.010	0.7	50.0	
	55 Tetrachloroethene	0.29702	0.30605	0.010	3.0	50.0	
	56 2-Hexanone	0.14743	0.14963	0.010	1.5	50.0	
	57 Dibromochloromethane	0.22091	0.24485	0.010	10.8	50.0	
	58 1,2-Dibromoethane	0.25346	0.24998	0.010	-1.4	50.0	
	59 Chlorobenzene	0.90807	0.92704	0.300	2.1	50.0	
	60 1,1,1,2-Tetrachloroethane	0.29503	0.31599	0.010	7.1	50.0	
	61 Ethylbenzene	0.49753	0.51147	0.010	2.8	20.0	
	62 m + p-Xylene	0.61247	0.62797	0.010	2.5	50.0	
M	63 Xylenes (total)	0.61460	0.63153	0.010	2.8	50.0	
	64 Xylene-o	0.61885	0.63863	0.010	3.2	50.0	
	65 Styrene	1.00476	1.03946	0.010	3.5	50.0	
	66 Bromoform	0.13044	0.14885	0.100	14.1	50.0	
	67 Isopropylbenzene	1.61112	1.62528	0.010	0.9	50.0	
	68 1,1,2,2-Tetrachloroethane	0.46063	0.45744	0.300	-0.7	50.0	
	69 1,4-Dichloro-2-butene	0.12724	0.10399	0.010	-18.3	50.0	
	70 1,2,3-Trichloropropane	0.16789	0.16998	0.010	1.2	50.0	
	71 Bromobenzene	0.64040	0.65140	0.010	1.7	50.0	
	72 n-Propylbenzene	0.71987	0.73435	0.010	2.0	50.0	
	73 2-Chlorotoluene	0.61934	0.62442	0.010	0.8	50.0	
	74 1,3,5-Trimethylbenzene	2.12065	2.11493	0.010	-0.3	50.0	
	75 4-Chlorotoluene	0.64827	0.65578	0.010	1.2	50.0	
	76 tert-Butylbenzene	1.97294	1.94307	0.010	-1.5	50.0	

Data File: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01124A.b\UXJ435.D
Report Date: 24-Nov-2000 08:53

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux11.i Injection Date: 24-NOV-2000 08:11
Lab File ID: UXJ435.D Init. Cal. Date(s): 09-NOV-2000 13-NOV-2000
Analysis Type: WATER Init. Cal. Times: 17:49 18:04
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01124A.b\8260LLUX11.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
77	1,2,4-Trimethylbenzene	2.21588	2.22237	0.010	0.3	50.0
78	sec-Butylbenzene	2.71500	2.68552	0.010	-1.1	50.0
79	4-Isopropyltoluene	2.51024	2.46690	0.010	-1.7	50.0
80	1,3-Dichlorobenzene	1.35370	1.35036	0.010	-0.2	50.0
81	1,4-Dichlorobenzene	1.39574	1.38465	0.010	-0.8	50.0
82	n-Butylbenzene	2.22205	2.18541	0.010	-1.6	50.0
83	1,2-Dichlorobenzene	1.33958	1.35502	0.010	1.2	50.0
84	1,2-Dibromo-3-chloropropane	0.11592	0.11507	0.010	-0.7	50.0
85	1,2,4-Trichlorobenzene	1.13860	1.12973	0.010	-0.8	50.0
86	Hexachlorobutadiene	0.52162	0.45862	0.010	-12.1	50.0
87	Naphthalene	2.35109	2.32600	0.010	-1.1	50.0
88	1,2,3-Trichlorobenzene	0.99520	0.97121	0.010	-2.4	50.0
98	Cyclohexane	0.38764	0.45266	0.010	16.8	50.0
143	Methyl Acetate	0.16182	0.16007	0.010	-1.1	50.0
144	Methylcyclohexane	0.42500	0.45573	0.010	7.2	50.0
141	1,3,5-Trichlorobenzene	1.22852	1.24008	0.010	0.9	50.0

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: A0K180106

Lab File ID: BFB242 BFB Injection Date: 11/08/00

Instrument ID: A3UX9 BFB Injection Time: 0733

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	29.1
75	30.0 - 60.0% of mass 95	50.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	75.5
175	5.0 - 9.0% of mass 174	5.9 (7.8)1
176	Greater than 95.0%, but less than 101.0% of mass 174	72.0 (95.2)1
177	5.0 - 9.0% of mass 176	4.6 (6.3)2

1-Value is % of mass 174 2-Value is % of mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	1000NG-IC	UX9006	11/08/00	0750
02	VSTD100	500NG-IC	UX9007	11/08/00	0813
03	VSTD050	250NG-IC	UX9008	11/08/00	0836
04	VSTD020	100NG-IC	UX9009	11/08/00	0859
05	VSTD005	25NG-IC	UX9010	11/08/00	0922
06					
07					
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13					
14					
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17					
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19					
20					
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22					

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94223.d
Level 2: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94222.d
Level 3: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94221.d
Level 4: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94220.d
Level 5: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94219.d

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD
	8 Dichlorodifluoromethane	0.09563	0.12479	0.12437	0.13534	0.12122	0.12027	12.280
	9 Chloromethane	0.29818	0.30898	0.31148	0.33490	0.28259	0.30722	6.252
	10 Vinyl Chloride	0.22724	0.24099	0.25665	0.26485	0.23207	0.24436	6.556
	11 Bromomethane	0.12734	0.14138	0.15910	0.17151	0.15620	0.15111	11.296
	12 Chloroethane	0.14781	0.15357	0.17665	0.20911	0.20981	0.17939	16.443
	13 Trichlorofluoromethane	0.19975	0.25332	0.27635	0.33250	0.40261	0.29291	26.513
	14 Acrolein	0.04621	0.05384	0.05090	0.05284	0.06267	0.05329	11.268
	15 Acetone	0.21151	0.14487	0.12914	0.12552	0.13346	0.14890	24.008
	16 1,1-Dichloroethene	0.16831	0.16155	0.18164	0.18564	0.19537	0.17850	7.603
	17 Methylene Chloride	0.23628	0.22110	0.21689	0.22098	0.22637	0.22432	3.336
	18 Carbon Disulfide	0.50484	0.48396	0.51997	0.54152	0.56327	0.52271	5.917
	19 Acrylonitrile	0.13366	0.14176	0.13465	0.13521	0.15222	0.13950	5.586
	20 trans-1,2-Dichloroethene	0.22019	0.20509	0.22271	0.22333	0.23334	0.22093	4.607
	21 Vinyl acetate	0.36772	0.38942	0.39264	0.42616	0.47154	0.40950	9.889
	22 1,1-Dichloroethane	0.48475	0.43288	0.44482	0.46604	0.48571	0.46284	5.108
	23 2-Butanone	0.22208	0.18720	0.17752	0.16956	0.19483	0.19024	10.625
	24 cis-1,2-dichloroethene	0.25252	0.22435	0.23643	0.24337	0.25109	0.24155	4.795
M	25 1,2-Dichloroethene (total)	0.23636	0.21472	0.22957	0.23335	0.24221	0.23124	4.467
	26 Chloroform	0.38747	0.33704	0.36050	0.36450	0.38132	0.36617	5.405
	27 1,1,1-Trichloroethane	0.30424	0.26684	0.29350	0.30712	0.32355	0.29905	7.016
	28 Carbon Tetrachloride	0.23539	0.23513	0.25585	0.26585	0.28366	0.25518	8.124
	29 1,2-Dichloroethane	0.38212	0.36395	0.35520	0.36630	0.38803	0.37112	3.653
	30 Benzene	1.00177	0.87074	0.93231	0.96427	0.98519	0.95085	5.443
	31 Trichloroethene	0.23266	0.23852	0.24566	0.25705	0.26066	0.24691	4.821
	32 1,2-Dichloropropane	0.29743	0.27529	0.27352	0.28435	0.29308	0.28473	3.708
	33 Bromodichloromethane	0.26228	0.24286	0.26154	0.27222	0.28393	0.26457	5.729

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	$\overline{RRF}$	% RSD	
	34 2-Chloroethyl vinyl ether	0.08814	0.10133	0.10593	0.11630	0.13434	0.10921	15.851	
	35 4-Methyl-2-pentanone	0.30365	0.34522	0.34234	0.33365	0.38112	0.34120	8.131	
	36 cis-1,3-Dichloropropene	0.34538	0.33303	0.35279	0.37208	0.39312	0.35928	6.577	
	37 Toluene	1.44385	1.35019	1.35500	1.41788	1.44151	1.40169	3.281	
	38 trans-1,3-Dichloropropene	0.38476	0.39912	0.40463	0.44012	0.45420	0.41657	7.029	
	39 2-Hexanone	0.29687	0.32824	0.32305	0.32006	0.35342	0.32433	6.234	
	40 1,1,2-Trichloroethane	0.29133	0.26314	0.26286	0.25980	0.26995	0.26942	4.751	
	41 Tetrachloroethene	0.27164	0.25022	0.25552	0.26448	0.27268	0.26291	3.754	
	42 Dibromochloromethane	0.23079	0.24613	0.25938	0.27420	0.28718	0.25954	8.584	
	43 Chlorobenzene	1.04768	0.92592	0.94238	0.97635	0.98487	0.97544	4.823	
	44 Ethylbenzene	0.53067	0.51877	0.53511	0.55073	0.56636	0.54033	3.426	
	45 m + p-Xylene	0.64024	0.62475	0.63262	0.66792	0.68285	0.64968	3.797	
	46 Xylene-o	0.65659	0.59347	0.62521	0.65969	0.67118	0.64123	4.938	
M	47 Xylenes (total)	0.64569	0.61433	0.63015	0.66518	0.67896	0.64686	4.020	
	48 Styrene	0.99492	0.96790	1.04782	1.08452	1.13504	1.04604	6.435	
	49 Bromoform	0.12341	0.12840	0.14612	0.15767	0.17728	0.14658	15.000	
	50 1,1,2,2-Tetrachloroethane	0.55373	0.64552	0.61686	0.64262	0.66797	0.62534	7.027	
	51 1,3-Dichlorobenzene	1.54315	1.34606	1.38221	1.46035	1.49163	1.44468	5.556	
	52 1,4-Dichlorobenzene	1.72231	1.41375	1.39457	1.49866	1.49199	1.50425	8.665	
	53 1,2-Dichlorobenzene	1.49120	1.29247	1.33475	1.40417	1.40139	1.38480	5.476	
	54 Freon-113	0.15559	0.16762	0.17159	0.18272	0.19096	0.17370	7.877	
	55 Acetonitrile	0.03569	0.03461	0.03260	0.03317	0.03448	0.03411	3.608	
	56 Iodomethane	0.37293	0.34117	0.34264	0.35887	0.37249	0.35762	4.315	
	57 3-Chloropropene	0.11923	0.12023	0.12128	0.12593	0.12509	0.12235	2.443	
	58 2-Chloro-1,3-butadiene	0.50975	0.49527	0.51226	0.54351	0.54459	0.52108	4.214	
	59 Propionitrile	0.05271	0.05198	0.05411	0.04959	0.05114	0.05191	3.256	
	60 Methacrylonitrile	0.21782	0.23173	0.23333	0.21903	0.22708	0.22580	3.156	
	61 Isobutanol	0.00610	0.00898	0.01011	0.00957	0.01085	0.00912	19.994	<-
	62 Methyl Methacrylate	0.27902	0.30729	0.33792	0.32164	0.34503	0.31818	8.277	
	63 1,4-Dioxane	0.00266	0.00284	0.00265	0.00265	0.00290	0.00274	4.338	<-
	64 Dibromomethane	0.11436	0.12526	0.12219	0.12655	0.13300	0.12427	5.471	
	65 Ethyl Methacrylate	0.33286	0.37158	0.38633	0.40959	0.43727	0.38753	10.164	
	66 1,2-Dibromoethane	0.30579	0.27365	0.27200	0.28157	0.28306	0.28321	4.769	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD	
67	1,1,1,2-Tetrachloroethane	0.21701	0.22790	0.25093	0.27584	0.28332	0.25100	11.531	
68	1,2,3-Trichloropropane	0.82794	0.80721	0.78841	0.83536	0.89012	0.82981	4.627	
69	1,4-Dichloro-2-butene	0.28023	0.28931	0.27696	0.28792	0.32267	0.29142	6.251	
70	Pentachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
71	Benzyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
72	1,2-Dibromo-3-chloropropane	0.10312	0.10861	0.12307	0.12388	0.13543	0.11882	10.894	
73	Ethanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
74	n-Butanol	0.00390	0.00604	0.00651	0.00703	0.00801	0.00630	24.226	<-
75	Ethyl Acetate	0.34728	0.36258	0.37994	0.35230	0.37164	0.36275	3.707	
76	Cyclohexanone	0.03233	0.03628	0.03889	0.03484	0.03761	0.03599	7.071	
77	Ethyl Ether	0.26911	0.27724	0.28299	0.28377	0.28371	0.27936	2.272	
78	Methyl tert-butyl ether	0.47862	0.44985	0.44093	0.44516	0.43373	0.44966	3.834	
79	Tetrahydrofuran	0.11115	0.11240	0.10564	0.10197	0.12259	0.11075	7.086	
80	Dichlorofluoromethane	0.39694	0.38093	0.38276	0.39690	0.39493	0.39049	2.039	
81	2-Nitropropane	0.02881	0.03089	0.03633	0.03299	0.03997	0.03380	13.107	
82	tert-Butyl Alcohol	0.02851	0.02925	0.02687	0.02845	0.03358	0.02933	8.613	
83	Cyclohexane	0.58442	0.53744	0.54892	0.58527	0.61698	0.57461	5.535	
84	Hexane	0.48349	0.44865	0.45145	0.49681	0.54049	0.48418	7.772	
85	Isopropyl Ether	1.15517	1.14081	1.13489	1.17602	1.16489	1.15436	1.465	
86	2,2-Dichloropropane	0.25603	0.23262	0.26066	0.27540	0.29136	0.26322	8.356	
87	1,1-Dichloropropene	0.29270	0.26942	0.29639	0.29793	0.31548	0.29438	5.601	
88	1,3-Dichloropropane	0.48381	0.45987	0.46986	0.48849	0.50276	0.48096	3.461	
89	Isopropylbenzene	1.57995	1.47139	1.56095	1.62885	1.66729	1.58169	4.705	
90	Bromobenzene	0.77167	0.67797	0.68065	0.73058	0.72281	0.71674	5.427	
91	2-Chlorotoluene	0.75015	0.66514	0.69631	0.73067	0.73406	0.71527	4.782	
92	n-Propylbenzene	0.91953	0.81945	0.84528	0.92592	0.92981	0.88800	5.826	
93	4-Chlorotoluene	0.74500	0.71160	0.72405	0.77778	0.75498	0.74268	3.499	
94	1,3,5-Trimethylbenzene	2.51707	2.36693	2.40074	2.61090	2.61669	2.50247	4.632	
95	tert-Butylbenzene	2.22311	2.14234	2.25616	2.42412	2.46290	2.30172	5.934	
96	1,2,4-Trimethylbenzene	2.56679	2.39101	2.46984	2.67702	2.65424	2.55178	4.758	
97	sec-Butylbenzene	3.21335	3.01344	3.15114	3.40606	3.41858	3.24051	5.332	
98	4-Isopropyltoluene	2.55506	2.48292	2.67768	2.84538	2.89473	2.69115	6.629	
99	n-Butylbenzene	2.22555	2.18309	2.35261	2.48073	2.57793	2.36398	7.060	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	$\overline{RRF}$	% RSD	
100 1,2,4-Trichlorobenzene	0.88714	0.75621	0.83378	0.83496	0.88132	0.83868	6.255	
101 Naphthalene	2.29093	2.24301	2.37286	2.22710	2.42941	2.31266	3.739	
102 Hexachlorobutadiene	0.43080	0.36858	0.41492	0.40901	0.42861	0.41039	6.115	
103 1,2,3-Trichlorobenzene	0.82948	0.71430	0.78701	0.76413	0.81717	0.78242	5.863	
104 Isopropyl Alcohol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
105 N-Propanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
106 Isopropyl Acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
107 N-Propyl Acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
108 N-Butyl acetate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
109 Dimethoxymethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
110 3,3,5-Trimethylcyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
111 Bromochloromethane	0.11201	0.11320	0.11603	0.11830	0.12223	0.11635	3.525	
112 Paraldehyde	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
135 1-Chlorohexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
136 Chloropicrin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
137 1,3,5-Trichlorobenzene	1.01778	0.88965	0.90834	0.97144	1.01480	0.96040	6.180	
138 Methyl Acetate	0.37700	0.35826	0.35205	0.35046	0.39594	0.36674	5.299	
139 Methylcyclohexane	0.44240	0.41445	0.43032	0.45678	0.48363	0.44552	5.923	
$ 4 1,2-Dichloroethane-d4	0.22875	0.24342	0.23768	0.26320	0.25984	0.24658	5.943	
$ 5 Toluene-d8	1.00556	1.08857	1.07675	1.20156	1.16042	1.10657	6.903	
$ 6 Bromofluorobenzene	0.39348	0.37999	0.36856	0.40713	0.39933	0.38970	3.959	
$ 7 Dibromofluoromethane	0.18308	0.19306	0.18581	0.20672	0.20560	0.19486	5.621	

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: A0K180106

Lab File ID: BFB261 BFB Injection Date: 11/28/00

Instrument ID: A3UX9 BFB Injection Time: 0602

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.2
75	30.0 - 60.0% of mass 95	44.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.0
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	50.0 - 120.0% of mass 95	82.2
175	5.0 - 9.0% of mass 174	5.7 (6.9)1
176	Greater than 95.0%, but less than 101.0% of mass 174	80.9 (98.4)1
177	5.0 - 9.0% of mass 176	5.0 (6.1)2

1-Value is % of mass 174 2-Value is % of mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	250NG-CC	UX9503	11/28/00	0620
02	DQFJ7-CHK	DQFJ71AC	UX9505	11/28/00	0707
03	DQFJ7-BLK	DQFJ71AA	UX9506	11/28/00	0730
04	DQFJ7-CKDUP	DQFJ71AD	UX9507	11/28/00	0753
05	MPT-AC-SD01-	DP3RF1A8	UX9517	11/28/00	1142
06					
07					
08					
09					
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12					
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19					
20					
21					
22					

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 28-NOV-2000 06:20
Lab File ID: UX9503.D Init. Cal. Date(s): 14-AUG-2000 08-NOV-2000
Analysis Type: SOIL Init. Cal. Times: 08:43 09:22
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01128A.b\8260SUX9-3.m

	COMPOUND	$\overline{RRF}$	RF250	MIN RRF	%D	MAX %D
$	4 1,2-Dichloroethane-d4	0.24658	0.24343	0.010	-1.3	50.0
$	5 Toluene-d8	1.10657	1.27441	0.010	15.2	50.0
$	6 Bromofluorobenzene	0.38970	0.44613	0.010	14.5	50.0
$	7 Dibromofluoromethane	0.19486	0.20822	0.010	6.9	50.0
	8 Dichlorodifluoromethane	0.12027	0.08990	0.010	-25.3	50.0
	9 Chloromethane	0.30722	0.26480	0.100	-13.8	50.0
	10 Vinyl Chloride	0.24436	0.22354	0.010	-8.5	20.0
	11 Bromomethane	0.15111	0.09659	0.010	-36.1	50.0
	12 Chloroethane	0.17939	0.12939	0.010	-27.9	50.0
	13 Trichlorofluoromethane	0.29291	0.21279	0.010	-27.4	50.0
	14 Acrolein	0.05329	0.03740	0.010	-29.8	50.0
	16 1,1-Dichloroethene	0.17850	0.18761	0.050	5.1	20.0
	15 Acetone	0.14890	0.12356	0.010	-17.0	50.0
	54 Freon-113	0.17370	0.13443	0.010	-22.6	50.0
	56 Iodomethane	0.35762	0.27954	0.010	-21.8	50.0
	18 Carbon Disulfide	0.52271	0.60443	0.010	15.6	50.0
	55 Acetonitrile	0.03411	0.03621	0.010	6.2	50.0
	17 Methylene Chloride	0.22432	0.22328	0.010	-0.5	50.0
	19 Acrylonitrile	0.13950	0.12662	0.010	-9.2	50.0
	78 Methyl tert-butyl ether	0.44966	0.43624	0.010	-3.0	50.0
	84 Hexane	0.48418	0.36941	0.010	-23.7	50.0
	21 Vinyl acetate	0.40950	0.25386	0.010	-38.0	50.0
	22 1,1-Dichloroethane	0.46284	0.44761	0.100	-3.3	50.0
	23 2-Butanone	0.19024	0.17889	0.010	-6.0	50.0
	20 trans-1,2-Dichloroethene	0.22093	0.22264	0.010	0.8	50.0
	24 cis-1,2-dichloroethene	0.24155	0.23902	0.010	-1.0	50.0
M	25 1,2-Dichloroethene (total)	0.23124	0.23083	0.010	-0.2	50.0
	86 2,2-Dichloropropane	0.26322	0.23447	0.010	-10.9	50.0
	111 Bromochloromethane	0.11635	0.11532	0.010	-0.9	50.0
	79 Tetrahydrofuran	0.11075	0.10601	0.010	-4.3	50.0
	26 Chloroform	0.36617	0.33809	0.010	-7.7	20.0
	27 1,1,1-Trichloroethane	0.29905	0.27155	0.010	-9.2	50.0
	87 1,1-Dichloropropene	0.29438	0.29637	0.010	0.7	50.0
	28 Carbon Tetrachloride	0.25518	0.22737	0.010	-10.9	50.0
	29 1,2-Dichloroethane	0.37112	0.33377	0.010	-10.1	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 28-NOV-2000 06:20
Lab File ID: UX9503.D Init. Cal. Date(s): 14-AUG-2000 08-NOV-2000
Analysis Type: SOIL Init. Cal. Times: 08:43 09:22
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01128A.b\8260SUX9-3.m

	COMPOUND	$\overline{RRF}$	RF250	MIN RRF	%D	MAX %D	
	30 Benzene	0.95085	0.95914	0.010	0.9	50.0	
	31 Trichloroethene	0.24691	0.25155	0.010	1.9	50.0	
	32 1,2-Dichloropropane	0.28473	0.27691	0.010	-2.7	20.0	
	63 1,4-Dioxane	0.00274	0.00272	0.010	-0.7	50.0	<-
	64 Dibromomethane	0.12427	0.12035	0.010	-3.2	50.0	
	33 Bromodichloromethane	0.26457	0.25362	0.010	-4.1	50.0	
	34 2-Chloroethyl vinyl ether	0.10921	0.11191	0.010	2.5	50.0	
	36 cis-1,3-Dichloropropene	0.35928	0.36790	0.010	2.4	50.0	
	35 4-Methyl-2-pentanone	0.34120	0.33847	0.010	-0.8	50.0	
	37 Toluene	1.40169	1.35495	0.010	-3.3	20.0	
	38 trans-1,3-Dichloropropene	0.41657	0.41926	0.010	0.6	50.0	
	65 Ethyl Methacrylate	0.38753	0.41807	0.010	7.9	50.0	
	40 1,1,2-Trichloroethane	0.26942	0.25825	0.010	-4.1	50.0	
	88 1,3-Dichloropropane	0.48096	0.48290	0.010	0.4	50.0	
	41 Tetrachloroethene	0.26291	0.25685	0.010	-2.3	50.0	
	39 2-Hexanone	0.32433	0.31762	0.010	-2.1	50.0	
	42 Dibromochloromethane	0.25954	0.25992	0.010	0.1	50.0	
	66 1,2-Dibromoethane	0.28321	0.26797	0.010	-5.4	50.0	
	43 Chlorobenzene	0.97544	0.92907	0.300	-4.8	50.0	
	44 Ethylbenzene	0.54033	0.52076	0.010	-3.6	20.0	
	45 m + p-Xylene	0.64968	0.63847	0.010	-1.7	50.0	
	46 Xylene-o	0.64123	0.60644	0.010	-5.4	50.0	
M	47 Xylenes (total)	0.64686	0.62779	0.010	-2.9	50.0	
	48 Styrene	1.04604	1.02987	0.010	-1.5	50.0	
	49 Bromoform	0.14658	0.15677	0.100	7.0	50.0	
	89 Isopropylbenzene	1.58169	1.50255	0.010	-5.0	50.0	
	50 1,1,2,2-Tetrachloroethane	0.62534	0.65341	0.300	4.5	50.0	
	90 Bromobenzene	0.71674	0.70438	0.010	-1.7	50.0	
	68 1,2,3-Trichloropropane	0.82981	0.84468	0.010	1.8	50.0	
	69 1,4-Dichloro-2-butene	0.29142	0.28056	0.010	-3.7	50.0	
	92 n-Propylbenzene	0.88800	0.89123	0.010	0.4	50.0	
	91 2-Chlorotoluene	0.71527	0.69797	0.010	-2.4	50.0	
	94 1,3,5-Trimethylbenzene	2.50247	2.36634	0.010	-5.4	50.0	
	93 4-Chlorotoluene	0.74268	0.73101	0.010	-1.6	50.0	
	95 tert-Butylbenzene	2.30172	2.26960	0.010	-1.4	50.0	
	96 1,2,4-Trimethylbenzene	2.55178	2.45457	0.010	-3.8	50.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 28-NOV-2000 06:20
Lab File ID: UX9503.D Init. Cal. Date(s): 14-AUG-2000 08-NOV-2000
Analysis Type: SOIL Init. Cal. Times: 08:43 09:22
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01128A.b\8260SUX9-3.m

	COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D
97	sec-Butylbenzene	3.24051	3.13999	0.010	-3.1	50.0
51	1,3-Dichlorobenzene	1.44468	1.41163	0.010	-2.3	50.0
52	1,4-Dichlorobenzene	1.50425	1.45715	0.010	-3.1	50.0
53	1,2-Dichlorobenzene	1.38480	1.33684	0.010	-3.5	50.0
98	4-Isopropyltoluene	2.69115	2.64957	0.010	-1.5	50.0
99	n-Butylbenzene	2.36398	2.36242	0.010	-0.1	50.0
100	1,2,4-Trichlorobenzene	0.83868	0.90660	0.010	8.1	50.0
102	Hexachlorobutadiene	0.41039	0.43660	0.010	6.4	50.0
101	Naphthalene	2.31266	2.27158	0.010	-1.8	50.0
103	1,2,3-Trichlorobenzene	0.78242	0.81202	0.010	3.8	50.0
82	tert-Butyl Alcohol	0.02933	0.02515	0.010	-14.3	50.0
138	Methyl Acetate	0.36674	0.36711	0.010	0.1	50.0
139	Methylcyclohexane	0.44552	0.42261	0.010	-5.1	50.0
83	Cyclohexane	0.57461	0.48805	0.010	-15.1	50.0
137	1,3,5-Trichlorobenzene	0.96040	1.05077	0.010	9.4	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01128A.b\UX9503.D
Report Date: 11/28/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX9503.D
Analysis Type: SOIL

Injection Date: 28-NOV-2000 06:20
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01128A.b

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	Chlorobenzene	250.0000	238.1151	4.8	50.0
0	1,1-Dichloroethene	250.0000	262.7585	5.1	20.0
0	Xylene-o	250.0000	236.4379	5.4	50.0
0	Toluene	250.0000	241.6634	3.3	20.0
0	m + p-Xylene	500.0000	491.3725	1.7	50.0
0	Trichloroethene	250.0000	254.6935	1.9	50.0
0	Benzene	250.0000	252.1775	0.9	50.0
1	Chloromethane	250.0000	215.4759	13.8	50.0
2	Bromomethane	250.0000	159.8032	36.1	50.0
3	Vinyl Chloride	250.0000	228.6946	8.5	20.0
4	Chloroethane	250.0000	180.3267	27.9	50.0
5	Methylene Chloride	250.0000	248.8347	0.5	50.0
6	Acetone	250.0000	207.4520	17.0	50.0
7	Carbon Disulfide	250.0000	289.0831	15.6	50.0
9	1,1-Dichloroethane	250.0000	241.7757	3.3	50.0
10	trans-1,2-Dichloroethene	250.0000	251.9264	0.8	50.0
11	cis-1,2-dichloroethene	250.0000	247.3775	1.0	50.0
12	1,2-Dichloroethene (total)	500.0000	499.3038	0.1	50.0
13	Chloroform	250.0000	230.8293	7.7	20.0
14	1,2-Dichloroethane	250.0000	224.8397	10.1	50.0
15	2-Butanone	250.0000	235.0869	6.0	50.0
16	1,1,1-Trichloroethane	250.0000	227.0084	9.2	50.0
17	Carbon Tetrachloride	250.0000	222.7603	10.9	50.0
18	Bromodichloromethane	250.0000	239.6530	4.1	50.0
19	Fluorobenzene	250.0000	250.0000	0.0	50.0
19	1,2-Dichloropropane	250.0000	243.1323	2.7	20.0
20	cis-1,3-Dichloropropene	250.0000	255.9961	2.4	50.0
22	Dibromochloromethane	250.0000	250.3667	0.1	50.0
23	1,1,2-Trichloroethane	250.0000	239.6417	4.1	50.0
25	trans-1,3-Dichloropropene	250.0000	251.6149	0.6	50.0
25	1,4-Dichlorobenzene-d4	250.0000	250.0000	0.0	50.0
26	Bromoform	250.0000	267.3873	7.0	50.0
27	4-Methyl-2-pentanone	250.0000	247.9992	0.8	50.0
28	2-Hexanone	250.0000	244.8279	2.1	50.0
29	Tetrachloroethene	250.0000	244.2437	2.3	50.0
30	1,1,2,2-Tetrachloroethane	250.0000	261.2197	4.5	50.0
33	Ethylbenzene	250.0000	240.9466	3.6	20.0
34	Styrene	250.0000	246.1355	1.5	50.0
35	Xylenes (total)	750.0000	727.8104	3.0	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N0112SA.D\UX9503.D
Report Date: 11/28/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX9503.D
Analysis Type: SOIL

Injection Date: 28-NOV-2000 06:20
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N0

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
38 Dichlorodifluoromethane	250.0000	186.8733	25.3	50.0
39 Chlorobenzene-d5	250.0000	250.0000	0.0	50.0
39 Trichlorofluoromethane	250.0000	181.6151	27.4	50.0
40 Acrolein	2500.0000	1754.6868	29.8	50.0
41 Acrylonitrile	2500.0000	2269.2098	9.2	50.0
42 Vinyl acetate	250.0000	154.9848	38.0	50.0
43 2-Chloroethyl vinyl ether	500.0000	512.3465	2.5	50.0
47 Freon-113	250.0000	193.4795	22.6	50.0
48 1,3-Dichlorobenzene	250.0000	244.2818	2.3	50.0
49 1,4-Dichlorobenzene	250.0000	242.1721	3.1	50.0
50 1,2-Dichlorobenzene	250.0000	241.3417	3.5	50.0
51 Acetonitrile	2500.0000	2654.3108	6.2	50.0
52 Iodomethane	250.0000	195.4171	21.8	50.0
59 1,4-Dioxane	12500.0000	12407.6290	0.7	50.0
60 Dibromomethane	250.0000	242.1113	3.2	50.0
62 Ethyl Methacrylate	250.0000	269.7036	7.9	50.0
63 1,2-Dibromoethane	250.0000	236.5460	5.4	50.0
65 1,2,3-Trichloropropane	250.0000	254.4820	1.8	50.0
66 1,4-Dichloro-2-butene	250.0000	240.6806	3.7	50.0
82 Methyl tert-butyl ether	250.0000	242.5378	3.0	50.0
84 Tetrahydrofuran	250.0000	239.2937	4.3	50.0
97 tert-Butyl Alcohol	5000.0000	4286.3538	14.3	50.0
98 Cyclohexane	250.0000	212.3395	15.1	50.0
99 Hexane	250.0000	190.7437	23.7	50.0
102 2,2-Dichloropropane	250.0000	222.7016	10.9	50.0
103 1,1-Dichloropropene	250.0000	251.6854	0.7	50.0
104 1,3-Dichloropropane	250.0000	251.0112	0.4	50.0
105 Isopropylbenzene	250.0000	237.4923	5.0	50.0
106 Bromobenzene	250.0000	245.6916	1.7	50.0
107 2-Chlorotoluene	250.0000	243.9561	2.4	50.0
108 n-Propylbenzene	250.0000	250.9088	0.4	50.0
109 4-Chlorotoluene	250.0000	246.0699	1.6	50.0
110 1,3,5-Trimethylbenzene	250.0000	236.4011	5.4	50.0
111 tert-Butylbenzene	250.0000	246.5108	1.4	50.0
112 1,2,4-Trimethylbenzene	250.0000	240.4765	3.8	50.0
113 sec-Butylbenzene	250.0000	242.2452	3.1	50.0
114 4-Isopropyltoluene	250.0000	246.1367	1.5	50.0
115 n-Butylbenzene	250.0000	249.8348	0.1	50.0
116 1,2,4-Trichlorobenzene	250.0000	270.2468	8.1	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N011128A.D\UX9503.D
Report Date: 11/28/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX9503.D
Analysis Type: SOIL

Injection Date: 28-NOV-2000 06:20
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N0

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
117	Naphthalene	250.0000	245.5595	1.8	50.0
118	Hexachlorobutadiene	250.0000	265.9711	6.4	50.0
119	1,2,3-Trichlorobenzene	250.0000	259.4585	3.8	50.0
132	Bromochloromethane	250.0000	247.7861	0.9	50.0
137	1,3,5-Trichlorobenzene	250.0000	273.5228	9.4	50.0
138	Methyl Acetate	250.0000	250.2502	0.1	50.0
139	Methylcyclohexane	250.0000	237.1482	5.1	50.0
22	Toluene-d8	250.0000	287.9174	15.2	50.0
32	Bromofluorobenzene	250.0000	286.2016	14.5	50.0
47	1,2-Dichloroethane-d4	250.0000	246.8046	1.3	50.0
125	Dibromofluoromethane	250.0000	267.1491	6.9	50.0

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab File ID: 7DF1121A DFTPP Injection Date: 11/21/00

Instrument ID: A4HP7 DFTPP Injection Time: 0904

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	31.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	78.2
70	Less than 2.0% of mass 69	0.6 (0.8)1
127	40.0 - 60.0% of mass 198	45.0
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.3
275	10.0 - 30.0% of mass 198	22.9
365	Greater than 1.0% of mass 198	2.2
441	Present, but less than mass 443	7.9
442	40.0 - 100.0% of mass 198	54.8
443	17.0 - 23.0% of mass 442	11.1 (20.2)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD008	SSTD008	7SM1121	11/21/00	0928
02	SSTD005	SSTD005	7SML1121	11/21/00	1005
03	SSTD002	SSTD002	7SL1121	11/21/00	1049
04	SSTD020	SSTD020	7SHH1121	11/21/00	1125
05	SSTD016	SSTD016	7SH1121	11/21/00	1202
06	SSTD012	SSTD012	7SMH1121	11/21/00	1238
07					
08					
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19					
20					
21					
22					

OK DW
11-22-00

Report Date : 21-Nov-2000 13:48 Page 1

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m
Cal Date : 21-Nov-2000 13:48 tapsvc
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh05\dd\chem\MSS\a4hp7.i\01116a.b\7AL1116.D
Level 2: \\qcanoh05\dd\chem\MSS\a4hp7.i\01116a.b\7AML1116.D
Level 3: \\qcanoh05\dd\chem\MSS\a4hp7.i\01116a.b\7AM1116.D
Level 4: \\qcanoh05\dd\chem\MSS\a4hp7.i\01116a.b\7AMH1116.D
Level 5: \\qcanoh05\dd\chem\MSS\a4hp7.i\01116a.b\7AH1116.D
Level 6: \\qcanoh05\dd\chem\MSS\a4hp7.i\01116a.b\7AHH1116.D

	Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	___ RRF	% RSD
198	1,4-Dioxane	0.72561	0.70682	0.88645	0.72002	0.74526	0.80831	0.76541	9.047
7	N-Nitrosomorpholine	0.90758	0.95841	1.08145	1.14155	1.18619	1.14373	1.06982	10.494
8	Ethyl methanesulfonate	1.72474	1.82701	1.99355	2.07921	2.16546	2.10820	1.98303	8.716
9	Pyridine	1.73193	1.80922	1.89470	1.97612	2.07991	2.07763	1.92825	7.387
10	N-Nitrosodimethylamine	1.27074	1.26379	1.31742	1.35707	1.34931	1.37526	1.32227	3.523
11	Ethyl methacrylate	2.06333	2.00589	2.01182	1.97702	2.08877	2.06551	2.03539	2.127
12	3-Chloropropionitrile	0.50816	0.51441	0.52760	0.51872	0.52130	0.53525	0.52091	1.842
13	Malononitrile	1.84578	1.85859	1.83964	1.90364	1.87552	1.85382	1.86283	1.260
14	2-Picoline	1.88293	1.93477	2.11333	2.11296	2.18246	2.22964	2.07601	6.637
15	N-Nitrosomethylethylamine	0.91161	0.93484	0.99486	1.00934	1.03006	1.00891	0.98160	4.805
16	Methyl methanesulfonate	1.77204	1.80535	1.80737	1.98894	2.01806	1.96160	1.89223	5.750
18	1,3-Dichloro-2-propanol	2.11123	2.23671	2.38728	2.58100	2.64296	2.62120	2.43007	9.119
19	N-Nitrosodiethylamine	0.86143	0.89214	0.95981	1.03085	1.06507	1.04743	0.97612	8.749
21	Aniline	2.57859	2.67919	2.64406	2.80525	2.80267	2.78008	2.71497	3.494
22	Phenol	2.17838	2.20414	2.19093	2.26216	2.29416	2.35728	2.24784	3.102
23	bis(2-Chloroethyl)ether	1.67453	1.63705	1.63587	1.67813	1.71274	1.72967	1.67800	2.283
24	2-Chlorophenol	1.28542	1.32701	1.29655	1.34253	1.35553	1.34221	1.32487	2.112
25	Pentachloroethane	0.52865	0.53263	0.60085	0.59998	0.61570	0.62269	0.58342	7.167
26	1,3-Dichlorobenzene	1.44271	1.39486	1.41622	1.43759	1.45653	1.44094	1.43147	1.548
27	1,4-Dichlorobenzene	1.48175	1.46007	1.44195	1.47503	1.50130	1.49801	1.47635	1.536
28	1,2-Dichlorobenzene	1.34575	1.33827	1.33396	1.36120	1.40501	1.40492	1.36485	2.376
29	Benzyl Alcohol	0.90901	0.94683	0.99573	1.05254	1.07726	1.13549	1.01948	8.316
30	2-Methylphenol	1.42843	1.42778	1.42328	1.46283	1.48885	1.47305	1.45070	1.919
31	bis(2-Chloroisopropyl)ether	0.79348	0.79025	0.77896	0.79089	0.79123	0.79952	0.79072	0.846
32	N-Nitroso-di-n-propylamine	1.85097	1.81906	1.77805	1.87161	1.86645	1.85780	1.84066	1.945

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m
Cal Date : 21-Nov-2000 13:48 tapsvc
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
M 195 Cresols, total	2.88913	2.96521	2.96447	3.12205	3.22480	3.22858	3.06571	4.761
192 4-Methylphenol	1.46070	1.53743	1.54120	1.65922	1.73595	1.75553	1.61501	7.410
193 3-Methylphenol	1.56802	1.75297	2.00276	2.36010	2.51477	2.48690	2.11425	18.932
34 Hexachloroethane	0.73545	0.69711	0.68712	0.70340	0.70371	0.70859	0.70590	2.303
35 Nitrobenzene	0.69218	0.66781	0.66603	0.69134	0.70326	0.71222	0.68880	2.704
36 N-Nitrosopyrrolidine	0.86129	0.98170	1.12464	1.21962	1.28865	1.23399	1.11832	14.824
37 Acetophenone	2.40015	2.42641	2.43803	2.56985	2.64219	2.65912	2.52262	4.574
39 o-Toluidine	2.76165	3.03862	3.34926	3.79408	3.94513	3.85793	3.45778	14.066
40 N-Nitrosopiperidine	0.18111	0.17946	0.18872	0.20536	0.20879	0.21478	0.19637	7.728
41 Isophorone	1.10707	1.06190	1.07258	1.10722	1.13738	1.12867	1.10247	2.718
42 2-Nitrophenol	0.16512	0.16833	0.17738	0.19016	0.19962	0.20464	0.18421	8.931
43 2,4-Dimethylphenol	0.46765	0.45695	0.43848	0.46598	0.48358	0.47932	0.46532	3.499
44 bis(2-Chloroethoxy)methane	0.52409	0.50815	0.51918	0.54704	0.55889	0.56218	0.53659	4.192
45 O,O,O-Triethyl phosphorothioa	0.20512	0.20556	0.21426	0.23245	0.23328	0.24613	0.22280	7.590
46 2,4-Toluenediamene	+++++	0.02793	0.03901	0.07914	0.08690	0.07870	0.06234	43.057 <-
47 1,3,5-Trichlorobenzene	0.35648	0.34866	0.34360	0.36115	0.37306	0.37864	0.36027	3.783
48 2,4-Dichlorophenol	0.27625	0.27188	0.27456	0.28956	0.29569	0.29562	0.28393	3.854
49 Benzoic Acid	0.06871	0.11733	0.12116	0.13579	0.12234	0.13871	0.11734	21.565
50 1,2,4-Trichlorobenzene	0.33804	0.32240	0.32236	0.33477	0.34270	0.34366	0.33399	2.859
51 Naphthalene	1.00465	0.98857	1.00016	1.03652	1.08327	1.09553	1.03478	4.383
52 4-Chloroaniline	0.33291	0.34649	0.35083	0.38565	0.40227	0.40186	0.37000	8.195
53 a,a-Dimethyl-phenethylamine	0.39292	0.53424	0.50004	0.58345	0.62048	0.63456	0.54428	16.527
54 2,6-Dichlorophenol	0.26056	0.26391	0.28552	0.32320	0.33381	0.34637	0.30223	12.265
55 Hexachloropropene	0.20230	0.21922	0.22497	0.28084	0.28752	0.29991	0.25246	16.487
56 Hexachlorobutadiene	0.24419	0.22051	0.21562	0.23478	0.23463	0.23422	0.23066	4.578
57 1,2,3-Trichlorobenzene	0.32306	0.31118	0.30939	0.32590	0.33224	0.33651	0.32305	3.394
58 N-Nitrosodi-n-butylamine	0.39525	0.40027	0.42940	0.45908	0.46700	0.48114	0.43869	8.199
59 4-Chloro-3-Methylphenol	0.38832	0.39015	0.39360	0.40754	0.42652	0.42997	0.40602	4.562
60 p-Phenylene diamine	0.20097	0.24711	0.25614	0.37569	0.35940	0.37010	0.30157	25.116
61 Safrole	0.28340	0.27975	0.29552	0.32606	0.33658	0.34410	0.31090	9.045
62 2-Methylnaphthalene	0.63417	0.62210	0.63940	0.66589	0.68933	0.69732	0.65804	4.705
63 1-Methylnaphthalene	0.64977	0.61685	0.62070	0.65395	0.67210	0.68387	0.64954	4.135
64 Hexachlorocyclopentadiene	0.39318	0.42245	0.44004	0.46264	0.49796	0.50663	0.45382	9.688

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m
Cal Date : 21-Nov-2000 13:48 tapsvc
Curve Type : Average

	Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	___ RRF	% RSD	
65	1,2,4,5-Tetrachlorobenzene	0.65005	0.61502	0.65167	0.73326	0.72034	0.74120	0.68526	7.712	
66	2,4,6-Trichlorophenol	0.33706	0.35391	0.35375	0.36675	0.37578	0.38388	0.36185	4.701	
67	2,4,5-Trichlorophenol	0.33409	0.37256	0.35758	0.38499	0.38480	0.38280	0.36947	5.488	
68	1,2,3,5-Tetrachlorobenzene	0.61035	0.61485	0.60381	0.62264	0.63033	0.64318	0.62086	2.310	
69	1,4-Dinitrobenzene	0.11404	0.13952	0.17223	0.19402	0.20355	0.20831	0.17194	22.090	
70	2-Chloronaphthalene	1.04408	1.03767	1.03010	1.08815	1.12113	1.14356	1.07745	4.418	
71	Isosafrole 1	0.13813	0.13663	0.14650	0.15641	0.15303	0.15155	0.14704	5.541	
M 188	Isosafrole, Total	1.04843	1.07710	1.18792	1.33084	1.35843	1.39295	1.23261	12.104	
72	Isosafrole 2	0.91030	0.94047	1.04142	1.17443	1.20541	1.24140	1.08557	13.044	
73	2-Nitroaniline	0.46384	0.50816	0.49144	0.52825	0.53990	0.53845	0.51167	5.862	
74	1,2,3,4-Tetrachlorobenzene	0.55919	0.54896	0.54111	0.55004	0.56195	0.56674	0.55466	1.723	
75	1,4-Naphthoquinone	0.36507	0.38583	0.41105	0.42949	0.41404	0.42705	0.40542	6.206	
76	Dimethylphthalate	1.16602	1.17930	1.17642	1.20670	1.22311	1.22850	1.19668	2.199	
77	m-Dinitrobenzene	0.14954	0.16686	0.19533	0.22192	0.21491	0.21774	0.19438	15.424	
78	2,6-Dinitrotoluene	0.25192	0.25392	0.26251	0.27043	0.27780	0.29012	0.26778	5.482	
79	Acenaphthylene	1.60707	1.63018	1.62999	1.69737	1.75338	1.80276	1.68679	4.652	
80	1,2-Dinitrobenzene	0.12144	0.12269	0.12031	0.12598	0.12783	0.12631	0.12409	2.439	
81	3-Nitroaniline	0.19007	0.19443	0.20215	0.23661	0.24912	0.24130	0.21895	11.979	
82	Acenaphthene	1.00943	1.02218	1.01198	1.04591	1.05787	1.07817	1.03759	2.662	
83	2,4-Dinitrophenol	+++++	0.06910	0.09370	0.10993	0.12910	0.13153	0.10667	24.408	<-
84	Pentachlorobenzene	0.51427	0.50704	0.55687	0.58813	0.60231	0.60996	0.56310	7.912	
85	4-Nitrophenol	0.15312	0.20237	0.21676	0.23307	0.25554	0.25854	0.21990	17.863	
86	Dibenzofuran	1.35565	1.38520	1.38037	1.42676	1.46622	1.48935	1.41726	3.716	
87	2,4-Dinitrotoluene	0.31280	0.33492	0.34842	0.35320	0.37299	0.37030	0.34877	6.482	
88	2,3,4,6-Tetrachlorophenol	0.25478	0.27543	0.31774	0.34201	0.33540	0.35739	0.31379	12.853	
89	1-Naphthylamine	0.86244	0.89437	0.98769	1.15913	1.16504	1.21127	1.04666	14.450	
90	Zinophos	0.43029	0.43697	0.46663	0.47478	0.48418	0.48288	0.46262	5.062	
91	2,3,5,6-Tetrachlorophenol	0.30861	0.32907	0.33881	0.34184	0.35961	0.36246	0.34007	5.880	
92	2-Naphthylamine	0.86425	0.82721	0.93867	1.03388	1.04823	1.06285	0.96252	10.497	
93	Diethylphthalate	1.28886	1.27537	1.23559	1.26255	1.27224	1.27488	1.26825	1.426	
94	Fluorene	1.16309	1.17318	1.18537	1.23102	1.25272	1.29398	1.21656	4.227	
95	4-Chlorophenyl-phenylether	0.71273	0.66989	0.67258	0.69528	0.70450	0.72522	0.69670	3.167	
96	4-Nitroaniline	0.13904	0.14907	0.15346	0.19933	0.20451	0.20252	0.17465	17.459	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 15:05
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Quant Method : ISTD
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Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m
Cal Date : 21-Nov-2000 13:48 tapsvc
Curve Type : Average

	Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
	97 5-Nitro-o-toluidine	0.23516	0.25127	0.29514	0.31687	0.30202	0.31500	0.28591	12.041
	98 4,6-Dinitro-2-methylphenol	0.07112	0.09206	0.10878	0.12347	0.13173	0.13324	0.11007	22.362
	99 N-Nitrosodiphenylamine	0.49387	0.47923	0.48490	0.49846	0.51009	0.51073	0.49621	2.597
	100 1,2-Diphenylhydrazine	1.29833	1.29854	1.28608	1.31585	1.33487	1.47406	1.33462	5.274
	101 Diphenylamine	0.49387	0.47923	0.48490	0.49846	0.51009	0.51073	0.49621	2.597
	102 Tetraethyl dithiopyrophosphat	0.12727	0.12068	0.12795	0.13276	0.13710	0.13739	0.13053	4.959
	103 Diallate 1	0.97167	1.02792	1.06712	1.18803	1.24985	1.23987	1.12408	10.453
M	189 Diallate, Total	4.35836	4.90270	5.50803	5.53349	5.95129	5.60832	5.31037	10.853
	104 Phorate	0.16244	0.17224	0.18315	0.20385	0.21927	0.22080	0.19362	12.734
	105 1,3,5-Trinitrobenzene	0.03449	0.04608	0.05623	0.07844	0.08149	0.08487	0.06360	32.994
	106 4-Bromophenyl-phenylether	0.20532	0.20504	0.20981	0.21870	0.22232	0.22123	0.21374	3.721
	107 Hexachlorobenzene	0.21906	0.21139	0.21369	0.21326	0.21899	0.21715	0.21559	1.506
	108 Phenacetin	0.38759	0.40554	0.43364	0.50082	0.49803	0.50143	0.45451	11.455
	109 Diallate 2	0.15366	0.14849	0.15179	0.15556	0.15686	0.15851	0.15414	2.361
	110 Dimethoate	0.43336	0.43732	0.45497	0.46568	0.46179	0.45557	0.45145	2.914
	111 Pentachlorophenol	0.09513	0.10824	0.12106	0.12344	0.13392	0.13628	0.11968	13.097
	112 Pentachloronitrobenzene	0.11890	0.12066	0.13139	0.13755	0.13632	0.13725	0.13035	6.521
	113 4-Aminobiphenyl	0.50189	0.55096	0.62403	0.74018	0.74808	0.75990	0.65417	17.042
	114 Pronamide	0.34798	0.34817	0.36560	0.38622	0.39526	0.39599	0.37320	5.986
	115 Phenanthrene	1.06101	1.01970	1.05008	1.08286	1.13094	1.13689	1.08025	4.289
	116 Anthracene	0.98732	1.00190	1.01101	1.06350	1.11461	1.11012	1.04808	5.349
	117 Dinoseb	0.07957	0.12002	0.16306	0.22006	0.23410	0.23845	0.17588	37.558
	118 Disulfoton	0.56870	0.58177	0.62345	0.72472	0.77001	0.77172	0.67339	13.849
	119 Carbazole	0.70739	0.70141	0.72510	0.78414	0.83042	0.82891	0.76289	7.790
	120 Di-n-Butylphthalate	1.24596	1.22479	1.23292	1.24414	1.27829	1.28122	1.25122	1.872
	121 4-Nitroquinoline 1-oxide	0.02997	0.04276	0.06228	0.09304	0.08366	0.08581	0.06625	38.701
	122 Methapyrilene	0.26842	0.23990	0.21030	0.22262	0.19858	0.20285	0.22378	11.838
	123 Fluoranthene	1.12981	1.11777	1.12645	1.18216	1.23929	1.22652	1.17033	4.583
	124 Benzidine	0.20719	0.18097	0.22203	0.33505	0.33300	0.32927	0.26792	26.843
	125 Pyrene	1.73696	1.67880	1.62902	1.56330	1.43312	1.46307	1.58405	7.588
	126 Aramite 1	0.10312	0.12040	0.11593	0.10716	0.10903	0.11020	0.11097	5.611
M	191 Aramite, Total	0.66388	0.70475	0.84047	0.80768	0.81414	0.77918	0.76835	9.002
	127 Aramite 2	0.14189	0.16433	0.15852	0.14513	0.14326	0.15036	0.15058	6.020

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m
Cal Date : 21-Nov-2000 13:48 tapsvc
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD	
128 p-Dimethylamino azobenzene	0.32201	0.35041	0.35073	0.34863	0.34615	0.36548	0.34723	4.062	
129 p-Chlorobenzilate	0.63718	0.74404	0.71435	0.67860	0.68445	0.71297	0.69526	5.314	
130 Famphur	0.65239	0.54968	0.44338	0.17412	0.11140	0.09729	0.33804	71.354	<-
131 Butylbenzylphthalate	0.66390	0.65565	0.65873	0.60719	0.56366	0.56988	0.61983	7.410	
132 3,3'-Dimethylbenzidine	0.52790	0.48775	0.50817	0.55233	0.50576	0.50384	0.51429	4.397	
133 3,3'-Dimethoxybenzidine	0.12201	0.10299	0.13581	0.21263	0.22296	0.21580	0.16870	32.110	
134 2-Acetylaminofluorene	0.39299	0.42968	0.49245	0.53314	0.51071	0.48998	0.47483	11.130	
135 3,3'-Dichlorobenzidine	0.27737	0.27964	0.29423	0.34093	0.35552	0.34310	0.31513	11.175	
136 Benzo(a)Anthracene	1.19071	1.17055	1.16506	1.19915	1.18158	1.19689	1.18399	1.186	
137 Chrysene	1.13954	1.12169	1.06323	1.06463	1.04096	1.04288	1.07882	3.865	
138 4,4'-Methylene bis(o-chloroan	0.19626	0.17424	0.18450	0.20774	0.20924	0.20368	0.19594	7.138	
139 bis(2-ethylhexyl)Phthalate	0.91345	0.93195	0.93793	0.85467	0.80503	0.81754	0.87676	6.704	
140 Di-n-octylphthalate	2.01237	2.18195	2.18037	2.04643	1.97860	2.17176	2.09525	4.451	
141 Benzo(b)fluoranthene	1.30989	1.41518	1.32992	1.38459	1.42133	1.58902	1.40832	7.048	
142 Benzo(k)fluoranthene	1.39079	1.35623	1.29806	1.37363	1.33896	1.26688	1.33743	3.514	
143 7,12-dimethylbenz[a]anthracen	0.81347	0.83794	0.70732	1.00869	1.08070	1.15848	0.93443	18.698	
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 Benzo(a)pyrene	1.02128	1.07431	1.03885	1.12067	1.14014	1.16123	1.09275	5.188	
148 3-Methylcholanthrene	0.77075	0.78939	0.69073	0.93391	0.97114	0.96598	0.85365	13.901	
149 Indeno(1,2,3-cd)pyrene	0.66339	0.82092	0.83415	0.95197	0.98996	0.99141	0.87530	14.636	
150 Dibenz(a,h)anthracene	0.64367	0.67707	0.70444	0.78228	0.81624	0.82556	0.74154	10.342	
151 Benzo(g,h,i)perylene	0.71172	0.69590	0.71377	0.78441	0.81564	0.80965	0.75518	7.154	
199 3-Picoline	1.83121	1.95604	2.06560	2.27820	2.36590	2.36794	2.14415	10.568	
200 N,N-Dimethylacetamide	0.63421	0.69708	0.75287	0.81618	0.85919	0.81913	0.76311	11.160	
201 Quinoline	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
202 Diphenyl	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
203 Diphenyl ether	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
204 6-Methylchrysene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
205 Benzenethiol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
207 Indene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
208 Dibenz(a,j)acridine	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
209 Benzaldehyde	1.80416	1.84647	1.66167	1.67940	1.56458	1.45225	1.66809	8.803	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 15:05
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Quant Method : ISTD
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Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m
Cal Date : 21-Nov-2000 13:48 tapsvc
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
210 Caprolactam	0.09814	0.10088	0.10410	0.10661	0.10386	0.10345	0.10284	2.856
211 1,1'-Biphenyl	1.30282	1.37005	1.38377	1.44480	1.50004	1.54948	1.42516	6.367
212 Atrazine	0.21665	0.20723	0.21136	0.21036	0.19774	0.18598	0.20489	5.453
213 2-Chloroacetophenone	0.77266	0.81497	0.87528	0.96178	0.99012	1.01705	0.90531	10.993
$ 154 Nitrobenzene-d5	0.65907	0.64745	0.65124	0.67429	0.68545	0.68548	0.66717	2.533
$ 155 2-Fluorobiphenyl	1.20916	1.21232	1.19165	1.23147	1.24769	1.27545	1.22796	2.463
$ 156 Terphenyl-d14	1.12413	1.09449	1.09620	1.04472	0.98415	0.99432	1.05634	5.493
$ 157 Phenol-d5	2.00309	2.01433	1.98933	2.03762	2.09138	2.09365	2.03823	2.204
$ 158 2-Fluorophenol	1.41271	1.42847	1.43052	1.48466	1.50283	1.51637	1.46259	3.008
$ 159 2,4,6-Tribromophenol	0.13029	0.12792	0.13019	0.13717	0.14485	0.14652	0.13615	5.894
$ 186 2-Chlorophenol-d4	1.18658	1.19976	1.18202	1.22814	1.23903	1.24912	1.21411	2.340
$ 187 1,2-Dichlorobenzene-d4	0.90355	0.87555	0.87054	0.92090	0.93598	0.95935	0.91098	3.805

QUANTERRA INITIAL CALIBRATION AVERAGE %RSD REPORT

Start Cal Date: 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Integrator : HP RTE
Method File : \\QCANOH05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m

Calibration File Names:
Level 1: //qcanoh05/dd/chem/MSS/a4hp7.i/01116a.b/7AL1116.D
Level 2: //qcanoh05/dd/chem/MSS/a4hp7.i/01116a.b/7AML1116.D
Level 3: //qcanoh05/dd/chem/MSS/a4hp7.i/01116a.b/7AM1116.D
Level 4: //qcanoh05/dd/chem/MSS/a4hp7.i/01116a.b/7AMH1116.D
Level 5: //qcanoh05/dd/chem/MSS/a4hp7.i/01116a.b/7AH1116.D
Level 6: //qcanoh05/dd/chem/MSS/a4hp7.i/01116a.b/7AHH1116.D

	Compound	CType	%RSD
22	Phenol	AVRG	3.10150
23	bis(2-Chloroethyl)ether	AVRG	2.28346
24	2-Chlorophenol	AVRG	2.11217
26	1,3-Dichlorobenzene	AVRG	1.54781
27	1,4-Dichlorobenzene	AVRG	1.53590
28	1,2-Dichlorobenzene	AVRG	2.37577
30	2-Methylphenol	AVRG	1.91924
31	bis(2-Chloroisopropyl)ether	AVRG	0.84600
192	4-Methylphenol	AVRG	7.40986
34	Hexachloroethane	AVRG	2.30339
35	Nitrobenzene	AVRG	2.70408
41	Isophorone	AVRG	2.71772
42	2-Nitrophenol	AVRG	8.93114
43	2,4-Dimethylphenol	AVRG	3.49933
44	bis(2-Chloroethoxy)methane	AVRG	4.19162
32	N-Nitroso-di-n-propylamine	AVRG	1.94514
48	2,4-Dichlorophenol	AVRG	3.85395
50	1,2,4-Trichlorobenzene	AVRG	2.85924
51	Naphthalene	AVRG	4.38323
52	4-Chloroaniline	AVRG	8.19550
56	Hexachlorobutadiene	AVRG	4.57846
59	4-Chloro-3-Methylphenol	AVRG	4.56187
62	2-Methylnaphthalene	AVRG	4.70501
64	Hexachlorocyclopentadiene	AVRG	9.68845
66	2,4,6-Trichlorophenol	AVRG	4.70081
67	2,4,5-Trichlorophenol	AVRG	5.48849
70	2-Chloronaphthalene	AVRG	4.41823
73	2-Nitroaniline	AVRG	5.86208
76	Dimethylphthalate	AVRG	2.19937
79	Acenaphthylene	AVRG	4.65153
78	2,6-Dinitrotoluene	AVRG	5.48242
81	3-Nitroaniline	AVRG	11.97935
82	Acenaphthene	AVRG	2.66164
83	2,4-Dinitrophenol	AVRG	24.40764
85	4-Nitrophenol	AVRG	17.86264
86	Dibenzofuran	AVRG	3.71605
87	2,4-Dinitrotoluene	AVRG	6.48226
93	Diethylphthalate	AVRG	1.42577
95	4-Chlorophenyl-phenylether	AVRG	3.16674
94	Fluorene	AVRG	4.22747
96	4-Nitroaniline	AVRG	17.45881
98	4,6-Dinitro-2-methylphenol	AVRG	22.36157

QUANTERRA INITIAL CALIBRATION AVERAGE %RSD REPORT

Start Cal Date: 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Integrator : HP RTE
Method File : \\QCANOH05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m

	Compound	CType	%RSD
99	N-Nitrosodiphenylamine	AVRG	2.59725
106	4-Bromophenyl-phenylether	AVRG	3.72139
107	Hexachlorobenzene	AVRG	1.50586
111	Pentachlorophenol	AVRG	13.09710
115	Phenanthrene	AVRG	4.28862
116	Anthracene	AVRG	5.34856
119	Carbazole	AVRG	7.78995
120	Di-n-Butylphthalate	AVRG	1.87217
123	Fluoranthene	AVRG	4.58285
125	Pyrene	AVRG	7.58752
131	Butylbenzylphthalate	AVRG	7.41029
135	3,3'-Dichlorobenzidine	AVRG	11.17545
136	Benzo(a)Anthracene	AVRG	1.18609
137	Chrysene	AVRG	3.86533
139	bis(2-ethylhexyl)Phthalate	AVRG	6.70375
140	Di-n-octylphthalate	AVRG	4.45051
141	Benzo(b)fluoranthene	AVRG	7.04844
142	Benzo(k)fluoranthene	AVRG	3.51357
146	Benzo(a)pyrene	AVRG	5.18775
149	Indeno(1,2,3-cd)pyrene	AVRG	14.63623
150	Dibenz(a,h)anthracene	AVRG	10.34249
151	Benzo(g,h,i)perylene	AVRG	7.15419
9	Pyridine	AVRG	7.38697
10	N-Nitrosodimethylamine	AVRG	3.52290
21	Aniline	AVRG	3.49384
29	Benzyl Alcohol	AVRG	8.31567
49	Benzoic Acid	AVRG	21.56509
63	1-Methylnaphthalene	AVRG	4.13507
80	1,2-Dinitrobenzene	AVRG	2.43858
91	2,3,5,6-Tetrachlorophenol	AVRG	5.87955
100	1,2-Diphenylhydrazine	AVRG	5.27371
124	Benzidine	AVRG	26.84313
11	Ethyl methacrylate	AVRG	2.12695
12	3-Chloropropionitrile	AVRG	1.84153
13	Malononitrile	AVRG	1.25990
46	2,4-Toluenediamene	AVRG	43.05710
47	1,3,5-Trichlorobenzene	AVRG	3.78323
57	1,2,3-Trichlorobenzene	AVRG	3.39434
68	1,2,3,5-Tetrachlorobenzene	AVRG	2.31021
74	1,2,3,4-Tetrachlorobenzene	AVRG	1.72332
101	Diphenylamine	AVRG	2.59725
133	3,3'-Dimethoxybenzidine	AVRG	32.11049
138	4,4'-Methylene bis(o-chloroan	AVRG	7.13781
195	Cresols, total	AVRG	4.76147
154	Nitrobenzene-d5	AVRG	2.53312
155	2-Fluorobiphenyl	AVRG	2.46279
156	Terphenyl-d14	AVRG	5.49284
157	Phenol-d5	AVRG	2.20445
158	2-Fluorophenol	AVRG	3.00820
159	2,4,6-Tribromophenol	AVRG	5.89384
186	2-Chlorophenol-d4	AVRG	2.34040

QUANTERRA INITIAL CALIBRATION AVERAGE %RSD REPORT

Start Cal Date: 15-NOV-2000 15:05
End Cal Date : 21-NOV-2000 12:38
Quant Method : ISTD
Integrator : HP RTE
Method File : \\QCANOH05\dd\chem\MSS\a4hp7.i\01121a.b\8270c.m

Compound	CType	%RSD
187 1,2-Dichlorobenzene-d4	AVRG	3.80517

Number of Compounds	94
Number of Averaged Compounds	94
Total Average RSD	6.368

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab File ID: 7DF1128B DFTPP Injection Date: 11/28/00

Instrument ID: A4HP7 DFTPP Injection Time: 1232

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	31.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	78.7
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	40.0 - 60.0% of mass 198	47.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	23.4
365	Greater than 1.0% of mass 198	2.3
441	Present, but less than mass 443	8.7
442	40.0 - 100.0% of mass 198	55.4
443	17.0 - 23.0% of mass 442	11.6 (21.0)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD008	SSTD008	7SM1128	11/28/00	1256
02	ASTD008	ASTD008	7AM1128	11/28/00	1332
03	DP6PDBLK	DP6PD1AA	DP6PD1AA	11/28/00	1409
04	DP6PDCHK	DP6PD1AC	DP6PD1AC	11/28/00	1445
05	DP6PDCHKDUP	DP6PD1AD	DP6PD1AD	11/28/00	1521
06	MPTACSW0101	DP3PK1AA	DP3PK1AA	11/28/00	2235
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
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19					
20					
21					
22					

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 28-NOV-2000 12:56
Lab File ID: 7SM1128.D Init. Cal. Date(s): 15-NOV-2000 21-NOV-2000
Analysis Type: Init. Cal. Times: 15:05 12:38
Lab Sample ID: sstd008 Quant Type: ISTD
Method: \\qcanoh05\dd\chem\MSS\a4hp7.i\01128a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
9	Pyridine	1.92825	1.65610	0.010	-14.1	50.0
10	N-Nitrosodimethylamine	1.32227	1.17367	0.010	-11.2	50.0
11	Ethyl methacrylate	2.03539	1.97882	0.010	-2.8	50.0
12	3-Chloropropionitrile	0.52091	0.48265	0.010	-7.3	50.0
13	Malononitrile	1.86283	1.81104	0.010	-2.8	50.0
209	Benzaldehyde	1.66809	1.79354	0.010	7.5	50.0
21	Aniline	2.71497	2.63565	0.010	-2.9	50.0
22	Phenol	2.24784	2.11863	0.010	-5.7	20.0
23	bis(2-Chloroethyl)ether	1.67800	1.60977	0.010	-4.1	50.0
24	2-Chlorophenol	1.32487	1.28218	0.010	-3.2	50.0
26	1,3-Dichlorobenzene	1.43147	1.39434	0.010	-2.6	50.0
27	1,4-Dichlorobenzene	1.47635	1.44713	0.010	-2.0	20.0
28	1,2-Dichlorobenzene	1.36485	1.29951	0.010	-4.8	50.0
29	Benzyl Alcohol	1.01948	0.97825	0.010	-4.0	50.0
30	2-Methylphenol	1.45070	1.40472	0.010	-3.2	50.0
31	bis(2-Chloroisopropyl)ether	0.79072	0.75345	0.010	-4.7	50.0
37	Acetophenone	2.52262	2.43452	0.010	-3.5	50.0
32	N-Nitroso-di-n-propylamine	1.84066	1.79334	0.050	-2.6	50.0
192	4-Methylphenol	1.61501	1.53509	0.010	-4.9	50.0
34	Hexachloroethane	0.70590	0.67957	0.010	-3.7	50.0
35	Nitrobenzene	0.68880	0.69172	0.010	0.4	50.0
41	Isophorone	1.10247	1.08852	0.010	-1.3	50.0
42	2-Nitrophenol	0.18421	0.18262	0.010	-0.9	20.0
43	2,4-Dimethylphenol	0.46532	0.45437	0.010	-2.4	50.0
44	bis(2-Chloroethoxy)methane	0.53659	0.52634	0.010	-1.9	50.0
46	2,4-Toluenediamene	0.06234	0.04769	0.010	-23.5	50.0
47	1,3,5-Trichlorobenzene	0.36027	0.35915	0.010	-0.3	50.0
48	2,4-Dichlorophenol	0.28393	0.28306	0.010	-0.3	20.0
49	Benzoic Acid	0.11734	0.11809	0.010	0.6	50.0
50	1,2,4-Trichlorobenzene	0.33399	0.33529	0.010	0.4	50.0
51	Naphthalene	1.03478	1.00681	0.010	-2.7	50.0
52	4-Chloroaniline	0.37000	0.37649	0.010	1.8	50.0
56	Hexachlorobutadiene	0.23066	0.23371	0.010	1.3	20.0
210	Caprolactam	0.10284	0.11105	0.010	8.0	50.0
57	1,2,3-Trichlorobenzene	0.32305	0.31683	0.010	-1.9	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 28-NOV-2000 12:56
Lab File ID: 7SM1128.D Init. Cal. Date(s): 15-NOV-2000 21-NOV-2000
Analysis Type: Init. Cal. Times: 15:05 12:38
Lab Sample ID: sstd008 Quant Type: ISTD
Method: \\qcanoh05\dd\chem\MSS\a4hp7.i\01128a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
59	4-Chloro-3-Methylphenol	0.40602	0.40772	0.010	0.4	20.0
62	2-Methylnaphthalene	0.65804	0.63695	0.010	-3.2	50.0
63	1-Methylnaphthalene	0.64954	0.63080	0.010	-2.9	50.0
64	Hexachlorocyclopentadiene	0.45382	0.44072	0.050	-2.9	50.0
66	2,4,6-Trichlorophenol	0.36185	0.36097	0.010	-0.2	20.0
67	2,4,5-Trichlorophenol	0.36947	0.36692	0.010	-0.7	50.0
211	1,1'-Biphenyl	1.42516	1.36486	0.010	-4.2	50.0
68	1,2,3,5-Tetrachlorobenzene	0.62086	0.61471	0.010	-1.0	50.0
70	2-Chloronaphthalene	1.07745	1.04225	0.010	-3.3	50.0
73	2-Nitroaniline	0.51167	0.52950	0.010	3.5	50.0
74	1,2,3,4-Tetrachlorobenzene	0.55466	0.54420	0.010	-1.9	50.0
76	Dimethylphthalate	1.19668	1.17340	0.010	-1.9	50.0
78	2,6-Dinitrotoluene	0.26778	0.27357	0.010	2.2	50.0
79	Acenaphthylene	1.68679	1.61748	0.010	-4.1	50.0
80	1,2-Dinitrobenzene	0.12409	0.12487	0.010	0.6	50.0
81	3-Nitroaniline	0.21895	0.23209	0.010	6.0	50.0
82	Acenaphthene	1.03759	1.03028	0.010	-0.7	20.0
83	2,4-Dinitrophenol	0.10667	0.11628	0.050	9.0	50.0
85	4-Nitrophenol	0.21990	0.26224	0.050	19.3	50.0
86	Dibenzofuran	1.41726	1.39814	0.010	-1.3	50.0
87	2,4-Dinitrotoluene	0.34877	0.35652	0.010	2.2	50.0
91	2,3,5,6-Tetrachlorophenol	0.34007	0.35028	0.010	3.0	50.0
93	Diethylphthalate	1.26825	1.24501	0.010	-1.8	50.0
94	Fluorene	1.21656	1.18683	0.010	-2.4	50.0
95	4-Chlorophenyl-phenylether	0.69670	0.69404	0.010	-0.4	50.0
96	4-Nitroaniline	0.17465	0.21033	0.010	20.4	50.0
98	4,6-Dinitro-2-methylphenol	0.11007	0.12654	0.010	15.0	50.0
99	N-Nitrosodiphenylamine	0.49621	0.47914	0.010	-3.4	20.0
100	1,2-Diphenylhydrazine	1.33462	1.28508	0.010	-3.7	50.0
106	4-Bromophenyl-phenylether	0.21374	0.21692	0.010	1.5	50.0
107	Hexachlorobenzene	0.21559	0.21093	0.010	-2.2	50.0
212	Atrazine	0.20489	0.21277	0.010	3.9	50.0
111	Pentachlorophenol	0.11968	0.12589	0.010	5.2	20.0
115	Phenanthrene	1.08025	1.04515	0.010	-3.2	50.0
116	Anthracene	1.04808	1.03963	0.010	-0.8	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 28-NOV-2000 12:56
Lab File ID: 7SM1128.D Init. Cal. Date(s): 15-NOV-2000 21-NOV-2000
Analysis Type: Init. Cal. Times: 15:05 12:38
Lab Sample ID: sstd008 Quant Type: ISTD
Method: \\qcanoh05\dd\chem\MSS\a4hp7.i\01128a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
	119 Carbazole	0.76289	0.79185	0.010	3.8	50.0
	120 Di-n-Butylphthalate	1.25122	1.20814	0.010	-3.4	50.0
	123 Fluoranthene	1.17033	1.19291	0.010	1.9	20.0
	124 Benzidine	0.26792	0.24270	0.010	-9.4	50.0
	125 Pyrene	1.58405	1.38085	0.010	-12.8	50.0
	131 Butylbenzylphthalate	0.61983	0.54825	0.010	-11.5	50.0
	133 3,3'-Dimethoxybenzidine	0.16870	0.17733	0.010	5.1	50.0
	135 3,3'-Dichlorobenzidine	0.31513	0.33006	0.010	4.7	50.0
	136 Benzo(a)Anthracene	1.18399	1.16067	0.010	-2.0	50.0
	137 Chrysene	1.07882	1.05666	0.010	-2.1	50.0
	138 4,4'-Methylene bis(o-chloro	0.19594	0.20317	0.010	3.7	50.0
	139 bis(2-ethylhexyl)Phthalate	0.87676	0.77198	0.010	-12.0	50.0
	140 Di-n-octylphthalate	2.09525	1.73074	0.010	-17.4	20.0
	141 Benzo(b)fluoranthene	1.40832	1.22942	0.010	-12.7	50.0
	142 Benzo(k)fluoranthene	1.33743	1.29688	0.010	-3.0	50.0
	146 Benzo(a)pyrene	1.09275	1.06481	0.010	-2.6	20.0
	149 Indeno(1,2,3-cd)pyrene	0.87530	0.93090	0.010	6.4	50.0
	150 Dibenz(a,h)anthracene	0.74154	0.76016	0.010	2.5	50.0
	151 Benzo(g,h,i)perylene	0.75518	0.77646	0.010	2.8	50.0
$	154 Nitrobenzene-d5	0.66717	0.66957	0.010	0.4	50.0
$	155 2-Fluorobiphenyl	1.22796	1.20622	0.010	-1.8	50.0
$	156 Terphenyl-d14	1.05634	0.96923	0.010	-8.2	50.0
$	157 Phenol-d5	2.03823	1.95932	0.010	-3.9	50.0
$	158 2-Fluorophenol	1.46259	1.39227	0.010	-4.8	50.0
$	159 2,4,6-Tribromophenol	0.13615	0.13407	0.010	-1.5	50.0
$	186 2-Chlorophenol-d4	1.21411	1.19511	0.010	-1.6	50.0
$	187 1,2-Dichlorobenzene-d4	0.91098	0.88869	0.010	-2.4	50.0
M	195 Cresols, total	3.06571	2.93981	0.010	-4.1	50.0
	101 Diphenylamine	0.49621	0.47914	0.010	-3.4	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i Injection Date: 28-NOV-2000 13:32
Lab File ID: 7AM1128.D Init. Cal. Date(s): 15-NOV-2000 21-NOV-2000
Analysis Type: SOIL Init. Cal. Times: 15:05 12:38
Lab Sample ID: astd008 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp7.i\01128a.b\8270c.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D	
	7 N-Nitrosomorpholine	1.06982	1.02181	0.010	-4.5	50.0	
	8 Ethyl methanesulfonate	1.98303	1.85018	0.010	-6.7	50.0	
	14 2-Picoline	2.07601	1.88401	0.010	-9.2	50.0	
	15 N-Nitrosomethylethylamine	0.98160	0.91111	0.010	-7.2	50.0	
	16 Methyl methanesulfonate	1.89223	1.67498	0.010	-11.5	50.0	
	18 1,3-Dichloro-2-propanol	2.43007	2.20177	0.010	-9.4	50.0	
	19 N-Nitrosodiethylamine	0.97612	0.90288	0.010	-7.5	50.0	
	25 Pentachloroethane	0.58342	0.58913	0.010	1.0	50.0	
	36 N-Nitrosopyrrolidine	1.11832	1.04687	0.010	-6.4	50.0	
	37 Acetophenone	2.52262	3.08958	0.010	22.5	50.0	
	39 o-Toluidine	3.45778	3.14484	0.010	-9.1	50.0	
	40 N-Nitrosopiperidine	0.19637	0.18838	0.010	-4.1	50.0	
	45 O,O,O-Triethyl phosphorothi	0.22280	0.23112	0.010	3.7	50.0	
	53 a,a-Dimethyl-phenethylamine	0.54428	0.41135	0.010	-24.4	50.0	
	54 2,6-Dichlorophenol	0.30223	0.30284	0.010	0.2	50.0	
	55 Hexachloropropene	0.25246	0.26860	0.010	6.4	50.0	
	58 N-Nitrosodi-n-butylamine	0.43869	0.43413	0.010	-1.0	50.0	
	60 p-Phenylene diamine	0.30157	0.19273	0.010	-36.1	50.0	
	61 Safrole	0.31090	0.31623	0.010	1.7	50.0	
	65 1,2,4,5-Tetrachlorobenzene	0.68526	0.66915	0.010	-2.4	50.0	
	71 Isosafrole 1	0.14704	0.14752	0.010	0.3	50.0	
M	188 Isosafrole, Total	1.23261	1.18120	0.010	-4.2	50.0	
	72 Isosafrole 2	1.08557	1.03369	0.010	-4.8	50.0	
	75 1,4-Naphthoquinone	0.40542	0.41065	0.010	1.3	50.0	
	84 Pentachlorobenzene	0.56310	0.56980	0.010	1.2	50.0	
	89 1-Naphthylamine	1.04666	0.90849	0.010	-13.2	50.0	
	92 2-Naphthylamine	0.96252	0.80705	0.010	-16.2	50.0	
	90 Zinophos	0.46262	0.46384	0.010	0.3	50.0	
	102 Tetraethyl dithiopyrophosph	0.13053	0.12315	0.010	-5.7	50.0	
	103 Diallate 1	1.12408	0.99669	0.010	-11.3	50.0	
M	189 Diallate, Total	5.31037	5.35722	0.010	0.9	50.0	
	109 Diallate 2	0.15414	0.14375	0.010	-6.7	50.0	
	104 Phorate	0.19362	0.16563	0.010	-14.5	50.0	
	105 1,3,5-Trinitrobenzene	0.06360	0.09938	0.010	56.3	50.0	<-
	108 Phenacetin	0.45451	0.45734	0.010	0.6	50.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp7.i
Lab File ID: 7AM1128.D
Analysis Type: SOIL
Lab Sample ID: astd008
Method: \\QCANOH05\dd\chem\MSS\a4hp7.i\01128a.b\8270c.m

Injection Date: 28-NOV-2000 13:32
Init. Cal. Date(s): 15-NOV-2000 21-NOV-2000
Init. Cal. Times: 15:05 12:38
Quant Type: ISTD

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D	
	110 Dimethoate	0.45145	0.41758	0.010	-7.5	50.0	
	112 Pentachloronitrobenzene	0.13035	0.13358	0.010	2.5	50.0	
	113 4-Aminobiphenyl	0.65417	0.53847	0.010	-17.7	50.0	
	114 Pronamide	0.37320	0.36218	0.010	-3.0	50.0	
	117 Dinoseb	0.17588	0.22949	0.010	30.5	50.0	
	118 Disulfoton	0.67339	0.57076	0.010	-15.2	50.0	
	121 4-Nitroquinoline 1-oxide	0.06625	0.08442	0.010	27.4	50.0	
	122 Methapyrilene	0.22378	0.16617	0.010	-25.7	50.0	
	126 Aramite 1	0.11097	0.10982	0.010	-1.0	50.0	
M	191 Aramite, Total	0.76835	0.93360	0.010	21.5	50.0	
	127 Aramite 2	0.15058	0.14549	0.010	-3.4	50.0	
	128 p-Dimethylamino azobenzene	0.34723	0.34086	0.010	-1.8	50.0	
	129 p-Chlorobenzilate	0.69526	0.63832	0.010	-8.2	50.0	
	130 Famphur	0.33804	0.38695	0.010	14.5	50.0	
	132 3,3'-Dimethylbenzidine	0.51429	0.35109	0.010	-31.7	50.0	
	134 2-Acetylaminofluorene	0.47483	0.45029	0.010	-5.2	50.0	
	143 7,12-dimethylbenz[a]anthrac	0.93443	0.68861	0.010	-26.3	50.0	
	144 Hexachlorophene	++++	++++	0.010	++++	50.0	<-
	145 Hexachlorophene product	++++	++++	0.010	++++	50.0	<-
	148 3-Methylcholanthrene	0.85365	0.66996	0.010	-21.5	50.0	
	193 3-Methylphenol	2.11425	1.88348	0.010	-10.9	50.0	
	69 1,4-Dinitrobenzene	0.17194	0.19777	0.010	15.0	50.0	
	77 m-Dinitrobenzene	0.19438	0.21676	0.010	11.5	50.0	
	198 1,4-Dioxane	0.76541	0.72723	0.010	-5.0	50.0	
	88 2,3,4,6-Tetrachlorophenol	0.31379	0.33153	0.010	5.7	50.0	
	97 5-Nitro-o-toluidine	0.28591	0.31035	0.010	8.5	50.0	
	199 3-Picoline	2.14415	1.70073	0.010	-20.7	50.0	
	200 N,N-Dimethylacetamide	0.76311	0.67278	0.010	-11.8	50.0	
	213 2-Chloroacetophenone	0.90531	0.86554	0.010	-4.4	50.0	

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab File ID: 7DF1116 DFTPP Injection Date: 11/16/00

Instrument ID: A4HP7 DFTPP Injection Time: 0810

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	33.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	82.6
70	Less than 2.0% of mass 69	0.4 (0.5)1
127	40.0 - 60.0% of mass 198	47.9
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	22.9
365	Greater than 1.0% of mass 198	2.2
441	Present, but less than mass 443	6.9
442	40.0 - 100.0% of mass 198	47.4
443	17.0 - 23.0% of mass 442	9.0 (19.0)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	ASTD002	ASTD002	7AL1116	11/16/00	0911
02	ASTD005	ASTD005	7AML1116	11/16/00	0947
03	ASTD008	ASTD008	7AM1116	11/16/00	1024
04	ASTD012	ASTD012	7AMH1116	11/16/00	1100
05	ASTD016	ASTD016	7AH1116	11/16/00	1137
06	ASTD020	ASTD020	7AHH1116	11/16/00	1214
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
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22					

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab File ID: 7DF1127 DFTPP Injection Date: 11/27/00

Instrument ID: A4HP7 DFTPP Injection Time: 1031

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	32.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	81.7
70	Less than 2.0% of mass 69	0.4 (0.6)1
127	40.0 - 60.0% of mass 198	48.5
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	23.0
365	Greater than 1.0% of mass 198	2.3
441	Present, but less than mass 443	7.6
442	40.0 - 100.0% of mass 198	54.8
443	17.0 - 23.0% of mass 442	10.4 (19.1)2

1-Value is % of mass 69 2-Value is % of mass 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD008	SSTD008	7SM1127	11/27/00	1054
02	DP30MBLK	DP30M1AA	DP30M1AA	11/27/00	1207
03	DP30MCHK	DP30M1AC	DP30M1AC	11/27/00	1243
04	MPTACSD0101	DP3RF1AD	DP3RF1AD	11/27/00	1319
05	MPTACSD0101	DP3RF1C1	DP3RF1C1	11/27/00	1356
06	MPTACSD0101	DP3RF1C2	DP3RF1C2	11/27/00	1432
07					
08					
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22					

CALCULATION WORKSHEET Order No. 19116 (01-91) PAGE ____ OF ____

CLIENT	JOB NUMBER
NS Mayport	MP028

SUBJECT: VOA

BASED ON	DRAWING NUMBER
SW 846 8260 B	

BY	CHECKED BY	APPROVED BY	DATE
Staffen, S			2/12/01

$$\frac{(29797)(50\ ng)(1)}{(536524)(.26457)(5\ mL)} = \frac{2.1\ ug/L}{2.1} = 2.1\ ug/L$$

Bromodichloromethane MPT-AC-SW01-01

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Lot #: A0K280000 WO #: DQFJ71AC
BATCH: 0333223

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
trans-1,2-Dichloroethene	50	46	91	54 - 156	
Chloromethane	50	38	77	10 - 273	
Bromomethane	50	35	71	10 - 242	
Vinyl chloride	50	41	83	41 - 138	
Chloroethane	50	37	75*	82 - 114	a
Methylene chloride	50	50	100	10 - 221	
Acetone	50	95	191*	80 - 120	a
Carbon disulfide	50	54	107	81 - 125	
1,1-Dichloroethene	50	50	100	55 - 142	
1,1-Dichloroethane	50	48	96	59 - 155	
1,2-Dichloroethene (total	100	93	93	50 - 150	
n-Hexane	50	43	86*	98 - 117	a
Chloroform	50	47	94	77 - 126	
1,2-Dichloroethane	50	45	89	76 - 127	
2-Butanone	50	91	182*	20 - 155	a
1,1,1-Trichloroethane	50	43	87	52 - 162	
Carbon tetrachloride	50	43	87	66 - 141	
Bromodichloromethane	50	49	97	35 - 155	
1,2-Dichloropropane	50	48	97	10 - 210	
cis-1,3-Dichloropropene	50	51	102	10 - 227	
Trichloroethene	50	50	99	70 - 131	
Dibromochloromethane	50	52	105	53 - 149	
1,1,2-Trichloroethane	50	49	99	52 - 150	
Benzene	50	49	98	75 - 129	
trans-1,3-Dichloropropene	50	51	102	17 - 183	
Bromoform	50	55	111	45 - 169	
4-Methyl-2-pentanone	50	59	118	90 - 125	
2-Hexanone	50	84	167*	87 - 129	a
Tetrachloroethene	50	48	95	68 - 136	
1,1,2,2-Tetrachloroethane	50	54	109	46 - 157	
Toluene	50	48	95	71 - 130	

(Continued on next page)

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Lot #: A0K280000 WO #: DQFJ71AC
BATCH: 0333223

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
Chlorobenzene	50	48	96	75 - 127	
Ethylbenzene	50	47	93	37 - 162	
Styrene	50	48	97	79 - 100	
Xylenes (total)	150	140	95	83 - 129	
cis-1,2-Dichloroethene	50	48	95	50 - 150	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

* Values outside of QC limits

Spike Recovery: 5 out of 36 outside limits

COMMENTS:

FORM III

SW846 8260B CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Lot #: A0K280000 WO #: DQFJ71AD
BATCH: 0333223

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
trans-1,3-Dichloropropene	50	51	102	17- 183	
Chloromethane	50	38	77	10- 273	
Bromomethane	50	36	72	10- 242	
Bromoform	50	55	111	45- 169	
Vinyl chloride	50	42	85	41- 138	
Chloroethane	50	38	75*	82- 114	a
Methylene chloride	50	51	102	10- 221	
Acetone	50	84	169*	80- 120	a
4-Methyl-2-pentanone	50	53	106	90- 125	
Carbon disulfide	50	55	109	81- 125	
1,1-Dichloroethene	50	50	100	55- 142	
2-Hexanone	50	77	153*	87- 129	a
1,1-Dichloroethane	50	48	97	59- 155	
1,2-Dichloroethene (total	100	95	95	50- 150	
Chloroform	50	48	95	77- 126	
Tetrachloroethene	50	46	92	68- 136	
1,2-Dichloroethane	50	45	91	76- 127	
2-Butanone	50	82	164*	20- 155	a
1,1,1-Trichloroethane	50	44	88	52- 162	
Carbon tetrachloride	50	43	87	66- 141	
Bromodichloromethane	50	49	98	35- 155	
1,2-Dichloropropane	50	49	98	10- 210	
cis-1,3-Dichloropropene	50	51	102	10- 227	
Trichloroethene	50	50	99	70- 131	
Dibromochloromethane	50	52	103	53- 149	
1,1,2-Trichloroethane	50	49	98	52- 150	
Benzene	50	49	98	75- 129	
1,1,2,2-Tetrachloroethane	50	53	106	46- 157	
Toluene	50	47	95	71- 130	
Chlorobenzene	50	48	97	75- 127	
Ethylbenzene	50	46	93	37- 162	

(Continued on next page)

SW846 8260B CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Lot #: A0K280000 WO #: DQFJ71AD
BATCH: 0333223

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
Styrene	50	48	96	79 - 100	
Xylenes (total)	150	140	94	83 - 129	
cis-1,2-Dichloroethene	50	48	97	50 - 150	
trans-1,2-Dichloroethene	50	46	93	54 - 156	
n-Hexane	50	42	84*	98 - 117	a

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

* Values outside of QC limits

Spike Recovery: 5 out of 36 outside limits

COMMENTS:

FORM III

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Lot #: A0K250000 WO #: DQDVK1AC
BATCH: 0330093

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	% REC	QC LIMITS REC	QUAL
Chloromethane	20	14	70	61 - 129	
Bromomethane	20	18	90	47 - 160	
Vinyl chloride	20	16	80	69 - 121	
Chloroethane	20	19	95	80 - 118	
Methylene chloride	20	19	95	81 - 134	
Acetone	20	42	208	10 - 279	
Carbon disulfide	20	19	95	81 - 125	
1,1-Dichloroethene	20	20	102	63 - 130	
1,1-Dichloroethane	20	20	101	87 - 120	
1,2-Dichloroethene (total	40	38	96	50 - 150	
Chloroform	20	20	102	90 - 117	
1,2-Dichloroethane	20	20	100	88 - 119	
2-Butanone (MEK)	20	37	186	20 - 232	
1,1,1-Trichloroethane	20	20	101	91 - 113	
Carbon tetrachloride	20	21	106	84 - 119	
Bromodichloromethane	20	21	106	90 - 114	
1,2-Dichloropropane	20	20	98	91 - 113	
cis-1,3-Dichloropropene	20	19	97	85 - 112	
Trichloroethene	20	20	102	75 - 122	
Dibromochloromethane	20	22	109	81 - 112	
1,1,2-Trichloroethane	20	20	102	81 - 117	
Benzene	20	20	98	80 - 116	
trans-1,3-Dichloropropene	20	19	96	84 - 112	
Bromoform	20	22	108	71 - 118	
4-Methyl-2-pentanone (MIB	20	25	123	11 - 210	
2-Hexanone	20	41	204	10 - 225	
Tetrachloroethene	20	20	98	83 - 111	
1,1,2,2-Tetrachloroethane	20	20	100	80 - 127	
Toluene	20	20	98	74 - 119	
Chlorobenzene	20	20	99	76 - 117	
Ethylbenzene	20	19	96	90 - 116	

(Continued on next page)

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Lot #: A0K250000 WO #: DQDVK1AC
BATCH: 0330093

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	% REC	QC LIMITS REC	QUAL
Styrene	20	20	99	81 - 113	
Xylenes (total)	60	58	97	90 - 114	
cis-1,2-Dichloroethene	20	19	97	50 - 150	
trans-1,2-Dichloroethene	20	19	94	70 - 130	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 35 outside limits

COMMENTS:

FORM III

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: MPT-AC-SW01-01

Lot #: A0K170190 WO #: DP3PK1CC
BATCH: 0330093

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	MS CONCENT. (ug/L)	MS % REC	LIMITS REC	QUAL
1,1-Dichloroethene	20	ND	21	105	62- 130	
Chloromethane	20	ND	14	72	61- 129	
Bromomethane	20	ND	19	95	47- 160	
Vinyl chloride	20	ND	16	82	69- 121	
Chloroethane	20	ND	20	99	80- 118	
Methylene chloride	20	ND	20	98	81- 134	
Acetone	20	3.7	21	86	10- 279	
Carbon disulfide	20	ND	18	92	81- 125	
1,1-Dichloroethane	20	ND	21	104	87- 120	
1,2-Dichloroethene (total	40	ND	39	98	50- 150	
Chloroform	20	3.9	25	104	90- 117	
1,2-Dichloroethane	20	ND	20	100	88- 119	
2-Butanone (MEK)	20	ND	19	93	20- 232	
1,1,1-Trichloroethane	20	ND	21	106	91- 113	
Carbon tetrachloride	20	ND	22	109	84- 119	
Bromodichloromethane	20	1.9	23	103	90- 114	
1,2-Dichloropropane	20	ND	20	98	91- 113	
cis-1,3-Dichloropropene	20	ND	18	89	85- 112	
Trichloroethene	20	ND	20	100	62- 130	
Dibromochloromethane	20	0.98	20	97	81- 112	
1,1,2-Trichloroethane	20	ND	20	100	81- 117	
Benzene	20	ND	20	98	76- 118	
trans-1,3-Dichloropropene	20	ND	17	86	84- 112	
Bromoform	20	ND	17	85	71- 118	
4-Methyl-2-pentanone (MIB	20	ND	20	102	11- 210	
2-Hexanone	20	ND	20	101	10- 225	
Tetrachloroethene	20	ND	19	97	83- 111	
1,1,2,2-Tetrachloroethane	20	ND	20	102	80- 127	

(Continued on next page)

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: MPT-AC-SW01-01

Lot #: A0K170190 WO #: DP3PK1CC
BATCH: 0330093

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	MS CONCENT. (ug/L)	MS % REC	LIMITS REC	QUAL
Toluene	20	ND	19	96	70 - 119	
Chlorobenzene	20	ND	20	98	76 - 117	
Ethylbenzene	20	ND	19	97	90 - 116	
Styrene	20	ND	18	92	81 - 113	
Xylenes (total)	60	ND	58	96	90 - 114	
cis-1,2-Dichloroethene	20	ND	20	98	50 - 150	
trans-1,2-Dichloroethene	20	ND	19	97	70 - 130	

NOTES(S):

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 35 outside limits

COMMENTS:

FORM III

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: MPT-AC-SW01-01

Lot #: A0K170190 WO #: DP3PK1CD
BATCH: 0330093

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENT. (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
1,1-Dichloroethene	20	21	106	0.87	17	62 - 130	
Chloromethane	20	14	72	0.44	20	61 - 129	
Bromomethane	20	19	95	0.030	22	47 - 160	
Vinyl chloride	20	17	83	0.87	27	69 - 121	
Chloroethane	20	20	98	0.71	17	80 - 118	
Methylene chloride	20	20	98	0.76	27	81 - 134	
Acetone	20	21	84	1.2	32	10 - 279	
Carbon disulfide	20	19	93	1.4	19	81 - 125	
1,1-Dichloroethane	20	21	104	0.33	22	87 - 120	
1,2-Dichloroethene (total	40	39	98	0.32	50	50 - 150	
Chloroform	20	25	106	1.0	18	90 - 117	
1,2-Dichloroethane	20	21	103	2.3	12	88 - 119	
2-Butanone (MEK)	20	20	98	4.9	35	20 - 232	
1,1,1-Trichloroethane	20	21	107	1.0	17	91 - 113	
Carbon tetrachloride	20	22	110	0.85	17	84 - 119	
Bromodichloromethane	20	23	104	0.77	18	90 - 114	
1,2-Dichloropropane	20	20	99	1.4	18	91 - 113	
cis-1,3-Dichloropropene	20	18	91	2.2	19	85 - 112	
Trichloroethene	20	20	101	1.2	14	62 - 130	
Dibromochloromethane	20	21	99	2.8	18	81 - 112	
1,1,2-Trichloroethane	20	21	104	4.0	20	81 - 117	
Benzene	20	20	99	1.8	14	76 - 118	
trans-1,3-Dichloropropene	20	18	90	4.1	32	84 - 112	
Bromoform	20	17	87	2.4	34	71 - 118	
4-Methyl-2-pentanone (MIB	20	21	106	3.2	34	11 - 210	
2-Hexanone	20	21	104	2.9	24	10 - 225	
Tetrachloroethene	20	20	100	2.7	26	83 - 111	
1,1,2,2-Tetrachloroethane	20	21	104	2.7	24	80 - 127	

(Continued on next page)

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: MPT-AC-SW01-01

Lot #: A0K170190 WO #: DP3PK1CD
BATCH: 0330093

COMPOUND	SPIKE ADDED	MSD CONCENT.	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
Toluene	20	20	99	2.9	16	70 - 119	
Chlorobenzene	20	20	100	2.2	15	76 - 117	
Ethylbenzene	20	20	99	1.7	18	90 - 116	
Styrene	20	19	96	4.7	18	81 - 113	
Xylenes (total)	60	59	98	2.1	25	90 - 114	
cis-1,2-Dichloroethene	20	20	99	1.1	50	50 - 150	
trans-1,2-Dichloroethene	20	19	97	0.48	50	70 - 130	

NOTES(S):

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 35 outside limits
Spike Recovery: 0 out of 35 outside limits

COMMENTS:

FORM III

SW846 8260B METHOD BLANK SUMMARY

BLANK WORKORDER NO.: DQFJ71AA

Lab Name: Severn Trent Laboratories, Inc.

Lab Code: STLCAN | SDG Number:MP028

Lab File ID: UX9506.D | Lot Number: A0K170190

Date Analyzed: 11/28/00 | Time Analyzed: 07:30

Matrix: SOLID | Date Extracted:11/28/00

GC Column: CAP ID: .53 | Extraction Method: 5035

Instrument ID: UX9 | Level:(low/med) LOW

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS , MSD:

	CLIENT ID.	SAMPLE WORK ORDER #	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	MPT-AC-SD01-01	DP3RF1A8	UX9517.D	11/28/00	11:42
02	CHECK SAMPLE	DQFJ71AC C	UX9505.D	11/28/00	07:07
03	DUPLICATE CHECK	DQFJ71AD L	UX9507.D	11/28/00	07:53
04					
05					
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COMMENTS:

FORM IV

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DP6PJCHK

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP6PJ1AC Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-BHC	1	6.27	6.22	6.32	0.9745	
	2	7.44	7.39	7.49	0.9975	2.4
gamma-BHC (Lindane)	1	6.88	6.83	6.93	0.9844	
	2	8.13	8.07	8.17	1.052	6.9
beta-BHC	1	7.10	7.05	7.15	0.9519	
	2	8.32	8.27	8.37	2.342	146.0
delta-BHC	1	7.39	7.33	7.43	1.024	
	2	8.84	8.79	8.89	1.062	3.7
Heptachlor	1	7.73	7.67	7.77	0.9745	
	2	8.90	8.85	8.95	0.9469	2.9
Aldrin	1	8.23	8.17	8.27	0.9185	
	2	9.44	9.39	9.49	0.9048	1.5
Heptachlor epoxide	1	9.29	9.24	9.34	0.9736	
	2	10.44	10.39	10.49	0.9901	1.7
gamma-Chlordane	1	9.49	9.44	9.54	1.006	
	2	10.76	10.70	10.80	0.9527	5.6

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DP6PJCHK

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP6PJ1AC Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-Chlordane	1	9.71	9.66	9.76	0.9730	
	2	11.02	10.97	11.07	0.9241	5.3
4,4'-DDE	1	9.95	9.90	10.00	1.049	
	2	11.43	11.38	11.48	0.9910	5.8
Endosulfan I	1	9.90	9.85	9.95	0.8143	
	2	11.09	11.04	11.14	0.7893	3.2
4,4'-DDT	1	11.39	11.34	11.44	1.056	
	2	13.42	13.37	13.47	0.9347	13.0
Dieldrin	1	10.29	10.24	10.34	0.9347	
	2	11.63	11.57	11.67	0.8942	4.5
Endrin ketone	1	13.37	13.32	13.42	0.9678	
	2	14.82	14.77	14.87	0.9383	3.1
Endrin	1	10.64	10.59	10.69	0.9890	
	2	12.28	12.23	12.33	0.9359	5.7
4,4'-DDD	1	10.90	10.85	10.95	1.072	
	2	12.75	12.70	12.80	1.054	1.7

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DP6PJCHK

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP6PJ1AC Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
Endosulfan sulfate	1	12.84	12.79	12.89	0.9858	
	2	14.05	14.00	14.10	0.9457	4.2
Endosulfan II	1	11.02	10.97	11.07	0.8911	
	2	12.82	12.77	12.87	0.8556	4.1
Methoxychlor	1	12.58	12.53	12.63	1.122	
	2	14.62	14.57	14.67	0.9281	20.9
Endrin aldehyde	1	11.84	11.79	11.89	0.9524	
	2	13.56	13.51	13.61	0.9012	5.7
ENDO2/DDD	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DP6PJCHKDUP

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP6PJ1AD Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-BHC	1	6.27	6.22	6.32	1.036	
	2	7.44	7.39	7.49	1.060	2.3
gamma-BHC (Lindane)	1	6.88	6.83	6.93	1.047	
	2	8.12	8.07	8.17	1.108	5.8
beta-BHC	1	7.10	7.05	7.15	1.013	
	2	8.32	8.27	8.37	1.779	75.6
delta-BHC	1	7.39	7.33	7.43	1.096	
	2	8.84	8.79	8.89	1.139	3.9
Heptachlor	1	7.73	7.67	7.77	1.010	
	2	8.90	8.85	8.95	1.012	0.2
Aldrin	1	8.22	8.17	8.27	0.9885	
	2	9.44	9.39	9.49	0.9649	2.4
Heptachlor epoxide	1	9.29	9.24	9.34	1.019	
	2	10.44	10.39	10.49	1.053	3.3
gamma-Chlordane	1	9.49	9.44	9.54	1.059	
	2	10.76	10.70	10.80	1.008	5.0

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

MPTACSD0101 MS

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP3RF1C3 Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-BHC	1	6.27	6.22	6.32	35.42	
	2	7.44	7.39	7.49	35.04	1.1
gamma-BHC (Lindane)	1	6.88	6.83	6.93	35.53	
	2	8.12	8.07	8.17	36.95	4.0
beta-BHC	1	7.10	7.05	7.15	33.51	
	2	8.32	8.27	8.37	35.81	6.9
delta-BHC	1	7.39	7.33	7.43	36.18	
	2	8.84	8.79	8.89	37.71	4.2
Heptachlor	1	7.74	7.67	7.77	246.2	
	2	8.90	8.85	8.95	34.16	620.7
Aldrin	1	8.22	8.17	8.27	34.17	
	2	9.44	9.39	9.49	32.52	5.1
Heptachlor epoxide	1	9.29	9.24	9.34	34.60	
	2	10.44	10.39	10.49	35.21	1.8
gamma-Chlordane	1	9.49	9.44	9.54	35.27	
	2	10.76	10.70	10.80	33.43	5.5

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

MPTACSD0101 MS

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP3RF1C3 Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-Chlordane	1	9.71	9.66	9.76	34.30	
	2	11.02	10.97	11.07	32.83	4.5
4,4'-DDE	1	9.95	9.90	10.00	36.08	
	2	11.43	11.38	11.48	35.61	1.3
Endosulfan I	1	9.90	9.85	9.95	29.46	
	2	11.09	11.04	11.14	27.93	5.5
4,4'-DDT	1	11.39	11.34	11.44	36.32	
	2	13.42	13.37	13.47	33.48	8.5
Dieldrin	1	10.29	10.24	10.34	33.17	
	2	11.63	11.57	11.67	32.79	1.2
Endrin ketone	1	13.37	13.32	13.42	29.84	
	2	14.82	14.77	14.87	29.08	2.6
Endrin	1	10.64	10.59	10.69	43.64	
	2	12.28	12.23	12.33	40.54	7.6
4,4'-DDD	1	10.90	10.85	10.95	37.74	
	2	12.75	12.70	12.80	37.84	0.3

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

MPTACSD0101 MS

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP3RF1C3 Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES ID: 0.53(mm) GC Column(2): CLP PESTICIDES II ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
Endosulfan sulfate	1	12.84	12.79	12.89	34.01	
	2	14.05	14.00	14.10	33.79	0.6
Endosulfan II	1	11.02	10.97	11.07	31.42	
	2	12.82	12.77	12.87	30.59	2.7
Methoxychlor	1	12.58	12.53	12.63	38.13	
	2	14.62	14.57	14.67	33.25	14.7
Endrin aldehyde	1	11.84	11.79	11.89	32.29	
	2	13.56	13.51	13.61	30.99	4.2
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

MPTACSD0101 MSD

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP3RF1C3 Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES II ID: 0.53(mm) GC Column(2): CLP PESTICIDES ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
alpha-BHC	1	7.44	7.39	7.49	36.40	
	2	6.27	6.22	6.32	34.25	6.3
4,4'-DDE	1	11.43	11.38	11.48	34.98	
	2	9.95	9.90	10.00	36.46	4.2
Endosulfan I	1	11.09	11.04	11.14	28.19	
	2	9.90	9.85	9.95	29.12	3.3
gamma-BHC (Lindane)	1	8.13	8.07	8.17	37.72	
	2	6.88	6.83	6.93	34.71	8.7
beta-BHC	1	8.32	8.27	8.37	35.38	
	2	7.10	7.05	7.15	33.96	4.2
delta-BHC	1	8.84	8.79	8.89	37.43	
	2	7.39	7.33	7.43	36.54	2.4
Heptachlor	1	8.90	8.85	8.95	35.41	
	2	7.74	7.67	7.77	350.0	888.4
Aldrin	1	9.44	9.39	9.49	33.74	
	2	8.22	8.17	8.27	32.80	2.9

10A

EPA SAMPLE NO.

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

MPTACSD0101 MSD

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP3RF1C3 Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES II ID: 0.53(mm) GC Column(2): CLP PESTICIDES ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
Heptachlor epoxide	1	10.44	10.39	10.49	35.53	
	2	9.29	9.24	9.34	34.41	3.2
gamma-Chlordane	1	10.76	10.70	10.80	33.94	
	2	9.49	9.44	9.54	34.80	2.5
alpha-Chlordane	1	11.02	10.97	11.07	32.80	
	2	9.71	9.66	9.76	34.01	3.7
Endrin aldehyde	1	13.56	13.51	13.61	30.66	
	2	11.84	11.79	11.89	32.42	5.7
Dieldrin	1	11.63	11.57	11.67	33.05	
	2	10.29	10.24	10.34	33.11	0.2
Endrin ketone	1	14.82	14.77	14.87	28.17	
	2	13.37	13.32	13.42	30.69	8.9
Endrin	1	12.28	12.23	12.33	40.50	
	2	10.64	10.59	10.69	44.10	8.9
4,4'-DDD	1	12.75	12.70	12.80	36.96	
	2	10.90	10.85	10.95	38.97	5.4

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

MPTACSD0101 MSD

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

Lab Sample ID: DP3RF1C3 Date(s) Analyzed: 12/03/00 12/03/00

Instrument ID (1): A2HP5 Instrument ID (2): A2HP5

GC Column(1): CLP PESTICIDES II ID: 0.53(mm) GC Column(2): CLP PESTICIDES ID

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
Endosulfan II	1	12.82	12.77	12.87	30.30	
	2	11.02	10.97	11.07	31.99	5.6
Methoxychlor	1	14.62	14.57	14.67	31.98	
	2	12.58	12.53	12.63	39.83	24.5
Endosulfan sulfate	1	14.05	14.00	14.10	33.18	
	2	12.84	12.79	12.89	34.69	4.6
4,4'-DDT	1	13.42	13.37	13.47	32.65	
	2	11.39	11.34	11.44	37.37	14.4
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

GC Column(1): DB-5.625 ID: 0.32 (mm) GC Column(2): DB-5.625 ID: 0.32 (mm)

	EPA SAMPLE NO.	S1 1 %REC	#	S1 2 %REC	#	S2 1 %REC	#	S2 2 %REC	#	OTHER (1)	OTHER (2)	TOT OUT
01	DP3XFBLK	116		118		114		117				0
02	DP3XFCHK	115		118		119		122				0
03	MPTACSD0101	71		71		93		100				0
04	MPTACSD0101	102		106		52		58				0
05	MPTACSD0101	24*		22*		36		36				2
06												
07												
08												
09												
10												
11												
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24												
25												
26												
27												
28												
29												
30												

		ADVISORY QC LIMITS
S1	= TCMX	(31-127)
S2	= DCB	(23-141)

\# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: LAB MS/MSD Level: (low/med) LOW

Lot #: A0K170134 WO #: DP2661A0
BATCH: 0322339

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
Aroclor 1016	380	ND	490	128	26- 144	
Aroclor 1260	380	ND	610	161*	37- 138	a

NOTES (S):

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 2 outside limits

COMMENTS:

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: LAB MS/MSD Level: (low/med) LOW

Lot #: A0K170134 WO #: DP2661A1
BATCH: 0322339

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
Aroclor 1016	380	430	112	13	39	26- 144	
Aroclor 1260	380	590	155*	3.6	33	37- 138	a

NOTES (S):

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

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: 1 out of 2 outside limits

COMMENTS:

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: MPT-AC-SD01-01

Lot #: A0K170190 WO #: DP3RF1C5
BATCH: 0322339

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	MS CONCENT. (ug/kg)	MS % REC	LIMITS REC	QUAL
Aroclor 1016	430	ND	140	33	26- 144	
Aroclor 1260	430	ND	130	31*	37- 138	a

NOTES(S):

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 2 outside limits

COMMENTS:

SW846 8082 MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP028

Matrix Spike ID: MPT-AC-SD01-01

Lot #: A0K170190 WO #: DP3RF1C6
BATCH: 0322339

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENT. (ug/kg)	MSD % REC	% RPD		QC LIMITS RPD	QC LIMITS REC	QUAL
Aroclor 1016	430	500	116	112	*	39	26- 144	p
Aroclor 1260	430	420	99	104	*	33	37- 138	p

NOTES(S):

p Relative percent difference (RPD) is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 2 out of 2 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

FORM III

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

GC Column: DB-5.625 ID: 0.32 (mm) Init. Calib. Date(s): 08/12/00 11/22/00

Instrument ID: A2HP2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

		MEAN SURROGATE RT FROM INITIAL CALIBRATION				
	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
01		1232	11/28/00	1855		
02		1242	11/28/00	1912		
03		1248	11/28/00	1929		
04		2154	11/28/00	1945		
05		1660	11/28/00	2035		
06	DP3XFBLK	DP3XF1AA	11/28/00	2231		
07	DP3XFCHK	DP3XF1AC	11/28/00	2248		
08		1660	11/29/00	0117		
09	MPTACSD0101	DP3RF1AF	11/29/00	0207		
10	MPTACSD0101	DP3RF1C6	11/29/00	0240		
11		1660	11/29/00	0559		
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01128A-1.b\007F0701.D
Report Date: 29-Nov-2000 10:00

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 007F0701.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01128A-1.b\HP2PCBF.m

Injection Date: 28-NOV-2000 20:35
Init. Cal. Date(s): 12-AUG-2000 22-NOV-2000
Init. Cal. Times: 01:28 23:12
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
$	1 TCMX	32872190	35387440	0.010	7.7	15.0	
	3 AROCLOR-1016 (1)	568197	594168	0.010	4.6	15.0	
	(2)	921826	966986	0.010	4.9	15.0	
	(3)	1651421	1795884	0.010	8.7	15.0	
	(4)	932239	1011772	0.010	8.5	15.0	
	(5)	671916	720314	0.010	7.2	15.0	
	8 AROCLOR-1260 (1)	1084511	1259860	0.010	16.2	15.0	<-
	(2)	1584669	1848526	0.010	16.7	15.0	<-
	(3)	1350632	1517698	0.010	12.4	15.0	
	(4)	1865306	2053288	0.010	10.1	15.0	
	(5)	1017915	1091624	0.010	7.2	15.0	
$	9 DCB	18051200	17616560	0.010	-2.4	15.0	

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01128A-1.b\024F2401.D
Report Date: 29-Nov-2000 10:05

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 024F2401.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01128A-1.b\HP2PCBF.m

Injection Date: 29-NOV-2000 01:17
Init. Cal. Date(s): 12-AUG-2000 22-NOV-2000
Init. Cal. Times: 01:28 23:12
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
$	1 TCMX	32872190	33464840	0.010	1.8	15.0	
	3 AROCLOR-1016 (1)	568197	567612	0.010	-0.1	15.0	
	(2)	921826	919836	0.010	-0.2	15.0	
	(3)	1651421	1743766	0.010	5.6	15.0	
	(4)	932239	979304	0.010	5.0	15.0	
	(5)	671916	697498	0.010	3.8	15.0	
	8 AROCLOR-1260 (1)	1084511	1233092	0.010	13.7	15.0	
	(2)	1584669	1875186	0.010	18.3	15.0	<-
	(3)	1350632	1475338	0.010	9.2	15.0	
	(4)	1865306	2105720	0.010	12.9	15.0	
	(5)	1017915	1113774	0.010	9.4	15.0	
$	9 DCB	18051200	18786000	0.010	4.1	15.0	

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01128A-1.b\041F4101.D
Report Date: 29-Nov-2000 12:42

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 041F4101.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01128A-1.b\HP2PCBF.m

Injection Date: 29-NOV-2000 05:59
Init. Cal. Date(s): 12-AUG-2000 22-NOV-2000
Init. Cal. Times: 01:28 23:12
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D
$	1 TCMX	32872190	33288080	0.010	1.3	15.0
	3 AROCLOR-1016 (1)	568197	561242	0.010	-1.2	15.0
	(2)	921826	895224	0.010	-2.9	15.0
	(3)	1651421	1678362	0.010	1.6	15.0
	(4)	932239	937058	0.010	0.5	15.0
	(5)	671916	665986	0.010	-0.9	15.0
	8 AROCLOR-1260 (1)	1084511	1165554	0.010	7.5	15.0
	(2)	1584669	1758012	0.010	10.9	15.0
	(3)	1350632	1403390	0.010	3.9	15.0
	(4)	1865306	1975122	0.010	5.9	15.0
	(5)	1017915	1057322	0.010	3.9	15.0
$	9 DCB	18051200	17874680	0.010	-1.0	15.0

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

GC Column: DB-5.625 ID: 0.32 (mm) Init. Calib. Date(s): 08/12/00 11/22/00

Instrument ID: A2HP2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

			MEAN SURROGATE RT FROM INITIAL CALIBRATION			
	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
01		1232	12/03/00	1125		
02		1242	12/03/00	1141		
03		1248	12/03/00	1158		
04		2154	12/03/00	1215		
05		1660	12/03/00	2227		
06	DP6PKBLK	DP6PK1AA	12/04/00	0236		
07		1660	12/04/00	0309		
08	DP6PKCHK	DP6PK1AC	12/04/00	0326		
09	DP6PKCHKDUP	DP6PK1AD	12/04/00	0343		
10	MPTACSW0101	DP3PK1AD	12/04/00	0359		
11		1660	12/04/00	0808		
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QC LIMITS

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01203A-1.b\042F4201.D
Report Date: 04-Dec-2000 12:01

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 042F4201.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01203A-1.b\HP2PCBF.m

Injection Date: 03-DEC-2000 22:27
Init. Cal. Date(s): 12-AUG-2000 22-NOV-2000
Init. Cal. Times: 01:28 23:12
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
$	1 TCMX	32872190	32869760	0.010	-0.0	15.0	
	3 AROCLOR-1016(1)	568197	555266	0.010	-2.3	15.0	
	(2)	921826	897970	0.010	-2.6	15.0	
	(3)	1651421	1654612	0.010	0.2	15.0	
	(4)	932239	920306	0.010	-1.3	15.0	
	(5)	671916	664200	0.010	-1.1	15.0	
	8 AROCLOR-1260(1)	1084511	1174952	0.010	8.3	15.0	
	(2)	1584669	1726122	0.010	8.9	15.0	
	(3)	1350632	1410176	0.010	4.4	15.0	
	(4)	1865306	2177168	0.010	16.7	15.0	<-
	(5)	1017915	1208822	0.010	18.8	15.0	<-
$	9 DCB	18051200	21716960	0.010	20.3	15.0	<-

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01203A-1.b\059F5901.D
Report Date: 04-Dec-2000 12:06

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 059F5901.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01203A-1.b\HP2PCBF.m

Injection Date: 04-DEC-2000 03:09
Init. Cal. Date(s): 12-AUG-2000 22-NOV-2000
Init. Cal. Times: 01:28 23:12
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
$	1 TCMX	32872190	32925200	0.010	0.2	15.0	
	3 AROCLOR-1016 (1)	568197	566678	0.010	-0.3	15.0	
	(2)	921826	925756	0.010	0.4	15.0	
	(3)	1651421	1715176	0.010	3.9	15.0	
	(4)	932239	955420	0.010	2.5	15.0	
	(5)	671916	691344	0.010	2.9	15.0	
	8 AROCLOR-1260 (1)	1084511	1199544	0.010	10.6	15.0	
	(2)	1584669	1788818	0.010	12.9	15.0	
	(3)	1350632	1524382	0.010	12.9	15.0	
	(4)	1865306	2250882	0.010	20.7	15.0	<-
	(5)	1017915	1234190	0.010	21.2	15.0	<-
$	9 DCB	18051200	21687400	0.010	20.1	15.0	<-

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01203A-1.b\077F7701.D
Report Date: 04-Dec-2000 12:11

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i Injection Date: 04-DEC-2000 08:08
Lab File ID: 077F7701.D Init. Cal. Date(s): 12-AUG-2000 22-NOV-2000
Analysis Type: Init. Cal. Times: 01:28 23:12
Lab Sample ID: 1660 Quant Type: ESTD
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01203A-1.b\HP2PCBF.m

COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D
$ 1 TCMX	32872190	33145800	0.010	0.8	15.0
3 AROCLOR-1016(1)	568197	565048	0.010	-0.6	15.0
(2)	921826	884846	0.010	-4.0	15.0
(3)	1651421	1635536	0.010	-1.0	15.0
(4)	932239	915382	0.010	-1.8	15.0
(5)	671916	660112	0.010	-1.8	15.0
8 AROCLOR-1260(1)	1084511	1124854	0.010	3.7	15.0
(2)	1584669	1747396	0.010	10.3	15.0
(3)	1350632	1420736	0.010	5.2	15.0
(4)	1865306	2119902	0.010	13.6	15.0
(5)	1017915	1122994	0.010	10.3	15.0
$ 9 DCB	18051200	20126880	0.010	11.5	15.0

8D

PESTICIDE ANALYTICAL SEQUENCE

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

GC Column: DB-5.625 ID: 0.32 (mm) Init. Calib. Date(s): 08/12/00 12/01/00

Instrument ID: A2HP2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 1.93 S2 : 8.39

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #	S2 RT #
01		1660	12/06/00	1104	1.92	8.39
02	MPTACSD0101	DP3RF1C5	12/06/00	1121	1.92	8.39
03		1660	12/06/00	1333	1.93	8.39
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QC LIMITS

S1 = TCMX (+/- 0.10 MINUTES)
S2 = DCB (+/- 0.10 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01206A-1.b\003F0301.D
Report Date: 06-Dec-2000 14:31

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 003F0301.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01206A-1.b\HP2PCBF.m

Injection Date: 06-DEC-2000 11:04
Init. Cal. Date(s): 12-AUG-2000 01-DEC-2000
Init. Cal. Times: 01:28 08:25
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D
$	1 TCMX	32552932	32822840	0.010	0.8	15.0
	3 AROCLOR-1016 (1)	567141	553114	0.010	-2.5	15.0
	(2)	915979	910998	0.010	-0.5	15.0
	(3)	1649188	1658692	0.010	0.6	15.0
	(4)	935265	931018	0.010	-0.5	15.0
	(5)	675787	668958	0.010	-1.0	15.0
	8 AROCLOR-1260 (1)	1196126	1220366	0.010	2.0	15.0
	(2)	1750056	1823502	0.010	4.2	15.0
	(3)	1533055	1568786	0.010	2.3	15.0
	(4)	2086143	2271730	0.010	8.9	15.0
	(5)	1143674	1232036	0.010	7.7	15.0
$	9 DCB	19513052	21711640	0.010	11.3	15.0

Data File: \\qcanoh04\dd\chem\GCS\a2hp2.i\01206A-1.b\012F1201.D
Report Date: 06-Dec-2000 14:34

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hp2.i
Lab File ID: 012F1201.D
Analysis Type:
Lab Sample ID: 1660
Method: \\QCANOH04\DD\chem\GCS\a2hp2.i\01206A-1.b\HP2PCBF.m

Injection Date: 06-DEC-2000 13:33
Init. Cal. Date(s): 12-AUG-2000 01-DEC-2000
Init. Cal. Times: 01:28 08:25
Quant Type: ESTD

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D
$	1 TCMX	32552932	31068560	0.010	-4.6	15.0
	3 AROCLOR-1016 (1)	567141	536580	0.010	-5.4	15.0
	(2)	915979	867110	0.010	-5.3	15.0
	(3)	1649188	1598274	0.010	-3.1	15.0
	(4)	935265	894482	0.010	-4.4	15.0
	(5)	675787	647644	0.010	-4.2	15.0
	8 AROCLOR-1260 (1)	1196126	1175502	0.010	-1.7	15.0
	(2)	1750056	1748294	0.010	-0.1	15.0
	(3)	1533055	1505776	0.010	-1.8	15.0
	(4)	2086143	2234640	0.010	7.1	15.0
	(5)	1143674	1222024	0.010	6.9	15.0
$	9 DCB	19513052	21815640	0.010	11.8	15.0

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 21-JUL-2000 01:29
End Cal Date : 30-NOV-2000 06:08
Quant Method : ESTD
Origin : Disabled
Target Version : 4.04
Integrator : Falcon
Method file : \\qcanoh04\dd\chem\GCS\a2hp1.i\01129IC-1.b\HERB.m
Cal Date : 30-Nov-2000 14:00 dempsters
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-1.b\074F7401.D
Level 2: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-1.b\075F7501.D
Level 3: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-1.b\076F7601.D
Level 4: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-1.b\077F7701.D
Level 5: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-1.b\078F7801.D
Level 6: \\qcanoh04\dd\chem\GCS\a2hp1.i\01129IC-1.b\007F0701.D

		0.10000	0.50000	1.000	2.000	5.000	0.000e+00			
	Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD	
	1 Dalapon	19659400	25315900	24097725	22839513	21868200	20853609	22439058	9.296	
	31 Pentachlorophenol	243355600	244517500	240462000	266655475	254496150	+++++	249897345	4.304	
	3 Dicamba	72275400	65539950	64316300	61111800	59365931	56690650	63216672	8.679	
	4 MCPP	17253	17938	18104	17003	16352	15753	17067	5.313	
	5 MCPA	32646	28541	26680	23820	22503	21584	25962	16.119	
	6 Dichloroprop	23579300	20857075	19967375	18504456	17764841	17113281	19631055	12.118	
	7 2,4 D	22373300	19898125	19326088	17909269	17176628	16738373	18903630	11.062	
	8 2,4,5 TP (Silvex)	107210200	98488700	100112900	96843325	95000638	92600844	98376101	5.147	
	9 2,4,5 -T	95945200	89051200	91115700	89193500	87956163	86096663	89893071	3.772	
	27 2,4 DB	11522850	10286950	10173300	9829888	9604591	9601797	10169896	7.094	
	28 Dinoseb	70463333	64534167	63880667	61669750	60428688	58961635	63323040	6.430	
	32 Picloram	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
	33 4-Nitrophenol	5006100	4656595	3915750	4904066	5145055	+++++	4725513	10.297	
$	2 DCAA	20135000	17809600	16891800	15441400	14705806	13963684	16491215	13.789	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 21-JUL-2000 01:29
End Cal Date : 30-NOV-2000 06:08
Quant Method : ESTD
Origin : Disabled
Target Version : 4.04
Integrator : Falcon
Method file : \\qcanoh04\dd\chem\GCS\a2hp1.i\01129IC-2.b\HERBR.m
Cal Date : 30-Nov-2000 14:05 dempsters
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-2.b\074F7401.D
Level 2: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-2.b\075F7501.D
Level 3: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-2.b\076F7601.D
Level 4: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-2.b\077F7701.D
Level 5: \\qcanoh04\dd\chem\GCS\a2hp1.i\01110-2.b\078F7801.D
Level 6: \\qcanoh04\dd\chem\GCS\a2hp1.i\01129IC-2.b\007F0701.D

	Compound	0.10000 Level 1	0.50000 Level 2	1.000 Level 3	2.000 Level 4	5.000 Level 5	0.000e+00 Level 6	___ RRF	% RSD	
1	Dalapon	37649600	31685700	29465225	27000863	26254025	25484572	29589997	15.417	
27	Picloram	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
26	Pentachlorophenol	313578800	317322900	326888650	363136700	354008275	+++++	334987065	6.659	
3	Dicamba	84989100	79382500	78228250	74055050	73325225	70636775	76769483	6.727	
4	MCPP	28599	26368	24654	22226	21513	20679	24006	12.846	
5	MCPA	57714	47214	43944	39460	37909	37214	43909	17.702	
6	Dichloroprop	27352350	24542400	24271938	22739144	22409934	22016014	23888630	8.285	
7	2,4 D	27204700	24720225	24692875	23262825	22722316	22622342	24204214	7.178	
8	2,4,5 TP (Silvex)	123890400	118997500	126845900	125161275	125063613	123228825	123864585	2.169	
9	2,4,5 -T	117347600	111397300	119017750	117039275	117277325	115744431	116303947	2.253	
10	2,4 DB	15298150	12779400	12994863	12387713	12556728	12669409	13114377	8.306	
11	Dinoseb	92616667	79019333	81962333	79541375	80542896	80319125	82333622	6.239	
28	4-Nitroanisole	25219860	22826630	19308556	22626941	24986814	+++++	22993760	10.354	
$	2 DCAA	36321000	33949000	23466625	21426194	19900631	18568233	25605280	29.668	<-

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

GC Column: CLP PESTICIDES ID: 0.53 (mm) Init. Calib. Date(s): 11/30/00 11/30/

Instrument ID: A2HP5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	MEAN SURROGATE RT FROM INITIAL CALIBRATION					
	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
ICAL -01	TOX3	TOX3	11/30/00	2212		
02	PEM	PEM	12/01/00	1401		
03	AB3	AB3	12/01/00	1445		
04	DP3X4CHK	DP3X41AC	12/01/00	1529		
05	PEM	PEM	12/01/00	1848		
06	AB3	AB3	12/01/00	1932		
07	DP3X4BLK	DP3X41AA	12/01/00	2313		
08	PEM	PEM	12/01/00	2335		
09	AB3	AB3	12/02/00	0020		
10	TOX3	TOX3	12/02/00	0042		
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			QC LIMITS			

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Data File: /chem/can/gcs/a2hp5.i/01130ic.b/065f6501.d
Report Date: 12/02/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 065f6501.d
Analysis Type: NONE

Injection Date: 01-DEC-2000 14:45
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01130ic.b/pesthp5

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0262	4.7	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0259	3.5	15.0	
0	beta-BHC	0.0250	0.0259	3.8	15.0	
0	delta-BHC	0.0250	0.0263	5.1	15.0	
0	Heptachlor	0.0250	0.0261	4.5	15.0	
0	Aldrin	0.0250	0.0253	1.4	15.0	
0	Heptachlor epoxide	0.0250	0.0250	0.2	15.0	
0	gamma-Chlordane	0.0250	0.0250	0.2	15.0	
0	alpha-Chlordane	0.0250	0.0248	1.0	15.0	
0	4,4'-DDE	0.0250	0.0255	1.9	15.0	
0	Endosulfan sulfate	0.0250	0.0260	3.8	15.0	
0	Endosulfan I	0.0250	0.0248	0.8	15.0	
0	Endrin ketone	0.0250	0.0248	0.6	15.0	
0	Dieldrin	0.0250	0.0250	0.1	15.0	
0	Endrin	0.0250	0.0265	6.0	15.0	
0	4,4'-DDD	0.0250	0.0265	6.0	15.0	
0	Endosulfan II	0.0250	0.0252	0.7	15.0	
0	4,4'-DDT	0.0250	0.0265	6.0	15.0	
0	Endrin aldehyde	0.0250	0.0243	2.8	15.0	
0	Methoxychlor	0.0250	0.0293	17.1	15.0	<-
29	Tetrachloro-m-xylene	0.0250	0.0262	4.7	15.0	
30	Decachlorobiphenyl	0.0250	0.0259	3.5	15.0	

Data File: /chem/can/gcs/a2hp5.i/01130ic-r.b/065f6501.d
Report Date: 12/02/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 065f6501.d
Analysis Type: NONE

Injection Date: 01-DEC-2000 14:45
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01130ic-r.b/pestl

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	alpha-BHC	0.0250	0.0262	4.9	15.0
0	gamma-BHC (Lindane)	0.0250	0.0269	7.6	15.0
0	beta-BHC	0.0250	0.0272	9.0	15.0
0	delta-BHC	0.0250	0.0275	9.9	15.0
0	Heptachlor	0.0250	0.0263	5.2	15.0
0	Aldrin	0.0250	0.0253	1.4	15.0
0	Heptachlor epoxide	0.0250	0.0255	2.1	15.0
0	gamma-Chlordane	0.0250	0.0250	0.2	15.0
0	alpha-Chlordane	0.0250	0.0248	0.9	15.0
0	4,4'-DDE	0.0250	0.0265	6.1	15.0
0	Methoxychlor	0.0250	0.0265	5.8	15.0
0	Endosulfan I	0.0250	0.0247	1.2	15.0
0	Endrin ketone	0.0250	0.0255	2.0	15.0
0	Dieldrin	0.0250	0.0245	1.8	15.0
0	Endrin	0.0250	0.0268	7.2	15.0
0	4,4'-DDD	0.0250	0.0275	10.1	15.0
0	Endosulfan II	0.0250	0.0251	0.5	15.0
0	4,4'-DDT	0.0250	0.0254	1.4	15.0
0	Endrin aldehyde	0.0250	0.0243	3.0	15.0
0	Endosulfan sulfate	0.0250	0.0258	3.1	15.0
29	Tetrachloro-m-xylene	0.0250	0.0252	0.7	15.0
30	Decachlorobiphenyl	0.0250	0.0250	0.0	15.0

Data File: /chem/can/gcs/a2hp5.i/01130ic.b/078f7801.d
Report Date: 12/02/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 078f7801.d
Analysis Type: NONE

Injection Date: 01-DEC-2000 19:32
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01130ic.b/pesthp5

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0258	3.3	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0254	1.7	15.0	
0	beta-BHC	0.0250	0.0256	2.3	15.0	
0	delta-BHC	0.0250	0.0258	3.3	15.0	
0	Heptachlor	0.0250	0.0255	2.2	15.0	
0	Aldrin	0.0250	0.0251	0.5	15.0	
0	Heptachlor epoxide	0.0250	0.0252	0.9	15.0	
0	gamma-Chlordane	0.0250	0.0253	1.3	15.0	
0	alpha-Chlordane	0.0250	0.0252	0.7	15.0	
0	4,4'-DDE	0.0250	0.0255	2.0	15.0	
0	Endosulfan sulfate	0.0250	0.0260	3.8	15.0	
0	Endosulfan I	0.0250	0.0251	0.4	15.0	
0	Endrin ketone	0.0250	0.0249	0.4	15.0	
0	Dieldrin	0.0250	0.0250	0.1	15.0	
0	Endrin	0.0250	0.0271	8.5	15.0	
0	4,4'-DDD	0.0250	0.0264	5.5	15.0	
0	Endosulfan II	0.0250	0.0255	2.1	15.0	
0	4,4'-DDT	0.0250	0.0257	2.7	15.0	
0	Endrin aldehyde	0.0250	0.0242	3.1	15.0	
0	Methoxychlor	0.0250	0.0288	15.2	15.0	<-
29	Tetrachloro-m-xylene	0.0250	0.0257	2.9	15.0	
30	Decachlorobiphenyl	0.0250	0.0264	5.8	15.0	

Data File: /chem/can/gcs/a2hp5.i/01130ic-r.b/078f7801.d
Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 078f7801.d
Analysis Type: NONE

Injection Date: 01-DEC-2000 19:32
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01130ic-r.b/pest

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	alpha-BHC	0.0250	0.0257	2.9	15.0
0	gamma-BHC (Lindane)	0.0250	0.0264	5.5	15.0
0	beta-BHC	0.0250	0.0266	6.2	15.0
0	delta-BHC	0.0250	0.0267	6.7	15.0
0	Heptachlor	0.0250	0.0255	2.0	15.0
0	Aldrin	0.0250	0.0248	0.8	15.0
0	Heptachlor epoxide	0.0250	0.0253	1.1	15.0
0	gamma-Chlordane	0.0250	0.0246	1.5	15.0
0	alpha-Chlordane	0.0250	0.0245	2.2	15.0
0	4,4'-DDE	0.0250	0.0258	3.3	15.0
0	Methoxychlor	0.0250	0.0256	2.5	15.0
0	Endosulfan I	0.0250	0.0243	2.9	15.0
0	Endrin ketone	0.0250	0.0249	0.3	15.0
0	Dieldrin	0.0250	0.0243	2.9	15.0
0	Endrin	0.0250	0.0264	5.6	15.0
0	4,4'-DDD	0.0250	0.0266	6.4	15.0
0	Endosulfan II	0.0250	0.0251	0.2	15.0
0	4,4'-DDT	0.0250	0.0246	1.6	15.0
0	Endrin aldehyde	0.0250	0.0236	5.7	15.0
0	Endosulfan sulfate	0.0250	0.0252	0.8	15.0
29	Tetrachloro-m-xylene	0.0250	0.0247	1.0	15.0
30	Decachlorobiphenyl	0.0250	0.0250	0.1	15.0

Data File: /chem/can/gcs/a2hp5.i/01130ic.b/091f9101.d
Report Date: 12/02/2000

P

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 091f9101.d
Analysis Type: NONE

Injection Date: 02-DEC-2000 00:20
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01130ic.b/pesthp5a

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0269	7.7	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0268	7.1	15.0	
0	beta-BHC	0.0250	0.0262	4.9	15.0	
0	delta-BHC	0.0250	0.0269	7.8	15.0	
0	Heptachlor	0.0250	0.0273	9.1	15.0	
0	Aldrin	0.0250	0.0269	7.4	15.0	
0	Heptachlor epoxide	0.0250	0.0267	6.7	15.0	
0	gamma-Chlordane	0.0250	0.0267	6.8	15.0	
0	alpha-Chlordane	0.0250	0.0265	6.1	15.0	
0	4,4'-DDE	0.0250	0.0268	7.3	15.0	
0	Endosulfan sulfate	0.0250	0.0265	5.9	15.0	
0	Endosulfan I	0.0250	0.0265	6.1	15.0	
0	Endrin ketone	0.0250	0.0252	0.9	15.0	
0	Dieldrin	0.0250	0.0266	6.2	15.0	
0	Endrin	0.0250	0.0290	16.2	15.0	<-
0	4,4'-DDD	0.0250	0.0276	10.2	15.0	
0	Endosulfan II	0.0250	0.0268	7.0	15.0	
0	4,4'-DDT	0.0250	0.0276	10.4	15.0	
0	Endrin aldehyde	0.0250	0.0252	0.9	15.0	
0	Methoxychlor	0.0250	0.0302	20.9	15.0	<-
29	Tetrachloro-m-xylene	0.0250	0.0271	8.3	15.0	
30	Decachlorobiphenyl	0.0250	0.0263	5.0	15.0	

Data File: /chem/can/gcs/a2hp5.i/01130ic-r.b/091f9101.d
Report Date: 12/02/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 091f9101.d
Analysis Type: NONE

Injection Date: 02-DEC-2000 00:20
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01130ic-r.b/pesth

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	alpha-BHC	0.0250	0.0270	8.1	15.0
0	gamma-BHC (Lindane)	0.0250	0.0278	11.3	15.0
0	beta-BHC	0.0250	0.0272	8.7	15.0
0	delta-BHC	0.0250	0.0278	11.0	15.0
0	Heptachlor	0.0250	0.0268	7.2	15.0
0	Aldrin	0.0250	0.0260	4.0	15.0
0	Heptachlor epoxide	0.0250	0.0265	6.0	15.0
0	gamma-Chlordane	0.0250	0.0257	2.9	15.0
0	alpha-Chlordane	0.0250	0.0255	1.9	15.0
0	4,4'-DDE	0.0250	0.0266	6.6	15.0
0	Methoxychlor	0.0250	0.0254	1.6	15.0
0	Endosulfan I	0.0250	0.0253	1.2	15.0
0	Endrin ketone	0.0250	0.0243	3.0	15.0
0	Dieldrin	0.0250	0.0253	1.3	15.0
0	Endrin	0.0250	0.0275	9.9	15.0
0	4,4'-DDD	0.0250	0.0276	10.2	15.0
0	Endosulfan II	0.0250	0.0257	2.9	15.0
0	4,4'-DDT	0.0250	0.0250	0.1	15.0
0	Endrin aldehyde	0.0250	0.0238	4.7	15.0
0	Endosulfan sulfate	0.0250	0.0257	2.8	15.0
29	Tetrachloro-m-xylene	0.0250	0.0257	2.8	15.0
30	Decachlorobiphenyl	0.0250	0.0246	1.8	15.0

Data File: /chem/can/gcs/a2hp5.i/01130ic-r.b/092f9201.d
Report Date: 12/02/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 092f9201.d
Analysis Type: NONE

Injection Date: 02-DEC-2000 00:42
Lab Sample ID: TOX3
Method File: /chem/can/gcs/a2hp5.i/01130ic-r.b/pesthp

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
21 Toxaphene	1.0000	1.3980	39.8	15.0	<-

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SEVERN TRENT LABORATORIES Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP028

GC Column: CLP PESTICIDES ID: 0.53 (mm) Init. Calib. Date(s): 11/30/00 12/02/

Instrument ID: A2HP5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	MEAN SURROGATE RT FROM INITIAL CALIBRATION					
	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	RT #	RT #
ICAL – 01		T0X 3	12/02/00	2102		
02	AP93	AP9 3	12/02/00	2124		
03	PEM	PEM	12/03/00	0803		
04	AB3	AB3	12/03/00	0825		
05	DP6PJBLK	DP6PJ1AA	12/03/00	1016		
06	DP6PJCHK	DP6PJ1AC	12/03/00	1038		
07	DP6PJCHKDUP	DP6PJ1AD	12/03/00	1100		
08	MPTACSW0101	DP3PK1AC	12/03/00	1122		
09	MPTACSD0101	DP3RF1AE	12/03/00	1228		
10	MPTACSD0101	DP3RF1C3	12/03/00	1250		
11	MPTACSD0101	DP3RF1C4	12/03/00	1312		
12	PEM	PEM	12/03/00	1440		
13	AB3	AB3	12/03/00	1502		
14		T0X3	12/03/00	2352		
15	AP93	AP9 3	12/04/00	0036		
16						
17						
18						
19						
20						
21						
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28						
29						
30						
31						
32						
				QC LIMITS		

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

Data File: /chem/can/gcs/a2hp5.i/01202.b/013f1301.d
Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 013f1301.d
Analysis Type: NONE

Injection Date: 02-DEC-2000 21:24
Lab Sample ID: AP9 3
Method File: /chem/can/gcs/a2hp5.i/01202.b/pesthp5a.m

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0219	9.4	15.0	
35 Kepone	0.3200	0.2476	22.6	15.0	<-
37 Hexachlorobenzene	0.0400	0.0452	13.1	15.0	

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 013f1301.d
Analysis Type: NONE

Injection Date: 02-DEC-2000 21:24
Lab Sample ID: AP9 3
Method File: /chem/can/gcs/a2hp5.i/01202-r.b/pesthp5b

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0212	5.8	15.0	
35 Kepone	0.3200	0.2306	27.9	15.0	<-
37 Hexachlorobenzene	0.0400	0.0433	8.3	15.0	

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 043f4301.d
Analysis Type: NONE

Injection Date: 03-DEC-2000 08:25
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01202.b/pesthp5a

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0273	9.3	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0276	10.2	15.0	
0	beta-BHC	0.0250	0.0274	9.8	15.0	
0	delta-BHC	0.0250	0.0285	14.0	15.0	
0	Heptachlor	0.0250	0.0285	13.9	15.0	
0	Aldrin	0.0250	0.0269	7.6	15.0	
0	Heptachlor epoxide	0.0250	0.0274	9.7	15.0	
0	gamma-Chlordane	0.0250	0.0277	10.7	15.0	
0	alpha-Chlordane	0.0250	0.0276	10.5	15.0	
0	4,4'-DDE	0.0250	0.0288	15.2	15.0	<-
0	Endosulfan sulfate	0.0250	0.0284	13.5	15.0	
0	Endosulfan I	0.0250	0.0271	8.4	15.0	
0	Endrin ketone	0.0250	0.0271	8.3	15.0	
0	Dieldrin	0.0250	0.0273	9.3	15.0	
0	Endrin	0.0250	0.0310	23.9	15.0	<-
0	4,4'-DDD	0.0250	0.0305	22.1	15.0	<-
0	Endosulfan II	0.0250	0.0285	14.1	15.0	
0	4,4'-DDT	0.0250	0.0288	15.0	15.0	<-
0	Endrin aldehyde	0.0250	0.0267	6.8	15.0	
0	Methoxychlor	0.0250	0.0347	38.7	15.0	<-
29	Tetrachloro-m-xylene	0.0250	0.0274	9.8	15.0	
30	Decachlorobiphenyl	0.0250	0.0279	11.7	15.0	

Report Date: 12/05/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 043f4301.d
Analysis Type: NONE

Injection Date: 03-DEC-2000 08:25
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01202-r.b/pesthp5

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0273	9.4	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0285	13.9	15.0	
0	beta-BHC	0.0250	0.0295	18.1	15.0	<-
0	delta-BHC	0.0250	0.0290	15.8	15.0	<-
0	Heptachlor	0.0250	0.0275	10.0	15.0	
0	Aldrin	0.0250	0.0260	4.0	15.0	
0	Heptachlor epoxide	0.0250	0.0270	8.0	15.0	
0	gamma-Chlordane	0.0250	0.0263	5.3	15.0	
0	alpha-Chlordane	0.0250	0.0257	2.7	15.0	
0	4,4'-DDE	0.0250	0.0274	9.5	15.0	
0	Methoxychlor	0.0250	0.0274	9.5	15.0	
0	Endosulfan I	0.0250	0.0257	2.7	15.0	
0	Endrin ketone	0.0250	0.0276	10.4	15.0	
0	Dieldrin	0.0250	0.0262	4.9	15.0	
0	Endrin	0.0250	0.0287	14.9	15.0	
0	4,4'-DDD	0.0250	0.0296	18.5	15.0	<-
0	Endosulfan II	0.0250	0.0268	7.4	15.0	
0	4,4'-DDT	0.0250	0.0264	5.7	15.0	
0	Endrin aldehyde	0.0250	0.0252	1.0	15.0	
0	Endosulfan sulfate	0.0250	0.0271	8.6	15.0	
29	Tetrachloro-m-xylene	0.0250	0.0258	3.0	15.0	
30	Decachlorobiphenyl	0.0250	0.0244	2.5	15.0	

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 061f6101.d
Analysis Type: NONE

Injection Date: 03-DEC-2000 15:02
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01202.b/pesthp5a.m

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0276	10.6	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0280	11.9	15.0	
0	beta-BHC	0.0250	0.0272	9.0	15.0	
0	delta-BHC	0.0250	0.0281	12.4	15.0	
0	Heptachlor	0.0250	0.0288	15.3	15.0	<-
0	Aldrin	0.0250	0.0269	7.7	15.0	
0	Heptachlor epoxide	0.0250	0.0275	9.8	15.0	
0	gamma-Chlordane	0.0250	0.0273	9.1	15.0	
0	alpha-Chlordane	0.0250	0.0271	8.3	15.0	
0	4,4'-DDE	0.0250	0.0279	11.5	15.0	
0	Endosulfan sulfate	0.0250	0.0269	7.8	15.0	
0	Endosulfan I	0.0250	0.0269	7.7	15.0	
0	Endrin ketone	0.0250	0.0262	4.8	15.0	
0	Dieldrin	0.0250	0.0271	8.2	15.0	
0	Endrin	0.0250	0.0310	24.0	15.0	<-
0	4,4'-DDD	0.0250	0.0290	15.9	15.0	<-
0	Endosulfan II	0.0250	0.0273	9.3	15.0	
0	4,4'-DDT	0.0250	0.0282	12.9	15.0	
0	Endrin aldehyde	0.0250	0.0254	1.5	15.0	
0	Methoxychlor	0.0250	0.0321	28.5	15.0	<-
29	Tetrachloro-m-xylene	0.0250	0.0278	11.2	15.0	
30	Decachlorobiphenyl	0.0250	0.0262	4.6	15.0	

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 061f6101.d
Analysis Type: NONE

Injection Date: 03-DEC-2000 15:02
Lab Sample ID: AB3
Method File: /chem/can/gcs/a2hp5.i/01202-r.b/pesthp5b

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0	alpha-BHC	0.0250	0.0275	10.0	15.0	
0	gamma-BHC (Lindane)	0.0250	0.0290	16.1	15.0	<-
0	beta-BHC	0.0250	0.0288	15.0	15.0	<-
0	delta-BHC	0.0250	0.0288	15.3	15.0	<-
0	Heptachlor	0.0250	0.0283	13.2	15.0	
0	Aldrin	0.0250	0.0259	3.5	15.0	
0	Heptachlor epoxide	0.0250	0.0270	8.2	15.0	
0	gamma-Chlordane	0.0250	0.0257	3.0	15.0	
0	alpha-Chlordane	0.0250	0.0253	1.0	15.0	
0	4,4'-DDE	0.0250	0.0265	6.1	15.0	
0	Methoxychlor	0.0250	0.0254	1.8	15.0	
0	Endosulfan I	0.0250	0.0254	1.5	15.0	
0	Endrin ketone	0.0250	0.0251	0.2	15.0	
0	Dieldrin	0.0250	0.0258	3.1	15.0	
0	Endrin	0.0250	0.0282	12.7	15.0	
0	4,4'-DDD	0.0250	0.0280	11.9	15.0	
0	Endosulfan II	0.0250	0.0258	3.1	15.0	
0	4,4'-DDT	0.0250	0.0249	0.2	15.0	
0	Endrin aldehyde	0.0250	0.0237	5.2	15.0	
0	Endosulfan sulfate	0.0250	0.0254	1.4	15.0	
29	Tetrachloro-m-xylene	0.0250	0.0260	4.2	15.0	
30	Decachlorobiphenyl	0.0250	0.0236	5.8	15.0	

Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 085f8501.d
Analysis Type: NONE

Injection Date: 03-DEC-2000 23:52
Lab Sample ID: T0X3
Method File: /chem/can/gcs/a2hp5.i/01202.b/pesthp5a.

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
21 Toxaphene	1.0000	1.0275	2.8	15.0

Data File: /chem/can/gcs/a2hp5.i/01202-r.b/085f8501.d
Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 085f8501.d
Analysis Type: NONE

Injection Date: 03-DEC-2000 23:52
Lab Sample ID: T0X3
Method File: /chem/can/gcs/a2hp5.i/01202-r.b/pesthp5b

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
21 Toxaphene	1.0000	1.0647	6.5	15.0

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 087f8701.d
Analysis Type: NONE

Injection Date: 04-DEC-2000 00:36
Lab Sample ID: AP9 3
Method File: /chem/can/gcs/a2hp5.i/01202.b/pesthp5a.

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0269	34.7	15.0	<-
35 Kepone	0.3200	0.3542	10.7	15.0	
37 Hexachlorobenzene	0.0400	0.0549	37.2	15.0	<-

Data File: /chem/can/gcs/a2hp5.i/01202-r.b/087f8701.d
Report Date: 12/05/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 087f8701.d
Analysis Type: NONE

Injection Date: 04-DEC-2000 00:36
Lab Sample ID: AP9 3
Method File: /chem/can/gcs/a2hp5.i/01202-r.b/pesthp5b

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0257	28.5	15.0	<-
35 Kepone	0.3200	0.1817	43.2	15.0	<-
37 Hexachlorobenzene	0.0400	0.0523	30.8	15.0	<-

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER | PAGE 2 OF 2

PROJECT NO: N0199	SITE NAME: AOC C	PROJECT MANAGER AND PHONE NUMBER: T. Hansen	LABORATORY NAME AND CONTACT: Quanterra / STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: T. Thompson	ADDRESS: 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER: Fed Ex	CITY, STATE: N. Canton, OH

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: CLP TCL VOC	CLP TCL SVOC	CLP TCL Pesticides	CLP TCL PCBs	CLP TAL Metals	Cyanide	App IX PCBs	COMMENTS
								–	–	–	–	–	–	–	
11/15	1250	MPT-AC-SD01-01	S	G	5			X	X	X	X	X	X		Cool to 4°C
11/15	1245	MPT-AC-SW01-01	SW	G	13								X		
		TB111500	W		1 ~~2~~ (1)			X							

1. RELINQUISHED BY	DATE 11/15/00	TIME 1700	1. RECEIVED BY		DATE	TIME	
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY		DATE 11/16/00	TIME 9:15	
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY		DATE	TIME	

COMMENTS: 3.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 3/99

FORM NO. TINUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 2

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0199	AOC C	T. Hansen	Quanterra/STL
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: T. Thompson	ADDRESS: 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER: Fed Ex	CITY, STATE: N Canton, OH

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: App IX VOA	App IX SVOA	App IX Nonhalogenated Pesticides	App IX Organochlorine Herbicides	App IX Organophosphorus Pesticides	App IX CLP TAL Metals + Tin	Cyanide	COMMENTS
							HCl	–	–	–	–	–	HNO3	NaOH	
11/15	1245	MPT-AC-SW01-01	SW	G	13			X	X	X	X	X	X	X	Cool to 4°C

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	11/15/00	1700	1. RECEIVED BY		
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE 11/16/00	TIME 9:15
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: 3.2°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 3/99

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**T. HANSEN**	**DATE:**	**FEBRUARY 16, 2001**
FROM:	**ERIN M. FAUST**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION –TAL METALS, TIN AND CYANIDE**
CTO-094 NS MAYPORT
SAMPLE DELIVERY GROUP (SDG) – MP029

SAMPLES: 4/Soil/

MPT-AC-SS03-01 MPT-AC-SS04-01 MPT-AC-SU03-04
MPT-AC-SU04-04

Overview

The sample set for CTO 094, NS Mayport, SDG MP029, consists of four (4) soil environmental samples.

The samples were analyzed for target analyte list (TAL) metals, tin and cyanide. The samples were collected by TetraTech NUS on November 28, 2000 and analyzed by Severn Trent Laboratories under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses, with the exception of mercury were conducted using SW 846 method 6010B. Mercury analyses were conducted using SW 846 method 7470A. Cyanide analyses were conducted using SW 846 method 9012A.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
* • Laboratory Control Sample Results
• ICP Interference Check Sample Results
• Matrix Spike / Matrix Spike Duplicate Recoveries
* • ICP Serial Dilution Results
* • Sample Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Aluminum	64.4 µg/L	32.2 mg/kg
Barium[(1)]	0.11 mg/kg	0.55 mg/kg
Beryllium	0.6 µg/L	0.3 mg/kg
Calcium[(1)]	14.7 mg/kg	73.5 mg/kg
Cadmium	0.4 µg/L	0.2 mg/kg
Chromium	1.5 µg/L	0.75 mg/kg
Cobalt	1.6 µg/L	0.8 mg/kg
Copper[(1)]	0.2 mg/kg	1.0 mg/kg
Iron	41.6 µg/L	20.8 mg/kg
Magnesium	46.7 µg/L	23.35 mg/kg
Manganese	1.4 µg/L	0.7 mg/kg
Nickel	2.4 µg/L	1.2 mg/kg
Potassium	241 µg/L	120.5 mg/kg
Silver	1.9 µg/L	0.95 mg/kg
Thallium	9.1 µg/L	4.55 mg/kg
Tin[(1)]	2.2 mg/kg	11.0 mg/kg
Vanadium	1.7 µg/L	0.85 mg/kg
Zinc[(1)]	0.41 mg/kg	2.05 mg/kg

[(1)] Maximum concentration present in a laboratory preparation blank.

An action level of 5X the maximum concentration were used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluation for blank contamination. Positive results less than the blank action levels for beryllium, cadmium, cobalt, copper, nickel, potassium, thallium, vanadium and tin were qualified, "U", as a result of blank contamination and should not be considered present. No qualification action was required for the remaining analytes since all results were either nondetected or greater than the action level.

ICP Interference Check Standard Results

The interfering analyte calcium was present in sample MPT-AC-SS03-01 at a concentration, which was comparable to the level of calcium in the Interference Check Sample (ICS) solution. Several analytes namely barium, chromium, copper, lead, manganese, sodium, tin, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for chromium, lead, vanadium and zinc in the affected sample. The positive results reported for chromium, lead, vanadium and zinc were qualified as estimated, "J". The result reported for zinc should be considered biased high. Results for the remaining analytes should be considered biased low.

The interfering analyte calcium was present in sample MPT-AC-SU03-04 at a concentration, which was comparable to the level of calcium in the Interference Check Sample (ICS) solution. Several analytes namely barium, chromium, copper, lead, manganese, sodium, tin, vanadium and zinc were present in the ICS solution at concentrations which exceeded the Instrument Detection Limit (IDL). Interference affects exist for chromium, lead, manganese, vanadium and zinc in the affected sample. The positive results reported for chromium, lead, manganese, vanadium and

zinc were qualified as estimated, "J". Results reported for manganese and zinc should be considered biased high. Results for the remaining analytes should be considered biased low.

Matrix Spike and Matrix Spike Duplicate Results

The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Percent Recoveries (%Rs) were >125% quality control limit for aluminum. All positive results for aluminum were qualified "UJ". All results should be considered biased high. The laboratory did not perform a Post Digestion Spike for aluminum.

Notes

Two sample names were incorrectly identified by the laboratory. Samples MPT-AC-SU03-04 and MPT-AC-SU04-04 were named with a "V" instead of a "U". Changes were made to the sample names on the Forms I and IX by the data reviewer.

Cyanide was incorrectly reported to the laboratory reporting limit. The laboratory was notified and sent corrected sample result forms, showing the MDL, on January 17, 2000.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: Aluminum was qualified due to matrix spike and matrix spike duplicate noncompliance. The interfering element calcium was present in two samples.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Erin M Faust

Tetra Tech NUS
Erin M. Faust
Environmental Scientist

TetraTech 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 (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
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)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	MG/KG			MG/KG			MG/KG			MG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
INORGANICS												
ALUMINUM	436	J	D	698	J	D	402	J	D	424	J	D
ANTIMONY	0.34	U		0.33	U		0.35	U		0.40	U	
ARSENIC	0.49			0.56			0.36	U		0.41	U	
BARIUM	4.7			6.5			5.3			3.8		
BERYLLIUM	0.03	U	A	0.11	U	A	0.04	U	A	0.04	U	A
CADMIUM	0.05	U	A	0.07	U	A	0.04	U	A	0.03	U	
CALCIUM	57300			12900			91700			3480		
CHROMIUM	2.2	J	K	2.7			1.6	J	K	1.6		
COBALT	0.23	U	A	0.22	U	A	0.18	U	A	0.11	U	
COPPER	0.38	U	A	0.34	U	A	0.55	U	A	0.43	U	A
IRON	668			1020			552			404		
LEAD	0.62	J	K	1.3			0.30	J	K	0.50		
MAGNESIUM	408			146			297			78.4		
MANGANESE	18.2			8.5			12.8	J	K	3.5		
MERCURY	0.02	U		0.02	U		0.02	U		0.02	U	
NICKEL	0.56	U	A	0.31	U	A	0.30	U	A	0.26	U	
POTASSIUM	67.7	U	A	55.5	U	A	70.1	U	A	57.7	U	A
SELENIUM	0.44	U		0.43	U		0.56			0.52	U	
SILVER	0.12	U		0.12	U		0.12	U		0.14	U	
SODIUM	506			26.2	U		982			31.4	U	
THALLIUM	0.75	U		0.73	U		1.2	U	A	0.88	U	
TIN	1.9	U	A	1.1	U	A	1.6	U	A	1.4	U	A
VANADIUM	1.9	J	K	1.5			1.2	J	K	0.78	U	A
ZINC	3.2	J	K	4.9			3.3	J	K	4.8		

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			88.9 %			77.6 %		
FIELD DUPLICATE OF:												

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
MISCELLANEOUS PARAMETERS												
CYANIDE, TOTAL(MG/KG)	0.55	U		0.54	U		0.56	U		0.64	U	

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DQJ2E **Client ID:** MPT-AC-SS03-01

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	**308.22**	**2.2**	**22.1**	**436**	**N***	**1**	**ICPST**	**12/11/00**	**20:52**
Antimony	206.84	0.34	1.1	0.34	U	1	ICPST	12/11/00	20:52
Arsenic	**189.04**	**0.35**	**1.1**	**0.49**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Barium	**493.41**	**0.017**	**22.1**	**4.7**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Beryllium	**313.04**	**0.0088**	**0.55**	**0.028**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Cadmium	**226.50**	**0.028**	**0.22**	**0.052**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Calcium	**317.93**	**0.85**	**551**	**57300**		**1**	**ICPST**	**12/11/00**	**20:52**
Chromium	**267.72**	**0.12**	**0.55**	**2.2**		**1**	**ICPST**	**12/11/00**	**20:52**
Cobalt	**228.62**	**0.092**	**5.5**	**0.23**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Copper	**324.75**	**0.14**	**2.8**	**0.38**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Iron	**271.44**	**1.8**	**11.0**	**668**		**1**	**ICPST**	**12/11/00**	**20:52**
Lead	**220.35**	**0.21**	**0.33**	**0.62**		**1**	**ICPST**	**12/11/00**	**20:52**
Magnesium	**279.08**	**1.6**	**551**	**408**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Manganese	**257.61**	**0.017**	**1.7**	**18.2**		**1**	**ICPST**	**12/11/00**	**20:52**
Nickel	**231.60**	**0.22**	**4.4**	**0.56**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Potassium	**766.49**	**2.2**	**551**	**67.7**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Selenium	196.03	0.44	0.55	0.44	U	1	ICPST	12/11/00	20:52
Silver	328.07	0.12	0.55	0.12	U	1	ICPST	12/11/00	20:52
Sodium	**330.23**	**26.9**	**551**	**506**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Thallium	190.86	0.75	1.1	0.75	U	1	ICPST	12/11/00	20:52
Tin	**189.99**	**0.54**	**11.0**	**1.9**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Vanadium	**292.40**	**0.084**	**5.5**	**1.9**	**B**	**1**	**ICPST**	**12/11/00**	**20:52**
Zinc	**213.86**	**0.13**	**2.2**	**3.2**		**1**	**ICPST**	**12/11/00**	**20:52**

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DQJ2E **Client ID:** MPT-AC-SS03-01

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/12/00 **Prep Batch:** 0347129

Weight: 0.6 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.018	0.11	0.018	U	1	CVAA	12/14/00	11:23

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DQJ2L **Client ID:** MPT-AC-SS04-01

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 6.7

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	**308.22**	**2.1**	**21.4**	**698**	**N***	**1**	**ICPST**	**12/11/00**	**21:17**
Antimony	206.84	0.33	1.1	0.33	U	1	ICPST	12/11/00	21:17
Arsenic	**189.04**	**0.34**	**1.1**	**0.56**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Barium	**493.41**	**0.016**	**21.4**	**6.5**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Beryllium	**313.04**	**0.0086**	**0.54**	**0.11**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Cadmium	**226.50**	**0.027**	**0.21**	**0.066**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Calcium	**317.93**	**0.83**	**536**	**12900**		**1**	**ICPST**	**12/11/00**	**21:17**
Chromium	**267.72**	**0.12**	**0.54**	**2.7**		**1**	**ICPST**	**12/11/00**	**21:17**
Cobalt	**228.62**	**0.089**	**5.4**	**0.22**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Copper	**324.75**	**0.14**	**2.7**	**0.34**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Iron	**271.44**	**1.7**	**10.7**	**1020**		**1**	**ICPST**	**12/11/00**	**21:17**
Lead	**220.35**	**0.20**	**0.32**	**1.3**		**1**	**ICPST**	**12/11/00**	**21:17**
Magnesium	**279.08**	**1.5**	**536**	**146**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Manganese	**257.61**	**0.016**	**1.6**	**8.5**		**1**	**ICPST**	**12/11/00**	**21:17**
Mercury	253.7	0.018	0.11	0.018	U	1	CVAA	12/11/00	12:27
Nickel	**231.60**	**0.21**	**4.3**	**0.31**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Potassium	**766.49**	**2.1**	**536**	**55.5**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Selenium	196.03	0.43	0.54	0.43	U	1	ICPST	12/11/00	21:17
Silver	328.07	0.12	0.54	0.12	U	1	ICPST	12/11/00	21:17
Sodium	330.23	26.2	536	26.2	U	1	ICPST	12/11/00	21:17
Thallium	190.86	0.73	1.1	0.73	U	1	ICPST	12/11/00	21:17
Tin	**189.99**	**0.53**	**10.7**	**1.1**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Vanadium	**292.40**	**0.082**	**5.4**	**1.5**	**B**	**1**	**ICPST**	**12/11/00**	**21:17**
Zinc	**213.86**	**0.13**	**2.1**	**4.9**		**1**	**ICPST**	**12/11/00**	**21:17**

Comments: Lot #: A0K300112 Sample #: 3

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: DQJ2K **Client ID:** MPT-AC-SV03-04 U 2uf 1-17-01

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 11.1

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	**308.22**	**2.2**	**22.5**	**402**	**N***	**1**	**ICPST**	**12/11/00**	**21:07**
Antimony	206.84	0.35	1.1	0.35	U	1	ICPST	12/11/00	21:07
Arsenic	189.04	0.36	1.1	0.36	U	1	ICPST	12/11/00	21:07
Barium	**493.41**	**0.017**	**22.5**	**5.3**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Beryllium	**313.04**	**0.0090**	**0.56**	**0.044**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Cadmium	**226.50**	**0.028**	**0.23**	**0.039**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Calcium	**317.93**	**1.7**	**1130**	**91700**		**2**	**ICPST**	**12/12/00**	**2:03**
Chromium	**267.72**	**0.12**	**0.56**	**1.6**		**1**	**ICPST**	**12/11/00**	**21:07**
Cobalt	**228.62**	**0.093**	**5.6**	**0.18**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Copper	**324.75**	**0.15**	**2.8**	**0.55**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Iron	**271.44**	**1.8**	**11.3**	**552**		**1**	**ICPST**	**12/11/00**	**21:07**
Lead	**220.35**	**0.21**	**0.34**	**0.30**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Magnesium	**279.08**	**1.6**	**562**	**297**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Manganese	**257.61**	**0.017**	**1.7**	**12.8**		**1**	**ICPST**	**12/11/00**	**21:07**
Mercury	253.7	0.019	0.11	0.019	U	1	CVAA	12/11/00	12:26
Nickel	**231.60**	**0.23**	**4.5**	**0.30**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Potassium	**766.49**	**2.2**	**562**	**70.1**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Selenium	**196.03**	**0.45**	**0.56**	**0.56**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Silver	328.07	0.12	0.56	0.12	U	1	ICPST	12/11/00	21:07
Sodium	**330.23**	**27.5**	**562**	**982**		**1**	**ICPST**	**12/11/00**	**21:07**
Thallium	**190.86**	**0.77**	**1.1**	**1.2**		**1**	**ICPST**	**12/11/00**	**21:07**
Tin	**189.99**	**0.55**	**11.3**	**1.6**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Vanadium	**292.40**	**0.086**	**5.6**	**1.2**	**B**	**1**	**ICPST**	**12/11/00**	**21:07**
Zinc	**213.86**	**0.14**	**2.3**	**3.3**		**1**	**ICPST**	**12/11/00**	**21:07**

Comments: Lot #: A0K300112 Sample #: 2

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

U qual 1-17-01

Lab Sample ID: DQJ2P **Client ID:** MPT-AC-SY04-04

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 22.4

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	**308.22**	**2.6**	**25.8**	**424**	**N***	**1**	**ICPST**	**12/11/00**	**21:22**
Antimony	206.84	0.40	1.3	0.40	U	1	ICPST	12/11/00	21:22
Arsenic	189.04	0.41	1.3	0.41	U	1	ICPST	12/11/00	21:22
Barium	**493.41**	**0.019**	**25.8**	**3.8**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Beryllium	**313.04**	**0.010**	**0.64**	**0.035**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Cadmium	226.50	0.032	0.26	0.032	U	1	ICPST	12/11/00	21:22
Calcium	**317.93**	**0.99**	**644**	**3480**		**1**	**ICPST**	**12/11/00**	**21:22**
Chromium	**267.72**	**0.14**	**0.64**	**1.6**		**1**	**ICPST**	**12/11/00**	**21:22**
Cobalt	228.62	0.11	6.4	0.11	U	1	ICPST	12/11/00	21:22
Copper	**324.75**	**0.17**	**3.2**	**0.43**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Iron	**271.44**	**2.1**	**12.9**	**404**		**1**	**ICPST**	**12/11/00**	**21:22**
Lead	**220.35**	**0.25**	**0.39**	**0.50**		**1**	**ICPST**	**12/11/00**	**21:22**
Magnesium	**279.08**	**1.8**	**644**	**78.4**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Manganese	**257.61**	**0.019**	**1.9**	**3.5**		**1**	**ICPST**	**12/11/00**	**21:22**
Mercury	253.7	0.022	0.13	0.022	U	1	CVAA	12/11/00	12:28
Nickel	231.60	0.26	5.2	0.26	U	1	ICPST	12/11/00	21:22
Potassium	**766.49**	**2.5**	**644**	**57.7**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Selenium	196.03	0.52	0.64	0.52	U	1	ICPST	12/11/00	21:22
Silver	328.07	0.14	0.64	0.14	U	1	ICPST	12/11/00	21:22
Sodium	330.23	31.4	644	31.4	U	1	ICPST	12/11/00	21:22
Thallium	190.86	0.88	1.3	0.88	U	1	ICPST	12/11/00	21:22
Tin	**189.99**	**0.63**	**12.9**	**1.4**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Vanadium	**292.40**	**0.098**	**6.4**	**0.78**	**B**	**1**	**ICPST**	**12/11/00**	**21:22**
Zinc	**213.86**	**0.16**	**2.6**	**4.8**		**1**	**ICPST**	**12/11/00**	**21:22**

Comments: Lot #: A0K300112 Sample #: 4

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SS03-01

General Chemistry

Lot-Sample #...: A0K300112-001 **Work Order #...:** DQJ2E **Matrix.....:** SO
Date Sampled...: 11/28/00 09:41 **Date Received..:** 11/29/00
% Moisture.....: 9.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.55	mg/kg	SW846 9012A	12/01-12/04/00	0336369
	Dilution Factor: 1		MDL.....: 0.19			
Percent Solids	**90.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**12/12-12/13/00**	**0348222**
	Dilution Factor: 1		MDL.....: 10.0			

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SW03-04 U QUF 1-18-01

General Chemistry

Lot-Sample #...: A0K300112-002 **Work Order #...:** DQJ2K **Matrix.....:** SO
Date Sampled...: 11/28/00 09:58 **Date Received..:** 11/29/00
% Moisture.....: 11

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.56	mg/kg	SW846 9012A	12/01-12/04/00	0336369
	Dilution Factor: 1		MDL.....: 0.19			
Percent Solids	**88.9**	**10.0**	**%**	**MCAWW 160.3 MOD**	**12/12-12/13/00**	**0348222**
	Dilution Factor: 1		MDL.....: 10.0			

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SS04-01

General Chemistry

Lot-Sample #...: A0K300112-003 **Work Order #...:** DQJ2L **Matrix.....:** SO
Date Sampled...: 11/28/00 10:17 **Date Received..:** 11/29/00
% Moisture.....: 6.7

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.54	mg/kg	SW846 9012A	12/01-12/04/00	0336369
	Dilution Factor: 1		MDL.....: 0.18			
Percent Solids	**93.3**	**10.0**	**%**	**MCAWW 160.3 MOD**	**12/12-12/13/00**	**0348222**
	Dilution Factor: 1		MDL.....: 10.0			

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

TETRA TECH NUS, INC.

Client Sample ID: MPT-AC-SW04-04

General Chemistry

Lot-Sample #...: A0K300112-004 Work Order #...: DQJ2P Matrix.....: SO
Date Sampled...: 11/28/00 10:22 Date Received..: 11/29/00
% Moisture.....: 22

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.64	mg/kg	SW846 9012A	12/01-12/04/00	0336369
	Dilution Factor: 1		MDL.....: 0.22			
Percent Solids	**77.6**	**10.0**	**%**	**MCAWW 160.3 MOD**	**12/12-12/13/00**	**0348222**
	Dilution Factor: 1		MDL.....: 10.0			

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

APPENDIX C
SUPPORT DOCUMENTATION

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE ___ OF ___

PROJECT NO: N0199	SITE NAME: AOC C	PROJECT MANAGER AND PHONE NUMBER: T. Hansen (850)	LABORATORY NAME AND CONTACT: Quanterra/STL Denise Pohl
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: T. Thompson (904) 281-0400	ADDRESS: 4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER: Fed Ex	CITY, STATE: N Canton, OH

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: 8260 - App IX VOCs	8270 - PAH	6010/7000A Metals/Tin	9010 - Cyanide	App IX PCBs	8151A - Organochlorine Herbicides	8141A - Organophosphate Pesticides	8081A - App IX Pesticides	COMMENTS
						G	HCl									
						G	—									
						P	HNO_3									
						P	NaOH									
						G										
						G										
						G										
						G										
11-28	0941	MPT-AC-SS03-01	Soil	G	6			X	X	X	X	X	X	X	X	Cool to 4°C
11-28	0950	MPT-AC-SU03-04	Soil	G	6			X	X	X	X	X	X	X	X	
11-28	1017	MPT-AC-SS04-01	Soil	G	6			X	X	X	X	X	X	X	X	
11-28	1022	MPT-AC-SU04-04	Soil	G	6			X	X	X	X	X	X	X	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	11-28-00	1700	1. RECEIVED BY		
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE 11/29/00	TIME 9:15
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: 2.8°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TINUS-001

STL North Canton

MP029

HOLDING TIME

12/28/00

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
MG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
MG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
MG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
MG/KG	MPT-AC-SS03-01RE	A0K300112001	NORMAL	MP029	HG	11/28/00	12/12/00	12/14/00	14	2	16
MG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	HG	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	HG	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	HG	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/L	TRIP BLANK	A0K300112005	TRIP BLANK	MP029	OV	11/28/00	12/01/00	12/01/00	3	0	3
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7

ANALYTICAL METHODS SUMMARY

A0K300112

PARAMETER	ANALYTICAL METHOD
Chlorinated Herbicides by GC	SW846 8151A
Cyanide, Total	SW846 9012A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A
Organochlorine Pesticides	SW846 8081A
Organophosphorous Compounds by GC	SW846 8141A
PCBs by SW-846 8082	SW846 8082
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A0K300112

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
DQJ2E	001	MPT-AC-SS03-01	11/28/00	09:41
DQJ2K	002	MPT-AC-SW03-04	11/28/00	09:58
DQJ2L	003	MPT-AC-SS04-01	11/28/00	10:17
DQJ2P	004	MPT-AC-SW04-04	11/28/00	10:22
DQJ2Q	005	TRIP BLANK	11/28/00	

EWF 1-17-01

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

SDG NARRATIVE
MP029

METALS

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Samples that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive of mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank ± the standard reporting limit (SRL).

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP029

GENERAL CHEMISTRY

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

0347129

· Solid Loss
Tetra Tech
expanded

QUALITY CONTROL
CORRECTIVE ACTION FORM

Date: 12-11-00
Client ID: 375241
Work Order #: see below
Original Prep Date: 12-8-00
Storage Location:

Project Manager: DJP
Lab ID: A0K300112
Parameter (one per form): Hg
Batch #: 0343114
Due: 12-18-00
Matrix: Solid

REASON FOR CORRECTIVE ACTION:

_____ Blank Contamination
_____ Surrogate recoveries outside control limits
_____ Check sample recoveries outside control limits
_____ RPD for MS/MSD outside control limits
_____ RPD for duplicate sample analysis outside control limits
__✓__ Other (further explanation required)
ms appears to be spiked 2x

ms run # 0343013

CORRECTIVE ACTION TAKEN:

_____ Sample was re-extracted
_____ All associated samples in batch were re-extracted
_____ Associated samples were not contaminated, no action taken
_____ Sample could not be re-extracted due to limited quantity
_____ MS/MSD re-extracted
_____ Duplicate sample re-analyzed
_____ Other (further explanation required)

REPREPARATION COMMENTS/EXPLANATIONS:

DQJ2E-1A7
S
D

Note: If the corrective action taken was performed outside the holding times then also document it on the HTV form.

1442

STL North Canton Signature:_____

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11211a.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 12/11/00 11:56 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.75	110.0								

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: CVAA **Units:** ug/L

Chart Number: hg11214a.prn **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck5ICV 12/14/00 11:14 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	2.5	2.27	90.6								

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:** _____

Element	WL/ Mass	True Conc	ICV 12/11/00 10:23 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	12500.0	12382.97	99.1								
Antimony	206.838	250.0	253.19	101.3								
Arsenic	189.042	250.0	251.44	100.6								
Barium	493.409	1000.0	983.80	98.4								
Beryllium	313.042	1000.0	1038.84	103.9								
Cadmium	226.502	250.0	255.13	102.1								
Calcium	317.933	25000.0	25772.43	103.1								
Chromium	267.716	1000.0	1006.65	100.7								
Cobalt	228.616	1000.0	998.01	99.8								
Copper	324.753	1000.0	982.46	98.2								
Iron	271.441	12500.0	13042.07	104.3								
Lead	220.353	250.0	254.67	101.9								
Magnesium	279.078	25000.0	24236.16	96.9								
Manganese	257.61	1000.0	1025.89	102.6								
Nickel	231.604	1000.0	1021.64	102.2								
Potassium	766.491	25000.0	25640.46	102.6								
Selenium	196.026	250.0	254.21	101.7								
Silver	328.068	500.0	492.13	98.4								
Sodium	330.232	25000.0	24615.84	98.5								
Thallium	190.864	500.0	529.74	105.9								
Tin	189.989	1000.0	941.07	94.1								
Vanadium	292.402	1000.0	999.53	100.0								
Zinc	213.856	1000.0	1021.13	102.1								

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11211a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 12/11/00 12:00 PM Found	% Rec	Ck2CCV 12/11/00 12:20 PM Found	% Rec	Ck2CCV 12/11/00 12:35 PM Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.08	101.6	5.00	100.0	5.07	101.4				

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: CVAA **Units:** ug/L

Chart Number: hg11214a.prn **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	Ck2CCV 12/14/00 11:18 AM Found	% Rec	Ck2CCV 12/14/00 11:32 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Mercury	253.7	5.0	5.08	101.6	5.14	102.9						

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 12/11/00 10:50 AM Found	% Rec	CCV 12/11/00 11:39 AM Found	% Rec	CCV 12/11/00 12:41 PM Found	% Rec	CCV 12/11/00 1:42 PM Found	% Rec	CCV 12/11/00 2:46 PM Found	% Rec
Aluminum	308.215	25000.0	25091.44	100.4	25239.78	101.0	25286.10	101.1	25317.41	101.3	25419.18	101.7
Antimony	206.838	500.0	496.56	99.3	497.80	99.6	495.96	99.2	495.63	99.1	494.45	98.9
Arsenic	189.042	500.0	499.72	99.9	500.99	100.2	501.43	100.3	501.80	100.4	498.78	99.8
Barium	493.409	2000.0	2021.51	101.1	2036.29	101.8	2054.64	102.7	2093.30	104.7	2099.14	105.0
Beryllium	313.042	2000.0	2039.78	102.0	2033.23	101.7	2033.92	101.7	2038.37	101.9	2031.74	101.6
Cadmium	226.502	500.0	501.40	100.3	497.85	99.6	496.83	99.4	497.78	99.6	495.34	99.1
Calcium	317.933	50000.0	50884.76	101.8	50517.18	101.0	50293.35	100.6	50343.75	100.7	50058.27	100.1
Chromium	267.716	2000.0	2007.86	100.4	1997.92	99.9	1995.15	99.8	2000.36	100.0	1991.65	99.6
Cobalt	228.616	2000.0	2020.86	101.0	2009.13	100.5	2001.67	100.1	1999.38	100.0	1989.25	99.5
Copper	324.753	2000.0	1989.78	99.5	2006.95	100.3	2012.46	100.6	2010.65	100.5	2023.17	101.2
Iron	271.441	25000.0	25491.36	102.0	25364.92	101.5	25171.04	100.7	25084.18	100.3	24989.32	100.0
Lead	220.353	500.0	501.18	100.2	498.05	99.6	496.18	99.2	501.56	100.3	496.17	99.2
Magnesium	279.078	50000.0	49974.70	99.9	49374.73	98.7	49395.16	98.8	49551.05	99.1	49163.09	98.3
Manganese	257.61	2000.0	2061.65	103.1	2055.41	102.8	2096.32	104.8	2118.91	105.9	2097.92	104.9
Nickel	231.604	2000.0	2020.04	101.0	2013.32	100.7	2007.49	100.4	2014.74	100.7	2003.31	100.2
Potassium	766.491	50000.0	51296.94	102.6	51962.13	103.9	52286.26	104.6	52090.99	104.2	52820.57	105.6
Selenium	196.026	500.0	506.17	101.2	507.08	101.4	506.89	101.4	509.71	101.9	509.22	101.8
Silver	328.068	1000.0	984.20	98.4	990.72	99.1	993.53	99.4	995.68	99.6	998.34	99.8
Sodium	330.232	50000.0	47935.30	95.9	48399.05	96.8	48615.67	97.2	48683.55	97.4	48825.50	97.7
Thallium	190.864	1000.0	997.47	99.7	994.14	99.4	993.06	99.3	992.49	99.2	993.75	99.4
Tin	189.989	5000.0	4990.91	99.8	4919.17	98.4	4858.75	97.2	4803.46	96.1	4751.40	95.0
Vanadium	292.402	2000.0	1993.19	99.7	1989.33	99.5	1988.70	99.4	1990.82	99.5	1987.89	99.4
Zinc	213.856	2000.0	2032.06	101.6	2026.81	101.3	2024.66	101.2	2025.84	101.3	2020.48	101.0

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 12/11/00 3:48 PM Found	% Rec	CCV 12/11/00 4:50 PM Found	% Rec	CCV 12/11/00 5:53 PM Found	% Rec	CCV 12/11/00 7:02 PM Found	% Rec	CCV 12/11/00 8:31 PM Found	% Rec
Aluminum	308.215	25000.0	25782.60	103.1	25870.72	103.5	26065.64	104.3	26240.40	105.0	25984.98	103.9
Antimony	206.838	500.0	499.52	99.9	498.82	99.8	500.87	100.2	503.88	100.8	503.85	100.8
Arsenic	189.042	500.0	504.03	100.8	502.96	100.6	503.07	100.6	505.57	101.1	501.15	100.2
Barium	493.409	2000.0	2115.84	105.8	2111.18	105.6	2123.97	106.2	2140.27	107.0	2108.56	105.4
Beryllium	313.042	2000.0	2043.60	102.2	2034.95	101.7	2035.42	101.8	2040.06	102.0	2056.42	102.8
Cadmium	226.502	500.0	498.26	99.7	495.39	99.1	494.60	98.9	495.97	99.2	493.37	98.7
Calcium	317.933	50000.0	50153.30	100.3	49887.61	99.8	49720.22	99.4	49882.16	99.8	50365.39	100.7
Chromium	267.716	2000.0	2003.44	100.2	1994.18	99.7	1993.68	99.7	2000.60	100.0	2014.28	100.7
Cobalt	228.616	2000.0	1998.81	99.9	1986.98	99.3	1984.51	99.2	1987.96	99.4	2007.00	100.4
Copper	324.753	2000.0	2053.11	102.7	2060.53	103.0	2081.63	104.1	2094.95	104.7	2073.84	103.7
Iron	271.441	25000.0	25148.20	100.6	25032.30	100.1	24933.16	99.7	24952.70	99.8	25221.17	100.9
Lead	220.353	500.0	497.23	99.4	494.07	98.8	494.15	98.8	493.66	98.7	494.92	99.0
Magnesium	279.078	50000.0	49455.50	98.9	49316.07	98.6	49114.20	98.2	49142.66	98.3	49629.58	99.3
Manganese	257.61	2000.0	2099.79	105.0	2084.30	104.2	2093.55	104.7	2090.08	104.5	2075.50	103.8
Nickel	231.604	2000.0	2014.92	100.7	2006.79	100.3	2005.96	100.3	2012.78	100.6	1993.65	99.7
Potassium	766.491	50000.0	53559.46	107.1	53636.55	107.3	54411.98	108.8	55062.64	110.1	52860.39	105.7
Selenium	196.026	500.0	514.58	102.9	510.71	102.1	511.04	102.2	514.61	102.9	508.66	101.7
Silver	328.068	1000.0	1009.76	101.0	1012.46	101.2	1017.90	101.8	1024.81	102.5	1025.79	102.6
Sodium	330.232	50000.0	49640.91	99.3	49933.48	99.9	50403.82	100.8	50970.07	101.9	49909.49	99.8
Thallium	190.864	1000.0	1006.83	100.7	1000.11	100.0	1005.67	100.6	994.61	99.5	1004.92	100.5
Tin	189.989	5000.0	4747.79	95.0	4714.87	94.3	4695.13	93.9	4695.73	93.9	4826.29	96.5
Vanadium	292.402	2000.0	2003.67	100.2	1996.01	99.8	2001.01	100.1	2005.88	100.3	2015.22	100.8
Zinc	213.856	2000.0	2037.06	101.9	2029.90	101.5	2033.20	101.7	2039.44	102.0	2040.84	102.0

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 12/11/00 9:33 PM Found	% Rec	CCV 12/11/00 10:37 PM Found	% Rec	CCV 12/11/00 11:41 PM Found	% Rec	CCV 12/12/00 12:43 AM Found	% Rec	CCV 12/12/00 1:51 AM Found	% Rec
Aluminum	308.215	25000.0	26020.39	104.1	26195.83	104.8	26042.48	104.2	26161.10	104.6	26126.74	104.5
Antimony	206.838	500.0	502.84	100.6	506.54	101.3	498.84	99.8	500.70	100.1	503.37	100.7
Arsenic	189.042	500.0	499.57	99.9	501.31	100.3	493.31	98.7	502.21	100.4	501.28	100.3
Barium	493.409	2000.0	2116.01	105.8	2130.00	106.5	2115.92	105.8	2131.89	106.6	2133.26	106.7
Beryllium	313.042	2000.0	2057.74	102.9	2054.78	102.7	2034.34	101.7	2060.99	103.0	2074.11	103.7
Cadmium	226.502	500.0	493.32	98.7	493.51	98.7	487.56	97.5	494.72	98.9	500.10	100.0
Calcium	317.933	50000.0	50217.47	100.4	50021.05	100.0	49447.11	98.9	50262.99	100.5	50648.91	101.3
Chromium	267.716	2000.0	2016.06	100.8	2013.43	100.7	1993.10	99.7	2020.70	101.0	2034.98	101.7
Cobalt	228.616	2000.0	1999.90	100.0	1993.44	99.7	1971.10	98.6	1996.58	99.8	2004.08	100.2
Copper	324.753	2000.0	2085.69	104.3	2101.06	105.1	2086.20	104.3	2097.15	104.9	2096.79	104.8
Iron	271.441	25000.0	25162.12	100.6	25070.88	100.3	24759.56	99.0	24994.90	100.0	25010.05	100.0
Lead	220.353	500.0	496.30	99.3	496.24	99.2	490.91	98.2	495.94	99.2	502.91	100.6
Magnesium	279.078	50000.0	49669.36	99.3	49568.07	99.1	49197.72	98.4	49690.66	99.4	49970.94	99.9
Manganese	257.61	2000.0	2083.24	104.2	2081.37	104.1	2083.40	104.2	2119.22	106.0	2129.12	106.5
Nickel	231.604	2000.0	1994.72	99.7	1999.46	100.0	1973.16	98.7	1996.73	99.8	2024.50	101.2
Potassium	766.491	50000.0	53382.81	106.8	54183.89	108.4	54225.33	108.5	54422.70	108.8	54359.23	108.7
Selenium	196.026	500.0	506.00	101.2	509.01	101.8	497.88	99.6	505.80	101.2	511.18	102.2
Silver	328.068	1000.0	1032.19	103.2	1039.02	103.9	1031.37	103.1	1040.85	104.1	1046.87	104.7
Sodium	330.232	50000.0	50301.13	100.6	50959.88	101.9	50736.07	101.5	51177.44	102.4	50910.26	101.8
Thallium	190.864	1000.0	1001.66	100.2	1009.36	100.9	989.43	98.9	1008.61	100.9	1009.33	100.9
Tin	189.989	5000.0	4767.95	95.4	4717.70	94.4	4643.50	92.9	4699.74	94.0	4694.29	93.9
Vanadium	292.402	2000.0	2016.07	100.8	2014.85	100.7	1997.86	99.9	2019.02	101.0	2030.12	101.5
Zinc	213.856	2000.0	2048.05	102.4	2048.61	102.4	2028.52	101.4	2053.26	102.7	2069.33	103.5

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 90% - 110%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	CCV 12/12/00 2:44 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	25000.0	26238.95	105.0								
Antimony	206.838	500.0	505.42	101.1								
Arsenic	189.042	500.0	506.76	101.4								
Barium	493.409	2000.0	2135.66	106.8								
Beryllium	313.042	2000.0	2082.77	104.1								
Cadmium	226.502	500.0	501.73	100.3								
Calcium	317.933	50000.0	50866.57	101.7								
Chromium	267.716	2000.0	2043.41	102.2								
Cobalt	228.616	2000.0	2014.32	100.7								
Copper	324.753	2000.0	2109.91	105.5								
Iron	271.441	25000.0	25178.50	100.7								
Lead	220.353	500.0	504.14	100.8								
Magnesium	279.078	50000.0	50310.92	100.6								
Manganese	257.61	2000.0	2117.85	105.9								
Nickel	231.604	2000.0	2035.07	101.8								
Potassium	766.491	50000.0	54501.72	109.0								
Selenium	196.026	500.0	510.86	102.2								
Silver	328.068	1000.0	1051.65	105.2								
Sodium	330.232	50000.0	51040.69	102.1								
Thallium	190.864	1000.0	1010.50	101.0								
Tin	189.989	5000.0	4718.41	94.4								
Vanadium	292.402	2000.0	2039.20	102.0								
Zinc	213.856	2000.0	2080.72	104.0								

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11211a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 12/11/00 11:58 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11214a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck4ICB 12/14/00 11:15 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 12/11/00 10:28 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Aluminum	308.215	200	19.9	U								
Antimony	206.838	10	3.1	U								
Arsenic	189.042	10	3.2	U								
Barium	493.409	200	**0.6**	**B**								
Beryllium	313.042	5	**0.5**	**B**								
Cadmium	226.502	2	0.3	U								
Calcium	317.933	5000	**20.7**	**B**								
Chromium	267.716	5	1.1	U								
Cobalt	228.616	50	0.8	U								
Copper	324.753	25	1.3	U								
Iron	271.441	100	16.0	U								
Lead	220.353	3	1.9	U								
Magnesium	279.078	5000	**29.4**	**B**								
Manganese	257.61	15	**0.6**	**B**								
Nickel	231.604	40	2.0	U								
Potassium	766.491	5000	**241.0**	**B**								
Selenium	196.026	5	4.0	U								
Silver	328.068	5	1.1	U								
Sodium	330.232	5000	244.0	U								
Thallium	190.864	10	6.8	U								
Tin	189.989	100	4.9	U								
Vanadium	292.402	50	**0.8**	**B**								
Zinc	213.856	20	1.2	U								

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11211a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 12/11/00 12:02 PM Found	Q	Ck1CCB 12/11/00 12:21 PM Found	Q	Ck1CCB 12/11/00 12:36 PM Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U	0.1	U				

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: CVAA **Units:** ug/L

Chart Number: hg11214a.prn

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Ck1CCB 12/14/00 11:19 AM Found	Q	Ck1CCB 12/14/00 11:34 AM Found	Q	Found	Q	Found	Q	Found	Q
Mercury	253.7	0.6	0.1	U	0.1	U						

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 12/11/00 10:56 AM Found	Q	CCB 12/11/00 11:44 AM Found	Q	CCB 12/11/00 12:47 PM Found	Q	CCB 12/11/00 1:48 PM Found	Q	CCB 12/11/00 2:51 PM Found	Q
Aluminum	308.215	200	**56.8**	**B**	**20.3**	**B**	**31.3**	**B**	**35.4**	**B**	**32.8**	**B**
Antimony	206.838	10	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Arsenic	189.042	10	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Barium	493.409	200	**0.7**	**B**	**0.5**	**B**	**0.7**	**B**	**1.1**	**B**	**1.0**	**B**
Beryllium	313.042	5	**0.5**	**B**	**0.5**	**B**	**0.5**	**B**	**0.5**	**B**	**0.6**	**B**
Cadmium	226.502	2	**0.4**	**B**	0.3	U	0.3	U	0.3	U	0.3	U
Calcium	317.933	5000	**50.9**	**B**	**13.5**	**B**	**11.4**	**B**	**19.4**	**B**	**8.9**	**B**
Chromium	267.716	5	**1.5**	**B**	1.1	U	1.1	U	1.1	U	1.1	U
Cobalt	228.616	50	0.8	U	0.8	U	0.8	U	**0.9**	**B**	0.8	U
Copper	324.753	25	**1.4**	**B**	1.3	U	1.3	U	1.3	U	1.3	U
Iron	271.441	100	**26.2**	**B**	**22.0**	**B**	16.0	U	**30.3**	**B**	16.0	U
Lead	220.353	3	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Magnesium	279.078	5000	**46.7**	**B**	**25.9**	**B**	14.2	U	**25.0**	**B**	14.2	U
Manganese	257.61	15	**0.6**	**B**	**0.7**	**B**	**0.8**	**B**	**1.4**	**B**	**0.6**	**B**
Nickel	231.604	40	2.0	U	2.0	U	2.0	U	**2.2**	**B**	2.0	U
Potassium	766.491	5000	**233.0**	**B**	**224.0**	**B**	**214.0**	**B**	**226.0**	**B**	**214.0**	**B**
Selenium	196.026	5	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Silver	328.068	5	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Sodium	330.232	5000	244.0	U	244.0	U	-450.0	B	-320.0	B	-330.0	B
Thallium	190.864	10	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U
Tin	189.989	100	4.9	U	**5.0**	**B**	4.9	U	4.9	U	4.9	U
Vanadium	292.402	50	0.8	U	**1.7**	**B**	0.8	U	**1.1**	**B**	0.8	U
Zinc	213.856	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 12/11/00 3:54 PM Found	Q	CCB 12/11/00 4:56 PM Found	Q	CCB 12/11/00 5:59 PM Found	Q	CCB 12/11/00 7:08 PM Found	Q	CCB 12/11/00 8:37 PM Found	Q
Aluminum	308.215	200	**42.2**	**B**	**49.0**	**B**	**50.1**	**B**	**63.3**	**B**	**35.3**	**B**
Antimony	206.838	10	3.1	U	3.1	U	3.1	U	3.1	U	-4.7	B
Arsenic	189.042	10	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Barium	493.409	200	**0.6**	**B**	**0.5**	**B**	**0.5**	**B**	**0.9**	**B**	**0.6**	**B**
Beryllium	313.042	5	**0.6**	**B**	**0.6**	**B**	**0.4**	**B**	**0.6**	**B**	**0.6**	**B**
Cadmium	226.502	2	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Calcium	317.933	5000	**25.2**	**B**	**36.2**	**B**	7.7	U	7.7	U	**9.7**	**B**
Chromium	267.716	5	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Cobalt	228.616	50	0.8	U	0.8	U	0.8	U	0.8	U	**1.6**	**B**
Copper	324.753	25	**1.6**	**B**	1.3	U	**1.4**	**B**	1.3	U	1.3	U
Iron	271.441	100	16.0	U	16.0	U	16.0	U	**26.3**	**B**	16.0	U
Lead	220.353	3	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Magnesium	279.078	5000	**17.4**	**B**	14.2	U	14.2	U	14.2	U	14.2	U
Manganese	257.61	15	**0.7**	**B**	**0.6**	**B**	**0.5**	**B**	**0.8**	**B**	**0.6**	**B**
Nickel	231.604	40	2.0	U	2.0	U	2.0	U	2.0	U	**2.4**	**B**
Potassium	766.491	5000	**228.0**	**B**	**236.0**	**B**	**223.0**	**B**	**226.0**	**B**	**226.0**	**B**
Selenium	196.026	5	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Silver	328.068	5	1.1	U	1.1	U	1.1	U	1.1	U	**1.9**	**B**
Sodium	330.232	5000	244.0	U	244.0	U	-300.0	B	244.0	U	244.0	U
Thallium	190.864	10	6.8	U	6.8	U	**9.1**	**B**	6.8	U	6.8	U
Tin	189.989	100	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U
Vanadium	292.402	50	**0.8**	**B**	0.8	U	**0.8**	**B**	0.8	U	**0.8**	**B**
Zinc	213.856	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 12/11/00 9:39 PM Found	Q	CCB 12/11/00 10:43 PM Found	Q	CCB 12/11/00 11:47 PM Found	Q	CCB 12/12/00 12:49 AM Found	Q	CCB 12/12/00 1:58 AM Found	Q
Aluminum	308.215	200	40.3	B	52.2	B	58.8	B	64.4	B	48.6	B
Antimony	206.838	10	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U
Arsenic	189.042	10	3.2	U	3.2	U	3.2	U	3.2	U	3.2	U
Barium	493.409	200	0.5	B	0.6	B	0.4	B	0.6	B	0.6	B
Beryllium	313.042	5	0.6	B	0.6	B	0.5	B	0.5	B	0.6	B
Cadmium	226.502	2	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Calcium	317.933	5000	14.2	B	7.7	U	18.5	B	11.5	B	7.7	U
Chromium	267.716	5	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Cobalt	228.616	50	0.8	U	0.8	U	1.0	B	0.8	U	0.8	U
Copper	324.753	25	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
Iron	271.441	100	16.0	U	16.0	U	24.7	B	41.6	B	16.0	U
Lead	220.353	3	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Magnesium	279.078	5000	14.2	U	14.2	U	16.2	B	14.2	U	14.2	U
Manganese	257.61	15	0.6	B	0.5	B	0.8	B	0.7	B	0.8	B
Nickel	231.604	40	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Potassium	766.491	5000	217.0	B	220.0	B	227.0	B	232.0	B	212.0	B
Selenium	196.026	5	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Silver	328.068	5	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
Sodium	330.232	5000	-300.0	B	244.0	U	244.0	U	244.0	U	-430.0	B
Thallium	190.864	10	6.8	U	8.0	B	6.8	U	7.0	B	6.8	U
Tin	189.989	100	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U
Vanadium	292.402	50	1.1	B	0.8	U	0.8	U	0.9	B	0.8	U
Zinc	213.856	20	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 12/12/00 2:50 AM Found	O	Found	O	Found	O	Found	O	Found	O
Aluminum	308.215	200	45.9	B								
Antimony	206.838	10	3.1	U								
Arsenic	189.042	10	3.2	U								
Barium	493.409	200	0.4	B								
Beryllium	313.042	5	0.5	B								
Cadmium	226.502	2	0.3	U								
Calcium	317.933	5000	29.9	B								
Chromium	267.716	5	1.1	U								
Cobalt	228.616	50	0.8	U								
Copper	324.753	25	1.3	U								
Iron	271.441	100	16.0	U								
Lead	220.353	3	1.9	U								
Magnesium	279.078	5000	14.2	U								
Manganese	257.61	15	0.6	B								
Nickel	231.604	40	2.0	U								
Potassium	766.491	5000	222.0	B								
Selenium	196.026	5	4.0	U								
Silver	328.068	5	1.1	U								
Sodium	330.232	5000	-380.0	B								
Thallium	190.864	10	6.8	U								
Tin	189.989	100	4.9	U								
Vanadium	292.402	50	1.0	B								
Zinc	213.856	20	1.2	U								

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: DQ3F1B

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Aluminum	**308.215**	**2.0**	**20.0**	**4.7**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Antimony	206.838	0.31	1.0	0.31	U	1	ICPST	12/11/00	20:42
Arsenic	189.042	0.32	1.0	0.32	U	1	ICPST	12/11/00	20:42
Barium	**493.409**	**0.015**	**20.0**	**0.11**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Beryllium	**313.042**	**0.0080**	**0.50**	**0.039**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Cadmium	226.502	0.025	0.20	0.025	U	1	ICPST	12/11/00	20:42
Calcium	**317.933**	**0.77**	**500**	**14.7**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Chromium	267.716	0.11	0.50	0.11	U	1	ICPST	12/11/00	20:42
Cobalt	228.616	0.083	5.0	0.083	U	1	ICPST	12/11/00	20:42
Copper	**324.753**	**0.13**	**2.5**	**0.20**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Iron	271.441	1.6	10.0	1.6	U	1	ICPST	12/11/00	20:42
Lead	220.353	0.19	0.30	0.19	U	1	ICPST	12/11/00	20:42
Magnesium	**279.078**	**1.4**	**500**	**3.5**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Manganese	**257.61**	**0.015**	**1.5**	**0.098**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Mercury	253.7	0.017	0.10	0.017	U	1	CVAA	12/11/00	12:17
Nickel	231.604	0.20	4.0	0.20	U	1	ICPST	12/11/00	20:42
Potassium	**766.491**	**2.0**	**500**	**23.2**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Selenium	196.026	0.40	0.50	0.40	U	1	ICPST	12/11/00	20:42
Silver	328.068	0.11	0.50	0.11	U	1	ICPST	12/11/00	20:42
Sodium	330.232	24.4	500	-49	B	1	ICPST	12/11/00	20:42
Thallium	190.864	0.68	1.0	0.68	U	1	ICPST	12/11/00	20:42
Tin	**189.989**	**0.49**	**10.0**	**2.2**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**
Vanadium	292.402	0.076	5.0	0.076	U	1	ICPST	12/11/00	20:42
Zinc	**213.856**	**0.12**	**2.0**	**0.41**	**B**	**1**	**ICPST**	**12/11/00**	**20:42**

Comments: Lot #: A0K300112

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

STL North Canton

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: DQ8Q2B

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/12/00 **Prep Batch:** 0347129

Weight: 0.6 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Mercury	253.7	0.017	0.10	0.017	U	1	CVAA	12/14/00	11:20

Comments: Lot #: A0K300112

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A0K300112 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQNRT1AA		MB Lot-Sample #:	A0L010000-369	
	ND	0.50	mg/kg	SW846 9012A	12/01-12/04/00	0336369
		Dilution Factor: 1				
Percent Solids		Work Order #: DRAX01AC		MB Lot-Sample #:	A0L130000-222	
	ND	10.0	%	MCAWW 160.3 MOD	12/12-12/13/00	0348222
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals Data Reporting Form

Interference Check Standard A

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 12/11/00 10:39 AM Found	Found	Found	Found	Found
Aluminum	308.215		500000	475000				
Antimony	206.838	10		3				
Arsenic	189.042	10		-3				
Barium	493.409	200		2				
Beryllium	313.042	5		0				
Cadmium	226.502	2		-1				
Calcium	317.933		500000	459000				
Chromium	267.716	5		-2				
Cobalt	228.616	50		4				
Copper	324.753	25		3				
Iron	271.441		200000	194000				
Lead	220.353	3		-3				
Magnesium	279.078		500000	504000				
Manganese	257.61	15		7				
Nickel	231.604	40		3				
Potassium	766.491	5000		208				
Selenium	196.026	5		0				
Silver	328.068	5		1				
Sodium	330.232	5000		-260				
Thallium	190.864	10		2				
Tin	189.989	100		5				
Vanadium	292.402	50		-2				
Zinc	213.856	20		15				

Metals Data Reporting Form

Interference Check Standard AB

Instrument: ICPST **Units:** ug/L

Chart Number: i51211a.arc **Acceptable Range:** 80% - 120%

Standard Source: Ultra **Standard ID:**

Element	WL/ Mass	True Conc	ICSAB 12/11/00 10:44 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Aluminum	308.215	500000	477077.2	95.4								
Antimony	206.838	1000	1037.3	103.7								
Arsenic	189.042	1000	989.2	98.9								
Barium	493.409	500	509.1	101.8								
Beryllium	313.042	500	499.7	99.9								
Cadmium	226.502	1000	985.5	98.6								
Calcium	317.933	500000	460587.7	92.1								
Chromium	267.716	500	473.0	94.6								
Cobalt	228.616	500	476.8	95.4								
Copper	324.753	500	533.9	106.8								
Iron	271.441	200000	194881.0	97.4								
Lead	220.353	1000	966.7	96.7								
Magnesium	279.078	500000	505597.1	101.1								
Manganese	257.61	500	510.3	102.1								
Nickel	231.604	1000	939.9	94.0								
Potassium	766.491	10000	11204.7	112.0								
Selenium	196.026	1000	1000.1	100.0								
Silver	328.068	1000	1002.8	100.3								
Sodium	330.232	10000	10270.7	102.7								
Thallium	190.864	1000	969.2	96.9								
Tin	189.989	1000	985.3	98.5								
Vanadium	292.402	500	478.8	95.8								
Zinc	213.856	1000	1034.7	103.5								

Comparision of ICP Interference Affects
SDG MP029
Mayport

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level Sample	Est. Interference	Validation Action Positives	Validation Action Nondetects
Barium	MPT-AC-SS03-01	4.7		Calcium	459000	2	57300	0.25	na	na
Cadmium	MPT-AC-SS03-01	0.05		Calcium	459000	-1	57300	-0.12	J	na
Chromium	MPT-AC-SS03-01	2.2		Calcium	459000	-2	57300	-0.25	J	na
Cobalt	MPT-AC-SS03-01	0.23		Calcium	459000	4	57300	0.50	J	na
Copper	MPT-AC-SS03-01	0.38	u	Calcium	459000	3	57300	0.37	na	na
Lead	MPT-AC-SS03-01	0.62		Calcium	459000	-3	57300	-0.37	J	na
Manganes	MPT-AC-SS03-01	18.2		Calcium	459000	7	57300	0.87	na	na
Potassium	MPT-AC-SS03-01	67.7		Calcium	459000	208	57300	25.97	J	na
Sodium	MPT-AC-SS03-01	506		Calcium	459000	-260	57300	-32.46	na	na
Tin	MPT-AC-SS03-01	1.9	u	Calcium	459000	5	57300	0.62	na	na
Vanadium	MPT-AC-SS03-01	1.9		Calcium	459000	-2	57300	-0.25	J	na
Zinc	MPT-AC-SS03-01	3.2		Calcium	459000	15	57300	1.87	J	na

Affected Analyte	Sample	Reported Result	Qualifier	Interferent	Interferent level in ICS	Conc. ICS	Interferent Level Sample	Est. Interference	Validation Action Positives	Validation Action Nondetects
Barium	MPT-AC-SU03-04	5.3		Calcium	459000	2	91700	0.40	na	na
Cadmium	MPT-AC-SU03-04	0.04	u	Calcium	459000	-1	91700	-0.20	na	UJ
Chromium	MPT-AC-SU03-04	1.6		Calcium	459000	-2	91700	-0.40	J	na
Cobalt	MPT-AC-SU03-04	0.18		Calcium	459000	4	91700	0.80	J	na
Copper	MPT-AC-SU03-04	0.55	u	Calcium	459000	3	91700	0.60	na	na
Lead	MPT-AC-SU03-04	0.3		Calcium	459000	-3	91700	-0.60	J	na
Manganes	MPT-AC-SU03-04	12.8		Calcium	459000	7	91700	1.40	J	na
Potassium	MPT-AC-SU03-04	70.1		Calcium	459000	208	91700	41.55	J	na
Sodium	MPT-AC-SU03-04	982		Calcium	459000	-260	91700	-51.94	na	na
Tin	MPT-AC-SU03-04	1.6	u	Calcium	459000	5	91700	1.00	na	na
Vanadium	MPT-AC-SU03-04	1.2		Calcium	459000	-2	91700	-0.40	J	na
Zinc	MPT-AC-SU03-04	3.3		Calcium	459000	15	91700	3.00	J	na

STL North Canton

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: DQJ2ES

Original Sample ID: DQJ2E **Client ID:** MPT-AC-SS03-01S

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	OS Conc	Q	MS Conc	Q	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Aluminum	308.2	436		760	N	220.51	146.9	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Antimony	206.8	0.34	U	49.8		55.127	90.3	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Arsenic	189.0	0.49	B	195		220.51	88.4	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Barium	493.4	4.7	B	212		220.51	93.9	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Beryllium	313.0	0.028	B	4.9		5.5127	87.4	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Cadmium	226.5	0.052	B	4.7		5.5127	85.1	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Calcium	317.9	57300		61900	NC	5512.7		1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Chromium	267.7	2.2		21.7		22.051	88.3	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Cobalt	228.6	0.23	B	46.5		55.127	84.0	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Copper	324.8	0.38	B	26.3		27.563	94.0	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Iron	271.4	668		743	NC	110.25		1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Lead	220.4	0.62		48.5		55.127	86.9	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Magnesium	279.1	408	B	5240		5512.7	87.7	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Manganese	257.6	18.2		71.8		55.127	97.2	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Nickel	231.6	0.56	B	46.8		55.127	83.9	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Potassium	766.5	67.7	B	5580		5512.7	99.9	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Selenium	196.0	0.44	U	198		220.51	90.0	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Silver	328.1	0.12	U	5.6		5.5127	102.4	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Sodium	330.2	506	B	5690		5512.7	94.1	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Thallium	190.9	0.75	U	202		220.51	91.8	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Tin	190	1.9	B	187		220.51	84.0	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Vanadium	292.4	1.9	B	50.8		55.127	88.7	1	1	ICPST	12/11/00	20:52	12/11/00	20:57
Zinc	213.9	3.2		54.1		55.127	92.5	1	1	ICPST	12/11/00	20:52	12/11/00	20:57

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Sample Results

Spike Sample ID: DQJ2ES

Original Sample ID: DQJ2E **Client ID:** MPT-AC-SS03-01S

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/12/00 **Prep Batch:** 0347129

Weight: 0.6 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	OS Conc	Q	MS Conc	Q	Spike Level	% Rec	OS DF	MS DF	Instr	OS Anal Date	OS Anal Time	MS Anal Date	MS Anal Time
Mercury	253.7	0.018	U	0.19		0.1838	104.0	1	1	CVAA	12/14/00	11:23	12/14/00	11:24

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID: DQJ2ED

Original Sample ID: DQJ2E **Client ID:** MPT-AC-SS03-01D

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	OS Conc	Q	MSD Conc	Q	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.2	436	N	1040	N *	220.51	271.4	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Antimony	206.8	0.34	U	49.0		55.127	88.9	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Arsenic	189.0	0.49	B	200		220.51	90.4	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Barium	493.4	4.7	B	213		220.51	94.4	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Beryllium	313.0	0.028	B	4.9		5.5127	88.8	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Cadmium	226.5	0.052	B	4.8		5.5127	86.9	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Calcium	317.9	57300		64400	NC	5512.7		1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Chromium	267.7	2.2		22.4		22.051	91.3	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Cobalt	228.6	0.23	B	47.4		55.127	85.5	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Copper	324.8	0.38	B	26.7		27.563	95.5	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Iron	271.4	668		882	NC	110.25		1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Lead	220.4	0.62		49.8		55.127	89.2	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Magnesium	279.1	408	B	5310		5512.7	88.9	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Manganese	257.6	18.2		68.6		55.127	91.4	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Nickel	231.6	0.56	B	48.0		55.127	86.0	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Potassium	766.5	67.7	B	5720		5512.7	102.5	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Selenium	196.0	0.44	U	203		220.51	91.9	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Silver	328.1	0.12	U	5.8		5.5127	104.5	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Sodium	330.2	506	B	5630		5512.7	92.9	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Thallium	190.9	0.75	U	205		220.51	93.2	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Tin	190	1.9	B	191		220.51	85.5	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Vanadium	292.4	1.9	B	52.2		55.127	91.2	1	1	ICPST	12/11/00	20:52	12/11/00	21:02
Zinc	213.9	3.2		56.5		55.127	96.8	1	1	ICPST	12/11/00	20:52	12/11/00	21:02

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate Sample Results

Spike Sample ID: DQJ2ED

Original Sample ID: DQJ2E **Client ID:** MPT-AC-SS03-01D

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/12/00 **Prep Batch:** 0347129

Weight: 0.6 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	OS Conc	Q	MSD Conc	Q	Spike Level	% Rec	OS DF	MSD DF	Instr	OS Anal Date	OS Anal Time	MSD Anal Date	MSD Anal Time
Mercury	253.7	0.018	U	0.19		0.1838	103.3	1	1	CVAA	12/14/00	11:23	12/14/00	11:26

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 5A Equivalent

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A0K300112 **Matrix.....:** SO
Date Sampled...: 11/28/00 10:17 **Date Received..:** 11/29/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total			WO#: DQJ2L1CF-MS/DQJ2L1CG-MSD		MS Lot-Sample #: A0K300112-003				
	ND	2.1	1.9	mg/kg	90		SW846 9012A	12/01-12/04/00	0336369
	ND	2.1	2.0	mg/kg	93	3.8	SW846 9012A	12/01-12/04/00	0336369

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K300112 **Matrix.....:** SO
Date Sampled...: 11/28/00 10:17 **Date Received..:** 11/29/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#: DQJ2L1CF-MS/DQJ2L1CG-MSD				MS Lot-Sample #: A0K300112-003	
	90	(12 - 147)			SW846 9012A	12/01-12/04/00	0336369
	93	(12 - 147)	3.8	(0-99)	SW846 9012A	12/01-12/04/00	0336369

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate RPD Report

Matrix Spike Duplicate Sample ID: DQJ2ED

Matrix Spike Sample ID: DQJ2ES **Client ID:** MPT-AC-SS03-01D

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	MS Conc	Q	MSD Conc	Q	% RPD	MS DF	MSD DF	Instr	MS Anal Date	MS Anal Time	MSD Anal Date	MSD Anal Time
Aluminum	308.215	760	N	1040	N *	30.6	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Antimony	206.838	49.8		49.0		1.6	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Arsenic	189.042	195		200		2.2	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Barium	493.409	212		213		0.5	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Beryllium	313.042	4.9		4.9		1.6	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Cadmium	226.502	4.7		4.8		2.1	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Calcium	317.933	61900	NC	64400	NC	4.0	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Chromium	267.716	21.7		22.4		3.0	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Cobalt	228.616	46.5		47.4		1.8	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Copper	324.753	26.3		26.7		1.5	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Iron	271.441	743	NC	882	NC	17.1	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Lead	220.353	48.5		49.8		2.6	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Magnesium	279.078	5240		5310		1.3	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Manganese	257.61	71.8		68.6		4.6	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Nickel	231.604	46.8		48.0		2.4	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Potassium	766.491	5580		5720		2.6	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Selenium	196.026	198		203		2.1	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Silver	328.068	5.6		5.8		2.0	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Sodium	330.232	5690		5630		1.1	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Thallium	190.864	202		205		1.5	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Tin	189.989	187		191		1.8	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Vanadium	292.402	50.8		52.2		2.7	1	1	ICPST	12/11/00	20:57	12/11/00	21:02
Zinc	213.856	54.1		56.5		4.3	1	1	ICPST	12/11/00	20:57	12/11/00	21:02

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 6 Equivalent

STL North Canton

Metals Data Reporting Form

Matrix Spike Duplicate RPD Report

Matrix Spike Duplicate Sample ID: DQJ2ED

Matrix Spike Sample ID: DQJ2ES **Client ID:** MPT-AC-SS03-01D

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/12/00 **Prep Batch:** 0347129

Weight: 0.6 **Volume:** 100 **Percent Moisture:** 9.3

Element	WL/ Mass	MS Conc	Q	MSD Conc	Q	% RPD	MS DF	MSD DF	Instr	MS Anal Date	MS Anal Time	MSD Anal Date	MSD Anal Time
Mercury	253.7	0.19		0.19		0.0	1	1	CVAA	12/14/00	11:24	12/14/00	11:26

Comments: Lot #: A0K300112 Sample #: 1

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
* Duplicate analysis RPD was not within limits

Form 6 Equivalent

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K300112 **Work Order #...:** DQMQ6-SMP DQMQ6-DUP **Matrix.....:** SOLID

Date Sampled...: 11/29/00 17:00 **Date Received..:** 12/01/00

% Moisture.....: 10

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A0L010123-001		
	89.8	89.2	%	0.62	(0-20)	MCAWW 160.3 MOD	12/12-12/13/00	0348222

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K300112 **Work Order #...:** DQ8A8-SMP **Matrix.....:** SOLID
DQ8A8-DUP
Date Sampled...: 12/06/00 10:40 **Date Received..:** 12/09/00
% Moisture.....: 17

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A0L110176-015		
	83.3	83.1	%	0.21	(0-20)	MCAWW 160.3 MOD	12/12-12/13/00	0348222

Dilution Factor: 1

STL North Canton

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: DQ3F1C

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 0.5 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Aluminum	308.215	8270	8250	99.7		51-149	1	ICPST	12/11/00	20:47
Antimony	206.838	32.6	22.2	67.9		6-209	1	ICPST	12/11/00	20:47
Arsenic	189.042	185	182	98.2		74-126	1	ICPST	12/11/00	20:47
Barium	493.409	177	175	98.9		77-123	1	ICPST	12/11/00	20:47
Beryllium	313.042	45.0	44.6	99.2		78-122	1	ICPST	12/11/00	20:47
Cadmium	226.502	64.0	62.7	97.9		77-123	1	ICPST	12/11/00	20:47
Calcium	317.933	10500	10400	99.3		80-120	1	ICPST	12/11/00	20:47
Chromium	267.716	143	137	95.6		80-120	1	ICPST	12/11/00	20:47
Cobalt	228.616	212	205	96.7		79-120	1	ICPST	12/11/00	20:47
Copper	324.753	92.7	91.8	99.0		82-118	1	ICPST	12/11/00	20:47
Iron	271.441	12700	13400	105.8		59-141	1	ICPST	12/11/00	20:47
Lead	220.353	119	119	99.7		76-124	1	ICPST	12/11/00	20:47
Magnesium	279.078	2750	2570	93.6		75-125	1	ICPST	12/11/00	20:47
Manganese	257.61	388	410	105.7		80-120	1	ICPST	12/11/00	20:47
Mercury	253.7	1.5	1.7	111.1		57-142	2	CVAA	12/11/00	12:19
Nickel	231.604	74.5	73.2	98.2		78-122	1	ICPST	12/11/00	20:47
Potassium	766.491	3580	3720	103.8		73-127	1	ICPST	12/11/00	20:47
Selenium	196.026	150	159	106.0		74-125	1	ICPST	12/11/00	20:47
Silver	328.068	90.0	88.6	98.4		74.1-126	1	ICPST	12/11/00	20:47
Sodium	330.232	1020	848	83.2	B	68-132	1	ICPST	12/11/00	20:47
Thallium	190.864	80.3	88.0	109.5		57-143	1	ICPST	12/11/00	20:47
Tin	189.989	83.9	73.4	87.4		67-133	1	ICPST	12/11/00	20:47
Vanadium	292.402	173	164	94.8		68-132	1	ICPST	12/11/00	20:47
Zinc	213.856	273	269	98.4		77-123	1	ICPST	12/11/00	20:47

Comments: Lot #: A0K300112

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 7 Equivalent

STL North Canton

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: DQ8Q2C

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/12/00 **Prep Batch:** 0347129

Weight: 0.6 **Volume:** 100 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Mercury	253.7	1.5	1.5	101.1		57-142	2	CVAA	12/14/00	11:22

Comments: Lot #: A0K300112

Version 4.10.5

U Result is less than the IDL

B Result is between IDL and RL

Form 7 Equivalent

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A0K300112 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQNRT1AC		LCS Lot-Sample#: A0L010000-369			
	2.0	1.8	mg/kg	90	SW846 9012A	12/01-12/04/00	0336369
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A0K300112 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: DQNRT1AC	LCS Lot-Sample#: A0L010000-369		
	90	(60 - 113)	SW846 9012A	12/01-12/04/00	0336369
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

STL North Canton

Metals Data Reporting Form

Serial Dilution RPD Report

Serial Dilution Sample ID: DQJ2KL

Original Sample ID: DQJ2K **Client ID:** MPT-AC-SV03-04

Matrix: Soil **Units:** mg/kg **Prep Date:** 12/8/00 **Prep Batch:** 0343114

Weight: 1.00 **Volume:** 100 **Percent Moisture:** 11.1

Element	WL/ Mass	OS Conc	Q	Serial Dilution Conc	Q	Percent Diff	OS DF	Ser Dil DF	Instr	OS Anal Date	OS Anal Time	Ser Dil Anal Date	Ser Dil Anal Time
Aluminum	308.215	402	N*	418		3.8	1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Antimony	206.838	0.35	U	1.7	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Arsenic	189.042	0.36	U	1.8	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Barium	493.409	5.3	B	5.4	B	1.2	1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Beryllium	313.042	0.044	B	0.072	B		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Cadmium	226.502	0.039	B	0.14	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Calcium	317.933	91700		96200		4.9	2	10	ICPST	12/12/00	2:03	12/12/00	2:07
Chromium	267.716	1.6		1.3	B		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Cobalt	228.616	0.18	B	0.47	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Copper	324.753	0.55	B	0.73	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Iron	271.441	552		564		2.2	1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Lead	220.353	0.30	B	1.1	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Magnesium	279.078	297	B	301	B	1.3	1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Manganese	257.61	12.8		13.1		2.5	1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Nickel	231.604	0.30	B	1.1	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Potassium	766.491	70.1	B	161	B		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Selenium	196.026	0.56	B	2.3	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Silver	328.068	0.12	U	0.62	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Sodium	330.232	982		874	B		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Thallium	190.864	1.2		3.8	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Tin	189.989	1.6	B	2.8	U		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Vanadium	292.402	1.2	B	1.3	B		1	5	ICPST	12/11/00	21:07	12/11/00	21:12
Zinc	213.856	3.3		3.6	B		1	5	ICPST	12/11/00	21:07	12/11/00	21:12

Comments:

Version 4.10.5

U Result is less than the IDL
B Result is between IDL and RL
L Serial dilution percent difference not within limits

Form 9 Equivalent

STL North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: CVAA **Units:** ug/L

Element	Wavelength /Mass	Reporting Limit	IDL	Date of IDL
Mercury	253.70	0.6	0.10	10/12/00

STL North Canton

Metals Data Reporting Form

Instrument Detection Limits

Instrument: ICPST **Units:** ug/L

Element	Wavelength /Mass	Reporting Limit	IDL	Date of IDL
Aluminum	308.21	200	19.9	9/8/00
Antimony	206.84	10	3.1	9/8/00
Arsenic	189.04	10	3.2	9/8/00
Barium	493.41	200	0.15	9/8/00
Beryllium	313.04	5	0.080	9/8/00
Cadmium	226.50	2	0.25	9/8/00
Calcium	317.93	5000	7.7	9/8/00
Chromium	267.72	5	1.1	9/8/00
Cobalt	228.62	50	0.83	9/8/00
Copper	324.75	25	1.3	9/8/00
Iron	271.44	100	16.0	9/8/00
Lead	220.35	3	1.9	9/8/00
Magnesium	279.08	5000	14.2	9/8/00
Manganese	257.61	15	0.15	9/8/00
Nickel	231.60	40	2.0	9/8/00
Potassium	766.49	5000	19.5	9/8/00
Selenium	196.03	5	4.0	9/8/00
Silver	328.07	5	1.1	9/8/00
Sodium	330.23	5000	244	9/8/00
Thallium	190.86	10	6.8	9/8/00
Tin	189.99	100	4.9	9/8/00
Vanadium	292.40	50	0.76	9/8/00
Zinc	213.86	20	1.2	9/8/00

RQC057 Severn Trent Laboratories, Inc. Run Date: 12/08/00
METALS PREP LOG/BATCH SUMMARY Time: 5:07:28

BATCH NUMBER: 0343114 PREP DATE: 12/08/00
DUE DATE 12/18/00 INITIALS: LPM/KW

LOT NUMBER	WORK ORDER	QC	ICP/WEIGHT	HG/WEIGHT	GFA/WEIGHT	FLA/WEIGH
A0K300112 SOLID	DQJ2E TO DUE DATE: 12/18/00	50	X 1.00g	X 0.60g	____g	____g
	DQJ2ES		____g	____g	____g	____g
	DQJ2ED		____g	____g	____g	____g
A0K300112 SOLID	DQJ2K L TO DUE DATE: 12/18/00	50	X ____g	X ____g	____g	____g
A0K300112 SOLID	DQJ2L TO DUE DATE: 12/18/00	50	X ____g	X ____g	____g	____g
A0K300112 SOLID	DQJ2P TO DUE DATE: 12/18/00	50	X ____g	X ____g	____g	____g
A0L080000 SOLID	DQ3F1B DUE DATE: 0/00/00	50	X ____g	X ____g	____g	____g
	DQ3F1C		0.5 g	0.6 g lot 246	____g	____g

LEVEL 2
BLANK AND CHECK STANDARD ON BATCH ✓
MS/MSD AND PDS ON BATCH ✓
CURVE PREPPED FOR HG
CORRECT SPIKES ADDED ✓
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG ✓

COMMENTS: _____
B-BLANK/C-LCS/D-MSD/I-REANALYSIS/L-LCSD/P-SERIAL DLTN/S-MS/X-SAMP DUP/Y-SAMP CONF/Z-PDS
SPIKING WITNESSED BY MK

RQC057 Severn Trent Laboratories, Inc. Run Date: 12/08/00
METALS PREP LOG/BATCH SUMMARY Time: 5:07:28

BATCH NUMBER: 0343114 PREP DATE: 12/08/00
DUE DATE 12/18/00 INITIALS: LPM/KW

ICP ELEMENTS WITHIN THE BATCH:

	AG	AL	AS	BA	BE	CA	CD	CO	CR	CU	FE	KX	MG	MN	MO	NA	NI	PB	SB	SE	SN	TL
MS/MSD 1:				ICP - 1				ICP - 2A			GFAA		HG		ODD	Ag						
DQJ2E																						
MS/MSD 2:				ICP - 1				ICP - 2			GFAA		HG		ODD							
MS/MSD 3:				ICP - 1				ICP - 2			GFAA		HG		ODD							
CHECK :				ICP - 1				ICP - 2A			GFAA		HG		ODD	Ag						
DQ3F1																						
CHECK DUP:				ICP - 1				ICP - 2			GFAA		HG		ODD							
STANDARD NUMBERS				OL1277				OK1241					OL1294			OL1293						

001208 KW
Solid LCSS 101246

RQC057 Severn Trent Laboratories, Inc. Run Date: 12/12/00
METALS PREP LOG/BATCH SUMMARY Time: 6:46:21

BATCH NUMBER: 0347129 PREP DATE: 12/12/00
DUE DATE 12/18/00 INITIALS: LPm/Kw

****
* RE-PREP BATCH *
****

LOT NUMBER	WORK ORDER	QC	ICP/WEIGHT	HG/WEIGHT	GFA/WEIGHT	FLA/WEIG
A0K300112 SOLID	DQJ2E TO DUE DATE: 12/18/00	50	_____g	x 0.60g	_____g	_____
	DQJ2ES		_____g	_____g	_____g	_____
	DQJ2ED		_____g	_____g	_____g	_____
A0L120000 SOLID	DQ8Q2B DUE DATE: 0/00/00	50	_____g	x _____g	_____g	_____
	DQ8Q2C		_____g	0.6 g	lot 246 _____g	_____

LEVEL 2
BLANK AND CHECK STANDARD ON BATCH ✓
MS/MSD AND PDS ON BATCH ✓
CURVE PREPPED FOR HG
CORRECT SPIKES ADDED ✓
SPIKING SOLUTIONS DOCUMENTED ON BATCH LOG ✓

ORIGINAL BATCH: 0343114

COMMENTS: _____
B-BLANK/C-LCS/D-MSD/I-REANALYSIS/L-LCSD/P-SERIAL DLTN/S-MS/X-SAMP DUP/Y-SAMP CONF/Z-PDS
SPIKING WITNESSED BY ML

STL North Canton

RQC057 Severn Trent Laboratories, Inc. Run Date: 12/12/00
METALS PREP LOG/BATCH SUMMARY Time: 6:46:21

BATCH NUMBER: **0347129** PREP DATE: 12/12/00
DUE DATE 12/18/00 INITIALS: LPM

ICP ELEMENTS WITHIN THE BATCH:

MS/MSD 1:	ICP - 1	ICP - 2	GFAA	(HG)	ODD	
DQJ2E						
MS/MSD 2:	ICP - 1	ICP - 2	GFAA	HG	ODD	
MS/MSD 3:	ICP - 1	ICP - 2	GFAA	HG	ODD	
CHECK :	ICP - 1	ICP - 2	GFAA	HG	ODD	lot 246
DQBQ2						
CHECK DUP:	ICP - 1	ICP - 2	GFAA	HG	ODD	
STANDARD NUMBERS	_____	_____	___	021301	___	

Analysis Run Log ICP-IS

: Instrument Upload Run Log - Page 1 :
: Started Tue Dec 12 09:05:00 2000 by WILLIAML :
: Data File: UPL$CAN_DATA_ROOT:<TJA>IS1211A.ARC;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1	1	11-DEC-2000	10:10:00			I5
2	CALSTD	1	11-DEC-2000	10:15:00			I5
3	CAL	1	11-DEC-2000	10:20:00			I5
4	ICV	1	11-DEC-2000	10:23:00			I5
5	ICB	1	11-DEC-2000	10:28:00			I5
6	CRI	1	11-DEC-2000	10:33:00			I5
7	ICSA	1	11-DEC-2000	10:39:00			I5
8	ICSAB	1	11-DEC-2000	10:44:00			I5
9	CCV	1	11-DEC-2000	10:50:00			I5
10	CCB	1	11-DEC-2000	10:56:00			I5
11	Z	1	11-DEC-2000	11:00:00			I5
12	Z	1	11-DEC-2000	11:05:00			I5
13	CCV	1	11-DEC-2000	11:39:00			I5
14	CCB	1	11-DEC-2000	11:44:00			I5
15	DQ3GAC	1	11-DEC-2000	11:49:00	0343119	A0L080000	I5
16	DQ0RPB	1	11-DEC-2000	11:55:00	0342110	A0L070000	I5
17	DQ0RPC	1	11-DEC-2000	12:00:00	0342110	A0L070000	I5
18	DQWMA	1	11-DEC-2000	12:06:00	0342110	A0L060131	I5
19	DQWWE	1	11-DEC-2000	12:11:00	0342110	A0L060162	I5
20	DQWXF	1	11-DEC-2000	12:16:00	0342110	A0L060162	I5
21	DQWXFL	1	11-DEC-2000	12:20:00			I5
22	DQWXJ	1	11-DEC-2000	12:25:00	0342110	A0L060162	I5
23	DQWXL	1	11-DEC-2000	12:30:00	0342110	A0L060162	I5
24	DQWXN	1	11-DEC-2000	12:35:00	0342110	A0L060162	I5
25	CCV	1	11-DEC-2000	12:41:00			I5
26	CCB	1	11-DEC-2000	12:47:00			I5
27	DQWXQ	1	11-DEC-2000	12:52:00	0342110	A0L060162	I5
28	DQWXR	1	11-DEC-2000	12:57:00	0342110	A0L060162	I5
29	DQWXT	1	11-DEC-2000	13:02:00	0342110	A0L060162	I5
30	DQWXV	1	11-DEC-2000	13:07:00	0342110	A0L060162	I5
31	DQWXW	1	11-DEC-2000	13:12:00	0342110	A0L060162	I5
32	DQWXX	1	11-DEC-2000	13:17:00	0342110	A0L060162	I5
33	DQWX1	1	11-DEC-2000	13:21:00	0342110	A0L060162	I5
34	DQXM7	1	11-DEC-2000	13:26:00	0342110	A0L060241	I5
35	DQXM7S	1	11-DEC-2000	13:31:00	0342110	A0L060241	I5
36	DQXM7D	1	11-DEC-2000	13:36:00	0342110	A0L060241	I5
37	CCV	1	11-DEC-2000	13:42:00			I5
38	CCB	1	11-DEC-2000	13:48:00			I5
39	DQXNC	1	11-DEC-2000	13:53:00	0342110	A0L060241	I5
40	DQXNG	1	11-DEC-2000	13:58:00	0342110	A0L060241	I5
41	DQXACBT	1	11-DEC-2000	14:04:00	0342099	A0L060000	I5
42	DQ0Q5BT	1	11-DEC-2000	14:08:00	0342099	A0L070000	I5
43	DQ0Q5CT	1	11-DEC-2000	14:13:00	0342099	A0L070000	I5
44	DQWMAT	1	11-DEC-2000	14:19:00	0342099	A0L060131	I5

(continued)

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
45	DQWMATL	1	11-DEC-2000	14:24:00			I5
46	DQWMATS	5	11-DEC-2000	14:29:00	0342099	A0L060131	I5
47	DQWMATD	5	11-DEC-2000	14:34:00	0342099	A0L060131	I5
48	DQ0Q7B	1	11-DEC-2000	14:40:00	0342100	A0L070000	I5
49	CCV	1	11-DEC-2000	14:46:00			I5
50	CCB	1	11-DEC-2000	14:51:00			I5
51	DQ0Q7C	1	11-DEC-2000	14:56:00	0342100	A0L070000	I5
52	DQWNA	1	11-DEC-2000	15:02:00	0342100	A0L060134	I5
53	DQWNAL	1	11-DEC-2000	15:07:00			I5
54	DQWNAX	1	11-DEC-2000	15:12:00	0342100	A0L060134	I5
55	DQWNAS	1	11-DEC-2000	15:17:00	0342100	A0L060134	I5
56	DQWNJ	1	11-DEC-2000	15:23:00	0342100	A0L060134	I5
57	DQWNM	1	11-DEC-2000	15:28:00	0342100	A0L060134	I5
58	DQWNR	1	11-DEC-2000	15:32:00	0342100	A0L060134	I5
59	DQXNH	1	11-DEC-2000	15:37:00	0342100	A0L060241	I5
60	DQWEEF	1	11-DEC-2000	15:42:00	0342100	0L06110	I5
61	CCV	1	11-DEC-2000	15:48:00			I5
62	CCB	1	11-DEC-2000	15:54:00			I5
63	DQWEE	1	11-DEC-2000	15:59:00	0342100	0L06110	I5
64	DQWEES	1	11-DEC-2000	16:04:00	0342100	0L06110	I5
65	DQWEED	1	11-DEC-2000	16:09:00	0342100	0L06110	I5
66	DQWFTF	1	11-DEC-2000	16:15:00	0342100	0L06110	I5
67	DQWFT	1	11-DEC-2000	16:20:00	0342100	0L06110	I5
68	DQWF1F	1	11-DEC-2000	16:24:00	0342100	0L06110	I5
69	DQWF1	1	11-DEC-2000	16:29:00	0342100	0L06110	I5
70	DQWGWF	1	11-DEC-2000	16:34:00	0342100	0L06110	I5
71	DQWGW	1	11-DEC-2000	16:39:00	0342100	0L06110	I5
72	DQWG2F	1	11-DEC-2000	16:44:00	0342100	0L06110	I5
73	CCV	1	11-DEC-2000	16:50:00			I5
74	CCB	1	11-DEC-2000	16:56:00			I5
75	DQWG2	1	11-DEC-2000	17:01:00	0342100	0L06110	I5
76	DQT6G	1	11-DEC-2000	17:07:00	0341099	A0L050179	I5
77	DQT6L	1	11-DEC-2000	17:12:00	0341099	A0L050179	I5
78	DQT6V	1	11-DEC-2000	17:16:00	0341099	A0L050179	I5
79	DQTX6F	2	11-DEC-2000	17:22:00	0341102	A0L050159	I5
80	DQTX6	2	11-DEC-2000	17:27:00	0341102	A0L050159	I5
81	DQT0FF	1	11-DEC-2000	17:32:00	0341102	A0L050159	I5
82	DQT0F	1	11-DEC-2000	17:37:00	0341102	A0L050159	I5
83	DQ3F3B	1	11-DEC-2000	17:42:00	0343115	A0L080000	I5
84	DQ3F3C	1	11-DEC-2000	17:47:00	0343115	A0L080000	I5
85	CCV	1	11-DEC-2000	17:53:00			I5
86	CCB	1	11-DEC-2000	17:59:00			I5
87	DQ2M6	1	11-DEC-2000	18:04:00	0343115	A0L070313	I5
88	DQ2M6L	1	11-DEC-2000	18:09:00			I5

---------- (continued) ----------

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
89	DQ2M6S	1	11-DEC-2000	18:14:00	0343115	A0L070313	I5
90	DQ2M6D	1	11-DEC-2000	18:19:00	0343115	A0L070313	I5
91	DQ331	1	11-DEC-2000	18:25:00	0343291	A0L080148	I5
92	PE	1	11-DEC-2000	18:31:00			I5
93	DQKA2	5	11-DEC-2000	18:46:00	0340098	C0K300138	I5
94	DQT89	2	11-DEC-2000	18:51:00	0342121	A0L050184	I5
95	DQXHR	2	11-DEC-2000	18:56:00	0342122	A0L060228	I5
96	CCV	1	11-DEC-2000	19:02:00			I5
97	CCB	1	11-DEC-2000	19:08:00			I5
98	CCV	1	11-DEC-2000	20:31:00			I5
99	CCB	1	11-DEC-2000	20:37:00			I5
100	DQ3F1B	1	11-DEC-2000	20:42:00	0343114	A0L080000	I5
101	DQ3F1C	1	11-DEC-2000	20:47:00	0343114	A0L080000	I5
102	DQJ2E	1	11-DEC-2000	20:52:00	0343114	MP029	I5
103	DQJ2ES	1	11-DEC-2000	20:57:00	0343114	MP029	I5
104	DQJ2ED	1	11-DEC-2000	21:02:00	0343114	MP029	I5
105	DQJ2K	1	11-DEC-2000	21:07:00	0343114	MP029	I5
106	DQJ2KL	1	11-DEC-2000	21:12:00			I5
107	DQJ2L	1	11-DEC-2000	21:17:00	0343114	MP029	I5
108	DQJ2P	1	11-DEC-2000	21:22:00	0343114	MP029	I5
109	DQ3V1B	1	11-DEC-2000	21:28:00	0343203	A0L080000	I5
110	CCV	1	11-DEC-2000	21:33:00			I5
111	CCB	1	11-DEC-2000	21:39:00			I5
112	DQ3V1C	1	11-DEC-2000	21:44:00	0343203	A0L080000	I5
113	DQKF4	1	11-DEC-2000	21:49:00	0343203	MP030	I5
114	DQKF4S	1	11-DEC-2000	21:54:00	0343203	MP030	I5
115	DQKF4D	1	11-DEC-2000	21:59:00	0343203	MP030	I5
116	DQKF7	1	11-DEC-2000	22:05:00	0343203	MP030	I5
117	DQK77L	1	11-DEC-2000	22:10:00			I5
118	DQKF8	1	11-DEC-2000	22:14:00	0343203	MP030	I5
119	DQKF9	1	11-DEC-2000	22:19:00	0343203	MP030	I5
120	DQ3VTB	1	11-DEC-2000	22:26:00	0343200	A0L080000	I5
121	DQ3VTC	1	11-DEC-2000	22:31:00	0343200	A0L080000	I5
122	CCV	1	11-DEC-2000	22:37:00			I5
123	CCB	1	11-DEC-2000	22:43:00			I5
124	DQNNA	1	11-DEC-2000	22:48:00	0343200	MP030	I5
125	DQNNAS	1	11-DEC-2000	22:53:00	0343200	MP030	I5
126	DQNNAD	1	11-DEC-2000	22:57:00	0343200	MP030	I5
127	DQNNE	1	11-DEC-2000	23:03:00	0343200	MP030	I5
128	DQNNEL	1	11-DEC-2000	23:08:00			I5
129	DQ69KB	1	11-DEC-2000	23:14:00	0346116	A0L110000	I5
130	DQ69KC	1	11-DEC-2000	23:19:00	0346116	A0L110000	I5
131	DQ623	1	11-DEC-2000	23:25:00	0346116	A0L090165	I5
132	DQ623L	1	11-DEC-2000	23:30:00			I5

(continued)

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
133	DQ624	1	11-DEC-2000	23:35:00	0346116	A0L090165	I5
134	CCV	1	11-DEC-2000	23:41:00			I5
135	CCB	1	11-DEC-2000	23:47:00			I5
136	DQ625	1	11-DEC-2000	23:52:00	0346116	A0L090165	I5
137	DQ626	1	11-DEC-2000	23:57:00	0346116	A0L090165	I5
138	DQ627	1	12-DEC-2000	00:02:00	0346116	A0L090165	I5
139	DQ3RQ	1	12-DEC-2000	00:07:00	0346116	A0L080126	I5
140	DQ3RQS	1	12-DEC-2000	00:12:00	0346116	A0L080126	I5
141	DQ3RQD	1	12-DEC-2000	00:16:00	0346116	A0L080126	I5
142	DQ3TN	1	12-DEC-2000	00:22:00	0346116	A0L080126	I5
143	DQ63A	1	12-DEC-2000	00:27:00	0346116	A0L090167	I5
144	DQ63C	1	12-DEC-2000	00:32:00	0346116	A0L090167	I5
145	DQ63D	1	12-DEC-2000	00:37:00	0346116	A0L090167	I5
146	CCV	1	12-DEC-2000	00:43:00			I5
147	CCB	1	12-DEC-2000	00:49:00			I5
148	DQ63E	1	12-DEC-2000	00:54:00	0346116	A0L090167	I5
149	DQ63F	1	12-DEC-2000	00:59:00	0346116	A0L090167	I5
150	DQ63G	1	12-DEC-2000	01:04:00	0346116	A0L090167	I5
151	DQ63H	1	12-DEC-2000	01:09:00	0346116	A0L090167	I5
152	DQ63J	1	12-DEC-2000	01:14:00	0346116	A0L090167	I5
153	DQ63K	1	12-DEC-2000	01:25:00	0346116	A0L090167	I5
154	DQ63L	1	12-DEC-2000	01:30:00	0346116	A0L090167	I5
155	DQ63M	1	12-DEC-2000	01:35:00	0346116	A0L090167	I5
156	DQWXW	5	12-DEC-2000	01:40:00	0342110	A0L060162	I5
157	DQXM7	1	12-DEC-2000	01:44:00	0342110	A0L060241	I5
158	CCV	1	12-DEC-2000	01:51:00			I5
159	CCB	1	12-DEC-2000	01:58:00			I5
160	DQJ2K	2	12-DEC-2000	02:03:00	0343114	MP029	I5
161	DQJ2K	10	12-DEC-2000	02:07:00	0343114	MP029	I5
162	DQWFT	2	12-DEC-2000	02:12:00	0342100	0L06110	I5
163	DQWFTF	2	12-DEC-2000	02:17:00	0342100	0L06110	I5
164	DQWF1	2	12-DEC-2000	02:22:00	0342100	0L06110	I5
165	DQWF1F	2	12-DEC-2000	02:27:00	0342100	0L06110	I5
166	DQWGW	2	12-DEC-2000	02:32:00	0342100	0L06110	I5
167	DQWGWF	2	12-DEC-2000	02:37:00	0342100	0L06110	I5
168	CCV	1	12-DEC-2000	02:44:00			I5
169	CCB	1	12-DEC-2000	02:50:00			I5

End of Report

Analysis Run Log CVAA

Hg-H1

: Instrument Upload Run Log - Page 1 :
: Started Tue Dec 12 06:30:34 2000 by COUNTSK :
: Data File: UPL$CAN_DATA_ROOT:<LHG>HG11211A.PRN;1 :

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	STD1REP1	1	11-DEC-2000	11:30:20			H1
2	STD2REP1	1	11-DEC-2000	11:31:30			H1
3	STD3REP1	1	11-DEC-2000	11:32:46			H1
4	STD4REP1	1	11-DEC-2000	11:34:14			H1
5	STD5REP1	1	11-DEC-2000	11:35:40			H1
6	STD6REP1	1	11-DEC-2000	11:37:10			H1
7	CK5ICV	1	11-DEC-2000	11:38:22			H1
8	STD1REP1	1	11-DEC-2000	11:40:36			H1
9	STD2REP1	1	11-DEC-2000	11:41:41			H1
10	STD1REP1	1	11-DEC-2000	11:46:36			H1
11	STD2REP1	1	11-DEC-2000	11:49:04			H1
12	STD3REP1	1	11-DEC-2000	11:50:43			H1
13	STD4REP1	1	11-DEC-2000	11:52:08			H1
14	STD5REP1	1	11-DEC-2000	11:53:16			H1
15	STD6REP1	1	11-DEC-2000	11:54:55			H1
16	CK5ICV	1	11-DEC-2000	11:56:20			H1
17	CK4ICB	1	11-DEC-2000	11:58:31			H1
18	CK3CRA	1	11-DEC-2000	11:59:37			H1
19	CK2CCV	1	11-DEC-2000	12:00:55			H1
20	CK1CCB	1	11-DEC-2000	12:02:00			H1
21	DQ0RPB	1	11-DEC-2000	12:03:06	0342110	A0L070000	H1
22	DQ0RPC	1	11-DEC-2000	12:04:16	0342110	A0L070000	H1
23	DQWMA	1	11-DEC-2000	12:05:34	0342110	A0L060131	H1
24	DQXM7	1	11-DEC-2000	12:08:06	0342110	A0L060241	H1
25	DQXM7S	1	11-DEC-2000	12:11:07	0342110	A0L060241	H1
26	DQXM7D	1	11-DEC-2000	12:13:51	0342110	A0L060241	H1
27	DQXNC	1	11-DEC-2000	12:15:16	0342110	A0L060241	H1
28	DQXNG	1	11-DEC-2000	12:16:31	0342110	A0L060241	H1
29	DQ3F1B	1	11-DEC-2000	12:17:40	0343114	A0L080000	H1
30	DQ3F1C	2	11-DEC-2000	12:19:06	0343114	A0L080000	H1
31	CK2CCV	1	11-DEC-2000	12:20:11			H1
32	CK1CCB	1	11-DEC-2000	12:21:15			H1
33	DQJ2E	1	11-DEC-2000	12:22:33	0343114	MP029	H1
34	DQJ2ES	1	11-DEC-2000	12:23:38	0343114	MP029	H1
35	DQJ2ED	1	11-DEC-2000	12:25:14	0343114	MP029	H1
36	DQJ2K	1	11-DEC-2000	12:26:32	0343114	MP029	H1
37	DQJ2L	1	11-DEC-2000	12:27:37	0343114	MP029	H1
38	DQJ2P	1	11-DEC-2000	12:28:43	0343114	MP029	H1
39	DQ3F7B	1	11-DEC-2000	12:30:02	0343117	A0L080000	H1
40	DQ3F7C	1	11-DEC-2000	12:31:11	0343117	A0L080000	H1
41	DQ1PP	1	11-DEC-2000	12:32:47	0343117	A0L070199	H1
42	DQ1PPS	1	11-DEC-2000	12:33:56	0343117	A0L070199	H1
43	CK2CCV	1	11-DEC-2000	12:35:12			H1
44	CK1CCB	1	11-DEC-2000	12:36:59			H1

(continued)

Analysis Run Log CVAA

Hg-H1

Instrument Upload — Run Log - Page 1

Started Thu Dec 14 12:23:10 2000 by COUNTSK

Data File: UPL$CAN_DATA_ROOT:<LHG>HG11214A.PRN;1

#	WorkOrder	Dilution	Date	Time	Batch	Lot	Instrument
1	~~STD1REP1~~	1	001214 14-DEC-2000	11:04:16			H1
2	STD1REP1	1	pa 14-DEC-2000	11:06:24			H1
3	STD2REP1	1	14-DEC-2000	11:07:29			H1
4	STD3REP1	1	14-DEC-2000	11:08:45			H1
5	STD4REP1	1	14-DEC-2000	11:09:52			H1
6	STD5REP1	1	14-DEC-2000	11:11:29			H1
7	STD6REP1	1	14-DEC-2000	11:12:56			H1
8	CK5ICV	1	14-DEC-2000	11:14:11			H1
9	CK4ICB	1	14-DEC-2000	11:15:16			H1
10	CK3CRA	1	14-DEC-2000	11:16:45			H1
11	CK2CCV	1	14-DEC-2000	11:18:04			H1
12	CK1CCB	1	14-DEC-2000	11:19:34			H1
13	DQ8Q2B	1	14-DEC-2000	11:20:39	0347129	A0L120000	H1
14	DQ8Q2C	2	14-DEC-2000	11:22:05	0347129	A0L120000	H1
15	DQJ2ER	1	14-DEC-2000	11:23:21	0347129	MP029	H1
16	DQJ2ES	1	14-DEC-2000	11:24:47	0343114	MP029	H1
17	DQJ2ED	1	14-DEC-2000	11:26:04	0343114	MP029	H1
18	DRDL1B	1	14-DEC-2000	11:27:12	0349105	A0L140000	H1
19	DRDL1C	1	14-DEC-2000	11:28:18	0349105	A0L140000	H1
20	DQ6A1	1	14-DEC-2000	11:29:23	0349105	A0L090107	H1
21	DQ6CR	1	14-DEC-2000	11:30:29	0349105	A0L090107	H1
22	DQ9TH	1	14-DEC-2000	11:31:39	0349105	A0L090107	H1
23	CK2CCV	1	14-DEC-2000	11:32:44			H1
24	CK1CCB	1	14-DEC-2000	11:34:21			H1
25	DRCRW	1	14-DEC-2000	11:36:18	0349105	A0L090107	H1
26	DQ7H5	1	14-DEC-2000	11:37:45	0349105	0L06273	H1
27	DQ7H5S	1	14-DEC-2000	11:38:49	0349105	0L06273	H1
28	DQ7H5D	1	14-DEC-2000	11:40:03	0349105	0L06273	H1
29	DQ7JE	1	14-DEC-2000	11:41:11	0349105	0L06273	H1
30	DQ7JF	1	14-DEC-2000	11:42:28	0349105	0L06273	H1
31	DQ9RH	1	14-DEC-2000	11:43:32	0349105	0L06273	H1
32	DQ9RK	1	14-DEC-2000	11:44:49	0349105	0L06273	H1
33	DRCPJ	1	14-DEC-2000	11:46:04	0349105	A0L130194	H1
34	DRCPJX	1	14-DEC-2000	11:47:24	0349105	A0L130194	H1
35	CK2CCV	1 VOID	14-DEC-2000	11:48:51			H1
36	CK1CCB	1	14-DEC-2000	11:50:07			H1
37	DRCPJS	1 NOV	14-DEC-2000	11:51:15	0349105	A0L130194	H1
38	DRCP1	1 12/19/00	14-DEC-2000	11:52:31	0349105	A0L130194	H1
39	DRCP2	1	14-DEC-2000	11:53:37	0349105	A0L130194	H1
40	DRCP3	1	14-DEC-2000	11:54:52	0349105	A0L130194	H1
41	DRCP7	1	14-DEC-2000	11:55:57	0349105	A0L130194	H1
42	DRCQJ	1	14-DEC-2000	11:57:13	0349105	A0L130194	H1
43	DRCQK	1	14-DEC-2000	11:58:42	0349105	A0L130194	H1
44	DRDLRB	1	14-DEC-2000	11:59:47	0349102	A0L140000	H1

(continued)

SDev	.02	.6432	26.	.1072	.05888	1.36398	2.4201
%RSD	.0900	589.3	1.651	19.06	13.582	445.63	8807.7
#1	23.27	.5640	1571.	.6381	-.39189	-1.2706	1.7388
#2	23.24	-.3457	1535.	.4865	-.47516	.65840	-1.6838
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	30000.	50000.	600000.	50000.	10000.	15000.	10000.
Low	-1000.	-1000.	-10000.	-1000.	-1000.0	-1000.0	-1000.0

Elem	Sn	Ti	Tl	V	Zn	2203\1	2203\2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	2.440	40.27	6.2438	2.228	6.429	.06165	-.48967
SDev	.414	.04	1.1140	.119	.034	.47056	1.81002
%RSD	16.95	.0881	17.842	5.340	.5289	763.23	369.64
#1	2.733	40.30	5.4561	2.144	6.405	-.27108	-1.7696
#2	2.148	40.25	7.0316	2.312	6.453	.39439	.79021
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	NOCHECK	NOCHECK
High	8000.	50000.	20000.	50000.	10000.		
Low	-1000.	-1000.	-1000.0	-1000.	-1000.		

Elem	1960\1	1960\2	2068/2	2068/1	Y_3710		
Units	ppb	ppb	ppb	ppb	ppb		
Avge	2.4666	-1.8814	-4.3858	2.2308	5.0000		
SDev	8.3872	4.2756	1.3632	4.3089	.0000		
%RSD	340.03	227.25	31.082	193.16	.00000		
#1	-3.4640	1.1419	-5.3497	5.2777	5.0000		
#2	8.3973	-4.9047	-3.4219	-.81606	5.0000		
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK		
High							
Low							

IntStd	1	2	3	4	5	6	7
Mode	Counts	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Y	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	13169	--	--	--	--	--	--
SDev	11.73770	--	--	--	--	--	--
%RSD	.0891319	--	--	--	--	--	--
#1	13161	--	--	--	--	--	--
#2	13177	--	--	--	--	--	--

Method: TOTAL Sample Name: DQJ2L Operator: LRW
Run Time: 12/11/00 21:17:10
Comment: MPF-AC-SSCA-01 eff 1-17-01
Mode: CONC Corr. Factor: 1

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3044	6508.	5.2051	1.892	60.29	1.061	120400.
SDev	.3422	12.	.3340	.824	.10	.021	95.

Pb= 11.937 ug/L x 1000ug/1mg x 1L/1000mL x 100mL/1.0g x 1000g/1kg x 1/0.933 = 1.3 mg/kg
100 ug qnf 1-17-01 qnf 1-17-01

%RSD	112.4	.1856	6.4167	43.53	.1633	1.995	.0791
#1	-.0625	6499.	5.4413	2.475	60.22	1.046	120300.
#2	-.5464	6516.	4.9689	1.310	60.36	1.076	120500.
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2000.	500000.	10000.	20000.	25000.	4000.	600000.
Low	-1000.	-1000.	-1000.0	-1000.	-1000.	-1000.	-1000.
Elem	Cd	Co	Cr	Cu	Fe	K	Mg
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.6176	2.039	25.15	3.181	9483.	517.6	1363.
SDev	.0168	.000	.15	.150	7.	.7	1.
%RSD	2.716	.0183	.6106	4.716	.0739	.1342	.1026
#1	.6295	2.039	25.04	3.075	9478.	517.1	1362.
#2	.6058	2.039	25.26	3.287	9488.	518.1	1364.
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2500.	50000.	50000.	50000.	600000.	600000.	600000.
Low	-1000.	-1000.	-1000.	-1000.	-1000.	-10000.	-1000.
Elem	Mn	Mo	Na	Ni	Se	Pb	Sb
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	78.91	-2.073	-331.1	2.842	2.9190	11.937	-2.1506
SDev	.06	.000	43.3	.309	1.0340	.216	2.5436
%RSD	.0770	.0034	13.09	10.88	35.422	1.8101	118.28
#1	78.86	-2.073	-300.5	2.623	2.1878	12.090	-.35197
#2	78.95	-2.073	-361.8	3.060	3.6501	11.784	-3.9491
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	30000.	50000.	600000.	50000.	10000.	15000.	10000.
Low	-1000.	-1000.	-10000.	-1000.	-1000.0	-1000.0	-1000.0
Elem	Sn	Ti	Tl	V	Zn	2203\1	2203\2
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	10.41	374.9	4.6334	13.99	46.03	10.254	12.777
SDev	3.96	.8	4.0013	.36	.33	1.427	.388
%RSD	38.05	.2077	86.356	2.571	.7240	13.912	3.0387
#1	13.21	374.4	7.4627	13.73	45.79	11.263	12.503
#2	7.611	375.5	1.8041	14.24	46.26	9.2455	13.052
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	NOCHECK	NOCHECK
High	8000.	50000.	20000.	50000.	10000.		
Low	-1000.	-1000.	-1000.0	-1000.	-1000.		
Elem	1960\1	1960\2	2068/2	2068/1	Y_3710		
Units	ppb	ppb	ppb	ppb	ppb		
Avge	10.917	-1.0742	-1.8229	-2.3141	5.0000		
SDev	1.969	2.5334	2.6499	2.4905	.0000		
%RSD	18.040	235.85	145.37	107.62	.00000		
#1	12.310	-2.8656	.05089	-.55309	5.0000		
#2	9.5246	.71722	-3.6967	-4.0752	5.0000		

Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK		
High							
Low							
IntStd	1	2	3	4	5	6	7
Mode	Counts	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	Y	--	--	--	--	--	--
Wavlen	371.030	--	--	--	--	--	--
Avge	13585	--	--	--	--	--	--
SDev	4.101772	--	--	--	--	--	--
%RSD	.0301941	--	--	--	--	--	--
#1	13588	--	--	--	--	--	--
#2	13582	--	--	--	--	--	--

Method: TOTAL Sample Name: DQJ2P Operator: LRW
Run Time: 12/11/00 21:22:04
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag	Al	As	B	Ba	Be	Ca
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	-.3543	3293.	1.4788	1.892	29.29	.2680	26980.
SDev	.0002	6.	1.7750	.005	.09	.0003	7.
%RSD	.0579	.1758	120.02	.2661	.3208	.1225	.0253
#1	-.3541	3289.	2.7340	1.889	29.23	.2677	26980.
#2	-.3544	3297.	.22374	1.896	29.36	.2682	26970.
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2000.	500000.	10000.	20000.	25000.	4000.	600000.
Low	-1000.	-1000.	-1000.0	-1000.	-1000.	-1000.	-1000.

Elem	Cd	Co	Cr	Cu	Fe	K	Mg
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	.2260	.7742	12.15	3.298	3138.	447.4	608.1
SDev	.0846	.1403	.50	.155	17.	.8	1.2
%RSD	37.42	18.13	4.108	4.699	.5493	.1700	.2037
#1	.1662	.8734	11.80	3.188	3150.	447.9	609.0
#2	.2858	.6749	12.50	3.407	3125.	446.9	607.2
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	2500.	50000.	50000.	50000.	600000.	600000.	600000.
Low	-1000.	-1000.	-1000.	-1000.	-1000.	-10000.	-1000.

Elem	Mn	Mo	Na	Ni	Se	Pb	Sb
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	27.14	-.3496	-243.8	1.354	1.3051	3.8912	-1.1297
SDev	.03	.6313	99.3	.627	1.6019	.0706	1.0399
%RSD	.0942	180.6	40.72	46.33	122.74	1.8141	92.052
#1	27.16	.0968	-314.0	.9101	.17236	3.8413	-.39436
#2	27.13	-.7960	-173.6	1.797	2.4378	3.9412	-1.8650
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	30000.	50000.	600000.	50000.	10000.	15000.	10000.

12-11-00

STL NORTH CANTON

TRAACS ANALYTICAL REPORT

Name of Run	: 001204AR1	Name of Analysis	: CN-NON-CLP-3.ANL
Date of Report	: 12/4/00	System No.	: 2
Date of Run	: 12/4/00	Type of System	: TRAACS
Operator	: LEW	Start/Stop time	: 08:23 - 09:12
Comment	: Recalculate from Run 001204A.run		

Channel Type	:	Real	Data	Data
Channel	:	1	1	2
Method	:	CN-NON-CLP-	Weight	Dilution
Unit	:	mg/L	mg/kg	mg/L
Calibr. Fit	:	Linear		
Corr. Coeff.	:	0.9999		
Base	:	51		
Gain	:	118		
Sensitivity	:	0.0876		
Sample Limit 1	:			
Sample Limit 2	:			

Pk	Cup		Sample Id	Conc	Conc	Conc	
0	0	B	Baseline	-0.0007	0.0000	0.0000	
1	1	P	Primer	0.2006	1.0000	1.0000	
2	1	C	0.2000	0.2006	1.0000	1.0000	
3	2	C	0.1000	0.0983	1.0000	1.0000	
4	3	C	0.0500	0.0507	1.0000	1.0000	
5	4	C	0.0250	0.0254	1.0000	1.0000	
6	5	C	0.0100	0.0098	1.0000	1.0000	
7	6	C	0.0050	0.0051	1.0000	1.0000	
8	1	H1	High	0.2007	1.0000	1.0000	
9	0	L1	Low	-0.0001	1.0000	1.0000	
10	0	L1	Low	0.0000	1.0000	1.0000	
11	2	D	Drift	0.0990	1.0000	1.0000	
12	2	QC1	ICV	0.0972	1.0000	1.0000	97%
13	7	QC2	ICB	-0.0004	1.0000	1.0000	
14	5	QC1	0.01	0.0099	1.0000	1.0000	99%
15	8	QC3	PREP BLANK	-0.0012	1.0000	1.0000	
16	9	QC4	LCS	0.0362/0.04	1.0000	1.0000	90% 1.81/2.0= 90% ✓
17	10	S	DQG8C	0.0003	1.0000	1.0000	89%
18	11	S	DQG8C MS	0.0355/0.04	1.0000	1.0000	89%
19	12	S	DQG8C MSD	0.0276	1.0000	1.0000	
20	13	S	DQG8K	0.0220	1.0000	1.0000	
21	14	S	DQG8L	0.0017	1.0000	1.0000	
22	15	S	DQG8M	0.0160	1.0000	1.0000	
23	16	S	DQG8P	0.0159	1.0000	1.0000	
24	17	S	DQLH5	-0.0001	1.0000	1.0000	

25	2	QC1	CCV	0.0987/0.10	1.0000	1.0000 = 99·1·
26	7	QC2	CCB	-0.0007	1.0000	1.0000
27	18	S	DQLKQ	0.0002	1.0000	1.0000
28	19	S	DQJ2E	0.0096	0.0200	1.0000
29	20	S	DQJ2P	0.0054	0.0200	1.0000
30	21	S	DQJ2L	0.0166	0.0200	1.0000
31	22	S	DQJ2L MS	1.8119/2.00	0.0200	1.0000
32	23	S	DQJ2L MSD	1.8820	0.0200	1.0000
33	24	S	DQJ2K	0.0409	0.0200	1.0000
34	25	S	MDL #1 0.005 PPM	0.0037	1.0000	1.0000
35	26	S	MDL #2 0.005 PPM	0.0042	1.0000	1.0000
36	2	QC1	CCV	0.0992/0.10	1.0000	1.0000 99·1·
37	7	QC2	CCB	0.0001	1.0000	1.0000
38	27	S	MDL #3 0.005 PPM	0.0053	1.0000	1.0000
39	28	S	MDL #4 0.005 PPM	0.0041	1.0000	1.0000
40	29	S	MDL #5 0.005 PPM	0.0046	1.0000	1.0000
41	30	S	MDL #6 0.005 PPM	0.0049	1.0000	1.0000
42	31	S	MDL #7 0.005 PPM	0.0048	1.0000	1.0000
43	32	S	DP5JD Reanalyzed from 11/29	-0.0000 12.4.00	1.0000	1.0000
44	5	QC10	.01	0.0101/0.1	1.0000	1.0000
45	2	QC1	CCV	0.0979/0.1	1.0000	1.0000 98·1·
46	7	QC2	CCB	0.0009	1.0000	1.0000
47	2	D	Drift	0.0990	1.0000	1.0000
48	0	B	FinalBase	-0.0007	1.0000	1.0000

QC Limits

Channel :	1
QC 1	Unused
QC 2	Unused
QC 3	Unused
QC 4	Unused
QC 5	Unused
QC 6	Unused
QC 7	Unused
QC 8	Unused
QC 9	Unused
QC10	Unused

CORRECTIONS

Channel :	1
Baseline :	Yes
Drift :	Yes
Carry over :	Yes
%:	2.0

---

* ... Sample offscale

+ ... Result higher than sample limit
- ... Result lower than sample limit
P ... Standard passed
F ... Standard failed
N ... Value not calculated or not used
R ... Resample after offscale
M ... Peak marker moved manually
D ... Diluted sample

** <END OF REPORT> **

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

PHIL-14962

TO: **TERRY HANSEN** **DATE: FEBRUARY 16, 2001**

FROM: **JAMES LUCCHESE** **COPIES: DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOA/SVOA/OPEST/PEST/PCB/HERB**
CTO 094 NS MAYPORT
SDG MP029

SAMPLES: 1/Aqueous

TRIP BLANK

4/Soil

MPT-AC-SS03-01	MPT-AC-SU03-04
MPT-AC-SS04-01	MPT-AC-SU04-04

OVERVIEW

The sample set for CTO 094, SDG MP029, NS Mayport consists of one (1) trip blank and four (4) soil environmental samples. The samples were analyzed for Appendix IX List volatile, semivolatile, organophosphorus pesticide, herbicide, and pesticide/PCB organic compounds. The trip blank was analyzed for volatile organic compounds only.

The samples were collected on November 28, 2000 and analyzed by Severn Trent Laboratory. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW 846 Method 8260B, 8270C, 8141A, 8151A, and 8081A/8082 analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

	• Data completeness
*	• Holding times
*	• GC/MS tuning and system performance
	• Initial/continuing calibrations
	• Laboratory method and field quality control (QC) blank results
	• Surrogate spike recoveries
	• Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
	• Laboratory Control Sample (LCS/LCSD) Results
*	• Internal Standard Performance
*	• Compound Identification
*	• Compound Quantitation
*	• Detection Limits

The symbol (*) indicates that all QC criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A.

APPENDIX A
Qualified Analytical Results

Qualifier Codes:

a	=	Lab Blank Contamination
b	=	Field Blank Contamination
c	=	Calibration (i.e., %RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
d	=	MS/MSD Noncompliance
e	=	LCS/LCSD Noncompliance
f	=	Lab Duplicate Imprecision
g	=	Field Duplicate Imprecision
h	=	Holding Time Exceedance
i	=	ICP Serial Dilution Noncompliance
j	=	GFAA PDS – GFAA MSA's r < 0.995
k	=	ICP Interference – include ICSAB %R's
l	=	Instrument Calibration Range Exceedance
m	=	Sample Preservation
n	=	Internal Standard Noncompliance
o	=	Poor Instrument Performance (i.e., baseline drifting)
p	=	Uncertainty Near Detection Limit (< 2 x IDL for inorganics and < CRQL for organics)
q	=	Other Problems (can encompass a number of issues)
r	=	Surrogates Recovery Noncompliance
s	=	Pesticide/PCB Resolution
t	=	% Breakdown Noncompliance for DDT and Endrin
u	=	Pesticide/PCB % Difference Between Columns for Positive Results
v	=	Non-linear Calibrations, Tuning r < 0.995 (correlation coefficient)

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	TB112800		
SAMPLE DATE:	11/28/00	/ /	/ /	/ /
LABORATORY ID:	A0K300112005		
QC_TYPE:	TRIP BLANK		
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L		
FIELD DUPLICATE OF:			

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	1	U										
1,1,1-TRICHLOROETHANE	1	U										
1,1,2,2-TETRACHLOROETHANE	1	U										
1,1,2-TRICHLOROETHANE	1	U										
1,1-DICHLOROETHANE	1	U										
1,1-DICHLOROETHENE	1	U										
1,2,3-TRICHLOROPROPANE	1	U										
1,2-DIBROMO-3-CHLOROPROPANE	1	U										
1,2-DIBROMOETHANE	1	U										
1,2-DICHLOROETHANE	1	U										
1,2-DICHLOROETHENE (TOTAL)	1	U										
1,2-DICHLOROPROPANE	1	U										
2-BUTANONE	10	U										
2-CHLOROETHYL VINYL ETHER	1	U										
2-HEXANONE	10	U										
4-METHYL-2-PENTANONE	10	U										
ACETONE	1.6	J	CP									
ACETONITRILE	20	UR	C									
ACROLEIN	10	UR	C									
ACRYLONITRILE	10	U										
ALLYL CHLORIDE	1	U										
BENZENE	1	U										
BROMODICHLOROMETHANE	1	U										
BROMOFORM	1	U										
BROMOMETHANE	2	U										
CARBON DISULFIDE	1	U										
CARBON TETRACHLORIDE	1	U										
CHLOROBENZENE	1	U										
CHLOROETHANE	1	U										
CHLOROFORM	1	U										
CHLOROMETHANE	1	U										
CHLOROPRENE	1	U										
CIS-1,2-DICHLOROETHENE	0.5	U										

CTO094-NS MAYPORT
WATER DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	TB112800			
SAMPLE DATE:	11/28/00	/ /	/ /	/ /
LABORATORY ID:	A0K300112005			
QC_TYPE:	TRIP BLANK			
% SOLIDS:	0.0 %	100.0 %	100.0 %	100.0 %
UNITS:	UG/L			
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
CIS-1,3-DICHLOROPROPENE	1	U										
DIBROMOCHLOROMETHANE	1	U										
DIBROMOMETHANE	1	U										
DICHLORODIFLUOROMETHANE	1	UJ	C									
ETHYL METHACRYLATE	1	U										
ETHYLBENZENE	1	U										
IODOMETHANE	1	U										
ISOBUTYL ALCOHOL	50	U										
METHACRYLONITRILE	1	U										
METHYL METHACRYLATE	1	U										
METHYL TERT-BUTYL ETHER	5	U										
METHYLENE CHLORIDE	1	U										
PROPIONITRILE	4	U										
STYRENE	1	U										
TETRACHLOROETHENE	1	U										
TOLUENE	0.23	J	P									
TRANS-1,2-DICHLOROETHENE	0.5	U										
TRANS-1,3-DICHLOROPROPENE	1	U										
TRANS-1,4-DICHLORO-2-BUTENE	1	U										
TRICHLOROETHENE	1	U										
TRICHLOROFLUOROMETHANE	2	UJ	C									
VINYL ACETATE	1	U										
VINYL CHLORIDE	1	U										
XYLENES, TOTAL	1	U										

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01	MPT-AC-SS04-01	MPT-AC-SU03-04	MPT-AC-SU04-04
SAMPLE DATE:	11/28/00	11/28/00	11/28/00	11/28/00
LABORATORY ID:	A0K300112001	A0K300112003	A0K300112002	A0K300112004
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	90.7 %	93.3 %	89.0 %	78.0 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1,2-TETRACHLOROETHANE	6.8	UJ	C	6.5	UJ	C	6.2	UJ	C	7.1	UJ	C
1,1,1-TRICHLOROETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,1,2,2-TETRACHLOROETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,1,2-TRICHLOROETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,1-DICHLOROETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,1-DICHLOROETHENE	6.8	U		6.5	U		6.2	U		7.1	U	
1,2,3-TRICHLOROPROPANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	14	U		13	U		12	U		14	U	
1,2-DIBROMOETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,2-DICHLOROETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
1,2-DICHLOROETHENE (TOTAL)	6.8	U		6.5	U		6.2	U		7.1	U	
1,2-DICHLOROPROPANE	6.8	U		6.5	U		6.2	U		7.1	U	
2-BUTANONE	27	U		26	U		25	U		28	U	
2-CHLOROETHYL VINYL ETHER	68	U		65	U		62	U		71	U	
2-HEXANONE	27	U		26	U		25	U		28	U	
4-METHYL-2-PENTANONE	27	U		26	U		25	U		28	U	
ACETONE	27	U		26	U		25	U		28	U	B
ACETONITRILE	140	UR	C	130	UR	C	120	UR	C	140	UR	C
ACROLEIN	140	UR	C	130	UR	C	120	UR	C	140	UR	C
ACRYLONITRILE	140	U		130	U		120	U		140	U	
ALLYL CHLORIDE	14	U		13	U		12	U		14	U	
BENZENE	6.8	U		6.5	U		6.2	U		7.1	U	
BROMODICHLOROMETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
BROMOFORM	6.8	U		6.5	U		6.2	U		7.1	U	
BROMOMETHANE	14	U		13	U		12	U		14	U	
CARBON DISULFIDE	6.8	U		6.5	U		6.2	U		7.1	U	
CARBON TETRACHLORIDE	6.8	U		6.5	U		6.2	U		7.1	U	
CHLOROBENZENE	6.8	U		6.5	U		6.2	U		7.1	U	
CHLOROETHANE	14	U		13	U		12	U		14	U	
CHLOROFORM	6.8	U		6.5	U		6.2	U		7.1	U	
CHLOROMETHANE	14	U		13	U		12	U		14	U	
CHLOROPRENE	6.8	UJ	C	6.5	UJ	C	6.2	UJ	C	7.1	UJ	C
CIS-1,2-DICHLOROETHENE	3.4	U		3.2	U		3.1	U		3.5	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
VOLATILES												
CIS-1,3-DICHLOROPROPENE	6.8	U		6.5	U		6.2	U		7.1	U	
DIBROMOCHLOROMETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
DIBROMOMETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
DICHLORODIFLUOROMETHANE	14	U		13	U		12	U		14	U	
ETHYL METHACRYLATE	6.8	U		6.5	U		6.2	U		7.1	U	
ETHYLBENZENE	6.8	U		6.5	U		6.2	U		7.1	U	
IODOMETHANE	6.8	U		6.5	U		6.2	U		7.1	U	
ISOBUTYL ALCOHOL	270	UR	C	260	UR	C	250	UR	C	280	UR	C
METHACRYLONITRILE	6.8	U		6.5	U		6.2	U		7.1	U	
METHYL METHACRYLATE	6.8	U		6.5	U		6.2	U		7.1	U	
METHYL TERT-BUTYL ETHER	27	U		26	U		25	U		28	U	
METHYLENE CHLORIDE	4.5	J	AP	4.6	J	AP	3.8	J	AP	3.8	J	AP
PROPIONITRILE	27	U		26	U		25	U		28	U	
STYRENE	6.8	U		6.5	U		6.2	U		7.1	U	
TETRACHLOROETHENE	6.8	U		6.5	U		6.2	U		7.1	U	
TOLUENE	6.8	U		6.5	U		6.2	U		7.1	U	
TRANS-1,2-DICHLOROETHENE	3.4	U		3.2	U		3.1	U		3.5	U	
TRANS-1,3-DICHLOROPROPENE	6.8	U		6.5	U		6.2	U		7.1	U	
TRANS-1,4-DICHLORO-2-BUTENE	6.8	U		6.5	U		6.2	U		7.1	U	
TRICHLOROETHENE	6.8	U		6.5	U		6.2	U		7.1	U	
TRICHLOROFLUOROMETHANE	14	U		13	U		12	U		14	U	
VINYL ACETATE	14	U		13	U		12	U		14	U	
VINYL CHLORIDE	14	U		13	U		12	U		14	U	
XYLENES, TOTAL	6.8	U		6.5	U		6.2	U		7.1	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
1,2,4,5-TETRACHLOROBENZENE	360	U		350	U		370	U		430	U	
1,2,4-TRICHLOROBENZENE	360	U		350	U		370	U		430	U	
1,2-DICHLOROBENZENE	360	U		350	U		370	U		430	U	
1,3,5-TRINITROBENZENE	1800	U		1700	U		1800	U		2100	U	
1,3-DICHLOROBENZENE	360	U		350	U		370	U		430	U	
1,3-DINITROBENZENE	360	U		350	U		370	U		430	U	
1,4-DICHLOROBENZENE	360	U		350	U		370	U		430	U	
1,4-DIOXANE	360	UJ	C	350	UJ	C	370	UJ	C	430	UJ	C
1,4-NAPHTHOQUINONE	1800	U		1700	U		1800	U		2100	U	
1-NAPHTHYLAMINE	360	U		350	U		370	U		430	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	360	U		350	U		370	U		430	U	
2,3,4,6-TETRACHLOROPHENOL	1800	U		1700	U		1800	U		2100	U	
2,4,5-TRICHLOROPHENOL	360	U		350	U		370	U		430	U	
2,4,6-TRICHLOROPHENOL	360	U		350	U		370	U		430	U	
2,4-DICHLOROPHENOL	360	U		350	U		370	U		430	U	
2,4-DIMETHYLPHENOL	360	U		350	U		370	U		430	U	
2,4-DINITROPHENOL	1800	U		1700	U		1800	U		2100	U	
2,4-DINITROTOLUENE	360	U		350	U		370	U		430	U	
2,6-DICHLOROPHENOL	360	U		350	U		370	U		430	U	
2,6-DINITROTOLUENE	360	U		350	U		370	U		430	U	
2-ACETYLAMINOFLUORENE	3600	U		3500	U		3700	U		4300	U	
2-CHLORONAPHTHALENE	360	U		350	U		370	U		430	U	
2-CHLOROPHENOL	360	U		350	U		370	U		430	U	
2-METHYLNAPHTHALENE	360	U		350	U		370	U		430	U	
2-METHYLPHENOL	360	U		350	U		370	U		430	U	
2-NAPHTHYLAMINE	360	U		350	U		370	U		430	U	
2-NITROANILINE	1800	U		1700	U		1800	U		2100	U	
2-NITROPHENOL	360	U		350	U		370	U		430	U	
2-PICOLINE	730	U		710	U		740	U		850	U	
2-SEC-BUTYL-4,6-DINITROPHENOL	730	U		710	U		740	U		850	U	
3,3'-DICHLOROBENZIDINE	1800	U		1700	U		1800	U		2100	U	
3,3'-DIMETHYLBENZIDINE	1800	UJ	C	1700	UJ	C	1800	UJ	C	2100	UJ	C
3-METHYLCHOLANTHRENE	730	U		710	U		740	U		850	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
3-METHYLPHENOL	360	U		350	U		370	U		430	U	
3-NITROANILINE	1800	U		1700	U		1800	U		2100	U	
4,6-DINITRO-2-METHYLPHENOL	1800	U		1700	U		1800	U		2100	U	
4-AMINOBIPHENYL	1800	U		1700	U		1800	U		2100	U	
4-BROMOPHENYL PHENYL ETHER	360	U		350	U		370	U		430	U	
4-CHLORO-3-METHYLPHENOL	360	U		350	U		370	U		430	U	
4-CHLOROANILINE	360	U		350	U		370	U		430	U	
4-CHLOROPHENYL PHENYL ETHER	360	U		350	U		370	U		430	U	
4-METHYLPHENOL	360	U		350	U		370	U		430	U	
4-NITROANILINE	1800	U		1700	U		1800	U		2100	U	
4-NITROPHENOL	1800	U		1700	U		1800	U		2100	U	
4-NITROQUINOLINE-1-OXIDE	3600	U		3500	U		3700	U		4300	U	
5-NITRO-O-TOLUIDINE	730	U		710	U		740	U		850	U	
7,12-DIMETHYLBENZ(A)ANTHRACENE	730	U		710	U		740	U		850	U	
A,A-DIMETHYLPHENETHYLAMINE	1800	UJ	C	1700	UJ	C	1800	UJ	C	2100	UJ	C
ACENAPHTHENE	360	U		350	U		370	U		430	U	
ACENAPHTHYLENE	360	U		350	U		370	U		430	U	
ACETOPHENONE	360	U		350	U		370	U		430	U	
ANILINE	360	U		350	U		370	U		430	U	
ANTHRACENE	360	U		350	U		370	U		430	U	
ARAMITE	730	U		710	U		740	U		850	U	
BENZO(A)ANTHRACENE	360	U		350	U		370	U		430	U	
BENZO(A)PYRENE	360	U		350	U		370	U		430	U	
BENZO(B)FLUORANTHENE	360	U		350	U		370	U		430	U	
BENZO(G,H,I)PERYLENE	360	U		350	U		370	U		430	U	
BENZO(K)FLUORANTHENE	360	U		350	U		370	U		430	U	
BENZYL ALCOHOL	360	U		350	U		370	U		430	U	
BIS(2-CHLOROETHOXY)METHANE	360	U		350	U		370	U		430	U	
BIS(2-CHLOROETHYL)ETHER	360	U		350	U		370	U		430	U	
BIS(2-ETHYLHEXYL)PHTHALATE	360	U		350	U		370	U		430	U	
BUTYLBENZYL PHTHALATE	360	U		350	U		370	U		430	U	
CARBAZOLE	360	U		350	U		370	U		430	U	
CHLOROBENZILATE	360	U		350	U		370	U		430	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
CHRYSENE	360	U		350	U		370	U		430	U	
DI-N-BUTYL PHTHALATE	360	U		350	U		370	U		430	U	
DI-N-OCTYL PHTHALATE	360	U		350	U		370	U		430	U	
DIALLATE	730	U		710	U		740	U		850	U	
DIBENZO(A,H)ANTHRACENE	360	U		350	U		370	U		430	U	
DIBENZOFURAN	360	U		350	U		370	U		430	U	
DIETHYL PHTHALATE	360	U		350	U		370	U		430	U	
DIMETHYL PHTHALATE	360	U		350	U		370	U		430	U	
DIPHENYLAMINE	360	U		350	U		370	U		430	U	
ETHYL METHANESULFONATE	360	U		350	U		370	U		430	U	
FLUORANTHENE	360	U		350	U		370	U		430	U	
FLUORENE	360	U		350	U		370	U		430	U	
HEXACHLOROBENZENE	360	U		350	U		370	U		430	U	
HEXACHLOROBUTADIENE	360	U		350	U		370	U		430	U	
HEXACHLOROCYCLOPENTADIENE	1800	U		1700	U		1800	U		2100	U	
HEXACHLOROETHANE	360	U		350	U		370	U		430	U	
HEXACHLOROPROPENE	3600	U		3500	U		3700	U		4300	U	
INDENO(1,2,3-CD)PYRENE	360	U		350	U		370	U		430	U	
ISOPHORONE	360	U		350	U		370	U		430	U	
ISOSAFROLE	730	U		710	U		740	U		850	U	
METHAPYRILENE	1800	UJ	C	1700	UJ	C	1800	UJ	C	2100	UJ	C
METHYL METHANESULFONATE	360	U		350	U		370	U		430	U	
N-NITROSO-DI-N-BUTYLAMINE	360	U		350	U		370	U		430	U	
N-NITROSO-DI-N-PROPYLAMINE	360	U		350	U		370	U		430	U	
N-NITROSODIETHYLAMINE	360	U		350	U		370	U		430	U	
N-NITROSODIMETHYLAMINE	360	U		350	U		370	U		430	U	
N-NITROSODIPHENYLAMINE	360	U		350	U		370	U		430	U	
N-NITROSOMETHYLETHYLAMINE	360	U		350	U		370	U		430	U	
N-NITROSOMORPHOLINE	360	U		350	U		370	U		430	U	
N-NITROSOPIPERIDINE	360	U		350	U		370	U		430	U	
N-NITROSOPYRROLIDINE	360	U		350	U		370	U		430	U	
NAPHTHALENE	360	U		350	U		370	U		430	U	
NITROBENZENE	360	U		350	U		370	U		430	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SU03-04			MPT-AC-SU04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
SEMIVOLATILES												
O-TOLUIDINE	730	U		710	U		740	U		850	U	
P-DIMETHYLAMINOAZOBENZENE	730	U		710	U		740	U		850	U	
P-PHENYLENEDIAMINE	3600	U		3500	U		3700	U		4300	U	
PENTACHLOROBENZENE	360	U		350	U		370	U		430	U	
PENTACHLOROETHANE	1800	U		1700	U		1800	U		2100	U	
PENTACHLORONITROBENZENE	1800	U		1700	U		1800	U		2100	U	
PENTACHLOROPHENOL	1800	U		1700	U		1800	U		2100	U	
PHENACETIN	730	U		710	U		740	U		850	U	
PHENANTHRENE	360	U		350	U		370	U		430	U	
PHENOL	360	U		350	U		370	U		430	U	
PRONAMIDE	730	U		710	U		740	U		850	U	
PYRENE	360	U		350	U		370	U		430	U	
PYRIDINE	730	U		710	U		740	U		850	U	
SAFROLE	730	U		710	U		740	U		850	U	
SULFOTEPP	1800	U		1700	U		1800	U		2100	U	
THIONAZIN	1800	U		1700	U		1800	U		2100	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01	MPT-AC-SS04-01	MPT-AC-SU03-04	MPT-AC-SU04-04
SAMPLE DATE:	11/28/00	11/28/00	11/28/00	11/28/00
LABORATORY ID:	A0K300112001	A0K300112003	A0K300112002	A0K300112004
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	90.7 %	93.3 %	89.0 %	78.0 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PESTICIDES/PCBs												
4,4'-DDD	1.9	U		1.8	U		1.9	U		2.2	U	
4,4'-DDE	1.9	U		1.8	U		1.9	U		2.2	U	
4,4'-DDT	1.9	U		1.8	U		1.9	U		2.2	U	
ALDRIN	1.9	U		1.8	U		1.9	U		2.2	U	
ALPHA-BHC	1.9	U		1.8	U		1.9	U		2.2	U	
ALPHA-CHLORDANE	1.9	U		1.8	U		1.9	U		2.2	U	
AROCLOR-1016	36	U		35	U		37	U		43	U	
AROCLOR-1221	36	U		35	U		37	U		43	U	
AROCLOR-1232	36	U		35	U		37	U		43	U	
AROCLOR-1242	36	U		35	U		37	U		43	U	
AROCLOR-1248	36	U		35	U		37	U		43	U	
AROCLOR-1254	36	U		35	U		37	U		43	U	
AROCLOR-1260	36	U		35	U		37	U		43	U	
BETA-BHC	1.9	U		1.8	U		1.9	U		2.2	U	
DELTA-BHC	1.9	U		1.8	U		1.9	U		2.2	U	
DIELDRIN	1.9	U		1.8	U		1.9	U		2.2	U	
ENDOSULFAN I	1.9	U		1.8	U		1.9	U		2.2	U	
ENDOSULFAN II	1.9	U		1.8	U		1.9	U		2.2	U	
ENDOSULFAN SULFATE	1.9	U		1.8	U		1.9	U		2.2	U	
ENDRIN	1.9	U		1.8	U		1.9	U		2.2	U	
ENDRIN ALDEHYDE	1.9	U		1.8	U		1.9	U		2.2	U	
ENDRIN KETONE	1.9	U		1.8	U		1.9	U		2.2	U	
GAMMA-BHC (LINDANE)	1.9	U		1.8	U		1.9	U		2.2	U	
GAMMA-CHLORDANE	1.9	U		1.8	U		1.9	U		2.2	U	
HEPTACHLOR	1.9	U		1.8	U		1.9	U		2.2	U	
HEPTACHLOR EPOXIDE	1.9	U		1.8	U		1.9	U		2.2	U	
ISODRIN	3.6	U		3.5	U		3.7	U		4.3	U	
KEPONE	36	UJ	C	35	UJ	C	37	UJ	C	43	UJ	C
METHOXYCHLOR	3.6	U		3.5	U		3.7	U		4.3	U	
TOXAPHENE	74	U		72	U		75	U		86	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01			MPT-AC-SS04-01			MPT-AC-SV03-04			MPT-AC-SV04-04		
SAMPLE DATE:	11/28/00			11/28/00			11/28/00			11/28/00		
LABORATORY ID:	A0K300112001			A0K300112003			A0K300112002			A0K300112004		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	90.7 %			93.3 %			89.0 %			78.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**	**RESULT**	**QUAL**	**CODE**
HERBICIDES												
2,4,5-T	22	U		21	U		23	U		26	U	
2,4,5-TP (SILVEX)	22	U		21	U		23	U		26	U	
2,4-D	88	U		86	U		90	U		100	U	
DINOSEB	13	U		13	U		14	U		15	U	

CTO094-NS MAYPORT
SOIL DATA
QUANTERRA
SDG: MP029

SAMPLE NUMBER:	MPT-AC-SS03-01	MPT-AC-SS04-01	MPT-AC-SV03-04	MPT-AC-SV04-04
SAMPLE DATE:	11/28/00	11/28/00	11/28/00	11/28/00
LABORATORY ID:	A0K300112001	A0K300112003	A0K300112002	A0K300112004
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	90.7 %	93.3 %	89.0 %	78.0 %
UNITS:	UG/KG	UG/KG	UG/KG	UG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
ORGANOPHOSPHORUS PESTICIDES												
DIMETHOATE	1800	U		35	U		10	J	P	43	U	
DISULFOTON	1800	U		35	U		37	U		43	U	
FAMPHUR	1800	U		35	U		37	U		43	U	
METHYL PARATHION	1800	U		35	U		37	U		43	U	
PARATHION	1800	U		35	U		37	U		43	U	
PHORATE	1800	U		35	U		37	U		43	U	
THIONAZIN	1800	U		35	U		37	U		43	U	
PESTICIDES/PCBs												
O,O,O-TRIETHYL PHOSPHOROTHIOATE	1800	U		35	U		37	U		43	U	
SULFOTEPP	1800	U		35	U		37	U		43	U	

APPENDIX B
Results as reported by the Laboratory

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) WQ Lab Sample ID:A0K300112 005
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/29/00
Work Order: DQJ2Q1AA Date Extracted:12/01/00
Dilution factor: 1 Date Analyzed: 12/01/00
Moisture %:

QC Batch: 0339124

Client Sample Id: TRIP BLANK

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
67-64-1	Acetone	1.6	J
75-05-8	Acetonitrile	20	U
107-02-8	Acrolein	10	U
107-13-1	Acrylonitrile	10	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	2.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
126-99-8	Chloroprene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
107-05-1	Allyl chloride	1.0	U
74-95-3	Dibromomethane	1.0	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
540-59-0	1,2-Dichloroethene (total)	1.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) WQ Lab Sample ID:A0K300112 005
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/29/00
Work Order: DQJ2Q1AA Date Extracted:12/01/00
Dilution factor: 1 Date Analyzed: 12/01/00
Moisture %:

QC Batch: 0339124

Client Sample Id: TRIP BLANK

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
97-63-2	Ethyl methacrylate	1.0	U
75-69-4	Trichlorofluoromethane	2.0	U
591-78-6	2-Hexanone	10	U
74-88-4	Iodomethane	1.0	U
78-83-1	Isobutyl alcohol	50	U
126-98-7	Methacrylonitrile	1.0	U
75-09-2	Methylene chloride	1.0	U
80-62-6	Methyl methacrylate	1.0	U
107-12-0	Propionitrile	4.0	U
100-42-5	Styrene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.23	J
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
108-05-4	Vinyl acetate	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes (total)	1.0	U
106-93-4	1,2-Dibromoethane (EDB)	1.0	U
78-93-3	2-Butanone (MEK)	10	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) WQ Lab Sample ID:A0K300112 005
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / mL Date Received: 11/29/00
Work Order: DQJ2Q1AA Date Extracted:12/01/00
Dilution factor: 1 Date Analyzed: 12/01/00
Moisture %:

QC Batch: 0339124

Client Sample Id: TRIP BLANK

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
1634-04-4	Methyl tert-butyl ether (MTB	5.0	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2E1AA Date Extracted:12/04/00
Dilution factor: 1.24 Date Analyzed: 12/04/00
Moisture %:9.3

QC Batch: 0340103

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	27	U
75-05-8	Acetonitrile	140	U
107-02-8	Acrolein	140	U
107-13-1	Acrylonitrile	140	U
71-43-2	Benzene	6.8	U
75-27-4	Bromodichloromethane	6.8	U
75-25-2	Bromoform	6.8	U
74-83-9	Bromomethane	14	U
75-15-0	Carbon disulfide	6.8	U
56-23-5	Carbon tetrachloride	6.8	U
108-90-7	Chlorobenzene	6.8	U
126-99-8	Chloroprene	6.8	U
124-48-1	Dibromochloromethane	6.8	U
96-12-8	1,2-Dibromo-3-chloropropane	14	U
75-00-3	Chloroethane	14	U
110-75-8	2-Chloroethyl vinyl ether	68	U
67-66-3	Chloroform	6.8	U
74-87-3	Chloromethane	14	U
107-05-1	Allyl chloride	14	U
74-95-3	Dibromomethane	6.8	U
110-57-6	trans-1,4-Dichloro-2-butene	6.8	U
75-71-8	Dichlorodifluoromethane	14	U
75-34-3	1,1-Dichloroethane	6.8	U
107-06-2	1,2-Dichloroethane	6.8	U
75-35-4	1,1-Dichloroethene	6.8	U
156-59-2	cis-1,2-Dichloroethene	3.4	U
156-60-5	trans-1,2-Dichloroethene	3.4	U
540-59-0	1,2-Dichloroethene (total)	6.8	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2E1AA Date Extracted:12/04/00
Dilution factor: 1.24 Date Analyzed: 12/04/00
Moisture %:9.3

QC Batch: 0340103

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
78-87-5	1,2-Dichloropropane	6.8	U
10061-01-5	cis-1,3-Dichloropropene	6.8	U
10061-02-6	trans-1,3-Dichloropropene	6.8	U
100-41-4	Ethylbenzene	6.8	U
97-63-2	Ethyl methacrylate	6.8	U
75-69-4	Trichlorofluoromethane	14	U
591-78-6	2-Hexanone	27	U
74-88-4	Iodomethane	6.8	U
78-83-1	Isobutyl alcohol	270	U
126-98-7	Methacrylonitrile	6.8	U
75-09-2	**Methylene chloride**	**4.5**	**J**
80-62-6	Methyl methacrylate	6.8	U
107-12-0	Propionitrile	27	U
100-42-5	Styrene	6.8	U
630-20-6	1,1,1,2-Tetrachloroethane	6.8	U
79-34-5	1,1,2,2-Tetrachloroethane	6.8	U
127-18-4	Tetrachloroethene	6.8	U
108-88-3	Toluene	6.8	U
71-55-6	1,1,1-Trichloroethane	6.8	U
79-00-5	1,1,2-Trichloroethane	6.8	U
79-01-6	Trichloroethene	6.8	U
96-18-4	1,2,3-Trichloropropane	6.8	U
108-05-4	Vinyl acetate	14	U
75-01-4	Vinyl chloride	14	U
1330-20-7	Xylenes (total)	6.8	U
1634-04-4	Methyl tert-butyl ether	27	U
106-93-4	1,2-Dibromoethane (EDB)	6.8	U
78-93-3	2-Butanone (MEK)	27	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2E1AA Date Extracted:12/04/00
Dilution factor: 1.24 Date Analyzed: 12/04/00
Moisture %:9.3

QC Batch: 0340103

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-10-1	4-Methyl-2-pentanone (MIBK)	27	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2K1AM Date Extracted:12/04/00
Dilution factor: 1.11 Date Analyzed: 12/04/00
Moisture %:11

QC Batch: 0340103

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	25	U
75-05-8	Acetonitrile	120	U
107-02-8	Acrolein	120	U
107-13-1	Acrylonitrile	120	U
71-43-2	Benzene	6.2	U
75-27-4	Bromodichloromethane	6.2	U
75-25-2	Bromoform	6.2	U
74-83-9	Bromomethane	12	U
75-15-0	Carbon disulfide	6.2	U
56-23-5	Carbon tetrachloride	6.2	U
108-90-7	Chlorobenzene	6.2	U
126-99-8	Chloroprene	6.2	U
124-48-1	Dibromochloromethane	6.2	U
96-12-8	1,2-Dibromo-3-chloropropane	12	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl vinyl ether	62	U
67-66-3	Chloroform	6.2	U
74-87-3	Chloromethane	12	U
107-05-1	Allyl chloride	12	U
74-95-3	Dibromomethane	6.2	U
110-57-6	trans-1,4-Dichloro-2-butene	6.2	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6.2	U
107-06-2	1,2-Dichloroethane	6.2	U
75-35-4	1,1-Dichloroethene	6.2	U
156-59-2	cis-1,2-Dichloroethene	3.1	U
156-60-5	trans-1,2-Dichloroethene	3.1	U
540-59-0	1,2-Dichloroethene (total)	6.2	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2K1AM Date Extracted:12/04/00
Dilution factor: 1.11 Date Analyzed: 12/04/00
Moisture %:11

QC Batch: 0340103

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
78-87-5	1,2-Dichloropropane	6.2	U
10061-01-5	cis-1,3-Dichloropropene	6.2	U
10061-02-6	trans-1,3-Dichloropropene	6.2	U
100-41-4	Ethylbenzene	6.2	U
97-63-2	Ethyl methacrylate	6.2	U
75-69-4	Trichlorofluoromethane	12	U
591-78-6	2-Hexanone	25	U
74-88-4	Iodomethane	6.2	U
78-83-1	Isobutyl alcohol	250	U
126-98-7	Methacrylonitrile	6.2	U
75-09-2	Methylene chloride	3.8	J
80-62-6	Methyl methacrylate	6.2	U
107-12-0	Propionitrile	25	U
100-42-5	Styrene	6.2	U
630-20-6	1,1,1,2-Tetrachloroethane	6.2	U
79-34-5	1,1,2,2-Tetrachloroethane	6.2	U
127-18-4	Tetrachloroethene	6.2	U
108-88-3	Toluene	6.2	U
71-55-6	1,1,1-Trichloroethane	6.2	U
79-00-5	1,1,2-Trichloroethane	6.2	U
79-01-6	Trichloroethene	6.2	U
96-18-4	1,2,3-Trichloropropane	6.2	U
108-05-4	Vinyl acetate	12	U
75-01-4	Vinyl chloride	12	U
1330-20-7	Xylenes (total)	6.2	U
1634-04-4	Methyl tert-butyl ether	25	U
106-93-4	1,2-Dibromoethane (EDB)	6.2	U
78-93-3	2-Butanone (MEK)	25	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2K1AM Date Extracted:12/04/00
Dilution factor: 1.11 Date Analyzed: 12/04/00
Moisture %:11

QC Batch: 0340103

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-10-1	4-Methyl-2-pentanone (MIBK)	25	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2L1AM Date Extracted:12/04/00
Dilution factor: 1.21 Date Analyzed: 12/04/00
Moisture %:6.7

QC Batch: 0340103

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	26	U
75-05-8	Acetonitrile	130	U
107-02-8	Acrolein	130	U
107-13-1	Acrylonitrile	130	U
71-43-2	Benzene	6.5	U
75-27-4	Bromodichloromethane	6.5	U
75-25-2	Bromoform	6.5	U
74-83-9	Bromomethane	13	U
75-15-0	Carbon disulfide	6.5	U
56-23-5	Carbon tetrachloride	6.5	U
108-90-7	Chlorobenzene	6.5	U
126-99-8	Chloroprene	6.5	U
124-48-1	Dibromochloromethane	6.5	U
96-12-8	1,2-Dibromo-3-chloropropane	13	U
75-00-3	Chloroethane	13	U
110-75-8	2-Chloroethyl vinyl ether	65	U
67-66-3	Chloroform	6.5	U
74-87-3	Chloromethane	13	U
107-05-1	Allyl chloride	13	U
74-95-3	Dibromomethane	6.5	U
110-57-6	trans-1,4-Dichloro-2-butene	6.5	U
75-71-8	Dichlorodifluoromethane	13	U
75-34-3	1,1-Dichloroethane	6.5	U
107-06-2	1,2-Dichloroethane	6.5	U
75-35-4	1,1-Dichloroethene	6.5	U
156-59-2	cis-1,2-Dichloroethene	3.2	U
156-60-5	trans-1,2-Dichloroethene	3.2	U
540-59-0	1,2-Dichloroethene (total)	6.5	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2L1AM Date Extracted:12/04/00
Dilution factor: 1.21 Date Analyzed: 12/04/00
Moisture %:6.7

QC Batch: 0340103

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
78-87-5	1,2-Dichloropropane	6.5	U
10061-01-5	cis-1,3-Dichloropropene	6.5	U
10061-02-6	trans-1,3-Dichloropropene	6.5	U
100-41-4	Ethylbenzene	6.5	U
97-63-2	Ethyl methacrylate	6.5	U
75-69-4	Trichlorofluoromethane	13	U
591-78-6	2-Hexanone	26	U
74-88-4	Iodomethane	6.5	U
78-83-1	Isobutyl alcohol	260	U
126-98-7	Methacrylonitrile	6.5	U
75-09-2	Methylene chloride	4.6	J
80-62-6	Methyl methacrylate	6.5	U
107-12-0	Propionitrile	26	U
100-42-5	Styrene	6.5	U
630-20-6	1,1,1,2-Tetrachloroethane	6.5	U
79-34-5	1,1,2,2-Tetrachloroethane	6.5	U
127-18-4	Tetrachloroethene	6.5	U
108-88-3	Toluene	6.5	U
71-55-6	1,1,1-Trichloroethane	6.5	U
79-00-5	1,1,2-Trichloroethane	6.5	U
79-01-6	Trichloroethene	6.5	U
96-18-4	1,2,3-Trichloropropane	6.5	U
108-05-4	Vinyl acetate	13	U
75-01-4	Vinyl chloride	13	U
1330-20-7	Xylenes (total)	6.5	U
1634-04-4	Methyl tert-butyl ether	26	U
106-93-4	1,2-Dibromoethane (EDB)	6.5	U
78-93-3	2-Butanone (MEK)	26	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2L1AM Date Extracted:12/04/00
Dilution factor: 1.21 Date Analyzed: 12/04/00
Moisture %:6.7

QC Batch: 0340103

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-10-1	4-Methyl-2-pentanone (MIBK)	26	U

FORM I

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2P1AM Date Extracted:12/04/00
Dilution factor: 1.1 Date Analyzed: 12/04/00
Moisture %:22

QC Batch: 0340103

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
67-64-1	Acetone	3.8	J
75-05-8	Acetonitrile	140	U
107-02-8	Acrolein	140	U
107-13-1	Acrylonitrile	140	U
71-43-2	Benzene	7.1	U
75-27-4	Bromodichloromethane	7.1	U
75-25-2	Bromoform	7.1	U
74-83-9	Bromomethane	14	U
75-15-0	Carbon disulfide	7.1	U
56-23-5	Carbon tetrachloride	7.1	U
108-90-7	Chlorobenzene	7.1	U
126-99-8	Chloroprene	7.1	U
124-48-1	Dibromochloromethane	7.1	U
96-12-8	1,2-Dibromo-3-chloropropane	14	U
75-00-3	Chloroethane	14	U
110-75-8	2-Chloroethyl vinyl ether	71	U
67-66-3	Chloroform	7.1	U
74-87-3	Chloromethane	14	U
107-05-1	Allyl chloride	14	U
74-95-3	Dibromomethane	7.1	U
110-57-6	trans-1,4-Dichloro-2-butene	7.1	U
75-71-8	Dichlorodifluoromethane	14	U
75-34-3	1,1-Dichloroethane	7.1	U
107-06-2	1,2-Dichloroethane	7.1	U
75-35-4	1,1-Dichloroethene	7.1	U
156-59-2	cis-1,2-Dichloroethene	3.5	U
156-60-5	trans-1,2-Dichloroethene	3.5	U
540-59-0	1,2-Dichloroethene (total)	7.1	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2P1AM Date Extracted:12/04/00
Dilution factor: 1.1 Date Analyzed: 12/04/00
Moisture %:22

QC Batch: 0340103

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
78-87-5	1,2-Dichloropropane	7.1	U
10061-01-5	cis-1,3-Dichloropropene	7.1	U
10061-02-6	trans-1,3-Dichloropropene	7.1	U
100-41-4	Ethylbenzene	7.1	U
97-63-2	Ethyl methacrylate	7.1	U
75-69-4	Trichlorofluoromethane	14	U
591-78-6	2-Hexanone	28	U
74-88-4	Iodomethane	7.1	U
78-83-1	Isobutyl alcohol	280	U
126-98-7	Methacrylonitrile	7.1	U
75-09-2	Methylene chloride	3.8	J
80-62-6	Methyl methacrylate	7.1	U
107-12-0	Propionitrile	28	U
100-42-5	Styrene	7.1	U
630-20-6	1,1,1,2-Tetrachloroethane	7.1	U
79-34-5	1,1,2,2-Tetrachloroethane	7.1	U
127-18-4	Tetrachloroethene	7.1	U
108-88-3	Toluene	7.1	U
71-55-6	1,1,1-Trichloroethane	7.1	U
79-00-5	1,1,2-Trichloroethane	7.1	U
79-01-6	Trichloroethene	7.1	U
96-18-4	1,2,3-Trichloropropane	7.1	U
108-05-4	Vinyl acetate	14	U
75-01-4	Vinyl chloride	14	U
1330-20-7	Xylenes (total)	7.1	U
1634-04-4	Methyl tert-butyl ether	28	U
106-93-4	1,2-Dibromoethane (EDB)	7.1	U
78-93-3	2-Butanone (MEK)	28	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8260B
Volatile Organics, GC/MS (8260B)

Sample WT/Vol: 5 / g Date Received: 11/29/00
Work Order: DQJ2P1AM Date Extracted:12/04/00
Dilution factor: 1.1 Date Analyzed: 12/04/00
Moisture %:22

QC Batch: 0340103

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
108-10-1	4-Methyl-2-pentanone (MIBK)	28	U

FORM I

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.13 / g Date Received: 11/29/00
Work Order: DQJ2E1A8 Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:9.3

QC Batch: 0335236

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	360	U
208-96-8	Acenaphthylene	360	U
98-86-2	Acetophenone	360	U
53-96-3	2-Acetylaminofluorene	3600	U
92-67-1	4-Aminobiphenyl	1800	U
62-53-3	Aniline	360	U
120-12-7	Anthracene	360	U
56-55-3	Benzo(a)anthracene	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
191-24-2	Benzo(ghi)perylene	360	U
50-32-8	Benzo(a)pyrene	360	U
100-51-6	Benzyl alcohol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
111-44-4	bis(2-Chloroethyl) ether	360	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	360	U
117-81-7	bis(2-Ethylhexyl) phthalate	360	U
101-55-3	4-Bromophenyl phenyl ether	360	U
85-68-7	Butyl benzyl phthalate	360	U
106-47-8	4-Chloroaniline	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-58-7	2-Chloronaphthalene	360	U
95-57-8	2-Chlorophenol	360	U
7005-72-3	4-Chlorophenyl phenyl ether	360	U
218-01-9	Chrysene	360	U
2303-16-4	Diallate	730	U
53-70-3	Dibenz(a,h)anthracene	360	U
132-64-9	Dibenzofuran	360	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.13 / g Date Received: 11/29/00
Work Order: DQJ2E1A8 Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:9.3

QC Batch: 0335236

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
84-74-2	Di-n-butyl phthalate	360	U
95-50-1	1,2-Dichlorobenzene	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
91-94-1	3,3'-Dichlorobenzidine	1800	U
120-83-2	2,4-Dichlorophenol	360	U
87-65-0	2,6-Dichlorophenol	360	U
84-66-2	Diethyl phthalate	360	U
297-97-2	Thionazin	1800	U
60-11-7	p-Dimethylaminoazobenzene	730	U
57-97-6	7,12-Dimethylbenz(a)anthrace	730	U
119-93-7	3,3'-Dimethylbenzidine	1800	U
105-67-9	2,4-Dimethylphenol	360	U
131-11-3	Dimethyl phthalate	360	U
117-84-0	Di-n-octyl phthalate	360	U
99-65-0	1,3-Dinitrobenzene	360	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
51-28-5	2,4-Dinitrophenol	1800	U
121-14-2	2,4-Dinitrotoluene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	730	U
123-91-1	1,4-Dioxane	360	U
122-39-4	Diphenylamine	360	U
62-50-0	Ethyl methanesulfonate	360	U
206-44-0	Fluoranthene	360	U
86-73-7	Fluorene	360	U
118-74-1	Hexachlorobenzene	360	U
87-68-3	Hexachlorobutadiene	360	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.13 / g Date Received: 11/29/00
Work Order: DQJ2E1A8 Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:9.3

QC Batch: 0335236

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
77-47-4	Hexachlorocyclopentadiene	1800	U
67-72-1	Hexachloroethane	360	U
1888-71-7	Hexachloropropene	3600	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
78-59-1	Isophorone	360	U
120-58-1	Isosafrole	730	U
91-80-5	Methapyrilene	1800	U
95-53-4	o-Toluidine	730	U
56-49-5	3-Methylcholanthrene	730	U
66-27-3	Methyl methanesulfonate	360	U
91-57-6	2-Methylnaphthalene	360	U
95-48-7	2-Methylphenol	360	U
108-39-4	3-Methylphenol	360	U
106-44-5	4-Methylphenol	360	U
91-20-3	Naphthalene	360	U
130-15-4	1,4-Naphthoquinone	1800	U
134-32-7	1-Naphthylamine	360	U
91-59-8	2-Naphthylamine	360	U
88-74-4	2-Nitroaniline	1800	U
99-09-2	3-Nitroaniline	1800	U
100-01-6	4-Nitroaniline	1800	U
98-95-3	Nitrobenzene	360	U
88-75-5	2-Nitrophenol	360	U
100-02-7	4-Nitrophenol	1800	U
56-57-5	4-Nitroquinoline-1-oxide	3600	U
924-16-3	N-Nitrosodi-n-butylamine	360	U
55-18-5	N-Nitrosodiethylamine	360	U
62-75-9	N-Nitrosodimethylamine	360	U

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.13 / g Date Received: 11/29/00
Work Order: DQJ2E1A8 Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:9.3

QC Batch: 0335236

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
621-64-7	N-Nitrosodi-n-propylamine	360	U
86-30-6	N-Nitrosodiphenylamine	360	U
10595-95-6	N-Nitrosomethylethylamine	360	U
59-89-2	N-Nitrosomorpholine	360	U
100-75-4	N-Nitrosopiperidine	360	U
930-55-2	N-Nitrosopyrrolidine	360	U
99-55-8	5-Nitro-o-toluidine	730	U
608-93-5	Pentachlorobenzene	360	U
76-01-7	Pentachloroethane	1800	U
82-68-8	Pentachloronitrobenzene	1800	U
87-86-5	Pentachlorophenol	1800	U
62-44-2	Phenacetin	730	U
85-01-8	Phenanthrene	360	U
108-95-2	Phenol	360	U
106-50-3	p-Phenylene diamine	3600	U
109-06-8	2-Picoline	730	U
23950-58-5	Pronamide	730	U
129-00-0	Pyrene	360	U
110-86-1	Pyridine	730	U
94-59-7	Safrole	730	U
95-94-3	1,2,4,5-Tetrachlorobenzene	360	U
58-90-2	2,3,4,6-Tetrachlorophenol	1800	U
3689-24-5	Sulfotepp	1800	U
120-82-1	1,2,4-Trichlorobenzene	360	U
95-95-4	2,4,5-Trichlorophenol	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
99-35-4	1,3,5-Trinitrobenzene	1800	U
86-74-8	Carbazole	360	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.13 / g Date Received: 11/29/00
Work Order: DQJ2E1A8 Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:9.3

QC Batch: 0335236

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
510-15-6	Chlorobenzilate	360	U
122-09-8	a,a-Dimethylphenethylamine	1800	U
140-57-8	Aramite	730	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2K1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:11

QC Batch: 0335236

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	370	U
208-96-8	Acenaphthylene	370	U
98-86-2	Acetophenone	370	U
53-96-3	2-Acetylaminofluorene	3700	U
92-67-1	4-Aminobiphenyl	1800	U
62-53-3	Aniline	370	U
120-12-7	Anthracene	370	U
56-55-3	Benzo(a)anthracene	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
191-24-2	Benzo(ghi)perylene	370	U
50-32-8	Benzo(a)pyrene	370	U
100-51-6	Benzyl alcohol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
111-44-4	bis(2-Chloroethyl) ether	370	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	370	U
117-81-7	bis(2-Ethylhexyl) phthalate	370	U
101-55-3	4-Bromophenyl phenyl ether	370	U
85-68-7	Butyl benzyl phthalate	370	U
106-47-8	4-Chloroaniline	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-58-7	2-Chloronaphthalene	370	U
95-57-8	2-Chlorophenol	370	U
7005-72-3	4-Chlorophenyl phenyl ether	370	U
218-01-9	Chrysene	370	U
2303-16-4	Diallate	740	U
53-70-3	Dibenz(a,h)anthracene	370	U
132-64-9	Dibenzofuran	370	U

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2K1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:11

QC Batch: 0335236

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
84-74-2	Di-n-butyl phthalate	370	U
95-50-1	1,2-Dichlorobenzene	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
91-94-1	3,3'-Dichlorobenzidine	1800	U
120-83-2	2,4-Dichlorophenol	370	U
87-65-0	2,6-Dichlorophenol	370	U
84-66-2	Diethyl phthalate	370	U
297-97-2	Thionazin	1800	U
60-11-7	p-Dimethylaminoazobenzene	740	U
57-97-6	7,12-Dimethylbenz(a)anthrace	740	U
119-93-7	3,3'-Dimethylbenzidine	1800	U
105-67-9	2,4-Dimethylphenol	370	U
131-11-3	Dimethyl phthalate	370	U
117-84-0	Di-n-octyl phthalate	370	U
99-65-0	1,3-Dinitrobenzene	370	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
51-28-5	2,4-Dinitrophenol	1800	U
121-14-2	2,4-Dinitrotoluene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	740	U
123-91-1	1,4-Dioxane	370	U
122-39-4	Diphenylamine	370	U
62-50-0	Ethyl methanesulfonate	370	U
206-44-0	Fluoranthene	370	U
86-73-7	Fluorene	370	U
118-74-1	Hexachlorobenzene	370	U
87-68-3	Hexachlorobutadiene	370	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2K1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:11

QC Batch: 0335236

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
77-47-4	Hexachlorocyclopentadiene	1800	U
67-72-1	Hexachloroethane	370	U
1888-71-7	Hexachloropropene	3700	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
78-59-1	Isophorone	370	U
120-58-1	Isosafrole	740	U
91-80-5	Methapyrilene	1800	U
95-53-4	o-Toluidine	740	U
56-49-5	3-Methylcholanthrene	740	U
66-27-3	Methyl methanesulfonate	370	U
91-57-6	2-Methylnaphthalene	370	U
95-48-7	2-Methylphenol	370	U
108-39-4	3-Methylphenol	370	U
106-44-5	4-Methylphenol	370	U
91-20-3	Naphthalene	370	U
130-15-4	1,4-Naphthoquinone	1800	U
134-32-7	1-Naphthylamine	370	U
91-59-8	2-Naphthylamine	370	U
88-74-4	2-Nitroaniline	1800	U
99-09-2	3-Nitroaniline	1800	U
100-01-6	4-Nitroaniline	1800	U
98-95-3	Nitrobenzene	370	U
88-75-5	2-Nitrophenol	370	U
100-02-7	4-Nitrophenol	1800	U
56-57-5	4-Nitroquinoline-1-oxide	3700	U
924-16-3	N-Nitrosodi-n-butylamine	370	U
55-18-5	N-Nitrosodiethylamine	370	U
62-75-9	N-Nitrosodimethylamine	370	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2K1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:11

QC Batch: 0335236

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
621-64-7	N-Nitrosodi-n-propylamine	370	U
86-30-6	N-Nitrosodiphenylamine	370	U
10595-95-6	N-Nitrosomethylethylamine	370	U
59-89-2	N-Nitrosomorpholine	370	U
100-75-4	N-Nitrosopiperidine	370	U
930-55-2	N-Nitrosopyrrolidine	370	U
99-55-8	5-Nitro-o-toluidine	740	U
608-93-5	Pentachlorobenzene	370	U
76-01-7	Pentachloroethane	1800	U
82-68-8	Pentachloronitrobenzene	1800	U
87-86-5	Pentachlorophenol	1800	U
62-44-2	Phenacetin	740	U
85-01-8	Phenanthrene	370	U
108-95-2	Phenol	370	U
106-50-3	p-Phenylene diamine	3700	U
109-06-8	2-Picoline	740	U
23950-58-5	Pronamide	740	U
129-00-0	Pyrene	370	U
110-86-1	Pyridine	740	U
94-59-7	Safrole	740	U
95-94-3	1,2,4,5-Tetrachlorobenzene	370	U
58-90-2	2,3,4,6-Tetrachlorophenol	1800	U
3689-24-5	Sulfotepp	1800	U
120-82-1	1,2,4-Trichlorobenzene	370	U
95-95-4	2,4,5-Trichlorophenol	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
99-35-4	1,3,5-Trinitrobenzene	1800	U
86-74-8	Carbazole	370	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2K1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:11

QC Batch: 0335236

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
510-15-6	Chlorobenzilate	370	U
122-09-8	a,a-Dimethylphenethylamine	1800	U
140-57-8	Aramite	740	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.1 / g Date Received: 11/29/00
Work Order: DQJ2L1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:6.7

QC Batch: 0335236

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	350	U
208-96-8	Acenaphthylene	350	U
98-86-2	Acetophenone	350	U
53-96-3	2-Acetylaminofluorene	3500	U
92-67-1	4-Aminobiphenyl	1700	U
62-53-3	Aniline	350	U
120-12-7	Anthracene	350	U
56-55-3	Benzo(a)anthracene	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
191-24-2	Benzo(ghi)perylene	350	U
50-32-8	Benzo(a)pyrene	350	U
100-51-6	Benzyl alcohol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
111-44-4	bis(2-Chloroethyl) ether	350	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	350	U
117-81-7	bis(2-Ethylhexyl) phthalate	350	U
101-55-3	4-Bromophenyl phenyl ether	350	U
85-68-7	Butyl benzyl phthalate	350	U
106-47-8	4-Chloroaniline	350	U
59-50-7	4-Chloro-3-methylphenol	350	U
91-58-7	2-Chloronaphthalene	350	U
95-57-8	2-Chlorophenol	350	U
7005-72-3	4-Chlorophenyl phenyl ether	350	U
218-01-9	Chrysene	350	U
2303-16-4	Diallate	710	U
53-70-3	Dibenz(a,h)anthracene	350	U
132-64-9	Dibenzofuran	350	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.1 / g Date Received: 11/29/00
Work Order: DQJ2L1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:6.7

QC Batch: 0335236

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
84-74-2	Di-n-butyl phthalate	350	U
95-50-1	1,2-Dichlorobenzene	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
91-94-1	3,3'-Dichlorobenzidine	1700	U
120-83-2	2,4-Dichlorophenol	350	U
87-65-0	2,6-Dichlorophenol	350	U
84-66-2	Diethyl phthalate	350	U
297-97-2	Thionazin	1700	U
60-11-7	p-Dimethylaminoazobenzene	710	U
57-97-6	7,12-Dimethylbenz(a)anthrace	710	U
119-93-7	3,3'-Dimethylbenzidine	1700	U
105-67-9	2,4-Dimethylphenol	350	U
131-11-3	Dimethyl phthalate	350	U
117-84-0	Di-n-octyl phthalate	350	U
99-65-0	1,3-Dinitrobenzene	350	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	U
51-28-5	2,4-Dinitrophenol	1700	U
121-14-2	2,4-Dinitrotoluene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	710	U
123-91-1	1,4-Dioxane	350	U
122-39-4	Diphenylamine	350	U
62-50-0	Ethyl methanesulfonate	350	U
206-44-0	Fluoranthene	350	U
86-73-7	Fluorene	350	U
118-74-1	Hexachlorobenzene	350	U
87-68-3	Hexachlorobutadiene	350	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.1 / g Date Received: 11/29/00
Work Order: DQJ2L1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:6.7

QC Batch: 0335236

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
77-47-4	Hexachlorocyclopentadiene	1700	U
67-72-1	Hexachloroethane	350	U
1888-71-7	Hexachloropropene	3500	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
78-59-1	Isophorone	350	U
120-58-1	Isosafrole	710	U
91-80-5	Methapyrilene	1700	U
95-53-4	o-Toluidine	710	U
56-49-5	3-Methylcholanthrene	710	U
66-27-3	Methyl methanesulfonate	350	U
91-57-6	2-Methylnaphthalene	350	U
95-48-7	2-Methylphenol	350	U
108-39-4	3-Methylphenol	350	U
106-44-5	4-Methylphenol	350	U
91-20-3	Naphthalene	350	U
130-15-4	1,4-Naphthoquinone	1700	U
134-32-7	1-Naphthylamine	350	U
91-59-8	2-Naphthylamine	350	U
88-74-4	2-Nitroaniline	1700	U
99-09-2	3-Nitroaniline	1700	U
100-01-6	4-Nitroaniline	1700	U
98-95-3	Nitrobenzene	350	U
88-75-5	2-Nitrophenol	350	U
100-02-7	4-Nitrophenol	1700	U
56-57-5	4-Nitroquinoline-1-oxide	3500	U
924-16-3	N-Nitrosodi-n-butylamine	350	U
55-18-5	N-Nitrosodiethylamine	350	U
62-75-9	N-Nitrosodimethylamine	350	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.1 / g Date Received: 11/29/00
Work Order: DQJ2L1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:6.7

QC Batch: 0335236

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
621-64-7	N-Nitrosodi-n-propylamine	350	U
86-30-6	N-Nitrosodiphenylamine	350	U
10595-95-6	N-Nitrosomethylethylamine	350	U
59-89-2	N-Nitrosomorpholine	350	U
100-75-4	N-Nitrosopiperidine	350	U
930-55-2	N-Nitrosopyrrolidine	350	U
99-55-8	5-Nitro-o-toluidine	710	U
608-93-5	Pentachlorobenzene	350	U
76-01-7	Pentachloroethane	1700	U
82-68-8	Pentachloronitrobenzene	1700	U
87-86-5	Pentachlorophenol	1700	U
62-44-2	Phenacetin	710	U
85-01-8	Phenanthrene	350	U
108-95-2	Phenol	350	U
106-50-3	p-Phenylene diamine	3500	U
109-06-8	2-Picoline	710	U
23950-58-5	Pronamide	710	U
129-00-0	Pyrene	350	U
110-86-1	Pyridine	710	U
94-59-7	Safrole	710	U
95-94-3	1,2,4,5-Tetrachlorobenzene	350	U
58-90-2	2,3,4,6-Tetrachlorophenol	1700	U
3689-24-5	Sulfotepp	1700	U
120-82-1	1,2,4-Trichlorobenzene	350	U
95-95-4	2,4,5-Trichlorophenol	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
99-35-4	1,3,5-Trinitrobenzene	1700	U
86-74-8	Carbazole	350	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.1 / g Date Received: 11/29/00
Work Order: DQJ2L1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:6.7

QC Batch: 0335236

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
510-15-6	Chlorobenzilate	350	U
122-09-8	a,a-Dimethylphenethylamine	1700	U
140-57-8	Aramite	710	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2P1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:22

QC Batch: 0335236

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	430	U
208-96-8	Acenaphthylene	430	U
98-86-2	Acetophenone	430	U
53-96-3	2-Acetylaminofluorene	4300	U
92-67-1	4-Aminobiphenyl	2100	U
62-53-3	Aniline	430	U
120-12-7	Anthracene	430	U
56-55-3	Benzo(a)anthracene	430	U
205-99-2	Benzo(b)fluoranthene	430	U
207-08-9	Benzo(k)fluoranthene	430	U
191-24-2	Benzo(ghi)perylene	430	U
50-32-8	Benzo(a)pyrene	430	U
100-51-6	Benzyl alcohol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
111-44-4	bis(2-Chloroethyl) ether	430	U
108-60-1	2,2'-Oxybis(1-Chloropropane)	430	U
117-81-7	bis(2-Ethylhexyl) phthalate	430	U
101-55-3	4-Bromophenyl phenyl ether	430	U
85-68-7	Butyl benzyl phthalate	430	U
106-47-8	4-Chloroaniline	430	U
59-50-7	4-Chloro-3-methylphenol	430	U
91-58-7	2-Chloronaphthalene	430	U
95-57-8	2-Chlorophenol	430	U
7005-72-3	4-Chlorophenyl phenyl ether	430	U
218-01-9	Chrysene	430	U
2303-16-4	Diallate	850	U
53-70-3	Dibenz(a,h)anthracene	430	U
132-64-9	Dibenzofuran	430	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2P1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:22

QC Batch: 0335236

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
84-74-2	Di-n-butyl phthalate	430	U
95-50-1	1,2-Dichlorobenzene	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
91-94-1	3,3'-Dichlorobenzidine	2100	U
120-83-2	2,4-Dichlorophenol	430	U
87-65-0	2,6-Dichlorophenol	430	U
84-66-2	Diethyl phthalate	430	U
297-97-2	Thionazin	2100	U
60-11-7	p-Dimethylaminoazobenzene	850	U
57-97-6	7,12-Dimethylbenz(a)anthrace	850	U
119-93-7	3,3'-Dimethylbenzidine	2100	U
105-67-9	2,4-Dimethylphenol	430	U
131-11-3	Dimethyl phthalate	430	U
117-84-0	Di-n-octyl phthalate	430	U
99-65-0	1,3-Dinitrobenzene	430	U
534-52-1	4,6-Dinitro-2-methylphenol	2100	U
51-28-5	2,4-Dinitrophenol	2100	U
121-14-2	2,4-Dinitrotoluene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
88-85-7	2-sec-Butyl-4,6-dinitropheno	850	U
123-91-1	1,4-Dioxane	430	U
122-39-4	Diphenylamine	430	U
62-50-0	Ethyl methanesulfonate	430	U
206-44-0	Fluoranthene	430	U
86-73-7	Fluorene	430	U
118-74-1	Hexachlorobenzene	430	U
87-68-3	Hexachlorobutadiene	430	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2P1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:22

QC Batch: 0335236

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
77-47-4	Hexachlorocyclopentadiene	2100	U
67-72-1	Hexachloroethane	430	U
1888-71-7	Hexachloropropene	4300	U
193-39-5	Indeno(1,2,3-cd)pyrene	430	U
78-59-1	Isophorone	430	U
120-58-1	Isosafrole	850	U
91-80-5	Methapyrilene	2100	U
95-53-4	o-Toluidine	850	U
56-49-5	3-Methylcholanthrene	850	U
66-27-3	Methyl methanesulfonate	430	U
91-57-6	2-Methylnaphthalene	430	U
95-48-7	2-Methylphenol	430	U
108-39-4	3-Methylphenol	430	U
106-44-5	4-Methylphenol	430	U
91-20-3	Naphthalene	430	U
130-15-4	1,4-Naphthoquinone	2100	U
134-32-7	1-Naphthylamine	430	U
91-59-8	2-Naphthylamine	430	U
88-74-4	2-Nitroaniline	2100	U
99-09-2	3-Nitroaniline	2100	U
100-01-6	4-Nitroaniline	2100	U
98-95-3	Nitrobenzene	430	U
88-75-5	2-Nitrophenol	430	U
100-02-7	4-Nitrophenol	2100	U
56-57-5	4-Nitroquinoline-1-oxide	4300	U
924-16-3	N-Nitrosodi-n-butylamine	430	U
55-18-5	N-Nitrosodiethylamine	430	U
62-75-9	N-Nitrosodimethylamine	430	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2P1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:22

QC Batch: 0335236

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
621-64-7	N-Nitrosodi-n-propylamine	430	U
86-30-6	N-Nitrosodiphenylamine	430	U
10595-95-6	N-Nitrosomethylethylamine	430	U
59-89-2	N-Nitrosomorpholine	430	U
100-75-4	N-Nitrosopiperidine	430	U
930-55-2	N-Nitrosopyrrolidine	430	U
99-55-8	5-Nitro-o-toluidine	850	U
608-93-5	Pentachlorobenzene	430	U
76-01-7	Pentachloroethane	2100	U
82-68-8	Pentachloronitrobenzene	2100	U
87-86-5	Pentachlorophenol	2100	U
62-44-2	Phenacetin	850	U
85-01-8	Phenanthrene	430	U
108-95-2	Phenol	430	U
106-50-3	p-Phenylene diamine	4300	U
109-06-8	2-Picoline	850	U
23950-58-5	Pronamide	850	U
129-00-0	Pyrene	430	U
110-86-1	Pyridine	850	U
94-59-7	Safrole	850	U
95-94-3	1,2,4,5-Tetrachlorobenzene	430	U
58-90-2	2,3,4,6-Tetrachlorophenol	2100	U
3689-24-5	Sulfotepp	2100	U
120-82-1	1,2,4-Trichlorobenzene	430	U
95-95-4	2,4,5-Trichlorophenol	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
99-35-4	1,3,5-Trinitrobenzene	2100	U
86-74-8	Carbazole	430	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30.12 / g Date Received: 11/29/00
Work Order: DQJ2P1AK Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/05/00
Moisture %:22

QC Batch: 0335236

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
510-15-6	Chlorobenzilate	430	U
122-09-8	a,a-Dimethylphenethylamine	2100	U
140-57-8	Aramite	850	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 001
Method: SW846 8141A
Compounds, Organophosphorus (8141A)

Sample WT/Vol: 30 / g Date Received: 11/29/00
Work Order: DQJ2E1CD Date Extracted:11/30/00
Dilution factor: 50 Date Analyzed: 12/04/00
Moisture %:9.3

QC Batch: 0335304

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
297-97-2	Thionazin	1800	U
60-51-5	Dimethoate	1800	U
298-04-4	Disulfoton	1800	U
52-85-7	Famphur	1800	U
298-00-0	Methyl parathion	1800	U
56-38-2	Parathion	1800	U
298-02-2	Phorate	1800	U
3689-24-5	Sulfotepp	1800	U
126-68-1	O,O,O-Triethyl phosphorothio	1800	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 002
Method: SW846 8141A
Compounds, Organophosphorus (8141A)

Sample WT/Vol: 30 / g Date Received: 11/29/00
Work Order: DQJ2K1CD Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/04/00
Moisture %:11

QC Batch: 0335304

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
297-97-2	Thionazin	37	U
60-51-5	Dimethoate	10	J
298-04-4	Disulfoton	37	U
52-85-7	Famphur	37	U
298-00-0	Methyl parathion	37	U
56-38-2	Parathion	37	U
298-02-2	Phorate	37	U
3689-24-5	Sulfotepp	37	U
126-68-1	O,O,O-Triethyl phosphorothio	37	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8141A
Compounds, Organophosphorus (8141A)

Sample WT/Vol: 30 / g Date Received: 11/29/00
Work Order: DQJ2L1CD Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/04/00
Moisture %:6.7

QC Batch: 0335304

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
297-97-2	Thionazin	35	U
60-51-5	Dimethoate	35	U
298-04-4	Disulfoton	35	U
52-85-7	Famphur	35	U
298-00-0	Methyl parathion	35	U
56-38-2	Parathion	35	U
298-02-2	Phorate	35	U
3689-24-5	Sulfotepp	35	U
126-68-1	O,O,O-Triethyl phosphorothio	35	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 004
Method: SW846 8141A
Compounds, Organophosphorus (8141A)

Sample WT/Vol: 30 / g Date Received: 11/29/00
Work Order: DQJ2P1CD Date Extracted:11/30/00
Dilution factor: 1 Date Analyzed: 12/04/00
Moisture %:22

QC Batch: 0335304

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
297-97-2	Thionazin	43	U
60-51-5	Dimethoate	43	U
298-04-4	Disulfoton	43	U
52-85-7	Famphur	43	U
298-00-0	Methyl parathion	43	U
56-38-2	Parathion	43	U
298-02-2	Phorate	43	U
3689-24-5	Sulfotepp	43	U
126-68-1	O,O,O-Triethyl phosphorothio	43	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8151A
Herbicides (8151A)

Lab Sample ID:A0K300112 001

Sample WT/Vol: 50.07 / g
Work Order: DQJ2E1CC
Dilution factor: 1
Moisture %:9.3

Date Received: 11/29/00
Date Extracted:12/01/00
Date Analyzed: 12/06/00

QC Batch: 0336096

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
94-75-7	2,4-D	88	U
88-85-7	Dinoseb	13	U
93-76-5	2,4,5-T	22	U
93-72-1	2,4,5-TP	22	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8151A
Herbicides (8151A)

Lab Sample ID:A0K300112 002

Sample WT/Vol: 50.09 / g
Work Order: DQJ2K1CC
Dilution factor: 1
Moisture %:11

Date Received: 11/29/00
Date Extracted:12/01/00
Date Analyzed: 12/06/00

QC Batch: 0336096

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
94-75-7	2,4-D	90	U
88-85-7	Dinoseb	14	U
93-76-5	2,4,5-T	23	U
93-72-1	2,4,5-TP	23	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO Lab Sample ID:A0K300112 003
Method: SW846 8151A
Herbicides (8151A)

Sample WT/Vol: 50.1 / g Date Received: 11/29/00
Work Order: DQJ2L1CC Date Extracted:12/01/00
Dilution factor: 1 Date Analyzed: 12/06/00
Moisture %:6.7

QC Batch: 0336096

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
94-75-7	2,4-D	86	U
88-85-7	Dinoseb	13	U
93-76-5	2,4,5-T	21	U
93-72-1	2,4,5-TP	21	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8151A
Herbicides (8151A)

Lab Sample ID:A0K300112 004

Sample WT/Vol: 50.16 / g
Work Order: DQJ2P1CC
Dilution factor: 1
Moisture %:22

Date Received: 11/29/00
Date Extracted:12/01/00
Date Analyzed: 12/06/00

QC Batch: 0336096

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
94-75-7	2,4-D	100	U
88-85-7	Dinoseb	15	U
93-76-5	2,4,5-T	26	U
93-72-1	2,4,5-TP	26	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8082
PCBs (8082)

Lab Sample ID:A0K300112 001

Sample WT/Vol: 30.11 / g
Work Order: DQJ2E1AC
Dilution factor: 1
Moisture %:9.3

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335332

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/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

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8082
PCBs (8082)

Lab Sample ID:A0K300112 002

Sample WT/Vol: 30.06 / g
Work Order: DQJ2K1AN
Dilution factor: 1
Moisture %:11

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335332

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/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

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Lab Sample ID:A0K300112 003
Method: SW846 8082
PCBs (8082)

Sample WT/Vol: 30 / g
Date Received: 11/29/00
Work Order: DQJ2L1AN
Date Extracted:11/30/00
Dilution factor: 1
Date Analyzed: 12/05/00
Moisture %:6.7

QC Batch: 0335332

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/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		35	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8082
PCBs (8082)

Lab Sample ID:A0K300112 004

Sample WT/Vol: 30.03 / g
Work Order: DQJ2P1AN
Dilution factor: 1
Moisture %:22

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335332

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
12674-11-2	Aroclor 1016	43	U
11104-28-2	Aroclor 1221	43	U
11141-16-5	Aroclor 1232	43	U
53469-21-9	Aroclor 1242	43	U
12672-29-6	Aroclor 1248	43	U
11097-69-1	Aroclor 1254	43	U
11096-82-5	Aroclor 1260	43	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8081A
Pesticides (8081A)

Lab Sample ID:A0K300112 001

Sample WT/Vol: 30.11 / g
Work Order: DQJ2E1CE
Dilution factor: 1
Moisture %:9.3

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335330

Client Sample Id: MPT-AC-SS03-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
309-00-2	Aldrin	1.9	U
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
72-54-8	4,4'-DDD	1.9	U
72-55-9	4,4'-DDE	1.9	U
50-29-3	4,4'-DDT	1.9	U
60-57-1	Dieldrin	1.9	U
959-98-8	Endosulfan I	1.9	U
33213-65-9	Endosulfan II	1.9	U
1031-07-8	Endosulfan sulfate	1.9	U
72-20-8	Endrin	1.9	U
7421-93-4	Endrin aldehyde	1.9	U
53494-70-5	Endrin ketone	1.9	U
76-44-8	Heptachlor	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
465-73-6	Isodrin	3.6	U
143-50-0	Kepone	36	U
72-43-5	Methoxychlor	3.6	U
8001-35-2	Toxaphene	74	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8081A
Pesticides (8081A)

Lab Sample ID:A0K300112 002

Sample WT/Vol: 30.06 / g
Work Order: DQJ2K1CE
Dilution factor: 1
Moisture %:11

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335330

Client Sample Id: MPT-AC-SV03-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
309-00-2	Aldrin	1.9	U
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
72-54-8	4,4'-DDD	1.9	U
72-55-9	4,4'-DDE	1.9	U
50-29-3	4,4'-DDT	1.9	U
60-57-1	Dieldrin	1.9	U
959-98-8	Endosulfan I	1.9	U
33213-65-9	Endosulfan II	1.9	U
1031-07-8	Endosulfan sulfate	1.9	U
72-20-8	Endrin	1.9	U
7421-93-4	Endrin aldehyde	1.9	U
53494-70-5	Endrin ketone	1.9	U
76-44-8	Heptachlor	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
465-73-6	Isodrin	3.7	U
143-50-0	Kepone	37	U
72-43-5	Methoxychlor	3.7	U
8001-35-2	Toxaphene	75	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8081A
Pesticides (8081A)

Lab Sample ID:A0K300112 003

Sample WT/Vol: 30 / g
Work Order: DQJ2L1CE
Dilution factor: 1
Moisture %:6.7

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335330

Client Sample Id: MPT-AC-SS04-01

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
309-00-2	Aldrin	1.8	U
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
72-54-8	4,4'-DDD	1.8	U
72-55-9	4,4'-DDE	1.8	U
50-29-3	4,4'-DDT	1.8	U
60-57-1	Dieldrin	1.8	U
959-98-8	Endosulfan I	1.8	U
33213-65-9	Endosulfan II	1.8	U
1031-07-8	Endosulfan sulfate	1.8	U
72-20-8	Endrin	1.8	U
7421-93-4	Endrin aldehyde	1.8	U
53494-70-5	Endrin ketone	1.8	U
76-44-8	Heptachlor	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
465-73-6	Isodrin	3.5	U
143-50-0	Kepone	35	U
72-43-5	Methoxychlor	3.5	U
8001-35-2	Toxaphene	72	U

TETRA TECH NUS, INC.

Lab Name:Severn Trent Laboratories, Inc. SDG Number:MP029

Matrix: (soil/water) SO
Method: SW846 8081A
Pesticides (8081A)

Lab Sample ID:A0K300112 004

Sample WT/Vol: 30.03 / g
Work Order: DQJ2P1CE
Dilution factor: 1
Moisture %:22

Date Received: 11/29/00
Date Extracted:11/30/00
Date Analyzed: 12/05/00

QC Batch: 0335330

Client Sample Id: MPT-AC-SV04-04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
309-00-2	Aldrin	2.2	U
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
72-54-8	4,4'-DDD	2.2	U
72-55-9	4,4'-DDE	2.2	U
50-29-3	4,4'-DDT	2.2	U
60-57-1	Dieldrin	2.2	U
959-98-8	Endosulfan I	2.2	U
33213-65-9	Endosulfan II	2.2	U
1031-07-8	Endosulfan sulfate	2.2	U
72-20-8	Endrin	2.2	U
7421-93-4	Endrin aldehyde	2.2	U
53494-70-5	Endrin ketone	2.2	U
76-44-8	Heptachlor	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
465-73-6	Isodrin	4.3	U
143-50-0	Kepone	43	U
72-43-5	Methoxychlor	4.3	U
8001-35-2	Toxaphene	86	U

APPENDIX C
Support Documentation

SDG NARRATIVE
MP029

The following report contains the analytical results for four solid samples and one quality control sample submitted to STL North Canton by Tetra Tech NUS, Inc. from the AOC C site. The samples were received November 29, 2000, according to documented sample acceptance procedures.

This SDG consists of one (1) laboratory ID: A0K300112.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

Please refer to individual analytical sections for laboratory specific narratives.

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 2.8° C.

A TRIP BLANK was received but was not listed on the chain-of-custody. The Volatile Organics 8260B analysis was performed on this sample.

SDG NARRATIVE
MP029

GC/MS VOLATILES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Sample(s) that contain results between the MDL and the RL were flagged with "J". There is the possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The solid samples were preserved by freezing in water due to samples effervescing when preserved with sodium bisulfate.

2-Chloroethyl vinyl ether cannot be reliably recovered in an acid preserved sample.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP029

GC/MS SEMIVOLATILES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP029

POLYCHLORINATED BIPHENYLS

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

The check sample for batch 0335332 was double spiked in organic prep with recoveries twice the normal amount. Recoveries in the check duplicate, blank, and samples were within QC criteria. All samples in the batch were ND; therefore, no corrective action was initiated.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP029

PESTICIDES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

Beta-BHC was recovered low in batch 0335330. This is not a controlling compound; therefore, no corrective action was initiated.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP029

ORGANOPHOSPHORUS PESTICIDES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
MP029

HERBICIDES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violations

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS and Surrogates Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

Cooler Temp. 2.8 °C

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE ___ OF ___

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0199	AOC C	T. Hansen (850)	Quanterra/STL Denise Pohl
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
		T. Thompson (904) 281-0400	4101 Shuffel Dr NW
		CARRIER/WAYBILL NUMBER	CITY, STATE
		Fed Ex	N Canton, OH

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE (YEAR 2000)	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	G	G	P	P	G	G	G	G	
						PRESERVATIVE USED									
						TYPE OF ANALYSIS	8260 - App IX VOCs	8270 - PAH	6010/7000A Metals (Tin)	9010 - Cyanide	App IX PCBs	8151A - Organochlorine Herbicides	8141A - Organophosphate Pesticides	8081A - App IX Pesticides	COMMENTS
11-28	0941	~~MPT-SS-03-01~~ MPT-AC-SS03-01	Soil	G	6		X	X	X	X	X	X	X	X	Cool to 4°C
11-28	0950	MPT-AC-SU03-04	Soil	G	6		X	X	X	X	X	X	X	X	
11-28	1017	MPT-AC-SS04-01	~~Soil~~ Soil	G	6		X	X	X	X	X	X	X	X	
11-28	1022	MPT-AC-SU04-04	~~Soil~~ Soil	G	6		X	X	X	X	X	X	X	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	11-28-00	1700	1. RECEIVED BY		
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	11/29/00	9:15
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS 2.8°C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

STL North Canton

MP029

HOLDING TIME
12/28/00

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
MG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
MG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
MG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	CN	11/28/00	12/01/00	12/04/00	3	3	6
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	HERB	11/28/00	12/01/00	12/06/00	3	5	8
MG/KG	MPT-AC-SS03-01RE	A0K300112001	NORMAL	MP029	HG	11/28/00	12/12/00	12/14/00	14	2	16
MG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	HG	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	HG	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	HG	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
MG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	M	11/28/00	12/08/00	12/11/00	10	3	13
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	OPEST	11/28/00	11/30/00	12/04/00	2	4	6
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	OS	11/28/00	11/30/00	12/05/00	2	5	7

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	OV	11/28/00	12/04/00	12/04/00	6	0	6
UG/L	TRIP BLANK	A0K300112005	TRIP BLANK	MP029	OV	11/28/00	12/01/00	12/01/00	3	0	3
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	PCB	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS03-01	A0K300112001	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SS04-01	A0K300112003	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV03-04	A0K300112002	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7
UG/KG	MPT-AC-SV04-04	A0K300112004	NORMAL	MP029	PEST	11/28/00	11/30/00	12/05/00	2	5	7

Report Date : 14-Nov-2000 13:08

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 09-NOV-2000 17:49
End Cal Date : 13-NOV-2000 18:04
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux11.i\J01113A.b\8260LLUX11.m
Cal Date : 13-Nov-2000 19:08 mccroryj
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ060.D
Level 2: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ059.D
Level 3: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ058.D
Level 4: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ057.D
Level 5: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01109A.b\UXJ056.D

	Compound	5.000 Level 1	25.000 Level 2	50.000 Level 3	100.000 Level 4	200.000 Level 5	RRF	% RSD
	8 Dichlorodifluoromethane	0.13039	0.16870	0.17098	0.16596	0.15636	0.15848	10.512
	9 Chloromethane	0.19748	0.21755	0.21742	0.21591	0.20676	0.21102	4.164
	10 Vinyl Chloride	0.22664	0.23375	0.24633	0.24012	0.22956	0.23528	3.395
	11 Bromomethane	0.19013	0.19275	0.19489	0.18411	0.14969	0.18232	10.246
	12 Chloroethane	0.16072	0.16468	0.16696	0.15991	0.14790	0.16003	4.604
	13 Trichlorofluoromethane	0.34354	0.34758	0.37545	0.37904	0.36385	0.36189	4.420
	14 Dichlorofluoromethane	0.36416	0.40050	0.41829	0.41601	0.41506	0.40280	5.638
	15 Acrolein	0.01812	0.02073	0.02356	0.02305	0.02026	0.02114	10.458
	16 Acetone	0.09420	0.06410	0.06971	0.06480	0.05588	0.06974	20.861
	17 1,1-Dichloroethene	0.18679	0.19636	0.20788	0.20942	0.19733	0.19955	4.652
	18 Freon-113	0.15806	0.22752	0.23706	0.23717	0.22330	0.21662	15.368
	19 Iodomethane	0.38836	0.41908	0.44074	0.42615	0.41203	0.41727	4.635
	20 Carbon Disulfide	0.64547	0.64344	0.68447	0.68966	0.64904	0.66242	3.422
	21 Methylene Chloride	0.22434	0.26383	0.25016	0.24049	0.21893	0.23955	7.696
	22 Acetonitrile	0.02595	0.02436	0.02549	0.02532	0.02234	0.02469	5.826
	23 Acrylonitrile	0.07046	0.07421	0.07934	0.07778	0.06820	0.07400	6.374
	24 Methyl tert-butyl ether	0.65995	0.65988	0.71293	0.71516	0.64298	0.67818	4.936
	25 trans-1,2-Dichloroethene	0.22480	0.22472	0.23847	0.23941	0.22492	0.23046	3.360
	26 Hexane	0.04305	0.06210	0.06875	0.06868	0.06456	0.06143	17.345
	27 Vinyl acetate	0.14285	0.15385	0.15952	0.16471	0.14646	0.15348	5.873
	28 1,1-Dichloroethane	0.36063	0.35489	0.38500	0.38490	0.36258	0.36960	3.868
	29 tert-Butyl Alcohol	0.01521	0.01491	0.01829	0.01769	0.01429	0.01608	11.136
	30 2-Butanone	0.08861	0.07998	0.08980	0.08861	0.07514	0.08443	7.717
M	31 1,2-Dichloroethene (total)	0.23351	0.23049	0.24506	0.24644	0.22980	0.23706	3.403
	32 cis-1,2-dichloroethene	0.24222	0.23627	0.25165	0.25347	0.23467	0.24366	3.539
	33 2,2-Dichloropropane	0.35628	0.35697	0.38305	0.38249	0.36134	0.36803	3.696

Data File: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01201A.b\UXJ630.D
Report Date: 01-Dec-2000 08:55

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux11.i Injection Date: 01-DEC-2000 08:06
Lab File ID: UXJ630.D Init. Cal. Date(s): 09-NOV-2000 13-NOV-2000
Analysis Type: WATER Init. Cal. Times: 17:49 18:04
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01201A.b\8260LLUX11.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
$	4 Dibromofluoromethane	0.19991	0.21097	0.010	5.5	50.0
$	5 1,2-Dichloroethane-d4	0.23684	0.24697	0.010	4.3	50.0
$	6 Toluene-d8	1.05422	1.10467	0.010	4.8	50.0
$	7 Bromofluorobenzene	0.43391	0.43325	0.010	-0.2	50.0
	8 Dichlorodifluoromethane	0.15848	0.22582	0.010	42.5	50.0
	9 Chloromethane	0.21102	0.24824	0.100	17.6	50.0
	10 Vinyl Chloride	0.23528	0.26117	0.010	11.0	20.0
	11 Bromomethane	0.18232	0.19422	0.010	6.5	50.0
	12 Chloroethane	0.16003	0.17638	0.010	10.2	50.0
	13 Trichlorofluoromethane	0.36189	0.21442	0.010	-40.8	50.0
	15 Acrolein	0.02114	0.02769	0.010	31.0	50.0
	16 Acetone	0.06974	0.08559	0.010	22.7	50.0
	17 1,1-Dichloroethene	0.19955	0.21874	0.010	9.6	20.0
	18 Freon-113	0.21662	0.23928	0.010	10.5	50.0
	19 Iodomethane	0.41727	0.45757	0.010	9.7	50.0
	20 Carbon Disulfide	0.66242	0.75072	0.010	13.3	50.0
	21 Methylene Chloride	0.23955	0.23378	0.010	-2.4	50.0
	22 Acetonitrile	0.02469	0.02492	0.010	0.9	50.0
	23 Acrylonitrile	0.07400	0.07562	0.010	2.2	50.0
	24 Methyl tert-butyl ether	0.67818	0.66208	0.010	-2.4	50.0
	25 trans-1,2-Dichloroethene	0.23046	0.24303	0.010	5.5	50.0
	26 Hexane	0.06143	0.06560	0.010	6.8	50.0
	27 Vinyl acetate	0.15348	0.15564	0.010	1.4	50.0
	28 1,1-Dichloroethane	0.36960	0.39306	0.100	6.3	50.0
	29 tert-Butyl Alcohol	0.01608	0.01514	0.010	-5.8	50.0
	30 2-Butanone	0.08443	0.08266	0.010	-2.1	50.0
M	31 1,2-Dichloroethene (total)	0.23706	0.24943	0.010	5.2	50.0
	32 cis-1,2-dichloroethene	0.24366	0.25583	0.010	5.0	50.0
	33 2,2-Dichloropropane	0.36803	0.36959	0.010	0.4	50.0
	34 Bromochloromethane	0.12691	0.13082	0.010	3.1	50.0
	35 Chloroform	0.37216	0.38585	0.010	3.7	20.0
	36 Tetrahydrofuran	0.05236	0.05118	0.010	-2.3	50.0
	37 1,1,1-Trichloroethane	0.36028	0.38020	0.010	5.5	50.0
	38 1,1-Dichloropropene	0.29105	0.30674	0.010	5.4	50.0
	39 Carbon Tetrachloride	0.28937	0.32979	0.010	14.0	50.0
	40 1,2-Dichloroethane	0.29593	0.29920	0.010	1.1	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux11.i\J012O1A.D, UXJ630.D
Report Date: 12/01/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux11.i
Lab File ID: UXJ630.D
Analysis Type: WATER

Injection Date: 01-DEC-2000 08:06
Lab Sample ID: 50NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux11.i\J01201A

Water

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	Chlorobenzene	50.0000	50.8540	1.7	50.0
0	Bromodichloromethane	50.0000	54.9905	10.0	50.0
0	1,1,2,2-Tetrachloroethane	50.0000	50.4434	0.9	50.0
0	Bromoform	50.0000	62.3732	24.7	50.0
0	Styrene	50.0000	51.1810	2.4	50.0
0	Xylene-o	50.0000	50.9729	1.9	50.0
0	Xylenes (total)	150.0000	151.4911	1.0	50.0
0	2-Hexanone	100.0000	99.0587	0.9	50.0
0	Chloromethane	50.0000	58.8167	17.6	50.0
0	Vinyl Chloride	50.0000	55.5009	11.0	20.0
0	Bromomethane	50.0000	53.2652	6.5	50.0
0	Chloroethane	50.0000	55.1078	10.2	50.0
0	1,1-Dichloroethane	50.0000	53.1739	6.3	50.0
0	Tetrachloroethene	50.0000	51.5170	3.0	50.0
0	Acetone	100.0000	122.7302	22.7	50.0
0	1,1-Dichloroethene	50.0000	54.8072	9.6	20.0
0	m + p-Xylene	100.0000	100.5182	0.5	50.0
0	Ethylbenzene	50.0000	50.6673	1.3	20.0
0	Carbon Disulfide	50.0000	56.6649	13.3	50.0
0	Methylene Chloride	50.0000	48.7962	2.4	50.0
0	1,2-Dichloropropane	50.0000	50.9253	1.9	20.0
0	1,1,2-Trichloroethane	50.0000	50.3346	0.7	50.0
0	Dibromochloromethane	50.0000	59.1567	18.3	50.0
0	trans-1,2-Dichloroethene	50.0000	52.7272	5.5	50.0
0	trans-1,3-Dichloropropene	50.0000	49.7803	0.4	50.0
0	cis-1,3-Dichloropropene	50.0000	50.5818	1.2	50.0
0	Chloroform	50.0000	51.8391	3.7	20.0
0	Toluene	50.0000	52.4197	4.8	20.0
0	2-Butanone	100.0000	97.9106	2.1	50.0
0	1,2-Dichloroethene (total)	100.0000	105.2258	5.2	50.0
0	cis-1,2-dichloroethene	50.0000	52.4986	5.0	50.0
0	4-Methyl-2-pentanone	100.0000	95.0211	5.0	50.0
0	1,2-Dichloroethane	50.0000	50.5523	1.1	50.0
0	Trichloroethene	50.0000	52.2727	4.5	50.0
0	1,1,1-Trichloroethane	50.0000	52.7653	5.5	50.0
0	Carbon Tetrachloride	50.0000	56.9842	14.0	50.0
0	Benzene	50.0000	55.8282	11.7	50.0
38	Dichlorodifluoromethane	50.0000	71.2444	42.5	50.0
39	Trichlorofluoromethane	50.0000	29.6250	40.8	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux11.i\012101A.D\UXJ630.D
Report Date: 12/01/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux11.i
Lab File ID: UXJ630.D
Analysis Type: WATER

Injection Date: 01-DEC-2000 08:06
Lab Sample ID: 50NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux11.i\

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
39	Chlorobenzene-d5	50.0000	50.0000	0.0	50.0
40	Acrolein	500.0000	654.9030	31.0	50.0
41	Acrylonitrile	500.0000	510.9782	2.2	50.0
42	Vinyl acetate	50.0000	50.7049	1.4	50.0
43	2-Chloroethyl vinyl ether	100.0000	94.2460	5.8	50.0
47	Freon-113	50.0000	55.2283	10.5	50.0
48	1,3-Dichlorobenzene	50.0000	49.2238	1.6	50.0
49	1,4-Dichlorobenzene	50.0000	49.8314	0.3	50.0
50	1,2-Dichlorobenzene	50.0000	49.0795	1.8	50.0
51	Acetonitrile	500.0000	504.6071	0.9	50.0
52	Iodomethane	50.0000	54.8286	9.7	50.0
59	1,4-Dioxane	2500.0000	2487.7028	0.5	50.0
60	Dibromomethane	50.0000	50.3067	0.6	50.0
62	Ethyl Methacrylate	50.0000	49.1615	1.7	50.0
63	1,2-Dibromoethane	50.0000	48.9550	2.1	50.0
64	1,1,1,2-Tetrachloroethane	50.0000	55.0179	10.0	50.0
65	1,2,3-Trichloropropane	50.0000	49.5828	0.8	50.0
66	1,4-Dichloro-2-butene	50.0000	51.1845	2.4	50.0
69	1,2-Dibromo-3-chloropropane	50.0000	51.6299	3.3	50.0
82	Methyl tert-butyl ether	50.0000	48.8127	2.4	50.0
84	Tetrahydrofuran	50.0000	48.8672	2.3	50.0
98	2,2-Dichloropropane	50.0000	50.2128	0.4	50.0
99	1,1-Dichloropropene	50.0000	52.6954	5.4	50.0
100	1,3-Dichloropropane	50.0000	50.1297	0.3	50.0
102	Bromobenzene	50.0000	51.2713	2.5	50.0
103	2-Chlorotoluene	50.0000	49.5584	0.9	50.0
104	n-Propylbenzene	50.0000	50.8192	1.6	50.0
105	4-Chlorotoluene	50.0000	48.9762	2.0	50.0
106	1,3,5-Trimethylbenzene	50.0000	49.6526	0.7	50.0
107	tert-Butylbenzene	50.0000	49.6992	0.6	50.0
108	1,2,4-Trimethylbenzene	50.0000	49.6493	0.7	50.0
109	sec-Butylbenzene	50.0000	48.2681	3.5	50.0
110	4-Isopropyltoluene	50.0000	47.4595	5.1	50.0
111	n-Butylbenzene	50.0000	47.3320	5.3	50.0
112	1,2,4-Trichlorobenzene	50.0000	44.9678	10.1	50.0
113	Naphthalene	50.0000	43.0528	13.9	50.0
114	Hexachlorobutadiene	50.0000	41.1818	17.6	50.0
115	1,2,3-Trichlorobenzene	50.0000	42.6547	14.7	50.0
124	tert-Butyl Alcohol	1000.0000	942.0477	5.8	50.0

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

Calibration File Names:
Level 1: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94223.d
Level 2: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94222.d
Level 3: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94221.d
Level 4: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94220.d
Level 5: \\qcanoh04\dd\chem\can\msv\a3ux9.i\N00814A.b\ux94219.d

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	$\overline{RRF}$	% RSD
	8 Dichlorodifluoromethane	0.09563	0.12479	0.12437	0.13534	0.12122	0.12027	12.280
	9 Chloromethane	0.29818	0.30898	0.31148	0.33490	0.28259	0.30722	6.252
	10 Vinyl Chloride	0.22724	0.24099	0.25665	0.26485	0.23207	0.24436	6.556
	11 Bromomethane	0.12734	0.14138	0.15910	0.17151	0.15620	0.15111	11.296
	12 Chloroethane	0.14781	0.15357	0.17665	0.20911	0.20981	0.17939	16.443
	13 Trichlorofluoromethane	0.19975	0.25332	0.27635	0.33250	0.40261	0.29291	26.513
	14 Acrolein	0.04621	0.05384	0.05090	0.05284	0.06267	0.05329	11.268
	15 Acetone	0.21151	0.14487	0.12914	0.12552	0.13346	0.14890	24.008
	16 1,1-Dichloroethene	0.16831	0.16155	0.18164	0.18564	0.19537	0.17850	7.603
	17 Methylene Chloride	0.23628	0.22110	0.21689	0.22098	0.22637	0.22432	3.336
	18 Carbon Disulfide	0.50484	0.48396	0.51997	0.54152	0.56327	0.52271	5.917
	19 Acrylonitrile	0.13366	0.14176	0.13465	0.13521	0.15222	0.13950	5.586
	20 trans-1,2-Dichloroethene	0.22019	0.20509	0.22271	0.22333	0.23334	0.22093	4.607
	21 Vinyl acetate	0.36772	0.38942	0.39264	0.42616	0.47154	0.40950	9.889
	22 1,1-Dichloroethane	0.48475	0.43288	0.44482	0.46604	0.48571	0.46284	5.108
	23 2-Butanone	0.22208	0.18720	0.17752	0.16956	0.19483	0.19024	10.625
	24 cis-1,2-dichloroethene	0.25252	0.22435	0.23643	0.24337	0.25109	0.24155	4.795
M	25 1,2-Dichloroethene (total)	0.23636	0.21472	0.22957	0.23335	0.24221	0.23124	4.467
	26 Chloroform	0.38747	0.33704	0.36050	0.36450	0.38132	0.36617	5.405
	27 1,1,1-Trichloroethane	0.30424	0.26684	0.29350	0.30712	0.32355	0.29905	7.016
	28 Carbon Tetrachloride	0.23539	0.23513	0.25585	0.26585	0.28366	0.25518	8.124
	29 1,2-Dichloroethane	0.38212	0.36395	0.35520	0.36630	0.38803	0.37112	3.653
	30 Benzene	1.00177	0.87074	0.93231	0.96427	0.98519	0.95085	5.443
	31 Trichloroethene	0.23266	0.23852	0.24566	0.25705	0.26066	0.24691	4.821
	32 1,2-Dichloropropane	0.29743	0.27529	0.27352	0.28435	0.29308	0.28473	3.708
	33 Bromodichloromethane	0.26228	0.24286	0.26154	0.27222	0.28393	0.26457	5.729

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

	Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	$\overline{RRF}$	% RSD	
	34 2-Chloroethyl vinyl ether	0.08814	0.10133	0.10593	0.11630	0.13434	0.10921	15.851	
	35 4-Methyl-2-pentanone	0.30365	0.34522	0.34234	0.33365	0.38112	0.34120	8.131	
	36 cis-1,3-Dichloropropene	0.34538	0.33303	0.35279	0.37208	0.39312	0.35928	6.577	
	37 Toluene	1.44385	1.35019	1.35500	1.41788	1.44151	1.40169	3.281	
	38 trans-1,3-Dichloropropene	0.38476	0.39912	0.40463	0.44012	0.45420	0.41657	7.029	
	39 2-Hexanone	0.29687	0.32824	0.32305	0.32006	0.35342	0.32433	6.234	
	40 1,1,2-Trichloroethane	0.29133	0.26314	0.26286	0.25980	0.26995	0.26942	4.751	
	41 Tetrachloroethene	0.27164	0.25022	0.25552	0.26448	0.27268	0.26291	3.754	
	42 Dibromochloromethane	0.23079	0.24613	0.25938	0.27420	0.28718	0.25954	8.584	
	43 Chlorobenzene	1.04768	0.92592	0.94238	0.97635	0.98487	0.97544	4.823	
	44 Ethylbenzene	0.53067	0.51877	0.53511	0.55073	0.56636	0.54033	3.426	
	45 m + p-Xylene	0.64024	0.62475	0.63262	0.66792	0.68285	0.64968	3.797	
	46 Xylene-o	0.65659	0.59347	0.62521	0.65969	0.67118	0.64123	4.938	
M	47 Xylenes (total)	0.64569	0.61433	0.63015	0.66518	0.67896	0.64686	4.020	
	48 Styrene	0.99492	0.96790	1.04782	1.08452	1.13504	1.04604	6.435	
	49 Bromoform	0.12341	0.12840	0.14612	0.15767	0.17728	0.14658	15.000	
	50 1,1,2,2-Tetrachloroethane	0.55373	0.64552	0.61686	0.64262	0.66797	0.62534	7.027	
	51 1,3-Dichlorobenzene	1.54315	1.34606	1.38221	1.46035	1.49163	1.44468	5.556	
	52 1,4-Dichlorobenzene	1.72231	1.41375	1.39457	1.49866	1.49199	1.50425	8.665	
	53 1,2-Dichlorobenzene	1.49120	1.29247	1.33475	1.40417	1.40139	1.38480	5.476	
	54 Freon-113	0.15559	0.16762	0.17159	0.18272	0.19096	0.17370	7.877	
	55 Acetonitrile	0.03569	0.03461	0.03260	0.03317	0.03448	0.03411	3.608	
	56 Iodomethane	0.37293	0.34117	0.34264	0.35887	0.37249	0.35762	4.315	
	57 3-Chloropropene	0.11923	0.12023	0.12128	0.12593	0.12509	0.12235	2.443	
	58 2-Chloro-1,3-butadiene	0.50975	0.49527	0.51226	0.54351	0.54459	0.52108	4.214	
	59 Propionitrile	0.05271	0.05198	0.05411	0.04959	0.05114	0.05191	3.256	
	60 Methacrylonitrile	0.21782	0.23173	0.23333	0.21903	0.22708	0.22580	3.156	
	61 Isobutanol	0.00610	0.00898	0.01011	0.00957	0.01085	0.00912	19.994	<-
	62 Methyl Methacrylate	0.27902	0.30729	0.33792	0.32164	0.34503	0.31818	8.277	
	63 1,4-Dioxane	0.00266	0.00284	0.00265	0.00265	0.00290	0.00274	4.338	<-
	64 Dibromomethane	0.11436	0.12526	0.12219	0.12655	0.13300	0.12427	5.471	
	65 Ethyl Methacrylate	0.33286	0.37158	0.38633	0.40959	0.43727	0.38753	10.164	
	66 1,2-Dibromoethane	0.30579	0.27365	0.27200	0.28157	0.28306	0.28321	4.769	

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 14-AUG-2000 08:43
End Cal Date : 08-NOV-2000 09:22
Quant Method : ISTD
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Integrator : HP RTE
Method file : \\qcanoh04\dd\chem\MSV\a3ux9.i\N01108B.b\8260SUX9-3.m
Cal Date : 08-Nov-2000 10:12 mcdaniels
Curve Type : Average

Compound	25.000 Level 1	100.000 Level 2	250.000 Level 3	500.000 Level 4	1000.000 Level 5	RRF	% RSD	
67 1,1,1,2-Tetrachloroethane	0.21701	0.22790	0.25093	0.27584	0.28332	0.25100	11.531	
68 1,2,3-Trichloropropane	0.82794	0.80721	0.78841	0.83536	0.89012	0.82981	4.627	
69 1,4-Dichloro-2-butene	0.28023	0.28931	0.27696	0.28792	0.32267	0.29142	6.251	
70 Pentachloroethane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
71 Benzyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
72 1,2-Dibromo-3-chloropropane	0.10312	0.10861	0.12307	0.12388	0.13543	0.11882	10.894	
73 Ethanol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
74 n-Butanol	0.00390	0.00604	0.00651	0.00703	0.00801	0.00630	24.226	<-
75 Ethyl Acetate	0.34728	0.36258	0.37994	0.35230	0.37164	0.36275	3.707	
76 Cyclohexanone	0.03233	0.03628	0.03889	0.03484	0.03761	0.03599	7.071	
77 Ethyl Ether	0.26911	0.27724	0.28299	0.28377	0.28371	0.27936	2.272	
78 Methyl tert-butyl ether	0.47862	0.44985	0.44093	0.44516	0.43373	0.44966	3.834	
79 Tetrahydrofuran	0.11115	0.11240	0.10564	0.10197	0.12259	0.11075	7.086	
80 Dichlorofluoromethane	0.39694	0.38093	0.38276	0.39690	0.39493	0.39049	2.039	
81 2-Nitropropane	0.02881	0.03089	0.03633	0.03299	0.03997	0.03380	13.107	
82 tert-Butyl Alcohol	0.02851	0.02925	0.02687	0.02845	0.03358	0.02933	8.613	
83 Cyclohexane	0.58442	0.53744	0.54892	0.58527	0.61698	0.57461	5.535	
84 Hexane	0.48349	0.44865	0.45145	0.49681	0.54049	0.48418	7.772	
85 Isopropyl Ether	1.15517	1.14081	1.13489	1.17602	1.16489	1.15436	1.465	
86 2,2-Dichloropropane	0.25603	0.23262	0.26066	0.27540	0.29136	0.26322	8.356	
87 1,1-Dichloropropene	0.29270	0.26942	0.29639	0.29793	0.31548	0.29438	5.601	
88 1,3-Dichloropropane	0.48381	0.45987	0.46986	0.48849	0.50276	0.48096	3.461	
89 Isopropylbenzene	1.57995	1.47139	1.56095	1.62885	1.66729	1.58169	4.705	
90 Bromobenzene	0.77167	0.67797	0.68065	0.73058	0.72281	0.71674	5.427	
91 2-Chlorotoluene	0.75015	0.66514	0.69631	0.73067	0.73406	0.71527	4.782	
92 n-Propylbenzene	0.91953	0.81945	0.84528	0.92592	0.92981	0.88800	5.826	
93 4-Chlorotoluene	0.74500	0.71160	0.72405	0.77778	0.75498	0.74268	3.499	
94 1,3,5-Trimethylbenzene	2.51707	2.36693	2.40074	2.61090	2.61669	2.50247	4.632	
95 tert-Butylbenzene	2.22311	2.14234	2.25616	2.42412	2.46290	2.30172	5.934	
96 1,2,4-Trimethylbenzene	2.56679	2.39101	2.46984	2.67702	2.65424	2.55178	4.758	
97 sec-Butylbenzene	3.21335	3.01344	3.15114	3.40606	3.41858	3.24051	5.332	
98 4-Isopropyltoluene	2.55506	2.48292	2.67768	2.84538	2.89473	2.69115	6.629	
99 n-Butylbenzene	2.22555	2.18309	2.35261	2.48073	2.57793	2.36398	7.060	

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b/UX9621.D
Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX9621.D
Analysis Type: SOIL

Injection Date: 04-DEC-2000 09:58
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0	Chlorobenzene	250.0000	248.2037	0.7	50.0
0	1,1-Dichloroethene	250.0000	269.7097	7.9	20.0
0	Xylene-o	250.0000	256.4064	2.6	50.0
0	Toluene	250.0000	253.3779	1.4	20.0
0	m + p-Xylene	500.0000	517.5735	3.5	50.0
0	Trichloroethene	250.0000	262.3718	4.9	50.0
0	Benzene	250.0000	257.8304	3.1	50.0
1	Chloromethane	250.0000	261.8158	4.7	50.0
2	Bromomethane	250.0000	196.4534	21.4	50.0
3	Vinyl Chloride	250.0000	278.1624	11.3	20.0
4	Chloroethane	250.0000	208.7090	16.5	50.0
5	Methylene Chloride	250.0000	257.3028	2.9	50.0
6	Acetone	250.0000	192.4666	23.0	50.0
7	Carbon Disulfide	250.0000	294.4035	17.8	50.0
9	1,1-Dichloroethane	250.0000	249.1049	0.4	50.0
10	trans-1,2-Dichloroethene	250.0000	259.7974	3.9	50.0
11	cis-1,2-dichloroethene	250.0000	257.9814	3.2	50.0
12	1,2-Dichloroethene (total)	500.0000	517.7787	3.6	50.0
13	Chloroform	250.0000	238.9201	4.4	20.0
14	1,2-Dichloroethane	250.0000	228.6845	8.5	50.0
15	2-Butanone	250.0000	210.8785	15.6	50.0
16	1,1,1-Trichloroethane	250.0000	229.2272	8.3	50.0
17	Carbon Tetrachloride	250.0000	228.7457	8.5	50.0
18	Bromodichloromethane	250.0000	239.8919	4.0	50.0
19	Fluorobenzene	250.0000	250.0000	0.0	50.0
19	1,2-Dichloropropane	250.0000	246.8941	1.2	20.0
20	cis-1,3-Dichloropropene	250.0000	261.5901	4.6	50.0
22	Dibromochloromethane	250.0000	251.7287	0.7	50.0
23	1,1,2-Trichloroethane	250.0000	242.6154	3.0	50.0
25	trans-1,3-Dichloropropene	250.0000	256.3785	2.6	50.0
25	1,4-Dichlorobenzene-d4	250.0000	250.0000	0.0	50.0
26	Bromoform	250.0000	264.4207	5.8	50.0
27	4-Methyl-2-pentanone	250.0000	229.3552	8.3	50.0
28	2-Hexanone	250.0000	230.4372	7.8	50.0
29	Tetrachloroethene	250.0000	256.9044	2.8	50.0
30	1,1,2,2-Tetrachloroethane	250.0000	262.0634	4.8	50.0
33	Ethylbenzene	250.0000	254.6422	1.9	20.0
34	Styrene	250.0000	261.1321	4.5	50.0
35	Xylenes (total)	750.0000	773.9798	3.2	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b/UX9621.D
Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX9621.D
Analysis Type: SOIL

Injection Date: 04-DEC-2000 09:58
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N0

	COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
38	Dichlorodifluoromethane	250.0000	271.3069	8.5	50.0
39	Chlorobenzene-d5	250.0000	250.0000	0.0	50.0
39	Trichlorofluoromethane	250.0000	213.6409	14.5	50.0
40	Acrolein	2500.0000	1566.4056	37.3	50.0
41	Acrylonitrile	2500.0000	2167.9026	13.3	50.0
42	Vinyl acetate	250.0000	141.4807	43.4	50.0
43	2-Chloroethyl vinyl ether	500.0000	525.4317	5.1	50.0
47	Freon-113	250.0000	238.1657	4.7	50.0
48	1,3-Dichlorobenzene	250.0000	256.9120	2.8	50.0
49	1,4-Dichlorobenzene	250.0000	250.7287	0.3	50.0
50	1,2-Dichlorobenzene	250.0000	256.0366	2.4	50.0
51	Acetonitrile	2500.0000	2445.0935	2.2	50.0
52	Iodomethane	250.0000	242.6054	3.0	50.0
59	1,4-Dioxane	12500.0000	9996.5116	20.0	50.0
60	Dibromomethane	250.0000	237.7856	4.9	50.0
62	Ethyl Methacrylate	250.0000	257.8599	3.1	50.0
63	1,2-Dibromoethane	250.0000	233.1166	6.8	50.0
65	1,2,3-Trichloropropane	250.0000	241.1491	3.5	50.0
66	1,4-Dichloro-2-butene	250.0000	217.1387	13.1	50.0
82	Methyl tert-butyl ether	250.0000	254.4749	1.8	50.0
84	Tetrahydrofuran	250.0000	214.6621	14.1	50.0
97	tert-Butyl Alcohol	5000.0000	3930.6462	21.4	50.0
98	Cyclohexane	250.0000	240.1782	3.9	50.0
99	Hexane	250.0000	237.5056	5.0	50.0
102	2,2-Dichloropropane	250.0000	235.3391	5.9	50.0
103	1,1-Dichloropropene	250.0000	253.9780	1.6	50.0
104	1,3-Dichloropropane	250.0000	251.5695	0.6	50.0
105	Isopropylbenzene	250.0000	250.9248	0.4	50.0
106	Bromobenzene	250.0000	260.0382	4.0	50.0
107	2-Chlorotoluene	250.0000	265.5107	6.2	50.0
108	n-Propylbenzene	250.0000	264.1314	5.7	50.0
109	4-Chlorotoluene	250.0000	258.1773	3.3	50.0
110	1,3,5-Trimethylbenzene	250.0000	253.2682	1.3	50.0
111	tert-Butylbenzene	250.0000	253.0004	1.2	50.0
112	1,2,4-Trimethylbenzene	250.0000	253.9127	1.6	50.0
113	sec-Butylbenzene	250.0000	265.4686	6.2	50.0
114	4-Isopropyltoluene	250.0000	259.4646	3.8	50.0
115	n-Butylbenzene	250.0000	262.5301	5.0	50.0
116	1,2,4-Trichlorobenzene	250.0000	263.7101	5.5	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 04-DEC-2000 09:58
Lab File ID: UX9621.D Init. Cal. Date(s): 14-AUG-2000 08-NOV-2000
Analysis Type: SOIL Init. Cal. Times: 08:43 09:22
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b\8260SUX9-3.m

Soil

	COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D
$	4 1,2-Dichloroethane-d4	0.24658	0.25001	0.010	1.4	50.0
$	5 Toluene-d8	1.10657	1.30425	0.010	17.9	50.0
$	6 Bromofluorobenzene	0.38970	0.42893	0.010	10.1	50.0
$	7 Dibromofluoromethane	0.19486	0.21631	0.010	11.0	50.0
	8 Dichlorodifluoromethane	0.12027	0.13052	0.010	8.5	50.0
	9 Chloromethane	0.30722	0.32175	0.100	4.7	50.0
	10 Vinyl Chloride	0.24436	0.27189	0.010	11.3	20.0
	11 Bromomethane	0.15111	0.11874	0.010	-21.4	50.0
	12 Chloroethane	0.17939	0.14976	0.010	-16.5	50.0
	13 Trichlorofluoromethane	0.29291	0.25031	0.010	-14.5	50.0
	14 Acrolein	0.05329	0.03339	0.010	-37.3	50.0
	16 1,1-Dichloroethene	0.17850	0.19257	0.050	7.9	20.0
	15 Acetone	0.14890	0.11463	0.010	-23.0	50.0
	54 Freon-113	0.17370	0.16547	0.010	-4.7	50.0
	56 Iodomethane	0.35762	0.34704	0.010	-3.0	50.0
	18 Carbon Disulfide	0.52271	0.61555	0.010	17.8	50.0
	55 Acetonitrile	0.03411	0.03336	0.010	-2.2	50.0
	17 Methylene Chloride	0.22432	0.23088	0.010	2.9	50.0
	19 Acrylonitrile	0.13950	0.12097	0.010	-13.3	50.0
	78 Methyl tert-butyl ether	0.44966	0.45771	0.010	1.8	50.0
	84 Hexane	0.48418	0.45998	0.010	-5.0	50.0
	21 Vinyl acetate	0.40950	0.23174	0.010	-43.4	50.0
	22 1,1-Dichloroethane	0.46284	0.46118	0.100	-0.4	50.0
	23 2-Butanone	0.19024	0.16047	0.010	-15.6	50.0
	20 trans-1,2-Dichloroethene	0.22093	0.22959	0.010	3.9	50.0
	24 cis-1,2-dichloroethene	0.24155	0.24926	0.010	3.2	50.0
M	25 1,2-Dichloroethene (total)	0.23124	0.23943	0.010	3.5	50.0
	86 2,2-Dichloropropane	0.26322	0.24778	0.010	-5.9	50.0
	111 Bromochloromethane	0.11635	0.12162	0.010	4.5	50.0
	79 Tetrahydrofuran	0.11075	0.09510	0.010	-14.1	50.0
	26 Chloroform	0.36617	0.34994	0.010	-4.4	20.0
	27 1,1,1-Trichloroethane	0.29905	0.27420	0.010	-8.3	50.0
	87 1,1-Dichloropropene	0.29438	0.29907	0.010	1.6	50.0
	28 Carbon Tetrachloride	0.25518	0.23348	0.010	-8.5	50.0
	29 1,2-Dichloroethane	0.37112	0.33948	0.010	-8.5	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b/UX9620.D
Report Date: 12/04/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i Injection Date: 04-DEC-2000 09:35
Lab File ID: UX9620.D Lab Sample ID: 250NG-A9CC
Analysis Type: SOIL Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
19 Fluorobenzene	250.0000	250.0000	0.0	50.0	
25 1,4-Dichlorobenzene-d4	250.0000	250.0000	0.0	50.0	
39 Chlorobenzene-d5	250.0000	250.0000	0.0	50.0	
53 3-Chloropropene	250.0000	371.8386	48.7	50.0	
54 2-Chloro-1,3-butadiene	250.0000	340.0402	36.0	50.0	
55 Propionitrile	500.0000	491.3278	1.7	50.0	
56 Methacrylonitrile	250.0000	249.8749	0.1	50.0	
57 Isobutanol	5000.0000	5866.6378	17.3	50.0	
58 Methyl Methacrylate	250.0000	258.6268	3.5	50.0	
64 1,1,1,2-Tetrachloroethane	250.0000	392.2658	56.9	50.0	<-
69 1,2-Dibromo-3-chloropropane	500.0000	613.6466	22.7	50.0	
73 n-Butanol	5000.0000	6500.4443	30.0	50.0	
74 Ethyl Acetate	500.0000	516.0801	3.2	50.0	
75 Cyclohexanone	2500.0000	5817.3593	132.7	50.0	<-
76 Ethyl Ether	250.0000	294.4610	17.8	50.0	
85 Dichlorofluoromethane	250.0000	315.4074	26.2	50.0	
86 2-Nitropropane	500.0000	914.3137	82.9	50.0	<-
100 Isopropyl Ether	250.0000	326.8155	30.7	50.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 04-DEC-2000 09:35
Lab File ID: UX9620.D Init. Cal. Date(s): 14-AUG-2000 08-NOV-2000
Analysis Type: SOIL Init. Cal. Times: 08:43 09:22
Lab Sample ID: 250NG-A9CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N01204A.b\8260SUX9-3.m

COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D	
57 3-Chloropropene	0.12235	0.18198	0.010	48.7	50.0	
58 2-Chloro-1,3-butadiene	0.52108	0.70875	0.010	36.0	50.0	
59 Propionitrile	0.05191	0.05101	0.010	-1.7	50.0	
60 Methacrylonitrile	0.22580	0.22569	0.010	-0.1	50.0	
61 Isobutanol	0.00912	0.01070	0.010	17.3	50.0	<-
62 Methyl Methacrylate	0.31818	0.32916	0.010	3.5	50.0	
67 1,1,1,2-Tetrachloroethane	0.25100	0.39383	0.010	56.9	50.0	<-
72 1,2-Dibromo-3-chloropropane	0.11882	0.14583	0.010	22.7	50.0	
74 n-Butanol	0.00630	0.00819	0.010	30.0	50.0	<-
75 Ethyl Acetate	0.36275	0.37442	0.010	3.2	50.0	
76 Cyclohexanone	0.03599	0.08375	0.010	132.7	50.0	<-
77 Ethyl Ether	0.27936	0.32905	0.010	17.8	50.0	
80 Dichlorofluoromethane	0.39049	0.49266	0.010	26.2	50.0	
81 2-Nitropropane	0.03380	0.06180	0.010	82.9	50.0	<-
85 Isopropyl Ether	1.15436	1.50905	0.010	30.7	50.0	

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Lot #: A0L040000 WO #: DQQV41AC
BATCH: 0339124

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	% REC	QC LIMITS REC	QUAL
Chloromethane	20	19	95	61 - 129	
Methylene chloride	20	19	97	81 - 134	
Acetone	20	47	234	10 - 279	
Bromomethane	20	20	100	47 - 160	
Vinyl chloride	20	19	96	69 - 121	
Chloroethane	20	20	102	80 - 118	
Carbon disulfide	20	21	103	81 - 125	
1,1-Dichloroethene	20	21	107	63 - 130	
1,1-Dichloroethane	20	21	104	87 - 120	
1,2-Dichloroethene (total	40	39	98	50 - 150	
1,2-Dichloroethane	20	21	104	88 - 119	
Chloroform	20	21	103	90 - 117	
2-Butanone (MEK)	20	40	201	20 - 232	
1,1,1-Trichloroethane	20	21	104	91 - 113	
Carbon tetrachloride	20	22	110	84 - 119	
Bromodichloromethane	20	22	110	90 - 114	
1,2-Dichloropropane	20	20	100	91 - 113	
Trichloroethene	20	21	103	75 - 122	
cis-1,3-Dichloropropene	20	20	101	85 - 112	
Dibromochloromethane	20	24	119*	81 - 112	a
1,1,2-Trichloroethane	20	21	107	81 - 117	
Benzene	20	20	98	80 - 116	
trans-1,3-Dichloropropene	20	20	98	84 - 112	
Bromoform	20	25	124*	71 - 118	a
4-Methyl-2-pentanone (MIB	20	27	134	11 - 210	
2-Hexanone	20	43	214	10 - 225	
Tetrachloroethene	20	20	99	83 - 111	
Toluene	20	20	99	74 - 119	
1,1,2,2-Tetrachloroethane	20	22	109	80 - 127	
Chlorobenzene	20	20	99	76 - 117	
Ethylbenzene	20	20	98	90 - 116	

(Continued on next page)

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Matrix Spike ID: LAB MS/MSD

Lot #: A0K220235 WO #: DQCEV1DN
BATCH: 0339124

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	MS CONCENT. (ug/L)	MS % REC	LIMITS REC	QUAL
Chloromethane	20	ND	19	95	61 - 129	
Bromomethane	20	ND	19	97	47 - 160	
Vinyl chloride	20	ND	19	97	69 - 121	
1,1-Dichloroethene	20	ND	21	106	62 - 130	
Chloroethane	20	ND	20	99	80 - 118	
Methylene chloride	20	ND	19	94	81 - 134	
Acetone	20	ND	17	84	10 - 279	
Carbon disulfide	20	ND	20	99	81 - 125	
1,1-Dichloroethane	20	ND	20	102	87 - 120	
1,2-Dichloroethene (total	40	ND	38	96	50 - 150	
Chloroform	20	1.6	22	102	90 - 117	
1,2-Dichloroethane	20	ND	20	101	88 - 119	
2-Butanone (MEK)	20	ND	19	93	20 - 232	
1,1,1-Trichloroethane	20	ND	21	103	91 - 113	
1,2-Dichloropropane	20	ND	20	98	91 - 113	
cis-1,3-Dichloropropene	20	ND	20	98	85 - 112	
Carbon tetrachloride	20	ND	22	109	84 - 119	
Bromodichloromethane	20	ND	22	108	90 - 114	
Trichloroethene	20	ND	20	102	62 - 130	
Dibromochloromethane	20	ND	23	116*	81 - 112	a
1,1,2-Trichloroethane	20	ND	21	103	81 - 117	
Benzene	20	ND	20	98	76 - 118	
trans-1,3-Dichloropropene	20	ND	19	97	84 - 112	
Bromoform	20	ND	23	117	71 - 118	
4-Methyl-2-pentanone (MIB	20	ND	20	101	11 - 210	
2-Hexanone	20	ND	20	100	10 - 225	
Tetrachloroethene	20	ND	20	100	83 - 111	
1,1,2,2-Tetrachloroethane	20	ND	21	106	80 - 127	

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SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Matrix Spike ID: LAB MS/MSD

Lot #: A0K220235 WO #: DQCEV1DN
BATCH: 0339124

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENT. (ug/L)	MS CONCENT. (ug/L)	MS % REC	LIMITS REC	QUAL
Toluene	20	ND	20	99	70 - 119	
Chlorobenzene	20	ND	20	100	76 - 117	
Ethylbenzene	20	ND	19	97	90 - 116	
Styrene	20	ND	19	97	81 - 113	
Xylenes (total)	60	ND	59	98	90 - 114	
cis-1,2-Dichloroethene	20	ND	19	96	50 - 150	
trans-1,2-Dichloroethene	20	ND	19	95	70 - 130	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 35 outside limits

COMMENTS:

FORM III

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Matrix Spike ID: LAB MS/MSD

Lot #: A0K220235 WO #: DQCEV1DP
BATCH: 0339124

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENT. (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
1,1-Dichloroethene	20	22	108	1.7	17	62 - 130	
Chloromethane	20	19	94	0.90	20	61 - 129	
Methylene chloride	20	20	98	3.6	27	81 - 134	
Acetone	20	17	86	2.0	32	10 - 279	
Bromomethane	20	20	99	2.1	22	47 - 160	
Vinyl chloride	20	20	98	0.76	27	69 - 121	
Chloroethane	20	20	101	2.3	17	80 - 118	
Carbon disulfide	20	20	102	2.8	19	81 - 125	
1,1-Dichloroethane	20	21	105	2.4	22	87 - 120	
1,2-Dichloroethene (total	40	39	98	2.1	50	50 - 150	
Chloroform	20	22	104	1.2	18	90 - 117	
1,2-Dichloroethane	20	21	103	2.8	12	88 - 119	
2-Butanone (MEK)	20	19	96	2.9	35	20 - 232	
1,1,1-Trichloroethane	20	21	105	2.4	17	91 - 113	
Carbon tetrachloride	20	22	111	1.9	17	84 - 119	
Bromodichloromethane	20	22	110	2.1	18	90 - 114	
1,2-Dichloropropane	20	20	100	2.2	18	91 - 113	
cis-1,3-Dichloropropene	20	20	101	3.2	19	85 - 112	
Benzene	20	20	99	1.2	14	76 - 118	
trans-1,3-Dichloropropene	20	20	98	1.3	32	84 - 112	
Trichloroethene	20	20	102	0.020	14	62 - 130	
Dibromochloromethane	20	23	116*	0.20	18	81 - 112	a
1,1,2-Trichloroethane	20	21	104	1.3	20	81 - 117	
Bromoform	20	24	118	1.4	34	71 - 118	
4-Methyl-2-pentanone (MIB	20	20	99	2.7	34	11 - 210	
Toluene	20	20	100	1.6	16	70 - 119	
Chlorobenzene	20	20	102	2.2	15	76 - 117	
Ethylbenzene	20	20	99	1.7	18	90 - 116	

(Continued on next page)

SW846 8260B MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Matrix Spike ID: LAB MS/MSD

Lot #: A0K220235 WO #: DQCEV1DP
BATCH: 0339124

COMPOUND	SPIKE ADDED	MSD CONCENT.	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	QUAL
2-Hexanone	20	20	99	0.79	24	10 - 225	
Tetrachloroethene	20	21	103	3.2	26	83 - 111	
1,1,2,2-Tetrachloroethane	20	21	107	0.87	24	80 - 127	
Styrene	20	19	96	1.0	18	81 - 113	
Xylenes (total)	60	60	99	1.2	25	90 - 114	
cis-1,2-Dichloroethene	20	20	99	2.5	50	50 - 150	
trans-1,2-Dichloroethene	20	19	97	1.7	50	70 - 130	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 35 outside limits
Spike Recovery: 1 out of 35 outside limits

COMMENTS:

FORM III

SW846 8260B CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Lot #: A0L050000 WO #: DQR771AC
BATCH: 0340103

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
Chloromethane	50	42	84	10 - 273	
Bromomethane	50	37	74	10 - 242	
Chloroethane	50	38	76*	82 - 114	a
Methylene chloride	50	49	99	10 - 221	
Carbon disulfide	50	54	108	81 - 125	
Vinyl chloride	50	44	89	41 - 138	
Acetone	50	86	173*	80 - 120	a
1,1-Dichloroethene	50	51	102	55 - 142	
1,1-Dichloroethane	50	47	95	59 - 155	
1,2-Dichloroethene (total	100	92	92	50 - 150	
Chloroform	50	46	92	77 - 126	
1,2-Dichloroethane	50	45	89	76 - 127	
2-Butanone (MEK)	50	84	168*	20 - 155	a
1,1,1-Trichloroethane	50	43	86	52 - 162	
Carbon tetrachloride	50	43	87	66 - 141	
Bromodichloromethane	50	48	96	35 - 155	
1,2-Dichloropropane	50	47	94	10 - 210	
cis-1,3-Dichloropropene	50	50	101	10 - 227	
Trichloroethene	50	48	97	70 - 131	
Dibromochloromethane	50	51	101	53 - 149	
1,1,2-Trichloroethane	50	49	98	52 - 150	
Benzene	50	48	96	75 - 129	
trans-1,3-Dichloropropene	50	50	99	17 - 183	
Bromoform	50	53	106	45 - 169	
4-Methyl-2-pentanone (MIB	50	55	110	90 - 125	
2-Hexanone	50	80	160*	87 - 129	a
Tetrachloroethene	50	46	91	68 - 136	
1,1,2,2-Tetrachloroethane	50	53	106	46 - 157	
Toluene	50	47	94	71 - 130	
Chlorobenzene	50	47	94	75 - 127	
Ethylbenzene	50	46	91	37 - 162	

(Continued on next page)

SW846 8260B CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Lot #: A0L050000 WO #: DQR771AD
BATCH: 0340103

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
Chloromethane	50	41	81	10 - 273	
Vinyl chloride	50	43	86	41 - 138	
Chloroethane	50	38	75*	82 - 114	a
Bromomethane	50	37	75	10 - 242	
Methylene chloride	50	49	97	10 - 221	
Acetone	50	80	159*	80 - 120	a
Carbon disulfide	50	53	106	81 - 125	
1,1-Dichloroethene	50	49	97	55 - 142	
1,1-Dichloroethane	50	47	93	59 - 155	
1,2-Dichloroethene (total	100	92	92	50 - 150	
Chloroform	50	46	92	77 - 126	
1,2-Dichloroethane	50	45	90	76 - 127	
2-Butanone (MEK)	50	78	156*	20 - 155	a
1,1,1-Trichloroethane	50	43	85	52 - 162	
Carbon tetrachloride	50	42	84	66 - 141	
Bromodichloromethane	50	47	95	35 - 155	
1,2-Dichloropropane	50	47	94	10 - 210	
cis-1,3-Dichloropropene	50	50	99	10 - 227	
Trichloroethene	50	48	96	70 - 131	
Dibromochloromethane	50	50	100	53 - 149	
1,1,2-Trichloroethane	50	48	97	52 - 150	
Benzene	50	48	96	75 - 129	
trans-1,3-Dichloropropene	50	50	101	17 - 183	
Bromoform	50	53	106	45 - 169	
4-Methyl-2-pentanone (MIB	50	52	105	90 - 125	
2-Hexanone	50	77	154*	87 - 129	a
Tetrachloroethene	50	46	93	68 - 136	
1,1,2,2-Tetrachloroethane	50	52	104	46 - 157	
Toluene	50	47	94	71 - 130	
Chlorobenzene	50	48	96	75 - 127	
Ethylbenzene	50	46	92	37 - 162	

(Continued on next page)

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 09:51
End Cal Date : 29-NOV-2000 00:07
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp8.i\01128b.b\8270l.m
Cal Date : 29-Nov-2000 08:31 ulmanm
Curve Type : Average

	Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
65	1,2,4,5-Tetrachlorobenzene	0.56914	0.56532	0.57625	0.59830	0.57667	0.57759	0.57722	1.979
66	2,4,6-Trichlorophenol	0.33791	0.34201	0.33931	0.35472	0.35617	0.35142	0.34692	2.341
67	2,4,5-Trichlorophenol	0.34327	0.34762	0.35307	0.36702	0.36132	0.36521	0.35625	2.737
68	1,2,3,5-Tetrachlorobenzene	0.55487	0.53572	0.52974	0.55238	0.58703	0.55817	0.55298	3.642
69	1,4-Dinitrobenzene	0.15737	0.17989	0.19568	0.21146	0.21441	0.21408	0.19548	11.788
70	2-Chloronaphthalene	1.08085	1.04350	1.02928	1.06903	1.10635	1.06907	1.06635	2.558
71	Isosafrole 1	0.14784	0.14718	0.15065	0.16153	0.15558	0.15563	0.15307	3.606
M 188	Isosafrole, Total	1.06962	1.08082	1.12417	1.16424	1.12870	1.12859	1.11602	3.130
72	Isosafrole 2	0.92178	0.93364	0.97352	1.00270	0.97312	0.97297	0.96295	3.098
73	2-Nitroaniline	0.40416	0.44908	0.41968	0.43678	0.41156	0.42585	0.42452	3.887
74	1,2,3,4-Tetrachlorobenzene	0.51474	0.48629	0.48028	0.50005	0.52313	0.50140	0.50098	3.250
75	1,4-Naphthoquinone	0.35544	0.38790	0.39145	0.39977	0.39791	0.39487	0.38789	4.245
76	Dimethylphthalate	1.19610	1.16854	1.16044	1.18331	1.12918	1.13382	1.16190	2.288
77	m-Dinitrobenzene	0.18823	0.20479	0.21609	0.23010	0.23010	0.23066	0.21666	8.013
78	2,6-Dinitrotoluene	0.26602	0.27177	0.26837	0.27245	0.25412	0.26261	0.26589	2.568
79	Acenaphthylene	1.69747	1.66114	1.65584	1.70905	1.70904	1.68598	1.68642	1.383
80	1,2-Dinitrobenzene	0.12318	0.13428	0.12659	0.12968	0.11811	0.12115	0.12550	4.710
81	3-Nitroaniline	0.20632	0.25393	0.22687	0.23601	0.20805	0.22398	0.22586	7.906
82	Acenaphthene	1.07221	1.04070	1.02930	1.06646	1.05621	1.05021	1.05252	1.520
83	2,4-Dinitrophenol	0.06500	0.11619	0.11254	0.12885	0.10791	0.12253	0.10883	20.865
84	Pentachlorobenzene	0.47349	0.46545	0.48615	0.50242	0.49231	0.49485	0.48578	2.861
85	4-Nitrophenol	0.13493	0.19126	0.15635	0.16837	0.15005	0.15640	0.15956	11.889
86	Dibenzofuran	1.40785	1.40707	1.37921	1.42047	1.37827	1.38625	1.39652	1.261
87	2,4-Dinitrotoluene	0.33690	0.36946	0.35575	0.36111	0.31827	0.33486	0.34606	5.558
88	2,3,4,6-Tetrachlorophenol	0.19170	0.23383	0.25622	0.28345	0.27980	0.28360	0.25477	14.367
89	1-Naphthylamine	0.98234	0.93123	1.02243	1.08162	1.07461	1.08912	1.03022	6.175
90	Zinophos	0.35988	0.34950	0.36066	0.34341	0.32808	0.32715	0.34478	4.290
91	2,3,5,6-Tetrachlorophenol	0.25693	0.28749	0.27742	0.29180	0.27114	0.28258	0.27789	4.532
92	2-Naphthylamine	0.94992	0.91547	0.99215	1.07706	1.06370	1.05921	1.00959	6.669
93	Diethylphthalate	1.27466	1.24159	1.21226	1.22957	1.12482	1.15478	1.20628	4.658
94	Fluorene	1.17558	1.19070	1.16454	1.20000	1.13213	1.16404	1.17116	2.039
95	4-Chlorophenyl-phenylether	0.60664	0.60236	0.59514	0.61011	0.58095	0.59187	0.59785	1.796
96	4-Nitroaniline	0.16634	0.23424	0.19656	0.20000	0.17671	0.18632	0.19336	12.199

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 09:51
End Cal Date : 29-NOV-2000 00:07
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp8.i\01128b.b\8270l.m
Cal Date : 29-Nov-2000 08:31 ulmanm
Curve Type : Average

	Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	RRF	% RSD
97	5-Nitro-o-toluidine	0.26717	0.29191	0.31323	0.33006	0.31935	0.34410	0.31097	8.888
98	4,6-Dinitro-2-methylphenol	0.10515	0.12694	0.12848	0.14056	0.13393	0.13738	0.12874	9.833
99	N-Nitrosodiphenylamine	0.53836	0.50594	0.51840	0.55014	0.57169	0.56259	0.54119	4.702
100	1,2-Diphenylhydrazine	1.17466	1.03953	1.07716	1.13626	1.23201	1.18303	1.14044	6.271
101	Diphenylamine	0.53836	0.50594	0.51840	0.55014	0.57169	0.56259	0.54119	4.702
102	Tetraethyl dithiopyrophosphat	0.11267	0.10713	0.11079	0.10698	0.09618	0.09424	0.10467	7.322
103	Diallate 1	0.94877	0.88605	0.91641	0.87529	0.77585	0.76216	0.86075	8.790
M 189	Diallate, Total	3.86229	3.77868	3.92510	3.84265	3.77239	3.59567	3.79613	2.986
104	Phorate	0.18073	0.17146	0.17726	0.17098	0.14340	0.15128	0.16585	9.047
105	1,3,5-Trinitrobenzene	0.05940	0.08160	0.09095	0.10326	0.09352	0.09563	0.08739	17.630
106	4-Bromophenyl-phenylether	0.21658	0.20243	0.20855	0.21851	0.22691	0.22524	0.21637	4.384
107	Hexachlorobenzene	0.22543	0.20263	0.21039	0.21515	0.22217	0.22139	0.21619	3.962
108	Phenacetin	0.37659	0.40739	0.45078	0.47734	0.42793	0.42973	0.42829	8.104
109	Diallate 2	0.15267	0.14840	0.15152	0.15132	0.13390	0.13214	0.14499	6.480
110	Dimethoate	0.40322	0.40147	0.43751	0.42869	0.38219	0.37225	0.40422	6.281
111	Pentachlorophenol	0.09498	0.11202	0.11449	0.12369	0.12113	0.12338	0.11495	9.475
112	Pentachloronitrobenzene	0.10870	0.10905	0.11337	0.11042	0.09848	0.09754	0.10626	6.214
113	4-Aminobiphenyl	0.68720	0.65110	0.69127	0.73906	0.67932	0.67866	0.68777	4.185
114	Pronamide	0.35223	0.33994	0.36114	0.35632	0.31663	0.32028	0.34109	5.548
115	Phenanthrene	1.11162	1.06983	1.05271	1.08908	1.08947	1.08766	1.08340	1.850
116	Anthracene	1.06761	1.03762	1.01992	1.05746	1.07815	1.06583	1.05443	2.056
117	Dinoseb	0.11495	0.17736	0.20359	0.23550	0.21480	0.22050	0.19445	22.386
118	Disulfoton	0.60205	0.53888	0.57094	0.57638	0.51216	0.50778	0.55137	6.868
119	Carbazole	0.75919	0.85527	0.79387	0.79481	0.80292	0.81886	0.80415	3.951
120	Di-n-Butylphthalate	1.40651	1.24342	1.23182	1.23447	1.24724	1.23999	1.26724	5.402
121	4-Nitroquinoline 1-oxide	0.03178	0.07666	0.09109	0.12133	0.10752	0.10575	0.08902	35.874
122	Methapyrilene	0.37146	0.36315	0.33813	0.31821	0.26918	0.27216	0.32205	13.668
123	Fluoranthene	1.02373	1.07384	0.99044	0.99371	1.03581	1.04344	1.02683	3.079
124	Benzidine	0.46957	0.53684	0.52171	0.57999	0.59419	0.58469	0.54783	8.742
125	Pyrene	1.70556	1.42594	1.46789	1.46702	1.38941	1.36297	1.46980	8.355
126	Aramite 1	0.09243	0.08900	0.09766	0.08973	0.09670	0.09683	0.09373	4.103
M 191	Aramite, Total	0.49966	0.57554	0.62585	0.64240	0.63060	0.62065	0.59912	8.985
127	Aramite 2	0.13410	0.12519	0.13656	0.12698	0.12973	0.13557	0.13136	3.605

STL - North Canton

INITIAL CALIBRATION DATA

Start Cal Date : 15-NOV-2000 09:51
End Cal Date : 29-NOV-2000 00:07
Quant Method : ISTD
Origin : Disabled
Target Version : 4.04
Integrator : HP RTE
Method file : \\qcanoh05\dd\chem\MSS\a4hp8.i\01128b.b\8270l.m
Cal Date : 29-Nov-2000 08:31 ulmanm
Curve Type : Average

Compound	4.000 Level 1	10.000 Level 2	16.000 Level 3	24.000 Level 4	32.000 Level 5	40.000 Level 6	___ RRF	% RSD	
128 p-Dimethylamino azobenzene	0.33149	0.31702	0.34553	0.34341	0.35601	0.36682	0.34338	5.127	
129 p-Chlorobenzilate	0.65311	0.55225	0.59719	0.54097	0.54808	0.56467	0.57604	7.403	
130 Famphur	0.64616	0.48773	0.44654	0.16253	0.15088	0.11831	0.33536	65.762	<-
131 Butylbenzylphthalate	0.77853	0.65595	0.67989	0.65200	0.65394	0.64236	0.67711	7.564	
132 3,3'-Dimethylbenzidine	0.63770	0.56786	0.58383	0.55496	0.54341	0.53843	0.57103	6.412	
133 3,3'-Dimethoxybenzidine	0.23306	0.26133	0.22066	0.26606	0.27599	0.26990	0.25450	8.759	
134 2-Acetylaminofluorene	0.31151	0.43810	0.45881	0.49610	0.50852	0.49743	0.45175	16.321	
135 3,3'-Dichlorobenzidine	0.33957	0.34945	0.35770	0.38258	0.37349	0.37211	0.36248	4.509	
136 Benzo(a)Anthracene	1.19237	1.18445	1.16961	1.19516	1.16804	1.17782	1.18124	0.965	
137 Chrysene	1.14872	1.13228	1.11312	1.15356	1.14311	1.15863	1.14157	1.457	
138 4,4'-Methylene bis(o-chloroan	0.20214	0.20623	0.21042	0.22080	0.21540	0.21305	0.21134	3.143	
139 bis(2-ethylhexyl)Phthalate	1.19192	0.97419	0.98907	0.95181	0.96365	0.93128	1.00032	9.587	
140 Di-n-octylphthalate	2.12988	1.94635	1.95702	1.91203	2.05392	2.04593	2.00752	4.108	
141 Benzo(b)fluoranthene	1.21025	1.17825	1.17964	1.22246	1.25837	1.23448	1.21391	2.587	
142 Benzo(k)fluoranthene	1.22773	1.21290	1.22617	1.27087	1.26888	1.31687	1.25390	3.112	
143 7,12-dimethylbenz[a]anthracen	0.91937	0.74427	0.70484	0.90032	0.87790	0.90735	0.84234	11.049	
144 Hexachlorophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
145 Hexachlorophene product	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
146 Benzo(a)pyrene	1.04161	1.01448	1.03548	1.05627	1.06535	1.07014	1.04722	1.993	
148 3-Methylcholanthrene	0.75953	0.75243	0.65068	0.83583	0.85198	0.84943	0.78331	10.045	
149 Indeno(1,2,3-cd)pyrene	0.80129	0.78204	0.80625	0.85448	0.81671	0.83433	0.81585	3.140	
150 Dibenz(a,h)anthracene	0.73638	0.76173	0.81859	0.84854	0.83175	0.83134	0.80472	5.577	
151 Benzo(g,h,i)perylene	0.89426	0.82257	0.85688	0.87862	0.87232	0.85666	0.86355	2.845	
199 o-Ethylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
200 m,p-Ethylphenol	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	<-
201 3-Picoline	1.68401	1.75032	1.80810	1.93834	1.91001	1.91354	1.83405	5.622	
202 N,N-Dimethylacetamide	1.28200	1.31680	1.37513	1.54481	1.54294	1.49812	1.42497	8.117	
203 Benzaldehyde	1.54767	1.44923	1.42731	1.41623	1.37705	1.32916	1.42444	5.178	
204 Caprolactam	0.10900	0.11425	0.11019	0.11065	0.09984	0.10543	0.10823	4.616	
205 1,1'-Biphenyl	1.33808	1.29640	1.29574	1.34520	1.40348	1.34994	1.33814	2.989	
206 Atrazine	0.20984	0.19081	0.18521	0.18155	0.19340	0.18096	0.19029	5.666	
$ 154 Nitrobenzene-d5	0.55933	0.55484	0.54413	0.55842	0.55460	0.55332	0.55411	0.978	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 05-DEC-2000 10:25
Lab File ID: 8AM1205.D Init. Cal. Date(s): 15-NOV-2000 29-NOV-2000
Analysis Type: Init. Cal. Times: 09:51 00:07
Lab Sample ID: astd016 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp8.i\01205a.b\82701.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D
	7 N-Nitrosomorpholine	1.08875	1.07204	0.010	-1.5	50.0
	8 Ethyl methanesulfonate	1.56714	1.51894	0.010	-3.1	50.0
	14 2-Picoline	1.82012	1.91705	0.010	5.3	50.0
	15 N-Nitrosomethylethylamine	0.93432	0.92840	0.010	-0.6	50.0
	16 Methyl methanesulfonate	1.23589	1.15841	0.010	-6.3	50.0
	18 1,3-Dichloro-2-propanol	2.10974	2.12859	0.010	0.9	50.0
	19 N-Nitrosodiethylamine	0.89402	0.86343	0.010	-3.4	50.0
	25 Pentachloroethane	0.53148	0.61143	0.010	15.0	50.0
	36 N-Nitrosopyrrolidine	0.91612	0.87117	0.010	-4.9	50.0
	37 Acetophenone	2.34563	2.35488	0.010	0.4	50.0
	39 o-Toluidine	2.68455	2.60230	0.010	-3.1	50.0
	40 N-Nitrosopiperidine	0.19878	0.20337	0.010	2.3	50.0
	45 O,O,O-Triethyl phosphorothi	0.19301	0.20767	0.010	7.6	50.0
	53 a,a-Dimethyl-phenethylamine	0.77367	0.40934	0.010	-47.1	50.0
	54 2,6-Dichlorophenol	0.28842	0.29961	0.010	3.9	50.0
	55 Hexachloropropene	0.22401	0.22719	0.010	1.4	50.0
	58 N-Nitrosodi-n-butylamine	0.35330	0.36702	0.010	3.9	50.0
	60 p-Phenylene diamine	0.34961	0.30226	0.010	-13.5	50.0
	61 Safrole	0.30250	0.31879	0.010	5.4	50.0
	65 1,2,4,5-Tetrachlorobenzene	0.57722	0.59675	0.010	3.4	50.0
	71 Isosafrole 1	0.15307	0.14955	0.010	-2.3	50.0
M	188 Isosafrole, Total	1.11602	1.14649	0.010	2.7	50.0
	72 Isosafrole 2	0.96295	0.99694	0.010	3.5	50.0
	75 1,4-Naphthoquinone	0.38789	0.40531	0.010	4.5	50.0
	84 Pentachlorobenzene	0.48578	0.53425	0.010	10.0	50.0
	89 1-Naphthylamine	1.03022	1.03787	0.010	0.7	50.0
	92 2-Naphthylamine	1.00959	0.98941	0.010	-2.0	50.0
	90 Zinophos	0.34478	0.41139	0.010	19.3	50.0
	102 Tetraethyl dithiopyrophosph	0.10467	0.12582	0.010	20.2	50.0
	103 Diallate 1	0.86075	1.02310	0.010	18.9	50.0
M	189 Diallate, Total	3.79613	4.28171	0.010	12.8	50.0
	109 Diallate 2	0.14499	0.16990	0.010	17.2	50.0
	104 Phorate	0.16585	0.19614	0.010	18.3	50.0
	105 1,3,5-Trinitrobenzene	0.08739	0.09231	0.010	5.6	50.0
	108 Phenacetin	0.42829	0.45985	0.010	7.4	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a4hp8.i Injection Date: 05-DEC-2000 10:25
Lab File ID: 8AM1205.D Init. Cal. Date(s): 15-NOV-2000 29-NOV-2000
Analysis Type: Init. Cal. Times: 09:51 00:07
Lab Sample ID: astd016 Quant Type: ISTD
Method: \\QCANOH05\dd\chem\MSS\a4hp8.i\01205a.b\8270l.m

	COMPOUND	RRF	RF16	MIN RRF	%D	MAX %D	
	110 Dimethoate	0.40422	0.45845	0.010	13.4	50.0	
	112 Pentachloronitrobenzene	0.10626	0.13269	0.010	24.9	50.0	
	113 4-Aminobiphenyl	0.68777	0.72611	0.010	5.6	50.0	
	114 Pronamide	0.34109	0.41158	0.010	20.7	50.0	
	117 Dinoseb	0.19445	0.23316	0.010	19.9	50.0	
	118 Disulfoton	0.55137	0.67097	0.010	21.7	50.0	
	121 4-Nitroquinoline 1-oxide	0.08902	0.08314	0.010	-6.6	50.0	
	122 Methapyrilene	0.32205	0.18135	0.010	-43.7	50.0	
	126 Aramite 1	0.09373	0.09869	0.010	5.3	50.0	
M	191 Aramite, Total	0.59912	0.65092	0.010	8.6	50.0	
	127 Aramite 2	0.13136	0.14083	0.010	7.2	50.0	
	128 p-Dimethylamino azobenzene	0.34338	0.33744	0.010	-1.7	50.0	
	129 p-Chlorobenzilate	0.57604	0.66282	0.010	15.1	50.0	
	130 Famphur	0.33536	0.67354	0.010	100.8	50.0	<-
	132 3,3'-Dimethylbenzidine	0.57103	0.77829	0.010	36.3	50.0	
	134 2-Acetylaminofluorene	0.45175	0.48128	0.010	6.5	50.0	
	143 7,12-dimethylbenz[a]anthrac	0.84234	0.75832	0.010	-10.0	50.0	
	144 Hexachlorophene	++++	++++	0.010	++++	50.0	<-
	145 Hexachlorophene product	++++	++++	0.010	++++	50.0	<-
	148 3-Methylcholanthrene	0.78331	0.66202	0.010	-15.5	50.0	
	193 3-Methylphenol	1.60719	1.71858	0.010	6.9	50.0	
	69 1,4-Dinitrobenzene	0.19548	0.19201	0.010	-1.8	50.0	
	77 m-Dinitrobenzene	0.21666	0.21201	0.010	-2.1	50.0	
	198 1,4-Dioxane	0.64558	0.84930	0.010	31.6	50.0	
	88 2,3,4,6-Tetrachlorophenol	0.25477	0.28110	0.010	10.3	50.0	
	97 5-Nitro-o-toluidine	0.31097	0.31119	0.010	0.1	50.0	
	201 3-Picoline	1.83405	1.70005	0.010	-7.3	50.0	
	202 N,N-Dimethylacetamide	1.42497	1.26784	0.010	-11.0	50.0	

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DQMH9CHKDUP

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP029

Lab Sample ID: DQMH91AD Date(s) Analyzed: 12/06/00 12/06/00

Instrument ID (1): A2HP1 Instrument ID (2): A2HP1

GC Column(1): PESTCLPI ID: 0.53(mm) GC Column(2): CLPII ID: 0.53(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
2,4 D	1	11.32	11.27	11.37	364.0	
	2	11.92	11.87	11.97	335.41	8.5
2,4,5 TP (Silvex)	1	12.32	12.27	12.37	90.94	
	2	12.73	12.68	12.78	88.749	2.5
2,4,5 -T	1	12.59	12.54	12.64	88.46	
	2	13.04	12.99	13.09	91.460	3.4
Dalapon	1	2.19	2.15	2.25	187.4	
	2	1.96	1.91	2.01	151.36	23.8
Dicamba	1	9.36	9.32	9.42	183.2	
	2	10.25	10.20	10.30	180.19	1.7
MCPP	1	9.84	9.79	9.93	4748	
	2	10.61	10.52	10.66	24338	412.6
MCPA	1					
	2	11.04	10.98	11.08	43.772	
Dichloroprop	1	10.96	10.91	11.01	152.2	
	2	11.54	11.49	11.59	139.76	8.9

10A

PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DQMH9CHKDUP

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP029

Lab Sample ID: DQMH91AD Date(s) Analyzed: 12/06/00 12/06/00

Instrument ID (1): A2HP1 Instrument ID (2): A2HP1

GC Column(1): PESTCLPI ID: 0.53(mm) GC Column(2): CLPII ID: 0.53(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
2,4 DB	1	13.05	13.00	13.10	379.4	
	2	13.42	13.37	13.47	397.00	4.6
Dinoseb	1	13.82	13.77	13.87	3.959	
	2	13.64	13.58	13.68	8.7763	121.7
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DQMHSCHK

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP029

Lab Sample ID: DQMH91AC Date(s) Analyzed: 12/06/00 12/06/00

Instrument ID (1): A2HP1 Instrument ID (2): A2HP1

GC Column(1): PESTCLPI ID: 0.53(mm) GC Column(2): CLPII ID: 0.53(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
2,4 D	1	11.32	11.27	11.37	367.7	
	2	11.92	11.87	11.97	334.39	10.0
2,4,5 TP (Silvex)	1	12.31	12.27	12.37	91.21	
	2	12.73	12.68	12.78	89.117	2.3
2,4,5 -T	1	12.58	12.54	12.64	87.86	
	2	13.04	12.99	13.09	88.278	0.5
Dalapon	1	2.19	2.15	2.25	172.3	
	2	1.96	1.91	2.01	46.661	269.2
Dicamba	1	9.36	9.32	9.42	189.6	
	2	10.25	10.20	10.30	175.33	8.1
MCPP	1	9.84	9.79	9.93	5539	
	2	10.61	10.52	10.66	21550	289.0
MCPA	1					
	2	11.04	10.98	11.08	332.88	
Dichloroprop	1	10.95	10.91	11.01	153.5	
	2	11.54	11.49	11.59	139.22	10.2

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

DQMH9CHK

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP029

Lab Sample ID: DQMH91AC Date(s) Analyzed: 12/06/00 12/06/00

Instrument ID (1): A2HP1 Instrument ID (2): A2HP1

GC Column(1): PESTCLPI ID: 0.53(mm) GC Column(2): CLPII ID: 0.53(mm)

ANALYTE	COL	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	%D
2,4 DB	1	13.05	13.00	13.10	384.3	
	2	13.42	13.37	13.47	387.36	0.8
Dinoseb	1	13.81	13.77	13.87	4.158	
	2	13.64	13.58	13.68	7.8127	87.9
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					
	1					
	2					

SW846 8082 CHECK SAMPLE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Lot #: A0K300000 WO #: DQK0J1AC
BATCH: 0335332

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
Aroclor 1016	330	830	248*	49- 122	a
Aroclor 1260	330	880	263*	51- 127	a

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

* Values outside of QC limits

Spike Recovery: 2 out of 2 outside limits

COMMENTS:

FORM III

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: STL - NORTH CANTON Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: MP029

GC Column(1): DB-5.625 ID: 0.32 (mm) GC Column(2): DB-5.625 ID: 0.32 (mm)

	EPA SAMPLE NO.	S1 1 %REC	#	S1 2 %REC	#	S2 1 %REC	#	S2 2 %REC	#	OTHER (1)	OTHER (2)	TOT OUT
01	DQK0JBLK	65		74		101		102				0
02	DQK0JCHKDUP	76		86		112		114				0
03	MPT-AC-SS03-	58		65		87		88				0
04	MPT-AC-SV03-	40		46		61		61				0
05	MPT-AC-SS04-	68		75		99		99				0
06	MPT-AC-SV04-	58		65		86		86				0
07	DQK0JCHK	215*		250*		300*		296*				4
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												

		ADVISORY QC LIMITS
S1	= TCMX	(31-127)
S2	= DCB	(23-141)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

SW846 8081A CHECK SAMPLE DUPLICATE RECOVERY

Lab Name: Severn Trent Laboratories, Inc. Client: TETRA TECH NUS, INC.

Lab Code: STLCAN SDG No: MP029

Lot #: A0K300000 WO #: DQKX41AD
BATCH: 0335330

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENT. (ug/kg)	% REC	QC LIMITS REC	QUAL
alpha-BHC	33	16	49	33 - 130	
beta-BHC	33	15	44*	51 - 110	a
delta-BHC	33	19	57	19 - 142	
gamma-BHC (Lindane)	33	16	48	47 - 130	p
Heptachlor	33	17	52	39 - 126	
Aldrin	33	18	54	39 - 122	
Heptachlor epoxide	33	17	52	46 - 125	
Endosulfan I	33	15	45	24 - 113	
Dieldrin	33	17	52	45 - 128	
4,4'-DDE	33	18	54	26 - 157	
Endrin	33	20	61	47 - 133	
Endosulfan II	33	16	47	35 - 124	p
4,4'-DDD	33	17	52	39 - 157	
Endosulfan sulfate	33	17	50	36 - 139	
4,4'-DDT	33	19	56	35 - 144	
Methoxychlor	33	19	56	24 - 161	
Endrin ketone	33	17	50	49 - 137	
Endrin aldehyde	33	10	31	27 - 130	p
alpha-Chlordane	33	17	51	39 - 145	
gamma-Chlordane	33	17	52	33 - 154	

NOTES(S):

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

* Values outside of QC limits

Spike Recovery: 1 out of 20 outside limits

COMMENTS:

FORM III

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i
Lab File ID: 011f1101.d
Analysis Type: NONE

Injection Date: 05-DEC-2000 14:29
Lab Sample ID: APIX 3
Method File: /chem/can/gcs/a2hp5.i/01205a.b/pesthp5a.

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0226	13.0	15.0	
35 Kepone	0.3200	0.3698	15.6	15.0	<-
37 Hexachlorobenzene	0.0400	0.0469	17.3	15.0	<-

Data File: /chem/can/gcs/a2hp5.i/01205a-r.b/011f1101.d P
Report Date: 12/06/2000

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i Injection Date: 05-DEC-2000 14:29
Lab File ID: 011f1101.d Lab Sample ID: APIX 3
Analysis Type: NONE Method File: /chem/can/gcs/a2hp5.i/01205a-r.b/pesthp5

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0225	12.3	15.0	
35 Kepone	0.3200	0.3769	17.8	15.0	<-
37 Hexachlorobenzene	0.0400	0.0447	11.7	15.0	

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a2hp5.i Injection Date: 05-DEC-2000 23:19
Lab File ID: 035f3501.d Lab Sample ID: APIX 3
Analysis Type: NONE Method File: /chem/can/gcs/a2hp5.i/01205a.b/pesthp5a.

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
32 Isodrin	0.0200	0.0237	18.7	15.0	<-
35 Kepone	0.3200	0.3511	9.7	15.0	
37 Hexachlorobenzene	0.0400	0.0489	22.3	15.0	<-

APPENDIX I

BUILDING 191
TETRACHLOROETHENE RELEASE INFORMATION

Table C-1
Project Chronology

SWMU Assessment Report for TCE Release near Building 191
U.S. Naval Station
Mayport, Florida

When	Action
05/04/93	U.S. Naval Station (NAVSTA) Mayport Safety Officer issued an internal accident report concerning the accidental release of tetrachloroethene near Building 191.
08/26/93	Staff Civil Engineer at NAVSTA, Mayport issued correspondence to the Northeast District Office of the Florida Department of Environmental Protection to report the release of drycleaning fluid (tetrachloroethene) near Building 191 and provided analytical results of samples from the release site.
05/04/94	Public Works Center, Jacksonville, Florida: The Environmental Department issued a memorandum requesting sampling and analytical services, remediation services, and preparation of a map of the tetrachloroethene release site.
06/24/94	Public Works Center, Jacksonville, Florida: The Environmental Department issued a memorandum reporting analytical results and indicated that contamination was not evident at the sampling locations.
08/12/94	Staff Civil Engineer at NAVSTA, Mayport issued correspondence to the Northeast District Office of the Florida Department of Environmental Protection reporting the analysis of asphalt, limerock, and soil samples. In the correspondence it was stated that the "area is clean of contamination and requires no further action." Written concurrence of this opinion also was requested.
08/11/94	Environmental Science and Engineering issued a Contamination Assessment Report to Navy Public Works Center, Jacksonville, Florida. The report was for the assessment of a release from leaking underground fuel lines which serviced a 300-gallon above-ground storage tank. The report indicates that the Building 191 site qualifies for "No Further Action" as outlined in Chapter 17-770. The report also indicated that tetrachloroethene and trichloroethene were detected in a groundwater sample from a background monitoring well at concentrations that exceed their respective Florida groundwater guidance concentrations.

ACCIDENT REPORT
FISC MAYPORT
BESIDE BLDG 191A
5/4/93

On the above date at approximately 1500 AKAN John A. Loden from the USS CONSTELLATION punctured a 55 gallon drum of chemicals creating a hazardous spill. The drum contained DRY CLEANING SOLVENT chemical name was, TETRACHLOROETHYLENE. Approximately 25 - 30 gallons were spilled. the accident was caused when he attempted to pick up a pallet of drums to move. The forklift blade punctured the drum. SKCS Montelongo was his supervisor but was not present. He was notified by another sailor who was on the detail with AKAN Loden. Due to the fact that he stepped in the chemical he was taken to medical to have his feet washed.

Problems:

(1) The drums were not stored in the spill containment area.
(2) Within 130 feet of the spill area was a storm drain.
(3) AKAN Loden did not attemp to get help to invert the drum creating a larger spill.
(4) Clean up equipment was not readily available for use.

Solutions:

(1) Move all liquid drums to spill containment area.
(2) Have a designated spill containment cart in an easily accessible area with all necessary supplies.
(3) Review spill procedures with all employees.
(4) Order a Spilmagnet Drain Cover to be kept on the cart.
(5) Have the area supervisor check the cart and maintain all supplies monthly,(example a check off sheet).

Thanks to the fast thinking of SC Martinez and Pete Wilson we were able to avoid a really serious accident by the chemical getting into the storm drain. This would have caused possible environmental damage.

Report By

Marie Boone

Marie Boone
Safety Officer
Mayport

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Mike Davenport	From Marie Boone
Co. NAVE	Co. Safety

5090
Ser N4E2/ 00110
26 AUG 1993

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL

Dear Mr. Frey:

On May 4, 1993, while re-locating drums of tetrachloroethylene, a 55-gallon drum was punctured spilling 25-30 gallons of dry cleaning fluid. This spill occurred when the forklift operator was attempting to pick up a pallet of drums in the materials handling area beside Building 191A, Fleet and Industrial Supply Center Jacksonville, Fleet Support Center Mayport. The location of the spill is shown on the enclosed map. Our spill response team acted immediately to contain and remove the spill material from the concrete and spill samples were taken for analysis. Copies of the analysis results are enclosed.

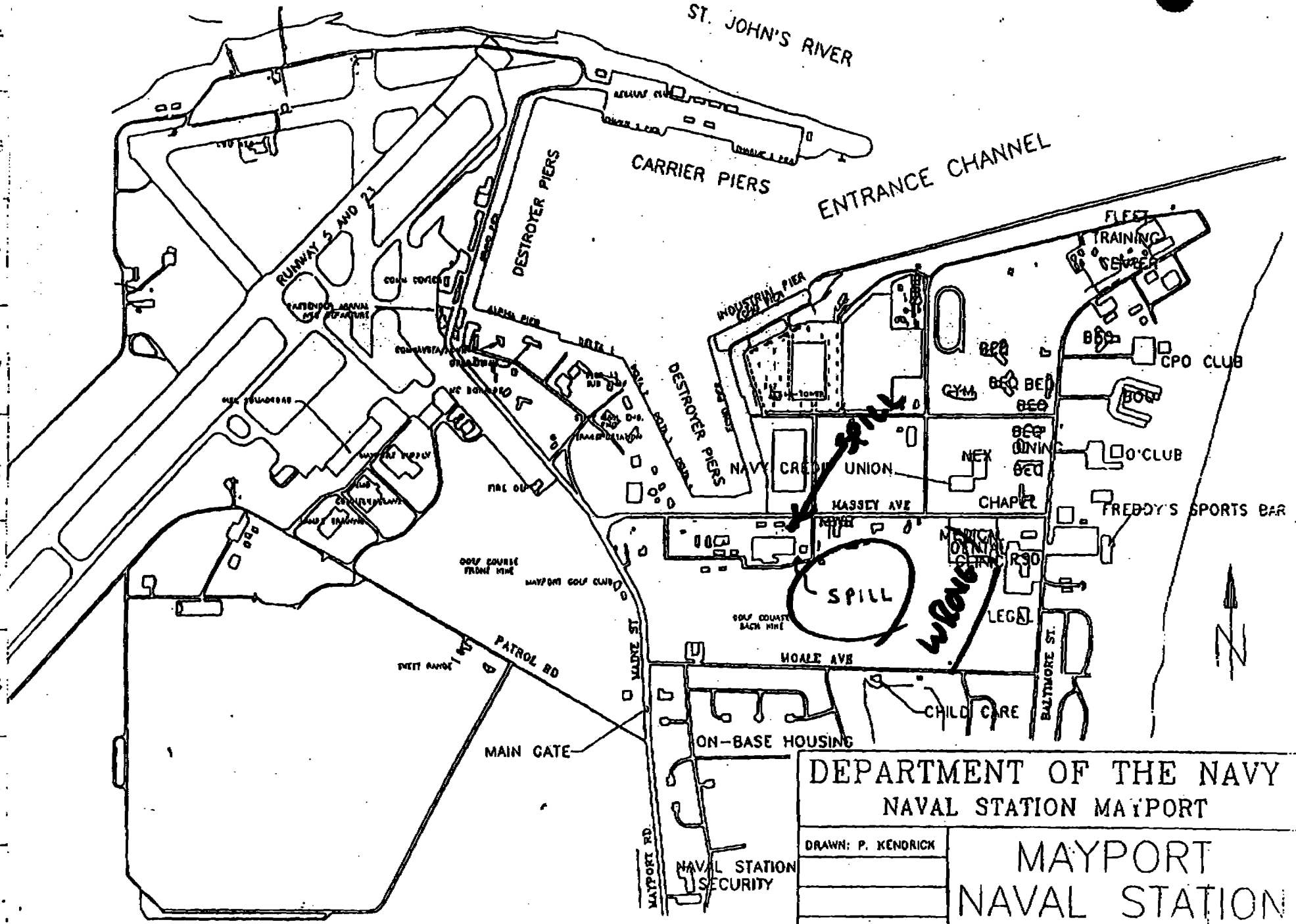
Please respond if there is any further action required by Naval Station Mayport. If you have any questions, please contact Mr. Michael Davenport, of my Environmental Staff, at (904) 270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC, U.S. Nav
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site Map
(2) Analysis Results
93-06-188 and 93-06-189

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kenton Brown)
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVAVNACTS Jacksonville (N3)
COMNAVAIRLANT (N442C)
bc: N4E Chron c:\wpdocs\Spill-TE.FIS/pl/8-11



DEPARTMENT OF THE NAVY
NAVAL STATION MAYPORT

DRAWN: P. KENDRICK	MAYPORT NAVAL STATION
FILE: SITE.DWG	
DRAWING NO. 91-000-005	NOT TO SCALE

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 21, 1993

Client: Navy Public Work
Sample I.D.: 93-06-186
Sample Matrix: Solid

Lab #: 9307-106-1
Date Received: 7-15-93
Date Completed: 7-19-93
Date Extraction: 7-16-93

Volatile Organic Compounds
Toxicity Characteristic Leaching Procedure SW-846 Method 1311
USEPA Method 8240 - GC/MS (8260)

Parameter	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Benzene	71-43-2	0.005	< 0.005	0.5
Carbon tetrachloride	56-23-5	0.005	< 0.005	0.5
Chlorobenzene	108-90-7	0.005	< 0.005	100.0
Chloroform	67-66-3	0.005	< 0.005	6.0
1,4-Dichlorobenzene	106-46-7	0.005	< 0.005	7.5
1,2-Dichloroethane	107-06-2	0.005	< 0.005	0.5
1,1-Dichloroethene	75-35-4	0.005	< 0.005	0.7
Methyl ethyl ketone	78-93-3	0.05	< 0.05	200.0
Tetrachloroethene	127-18-4	0.005	0.558	0.7
Trichloroethene	79-01-6	0.005	< 0.005	0.5
Vinyl chloride	75-01-4	0.005	< 0.005	0.2

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Surrogate Standards Recovery Percentage

	Recovey %	Acceptance Limits
Toluene - d_8	95.8	88 - 110
4-Bromofluorobenzene	106.9	86 - 115
1,2 Dichlorobenzene - d_4	102.4	87 - 112

Respectfully submitted:

Barry C. Byrd Jr., MS
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 23, 1993

Client: Navy Public Works — Lab #: 9307-106-1

Sample I.C.: 93-06-188 — Date Received: 7-15-93

Sample Matrix: Solid — Date Completed: 7-22-93

Date Extraction 7-21-93

Analytical Report
TCLP - Contaminant List (Partial) Method 1311
Methods EPA 8250 (8270)

Parameter	Regulatory Level	Results mg/L
Cresols	200.0	ND *
2,4-Dinitrotoluene	0.13	ND *
Hexachlorobenzene	0.13	ND
Hexchlorobutadiene	0.5	ND
Hexachloroethane	3.0	ND
Nitrobenzene	2.0	ND
Pentachlorophenol	100.0	ND *
Pyridine	5.0	ND *
2,4,5-Trichlorophenol	400.0	ND *
2,4,6-Trichlorophenol	2.0	ND *

Note: ND = (None detected, lower detectable limit - 0.010 mg/L)
ND * = (None detected, lower detectable limit - 0.025 mg/L)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted:

Barry C. Byrd, Jr., MS
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY INC.

July 20, 1993

Client: Navy Public Works (93-06-188) Lab #: 9307-106-1

Sample I.D.: MYP1 Date Received: 7-15-93

Sample Matrix: Water Date Completed: 7-20-93

Metals Analytical Summary
Toxicity Characteristic Leaching Procedure SW-846 Method 1311

Parameter	SW-846 Method	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Arsenic	6010	7440-38-2	0.0394	0.053	5.0
Barium	6010	7440-39-3	0.00454	0.122	100.0
Cadmium	6010	7440-43-9	0.00836	< 0.00836	1.0
Chromium	6010	7440-47-3	0.0140	0.036	5.0
Lead	6010	7439-92-1	0.0600	< 0.060	5.0
Mercury	7470,1	7439-97-6	0.0000917	0.176	0.2
Selenium	6010	7782-49-2	0.0452	0.076	1.0
Silver	6010	7440-22-4	0.00414	0.008	5.0

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Respectfully submitted,

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL062
DER Comp QAPP # 8702226

AWW/tb

6814 Arlington Expressway [illegible] 32211
(904) 725-4847

July 21, 1993

Client: Duke Energy Corp.
Sample I.D.: 93-06-09
Sample Matrix: Soil

Lab #: [illegible]
Date Received: 7-15-93
Date Completed: 7-20-93
Date Extraction: 7-19-93

Volatile Organic Compounds
Toxicity Characteristic Leaching Procedure SW-846 Method 1311
USEPA Method 8240 - GC/MS (8260)

Parameter	CAS #	Detection Limit(mg/L)	RESULT(mg/L)	Max. Cont. Level(mg/L)
Benzene	71-43-2	0.005	< 0.005	0.5
Carbon tetrachloride	56-23-5	0.005	< 0.005	0.5
Chlorobenzene	108-90-7	0.005	< 0.005	100.0
Chloroform	67-66-3	0.005	< 0.005	6.0
1,4-Dichlorobenzene	106-46-7	0.005	< 0.005	7.5
1,2-Dichloroethane	107-06-2	0.005	< 0.005	0.5
1,1-Dichloroethene	75-35-4	0.005	< 0.005	0.7
Methyl ethyl ketone	78-93-3	0.05	< 0.05	200.0
Tetrachloroethene	127-18-4	0.005	0.115	0.7
Trichloroethene	79-01-6	0.005	< 0.005	0.5
Vinyl chloride	75-01-4	0.005	< 0.005	0.2

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Surrogate Standards Recovery Percentage

	Recovery %	Acceptance Limits
Toluene - d8	1[illegible]	98 - 110
4-Bromofluorobenzene	10[illegible]	86 - 115
1,2 Dichlorobenzene - d4	1[illegible]	87 - 112

Respectfully submitted,

Barry C. Byrd, Jr., PE
Technical Director

BCB/tb

FIRST COAST ENVIRONMENTAL ... INC.

Client:	Navy Public Works	Job #:	9307-106-2
Sample I.D.	93-06-182	Date Received:	7-15-93
Sample Matrix:	Solid	Date Completed:	7-22-93
		Date Extracted:	7-21-93

Analytical Report
TCLP Contaminant List (Partial) Method 1311
Methods EPA 8250 (8270)

Parameter	Regulatory Level	Results mg/L
Cresols	200.0	ND *
2,4-Dinitrotoluene	0.13	ND *
Hexachlorobenzene	0.13	ND
Hexachlorobutadiene	0.5	ND
Hexachloroethane	3.0	ND
Nitrobenzene	2.0	ND
Pentachlorophenol	100.0	ND *
Pyridine	5.0	ND *
2,4,5-Trichlorophenol	400.0	ND *
2,4,6-Trichlorophenol	2.0	ND *

Note ND = (None detected, lower detectable limit - 0.010 mg/l
ND * = (None detected, lower detectable limit - 0.025 mg/L
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted:

Barry ... MS
Technical Director

BCB/...

July 20, 1993

Client: Navy Public Works (93-06-189) Lab #: 9307-106-2

Sample I.D.: MYPT Date Received: 7-15-93

Sample Matrix: Water Date Completed: 7-20-93

Metals Analytical Summary
Toxicity Characteristic Leaching Procedure SW-846 Method 1311

Parameter	SW-846 Method	CAS #	Detection Limit(mg/L)		RESULT(mg/L)	Max. Cont. Level(mg/L)
Arsenic	6010	7440-38-2	0.0394		0.093	5.0
Barium	6010	7440-39-3	0.00454		0.028	100.0
Cadmium	6010	7440-43-9	0.00838	<	0.00838	1.0
Chromium	6010	7440-47-3	0.0140		0.017	5.0
Lead	6010	7439-92-1	0.0600	<	0.060	5.0
Mercury	7470.1	7439-97-6	0.0000917		0.00016	0.2
Selenium	6010	7782-49-2	0.0452	<	0.0452	1.0
Silver	6010	7440-22-4	0.00414	<	0.00414	5.0

SW-846 -- "Test Methods for Evaluating Solid Waste", Third Edition, November, 1986, and Revision 1, December, 1987, and 55 FR (61) 11862 - 11875.

Respectfully submitted.

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #A2110
EPA #FL062
DER Comp QAPP # 870222G

AWW/tb

12 July 93

From: 320.2
To: 240

Subj: ANALYTICAL TESTING

1. Request the following samples be tested for the parameters indicated.

Sample No.	Media	Test (Clin)	COST	Source
93-06-188	Solid, SAND	TCLP (full no pesticides)	$.	Mypt
93-06-189	Solid, black top	TCLP (full no pesticides)	$.	Mypt
93-06-190	Liquid	TCLP (full no pesticides)	$.	Bldg 171
		Total	$ .00	

2. All analysis shall conform to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846.

3. Job Order number to be used this project is 1243006 and a 24-hour turn around is requested on analytical results.

4. Please contact Gail Fallon or Andy Long at 772-4551 if there are any questions.

Andy Long
ANDY LONG

RC# 00186
To 240 7/13/93
To AB 7/15/93

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

July 21, 1993

Client: Navy Public Works — Lab #: 9307-106

Sample I.D.: See Below (MYP1) — Date Received: 7-15-93

Sample Matrix: See Below — Date Completed: 7-20-93

Metals Analytical Summary

FCEL Lab #	Sample I.D. Station	Sample Matrix	Parameter	Method	Results
9307-106-1	93-06-188	Solid	Chromium	6010	7.97 mg/Kg
9307-106-2	93-06-189	Solid	Chromium	6010	5.56 mg/Kg

Respectfully submitted,

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL062
DER Comp QAPP # 8702226

AWW/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-1847 • Fax (904) 725-2315

PUBLIC WORKS CENTER
JACKSONVILLE
ENVIRONMENTAL DEPARTMENT
Memorandum

94 MAY 4 AM 12:51

Date: 4 May 1994

From: Hazardous Waste Division Director (Code 320)
To: Laboratory Division (Code 330)

Subj: ANALYTICAL SERVICES REQUEST FOR TF24030, CHEMICAL ANALYSIS AND CLEAN UP BEHIND BLDG. 191, NAVSTA MAYPORT

Encl: (1) Location Sketch
(2) Plan of Action and Milestones

1. Request subject services per the following requirements.

a. Analytes/Method: Method 8240 (CLIN 0001HL)

b. Sampling: Collect 6 samples as noted on enclosure (1). Recommend pick and hand auger be used to collect samples. Requested analysis should be conducted on each of the six samples. Code 330 should leave sampling locations as level as possible after work; code 320 will followup to have paving patched pending test results (if results show tetrachloroethylene above detectable limits, remediation work will require removing additional paving anyway.)

c. Turn Around Time: Project has been charted on enclosure (2) for Mayport Zone Manager. Request sampling be performed by 20 May 94 with test results back by 8 Jun 94.

d. Point of Contact: G. Fallon at ext. 8320.

e. Job Order Number: 1243006

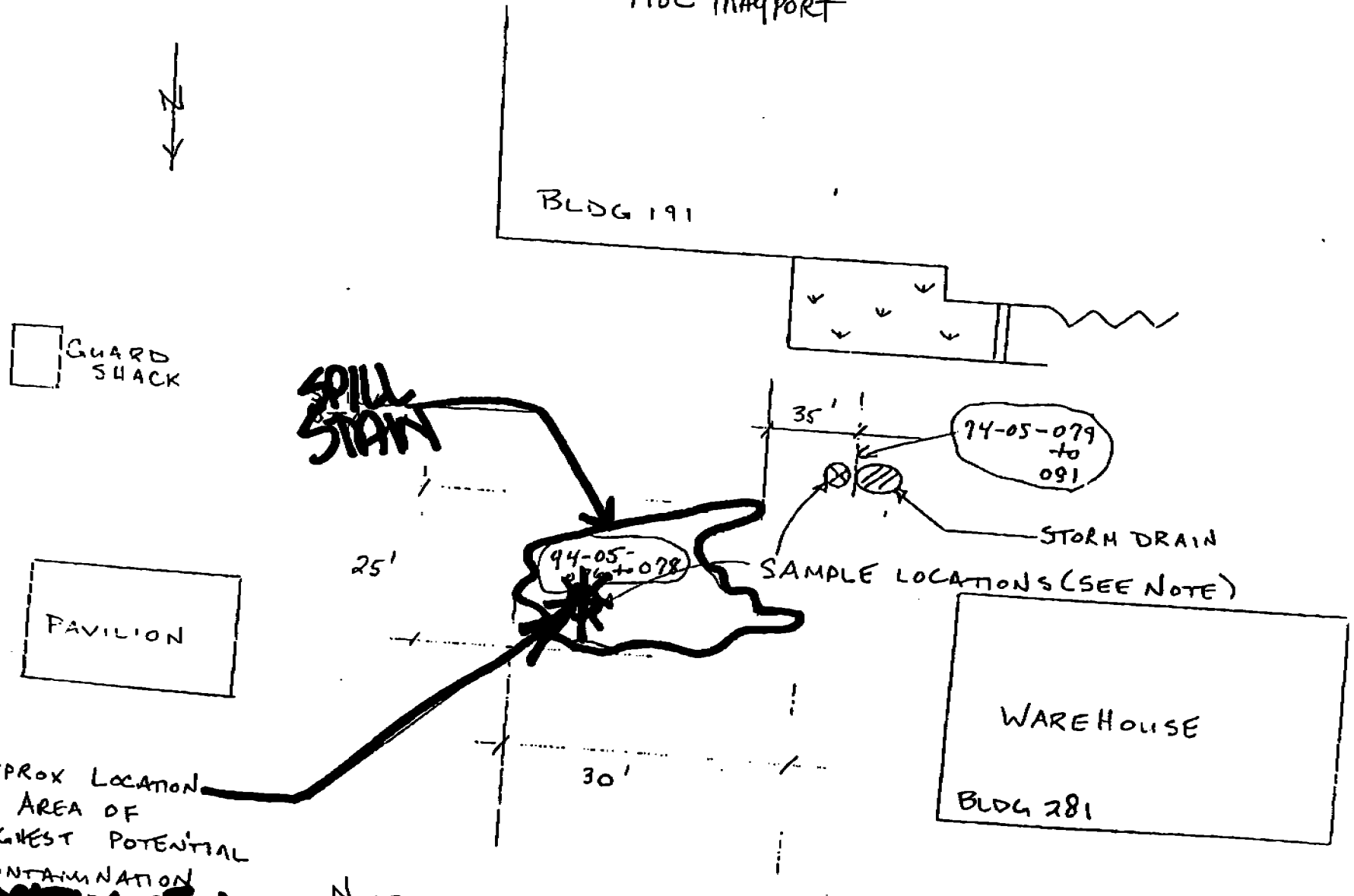
2. A more accurate sketch, suitable for submission to FDEP, is also requested with the final results. The sketch must include, as a minimum, the location of the spill, where the forklift punctured the drum, the storm drain, and where the samples were taken. The main concern with the sketch's accuracy is the location of samples.

G. L. Fallon

GAIL L. FALLON

Proj # 94-161
Sample # 94-05-076
to
94-05-081

ROUGH SKETCH - BLDG 191, TF 24030
FISC MAYPORT



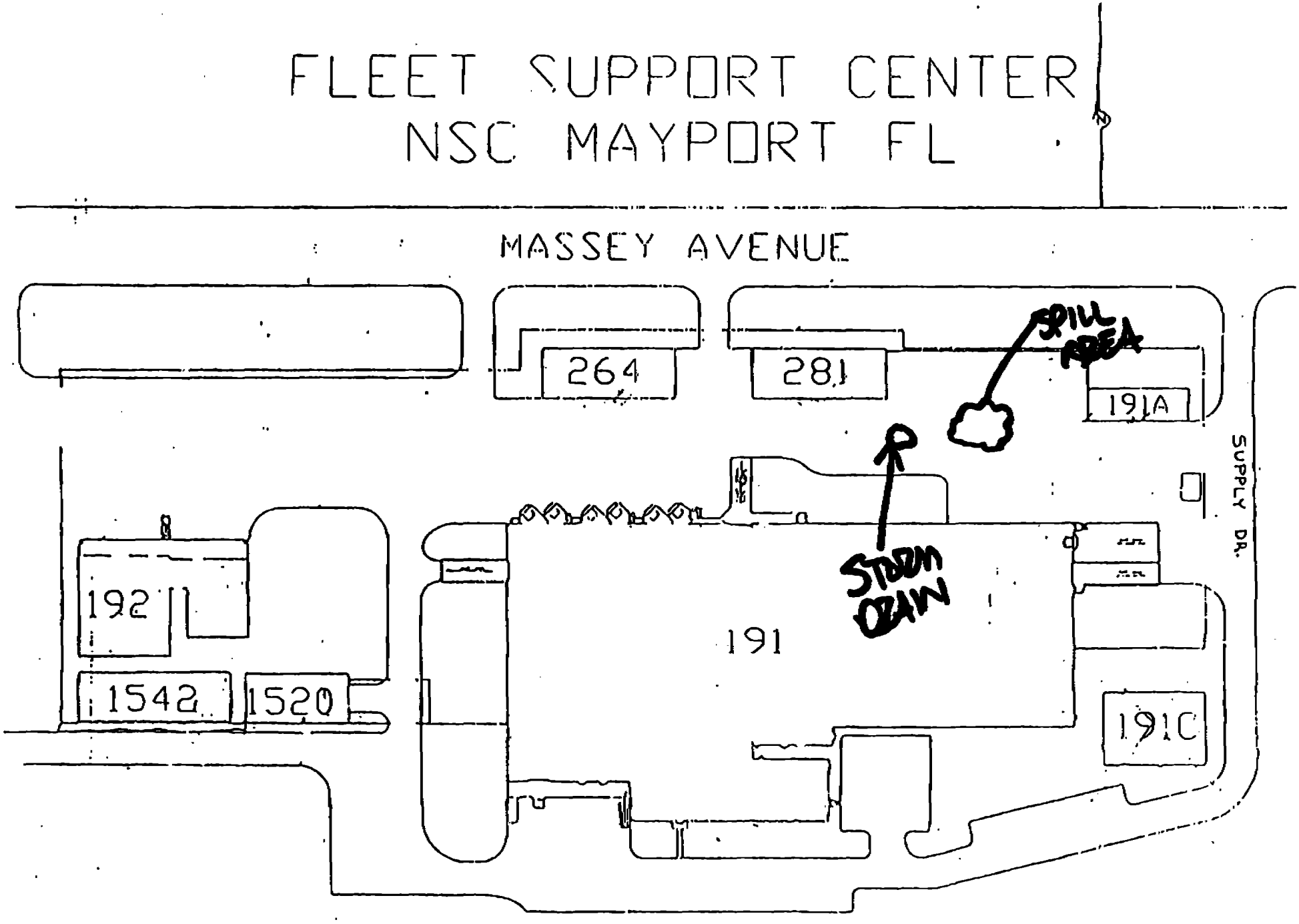
NOTE

3 SAMPLES (PROPOSED AT EACH LOCATION (TOTAL 6 SAMPLES)
TO INCLUDE:

	APPROX. DEPTH (FT)
1. ASPHALT SAMPLE	0
2. LIMEROCK SAMPLE	.5-1.0
3. SOIL SAMPLE	1.0-2.0

FEB-09-1996 11:38 FROM SCE NAVSTA MAYPORT TO 9190465386 P.16

FLEET SUPPORT CENTER
NSC MAYPORT FL



FEB-09-1996 11:34 FROM SCE NAVSTA MAYPORT TO 9190465366 P.03

7 Apr 94

PLAN OF ACTION AND MILESTONES FOR FISC BLDG. 191 SPILL (TF24030)

ACTION	ORIGINAL / REVISED DATE	STATUS
1. Code 320 identify analytical methods and submit request for sampling and analysis to Code 330.	29 Apr 94	
2. Code 330 perform sampling and deliver sample to laboratory. Also provide sketch of sample locations.	20 May 94	
3. Code 330 receive analytical results back from laboratory.	8 Jun 94	
4. Code 320 review analysis and provide recommendation on additional remediation.	10 Jul 94	
Following items contingent on discovering low level contamination		
5. Code 320 develop statement of work for site remediation; include additional analysis, excavation, and written report.	24 Jun 94	
6. Code 240 award contract for site remediation.	24 Jul 94	
7. Contractor complete work.	5 Aug 94	
8. Code 320 dispose of contaminated soil through DRMO.	23 Sep 94	

NAVY PUBLIC WORKS CENTER
JACKSONVILLE
ENVIRONMENTAL DEPARTMENT
MEMORANDUM

Date: 24 Jun 94

From: Acting HW Division Director
To: FISC (Attn: Marie Boone)

Subj: TF-24030, CHEMICAL ANALYSIS AND CLEAN UP BEHIND BLDG. 191, SPILL AREA

Encl: (1) Analytical Results
(2) Sketch of Sample Area

1. Per enclosure (1), the tetrachloroethylene sample results from enclosure (2) sample locations indicate no contamination. Constituents found such as xylene is normal for a parking area and associated motor vehicle undercarriage leakage.

K. J. MELCHIORRE
LT, CEC, USN

Copy to:
Codes 300S

23 JUN 94

MEMORANDUM

From: 330.2
To: 320

Subj: ANALYTICAL TEST RESULTS

Ref: (a) Code 320 Request for Analytical Service of 4 MAY 94

Encl: (1) Lab Results, Call # 0113, Project # 94-161
(2) Chain of Custody

1. Per reference request, samples were collected by our staff from MYPT area behind BLDG 191 and forwarded to the lab for testing. The results and the chain of custody are provided in enclosures (1) and (2).

2. If there are any questions, please call me at 772-4548, ext 8306.

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Amended

Client: Navy Public Works — Lab #: 9405-236-1

Sample I.D.: 94-05-076 Asphalt — Date Received: 5-27-94

Sample Matrix: Solid — Date Completed: 5-28-94

Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	188
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	586
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-076 Asphalt
Sample Matrix: Solid

Lab #: 9405-236-1
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Other Determined Volatile Organic Compounds
USEPA METHOD 624/524.2/8260 - GC/MS

The compounds reported below are compounds determined to be present in the sample which are reported on lists other than the requested parameter list.

Parameter	Conc. Units	Det. Limit	Result
Total Xylenes	ug/Kg	5	477

Tentatively Identified Compounds

The compounds in this section are compounds which generated significant peaks in the chromatographic analysis and were tentatively identified utilizing the NBS Library in the Mass Spectal Data System. Since standard instrument responses have not been determined for these compounds a Response Factor of 1.00 has been utilized to calculate the result. Therefore, the result should be viewed in a conservative manner.

Parameter	Estimated Result

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.C.: 94-05-077
Sample Matrix: Solid

Lab #: 9405-236-2
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	66.5
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	18.2
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected. lower detectable limit - 5 ug/Kg)
ND * = (None detected. lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit. quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-077 homerock
Sample Matrix: Solid

Lab #: 9405-236-2
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Other Determined Volatile Organic Compounds
USEPA METHOD 624/524.2/8260 - GC/MS

The compounds reported below are compounds determined to be present in the sample which are reported on lists other than the requested parameter list.

Parameter	Conc. Units	Det. Limit	Result
Total Xylenes	ug/Kg	5	203

Tentatively Identified Compounds

The compounds in this section are compounds which generated significant peaks in the chromatographic analysis and were tentatively identified utilizing the NBS Library in the Mass Spectal Data System. Since standard instrument responses have not been determined for these compounds a Response Factor of 1.00 has been utilized to calculate the result. Therefore, the result should be viewed in a conservative manner.

Parameter	Estimated Result

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-078 Soil
Sample Matrix: Solid

Lab #: 9405-236-3
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethyl vinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry E. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-079
Sample Matrix: Solid

Lab #: 9405-236-4
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	7.42
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	9.27
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-080 Limerock
Sample Matrix: Solid

Lab #: 9405-236-5
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloromethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	6.77
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted,

Barry E. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

June 22, 1994

Client: Navy Public Works
Sample I.D.: 94-05-082 / Soil
Sample Matrix: Solid

Lab #: 9405-236-6
Date Received: 5-27-94
Date Completed: 5-28-94
Sample Collection: 5-27-93

Volatile Organic Compounds
EPA Method 8040 List (GC/MS)

Parameter	RESULTS
Benzene	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dibromochloromethane	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Trans-1,2-Dichloroehtane	ND
1,2-Dichloropropane	ND
Cis-1,2-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND
Ethylbenzene	ND
Methylene chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND *
Vinyl chloride	ND *
1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND
1,4 Dichlorobenzene	ND

Note: ND = (None detected, lower detectable limit - 5 ug/Kg)
ND * = (None detected, lower detectable limit - 50 ug/Kg)
J = (Detected but below quantitive limit, quantition suspect)
B = (this compound also detected in the blank)

Respectfully submitted

Garry D. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 8702220

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

8618 ARLINGTON EXPRESSWAY
JACKSONVILLE, FLORIDA 32211
FAX (904) 725-2215
(904) 725-4847
(904) 725-5708

CHAIN OF CUSTODY RECORD

Client: NAVY PUBLIC WORKS CENTER JACKSONVILLE

ATTN: CODE 330 (ENVIRONMENTAL LABORATORY)

JACKSONVILLE, FL 32212-0030

Project Description: MAYPORT SPILL AREA AND STORM DRAIN AREA

ATTN:

PROJECT #94-161 CALL #103

Sampler (Signature)

Page 1 of 1

STATION	DATE	TIME (Military)	SAMPLE DESCRIPTION	NO. OF SAMPLE CONTAINERS	REMARKS
MYPT-SPILL AREA			94-05-076 - SOLID		8240
MYPT-SPILL AREA			94-05-077 - SOLID		8240
MYPT-SPILL AREA			94-05-078 - SOLID		8240
MYPT-STORM DRAIN			94-05-079 - SOLID		8240
MYPT-STORM DRAIN			94-05-080 - SOLID		8240
MYPT-STORM DRAIN			94-05-081 - SOLID		8240

Relinquished by (Signature):	Date	Time (Military)	Received by (Signature):	Date	Time (Military)	Relinquished by (Signature):	Date	Time (Military)	Received by (Signature):	Date	Time (Military)
[signature]	6-27-94	1333	[signature]								
Relinquished by (Signature):	Date	Time (Military)	Received by (Signature):	Date	Time (Military)	REMARKS:					

FEB-09-1996 11:38 FROM SCE NAVSTA MAYPORT TO 9190465633386 P.15

DEPARTMENT OF THE NAVY

NAVAL STATION
MAYPORT, FLORIDA 32228-0116

Bureau of Waste Cleanup

REPLY REFER TO
5090.10
Ser N4E/

AUG 12 1994

10 AUG 1994

Technical Review Section

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL
MAY 4, 1993, AT BUILDING 191

Dear Mr. Frey:

On May 4, 1993, a spill of tetrachloroethylene occurred and immediately cleaned up. The spill occurred while relocating drums Building 191, Fleet Industrial Supply Center, Fleet Support Center Mayport. Please reference Naval Station Mayport letter 5090, Ser N4E2/00110 of August 26, 1993, which provided initial report of spill and analysis.

As requested by your office, additional chemical analyses performed on the asphalt, limerock, and soil. The results enclosed and show the area is clean of contamination and requires further action.

Naval Station Mayport requests written concurrence from your office that the area requires no further clean up. If you have questions, please contact Mr. Michael Davenport, N4E, at 904-270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site map
(2) Analysis Results 94-05-076, 077, 078, 079, 080, 081 and Chain of Custody

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kevin [illegible])
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVBASE Jacksonville (N3)

5090.10
Ser N4E/ 00186
10 AUG 1994

Mr. Ernest Frey
Northeast District
Florida Department of Environmental Protection
7825 Bay Meadows Way, Suite B-200
Jacksonville, FL 32256

Subj: DRY CLEANING FLUID SPILL OF MAY 4, 1993, AT BUILDING 191

Dear Mr. Frey:

On May 4, 1993, a spill of tetrachloroethylene occurred and was immediately cleaned up. The spill occurred while relocating drums at Building 191, Fleet Industrial Supply Center, Fleet Support Center Mayport. Please reference Naval Station Mayport letter 5090, Ser N4E2/00110 of August 26, 1993, which provided initial report of spill and analysis.

As requested by your office, additional chemical analysis was performed on the asphalt, limerock, and soil. The results are enclosed and show the area is clean of contamination and requires no further action.

Naval Station Mayport requests written concurrence from your office that the area requires no further clean up. If you have any questions, please contact Mr. Michael Davenport, N4E, at 904-270-6730.

Sincerely,

DOUGLAS P. TOMLINSON
Lieutenant Commander, CEC, U.S. Navy
Staff Civil Engineer
By direction of
the Commanding Officer

Encl:
(1) Site map
(2) Analysis Results 94-05-076, 077, 078, 079, 080, 081 and Chain of Custody

Copy to:
FDEP Tallahassee (Mr. Eric Nuzie)
FDEP Northeast District (Mr. Kenton Brown)
FISC Jacksonville
FISC Jacksonville FSC Mayport
COMNAVBASE Jacksonville (N3)
bc: N4E Chron, N4E4 c:\-OHS-SPC\Spill-T2.DEP/pl/8-8

APPENDIX J

BACKGROUND SCREENING TECHNICAL MEMORANDUM

1100-I001

To: Terry Hansen, Task Order Manager, Tetra Tech NUS, Tallahassee, Florida

From: Allan Jenkins, Hydrogeologist, Tetra Tech NUS, Oak Ridge, TN

Date: November 17, 2000

Subject: Recalculation of Media Background Screening Values
NAVSTA Mayport, Florida

This memo presents a recalculation of the background screening values for surface soil, subsurface soil, groundwater, surface water, and sediment at Naval Station (NAVSTA) Mayport, Florida. The screening values were calculated using background data presented in the RCRA General Information Report (GIR) for NAVSTA Mayport, Florida (ABB-ES, July 1995). The recalculation of background screening concentrations was performed following current regulatory guidance. Review of the GIR background data during the recalculation process identified apparent spurious or problematic data that was corrected or that was not used in the recalculation of the background screening values.

GIR Background Data

The recalculation of the background screening values was performed using data presented in the GIR (ABB-ES, July 1995). The background data were summarized (positive detects only) and data statistics were presented for all media in GIR Tables 3-11 through 3-30. The validated background sampling data sheets for all media were presented in GIR Appendix C. The recalculations were performed using electronic data files that were provided to Tetra Tech NUS, Inc, by the Navy. These data were subsequently compared to the data sheets in GIR Appendix C to verify their completeness and accuracy.

The recalculation was performed primarily to conform with newer regulatory guidance that recommends how non-detect concentrations are utilized in the mathematical treatment of the data. Other attributes of the background data sets were not scrutinized in depth and, in general, the following assumptions were made regarding the data:

- Background sample locations are representative of background conditions at the station
- Samples were collected using the appropriate methods and techniques to ensure that the samples are representative of the media sampled. (As noted below, groundwater samples obtained using bailers were not considered).
- Quality assurance and quality control objectives were met, and that the data were validated to ensure their usefulness.
- The analytical results in the GIR tables and electronic data base are accurate.

While verifying the data sets and evaluating the previous GIR background screening calculations, it was noted that groundwater background samples collected during the 1992 and 1993 sampling events were

collected using bailers to purge and sample the wells. Water quality data, such as NTU readings, could not be located to investigate the potential for high sample turbidity. However, comparison of the 1992/1993 data with samples collected in 1994 at the same wells (i.e., MPT-S-MW01S, MPT-01-MW01S, and MPT-08-MW05S) shows significantly higher concentration of some metals, particularly iron, in the bailed samples. Based on the sample methodology and the chemical differences, the evidence suggests that samples from bailed wells result in a high bias for some metals probably as a result of sample turbidity. It was decided that recalculation of the groundwater screening values should not include data from the 1992/1993 sampling event. Only data from the later sampling events that were performed using low-flow purging and sampling techniques were used in the recalculation.

Recalculation of Background Screening Values

The background data set presented in the GIR were used to recalculate background screening values using methods consistent with the EPA Region 4 Supplemental Guidance to RAGS: Region 4 Bulletins – Addition #1, Data Collection and Evaluation, Human Health Risk Assessment, November, 1998, Interim Draft, "Statistical Tests for Background Comparison at Hazardous Waste Sites." This bulletin describes the "twice background" criterion and offers guidance on how to calculate the appropriate value. In summary, the following procedures were used in the recalculation of the NAVSTA Mayport background mean and screening values:

1. Constituents that were not detected in any sample within a media-specific data set were eliminated from the background evaluation for that media.

2. All nondetect concentrations were replaced with ½ of the laboratory reporting limit for detected chemicals.

3. Duplicate sample results were averaged prior to calculating the background screening value. If one or both of the duplicate sample results were non-detect, then ½ the reporting limit was used for either or both results in calculating the average concentration for that sample.

4. If a sample location was resampled, then results for that location were averaged prior to calculating the background screening value. Any nondetect concentration was replaced with ½ the reporting limit.

5. Bailed well data from the 1992/1993 sampling events were not used in the groundwater background calculation.

6. The mean concentration was calculated for each chemical using a spreadsheet formula.

7. The background screening value was calculated by multiplying the mean concentration by a factor of 2 using a spreadsheet formula.

The above methodology follows EPA policy-based criteria that are easily used and easily reviewed. EPA Region 4 states that the twice background screening criterion is believed to be health-protective and to yield a reasonable decision. Furthermore, EPA states that the method is particularly useful for sites that have a small number (i.e., less than 10) of background samples where the power of statistical methods would be low. The method also assumes that the background concentration range is normally distributed.

Therefore, the likelihood of detecting a background concentration greater than twice the average for a given media will be low, but not impossible.

It was noted during review of the background data sets that many of the results for each of the media sampled were below the detection limits of the laboratory methods used. Step 1 as described above may then result in an unnatural dilution of the mean concentration. Therefore, the background screening concentration as calculated above was compared with the maximum background concentration in each media's data set. If the screening concentration (i.e., 2 times the mean of the background data set) for a chemical was less than the maximum concentration for that chemical, then the background screening concentration for that chemical was footnoted. For these chemicals, if a detection occurs in site media within the range of concentration between the screening concentration and the maximum concentration, then these chemicals will receive additional evaluation on a case by case basis to determine if the site detection represents the upper range of background or a site release. Tables 1 through 5 attached to this memo present the recalculated background screening values for each media at NAVSTA Mayport. The GIR data that was used in the recalculations are presented in Tables A-1 through A-5 in Attachment A to this memo. Duplicate samples and resamples (surface water and sediment only) are identified in the Attachment A tables.

AJ:mc

c Mike Albert, Tetra Tech NUS, Inc.
File/wdb

Attachments

TABLE 1
Statistics and Background Screening Concentrations
Surface Soil - Mayport NAVSTA

Chemical [1]	Frequency of Detection [2]	Range of Reporting Limits [3]	Range of Detected Concentrations [3]	Arithmetic Mean [4]	BG Screen [5]
Pesticides/PCBs (ug/kg)					
4,4'-DDE	1 / 6	0.7 -- 0.81	2.3 -- 2.3	0.69	**1.385** [6]
Inorganics (mg/kg)					
ANTIMONY	0 / 6	5.2 -- 6	** -- ** [7]	** [7]	**
ARSENIC	0 / 6	0.76 -- 2.6	** -- **	**	**
BARIUM	6 / 6	* -- * [8]	0.76 -- 5	2.75	5.50
BERYLLIUM	1 / 6	0.06 -- 0.07	0.06 -- 0.09	0.05	0.09
CADMIUM	1 / 6	0.83 -- 0.96	1 -- 1	0.5	1.1
CHROMIUM	6 / 6	* -- *	0.68 -- 2.5	1.3	2.6
COBALT	0 / 6	0.47 -- 0.55	** -- **	**	**
COPPER	1 / 6	0.35 -- 0.41	2.1 -- 2.1	0.35	**0.69**
CYANIDE	0 / 6	0.16 -- 0.18	** -- **	**	**
LEAD	0 / 6	0.25 -- 1.7	** -- **	**	**
MERCURY	0 / 6	0.03 -- 0.07	** -- **	**	**
NICKEL	0 / 6	2.6 -- 3	** -- **	**	**
SELENIUM	5 / 6	0.45 -- 0.45	0.47 -- 0.86	0.6	1.2
SILVER	0 / 6	0.51 -- 0.59	** -- **	**	**
THALLIUM	4 / 6	0.53 -- 0.62	0.77 -- 1.1	0.7	1.4
TIN	0 / 6	7.3 -- 8.5	** -- **	**	**
VANADIUM	5 / 6	0.46 -- 0.46	1.2 -- 2.5	1.7	3.4
ZINC	6 / 6	* -- *	0.35 -- 1.9	1.3	2.7
Miscellaneous Parameters (mg/kg)					
TOTAL ORGANIC CARBON	6 / 6	* -- *	1440 -- 8030	3499	**6998**

[1] Includes VOCs, SVOC, and Pest./PCBs detected in at least one background sample; includes all inorganic analytes.

[2] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected results); duplicates included but not counted.

[3] Ranges include duplicate and/or re-sample results, where appropriate.

[4] The mean includes detected concentrations and one-half the laboratory reporting limit for non-detect results; duplicate samples and re-sample results were averaged prior to calculation of the mean (see Table A-1).

[5] Background (BG) Screen is twice the arithmetic mean of the data.

[6] Bold BG Screen result indicates that value is less than maximum concentration of that chemical.

[7] All results were non detects; mean and BG screening value not applicable.

[8] All results were positive detects.

TABLE 2
Statistics and Background Screening Concentrations
Subsurface Soil - Mayport NAVSTA

Chemical [1]	Frequency of Detection [2]	Range of Reporting Limits [3]	Range of Detected Concentrations [3]	Arithmetic Mean [4]	BG Screen [5]
Semivolatile Organics (ug/kg)					
BENZOIC ACID	1 / 4	1700 -- 1900	110 -- 110	690	1380
Pesticides/PCBs (ug/kg)					
4,4-DDE	1 / 4	0.72 -- 0.78	3.5 -- 3.5	1.2	**2.31** [6]
Inorganics (mg/kg)					
ANTIMONY	0 / 4	1.1 -- 1.2	** -- ** [7]	** [7]	**
ARSENIC	3 / 4	0.13 -- 0.13	0.33 -- 0.58	0.35	0.70
BARIUM	4 / 4	* -- * [8]	1.9 -- 6.8	3.6	7.2
BERYLLIUM	1 / 4	0.07 -- 0.07	0.07 -- 0.07	0.04	0.09
CADMIUM	0 / 4	0.22 -- 0.23	** -- **	**	**
CHROMIUM	3 / 4	0.57 -- 0.57	1.4 -- 3	1.4	**2.7**
COBALT	1 / 4	0.67 -- 0.72	0.71 -- 0.71	0.4	0.8
COPPER	2 / 4	0.2 -- 0.9	1.4 -- 2.3	1.0	**2.1**
CYANIDE	1 / 4	0.15 -- 0.16	0.58 -- 0.58	0.1	**0.3**
LEAD	2 / 4	0.58 -- 0.59	0.75 -- 1.9	0.83	**1.66**
MERCURY	3 / 4	0.03 -- 0.03	0.03 -- 0.03	0.02	0.05
NICKEL	0 / 4	1.3 -- 1.4	** -- **	**	**
SELENIUM	0 / 4	0.13 -- 0.14	** -- **	**	**
SILVER	0 / 4	0.45 -- 0.49	** -- **	**	**
THALLIUM	0 / 4	0.13 -- 0.14	** -- **	**	**
TIN	4 / 4	* -- *	2.2 -- 4	2.7	5.4
VANADIUM	4 / 4	* -- *	0.71 -- 2.5	1.6	3.1
ZINC	4 / 4	* -- *	2 -- 2.9	2.4	4.9

[1] Includes VOCs, SVOC, and Pest./PCBs detected in at least one background sample; includes all inorganic analytes.

[2] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected results); duplicates included but not counted.

[3] Ranges include duplicate and/or re-sample results, where appropriate.

[4] The mean includes detected concentrations and one-half the laboratory reporting limit for non-detect results; duplicate samples and re-sample results were averaged prior to calculation of the mean (see Table A-2).

[5] Background (BG) Screen is twice the arithmetic mean of the data.

[6] Bold BG Screen result indicates that value is less than maximum concentration of that chemical.

[7] All results were non detects; mean and BG screening value not applicable.

[8] All results were positive detects.

TABLE 3
Statistics and Background Screening Concentrations
Groundwater - Mayport NAVSTA

Chemical [1]	Frequency of Detection [2]	Range of Reporting Limits [2]	Range of Detected Concentrations [3]	Arithmetic Mean [4]	BG Screen [5]
Volatile Organics (ug/L)					
ACETONE	1 / 8	10 -- 44	16 -- 16	8.5	17
BROMODICHLOROMETHANE	1 / 8	5 -- 5	2 -- 2	2.4	4.8
CHLOROFORM	2 / 8	5 -- 5	2 -- 3	2.5	5.0
Semivolatile Organics (ug/L)					
3&4-METHYLPHENOL	1 / 8	10 -- 10	29 -- 29	8.0	**16** [6]
BIS(2-ETHYLHEXYL)PHTHALATE	1 / 8	5 -- 10	6 -- 6	3.7	7.4
Inorganics (ug/L)					
ARSENIC	5 / 8	0.6 -- 6	0.6 -- 6	2.6	**5.3**
ANTIMONY	0 / 8	2.2 -- 50	** -- ** [7]	** [7]	**
BARIUM	5 / 8	1.2 -- 3.3	6.4 -- 75.5	18.9	**37.8**
BERYLLIUM	0 / 8	0.18 -- 0.3	** -- **	**	**
CADMIUM	0 / 8	1 -- 3	** -- **	**	**
CALCIUM	8 / 8	* -- * [8]	65000 -- 251000	113063	**226125**
CHROMIUM	0 / 8	2 -- 2.6	** -- **	**	**
COBALT	0 / 8	2.7 -- 3.1	** -- **	**	**
COPPER	0 / 8	0.9 -- 12.7	** -- **	**	**
CYANIDE	1 / 8	0.81 -- 2.7	0.95 -- 0.95	1	2
IRON	6 / 8	68.2 -- 78.6	15.4 -- 660	247	**494**
LEAD	1 / 8	0.6 -- 6	1.5 -- 1.5	1	2
MAGNESIUM	6 / 8	18800 -- 19700	2860 -- 419000	92196	**184393**
MANGANESE	6 / 8	20.1 -- 23.6	7.1 -- 228	70	**141**
MERCURY	2 / 8	0.08 -- 0.5	0.08 -- 0.1	0.08	0.16
NICKEL	0 / 8	5.9 -- 7.3	** -- **	**	**
SELENIUM	0 / 6	0.6 -- 13.2	** -- **	**	**
SILVER	0 / 8	2.1 -- 2.3	** -- **	**	**
SODIUM	6 / 8	31500 -- 39500	9300 -- 3E+06	762294	**1524588**
THALLIUM	0 / 8	0.6 -- 6	** -- **	**	**
TIN	0 / 8	8 -- 9.4	** -- **	**	**
VANADIUM	6 / 8	1.5 -- 1.7	2.3 -- 5.8	3	6
ZINC	1 / 8	1.82 -- 8.8	4.3 -- 4.3	2.9	5.8
Miscellaneous Parameters (mg/L)					
AMMONIA, AS NITROGEN	3 / 3	* -- *	0.7 -- 1.3	1.0	2.1
CHLORIDE	6 / 6	* -- *	15 -- 6600	1142	2284
SULFATE	6 / 6	* -- *	36.4 -- 1230	257	514
TOTAL DISSOLVED SOLIDS	6 / 6	* -- *	417 -- 8150	1881	3762

[1] Includes VOCs, SVOC, and Pest./PCBs detected in at least one background sample; includes all inorganic analytes.

[2] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected results); duplicates included but not counted.

[3] Ranges include duplicate and/or re-sample results, where appropriate.

[4] The mean includes detected concentrations and one-half the laboratory reporting limit for non-detect results; duplicate samples and re-sample results were averaged prior to calculation of the mean (see Table A-3).

[5] Background (BG) Screen is twice the arithmetic mean of the data.

[6] Bold BG Screen result indicates that value is less than maximum concentration of that chemical.

[7] All results were non detects; mean and BG screening value not applicable.

[8] All results were positive detects.

TABLE 4
Statistics and Background Screening Concentrations
Surface Water - Mayport NAVSTA

Chemical [1]	Frequency of Detection [2]	Range of Reporting Limits [2]	Range of Detected Concentrations [3]	Arithmetic Mean [4]	BG Screen [5]
Volatile Organics (ug/L)					
1,2-DIBROMO-3-CHLOROPROPANE	2 / 8	10 – 10	10 -- 10	6.4	12.9
Semivolatile Organics (ug/L)					
2-ACETYLAMINOFLUORENE	1 / 8	10 – 10	10 -- 10	5.4	10.7
BIS(2-ETHYLHEXYL)PHTHALATE	2 / 8	10 – 40	1 – 3	5.5	11.0
Inorganics (ug/L)					
ANTIMONY	1 / 8	3.1 – 40	57.5 -- 57.5	17.5	**35** [6]
ARSENIC	5 / 8	0.9 – 6.9	0.86 – 8.1	2.8	**5.6**
BARIUM	8 / 8	* -- * [7]	6.8 -- 15.4	11.4	22.9
BERYLLIUM	0 / 8	0.1 -- 0.27	** -- ** [8]	** [8]	**
CADMIUM	1 / 8	1.6 -- 4	2.4 -- 2.4	1.6	3.1
CALCIUM	4 / 4	* – *	71100 -- 168000	141088	282175
CHROMIUM	1 / 8	1.9 -- 2.4	4 -- 4	1.3	**2.6**
COBALT	2 / 8	2.3 -- 5.1	5.6 -- 9.7	3.2	**6.4**
COPPER	3 / 8	1.4 -- 29.5	2.4 -- 37.2	7.2	**14.5**
CYANIDE	2 / 8	1.8 – 3	0.92 – 3.0	1.5	3.0
IRON	3 / 4	187 -- 187	85.7 -- 435	193	**386**
LEAD	2 / 4	0.78 – 2.6	0.91 -- 1.5	1.0	2.1
MAGNESIUM	4 / 4	* -- *	54000 -- 490000	335575	671150
MANGANESE	4 / 4	* -- *	10.4 -- 98.7	41.7	**83.5**
MERCURY	0 / 8	0.09 -- 0.16	** -- **	**	**
NICKEL	1 / 8	7 -- 19.8	13 -- 13	6.3	12.6
SELENIUM	3 / 8	1.1 -- 10.6	1.8 -- 13.7	4.3	**8.5**
SILVER	0 / 8	2.1 -- 2.4	** -- **	**	**
SODIUM	1 / 4	55.6 -- 55.6	380000 -- 386000	95771	**191542**
THALLIUM	2 / 5	1.4 – 1.4	1.8 -- 73.7	10.0	**19.9**
TIN	1 / 8	9.4 -- 208	776 -- 776	108	**216**
VANADIUM	6 / 8	2.2 -- 2.7	3.4 -- 5.2	3.2	6.4
ZINC	1 / 8	1.6 – 23.5	3.2 -- 3.2	4.4	8.8
Miscellaneous Parameters (mg/L)					
CHLORIDE	5 / 5	* – *	710 -- 11500	6075.0	12150
SULFATE	5 / 5	* – *	130 -- 1320	839	1679
TOTAL DISSOLVED SOLIDS	4 / 4	* – *	1550 -- 18600	11263	22525
TOTAL ORGANIC CARBON	4 / 4	* – *	10.8 -- 21.6	15	29

[1] Includes VOCs, SVOC, and Pest./PCBs detected in at least one background sample; includes all inorganic analytes.

[2] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected results); duplicates included but not counted.

[3] Ranges include duplicate and/or re-sample results, where appropriate.

[4] The mean includes detected concentrations and one-half the laboratory reporting limit for non-detect results; duplicate samples and re-sample results were averaged prior to calculation of the mean (see Table A-4).

[5] Background (BG) Screen is twice the arithmetic mean of the data.

[6] Bold BG Screen result indicates that value is less than maximum concentration of that chemical.

[7] All results were positive detects.

[8] All results were non detects; mean and BG screening value not applicable.

TABLE 5
Statistics and Background Screening Concentrations
Sediment - Mayport NAVSTA

Chemical [1]	Frequency of Detection [2]	Range of Reporting Limits [2]	Range of Detected Concentrations [3]	Arithmetic Mean [4]	BG Screen [5]
Volatile Organics (ug/kg)					
CARBON DISULFIDE	1 / 8	6 – 12	19 – 83	10.4	**20.7** [6]
TOLUENE	1 / 8	6 – 16	3 – 3	4.1	8.1
Semivolatile Organics (ug/kg)					
BIS(2-ETHYLHEXYL)PHTHALATE	2 / 8	45 – 7200	140 – 260	516	1031
DI-N-BUTYL PHTHALATE	2 / 8	410 – 7200	54 – 71	516	1033
PYRENE	1 / 8	410 – 7200	99 – 99	548	1096
Pesticides/PCBs (ug/kg)					
4,4'-DDD	1 / 8	1 – 7.4	4.2 – 4.2	1.4	**2.9**
4,4'-DDE	2 / 8	0.7 – 7.4	3 – 7.9	2.1	**4.3**
4,4'-DDT	1 / 8	1 – 7.4	0.8 – 0.8	1.0	2.0
Inorganics (mg/kg)					
ANTIMONY	0 / 8	0.94 – 18.2	* – * [7]	* [7]	* [7]
ARSENIC	4 / 8	0.01 – 0.21	0.68 – 6.6	1.2	**2.5**
BARIUM	8 / 8	0 – 0	3.6 – 16.1	7.2	**14.3**
BERYLLIUM	2 / 8	0.045 – 0.59	0.1 – 0.47	0.1	**0.2**
CADMIUM	1 / 8	0.44 – 1.3	0.82 – 0.82	0.5	0.9
CHROMIUM	8 / 8	0 – 0	1.3 – 28.1	7.3	**14.7**
COBALT	1 / 8	0.56 – 6.4	2.4 – 2.4	1.0	**2.0**
COPPER	7 / 8	0.43 – 0.43	0.88 – 7.5	2.5	**5.0**
CYANIDE	0 / 5	0.07 – 0.22	* – *	*	*
LEAD	6 / 8	0.2 – 1.2	1.5 – 10	3.4	**6.8**
MERCURY	3 / 8	0.04 – 0.24	0.22 – 1.1	0.2	**0.3**
NICKEL	3 / 8	2 – 3.6	5.1 – 7.1	3.1	**6.2**
SELENIUM	6 / 8	0.56 – 1.1	0.32 – 0.81	0.5	1.1
SILVER	0 / 8	0.6 – 1.1	* – *	*	*
THALLIUM	1 / 8	0.39 – 0.74	0.88 – 0.88	0.3	**0.7**
TIN	1 / 8	5 – 94.8	12.3 – 12.3	17.9	35.8
VANADIUM	8 / 8	** – ** [8]	1.6 – 28.4	7.1	**14.3**
ZINC	8 / 8	** – **	2.1 – 34.3	12.1	**24.2**
Miscellaneous Parameters (mg/kg)					
TOTAL ORGANIC CARBON	5 / 5	** – **	5160 – 20400	9364	**18728**

[1] Includes VOCs, SVOC, and Pest./PCBs detected in at least one background sample; includes all inorganic analytes.

[2] Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed (excluding rejected results); duplicates included but not counted.

[3] Ranges include duplicate and/or re-sample results, where appropriate.

[4] The mean includes detected concentrations and one-half the laboratory reporting limit for non-detect results; duplicate samples and re-sample results were averaged prior to calculation of the mean (see Table A-5).

[5] Background (BG) Screen is twice the arithmetic mean of the data.

[6] Bold BG Screen result indicates that value is less than maximum concentration of that chemical.

[7] All results were non detects; mean and BG screening values not applicable.

[8] All results were positive detects.

TABLE A-1
Surface Soil Background Data
Mayport NAVSTA

Sample Location	MPT-B-SS/BS-1	MPT-B-SS/BS-1	MPT-B-SS/BS-2	MPT-B-SS/BS-3	MPT-B-SS/BS-4	MPT-B-SS/BS-5	MPT-B-SS/BS-6
Sample ID	MPTBSS1	MPTBSS1**D**	MPTBSS2	MPTBSS3	MPTBSS4	MPTBSS5	MPTBSS6
Sample Date	02/16/93	02/16/93	02/16/93	02/16/93	02/16/93	02/16/93	02/16/93
Top Depth, feet	0	0	0	0	0	0	0
Botom Depth, feet	1	1	1	1	1	1	1
Pesticides/PCBs (ug/kg)							
4,4'-DDE	0.7 U	0.7 U	0.8 U	0.81 U	2.3	0.7 U	0.7 U
Inorganics (mg/kg)							
ANTIMONY	5.3 U	5.2 U	6 U	6 U	5.2 U	5.2 U	5.2 U
ARSENIC	2.2 U	1.5 U	2.5 U	2.6 U	1.4 U	0.76 U	1.7 U
BARIUM	2.7 J	2.6 J	5 J	2.5 J	3.6 J	0.76 J	2 J
BERYLLIUM	0.06 U	0.06 U	0.07 U	0.07 U	0.06 J	0.06 U	0.09 J
CADMIUM	0.83 U	0.83 U	1 J	0.96 U	0.84 U	0.83 U	0.84 U
CHROMIUM	1.5 J	0.72 J	1.2 J	2.5	0.72 J	0.68 J	1.7 J
COBALT	0.47 U	0.47 U	0.55 U	0.55 U	0.48 U	0.47 U	0.48 U
COPPER	2.1 J	0.35 U	0.41 U	0.41 U	0.36 U	0.35 U	0.36 U
CYANIDE	0.16 U	0.16 U	0.18 U	0.18 U	0.16 U	0.16 U	0.16 U
LEAD	1.5 U	1.2 U	0.25 U	0.94 U	1 U	1.4 U	1.7 U
MERCURY	0.03 U	0.03 U	0.03 U	0.07 U	0.03 U	0.03 U	0.03 U
NICKEL	2.6 U	2.6 U	3 U	3 U	2.6 U	2.6 U	2.6 U
SELENIUM	0.72 J	0.59 J	0.86 J	0.71 J	0.69 J	0.47 J	0.45 U
SILVER	0.51 U	0.51 U	0.59 U	0.59 U	0.51 U	0.51 U	0.51 U
THALLIUM	0.53 UJ	0.54 UJ	0.78 J	0.62 UJ	1.1 J	0.77 J	0.94 J
TIN	7.3 U	7.3 U	8.4 U	8.5 U	7.4 U	7.3 U	7.4 U
VANADIUM	1.7 J	1.2 J	1.6 J	2.5 J	2.3 J	0.46 U	2 J
ZINC	1.7 J	0.35 J	1.2 J	0.71 J	1.4 J	1.9 J	1.8 J
Miscellaneous Parameters (mg/kg)							
TOTAL ORGANIC CARBON	1950	1740	2620	5400	8030	1440	1660

"D" in sample ID denotes duplicate sample.
MPTBSS1**D** is a duplicate of MPTBSS1.

from bkss_sam.dbf
from bkss_res.dbf
from bkss_res.xls

TABLE A-2
Subsurface Soil Background Data
Mayport NAVSTA

Sample Location	MPT-B-BS1	MPT-B-BS1DUP	MPT-B-BS4	MPT-B-BS5	MPT-B-BS6
Sample ID	OBBS00104	OBBS00104**D**	OBBS00404	OBBS00504	OBBS00604
Sample Date	11/22/94	11/22/94	11/22/94	11/22/94	11/22/94
Top Depth, feet	3	3	3	3	3
Bottom Depth, feet	4	4	4	4	4
Semivolatile Organics (ug/kg)					
BENZOIC ACID	1700 U	1700 UJ	1700 UJ	110 J	1900 UJ
Pesticides/PCBs (ug/kg)					
4,4-DDE	0.72 U	0.72 U	3.5	0.74 U	0.78 U
Inorganics (mg/kg)					
ANTIMONY	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U
ARSENIC	0.58 J	0.43 J	0.5 J	0.13 U	0.33 J
BARIUM	3.3 J	3.9 J	6.8 J	2.1 J	1.9 J
BERYLLIUM	0.07 J	0.07 J	0.07 U	0.07 U	0.07 U
CADMIUM	0.22 U	0.22 U	0.22 U	0.22 U	0.23 U
CHROMIUM	1.5 J	3	0.57 U	1.4 J	1.5 J
COBALT	0.67 U	0.71 J	0.67 U	0.69 U	0.72 U
COPPER	2 J	2.3 J	0.2 U	0.9 U	1.4 J
CYANIDE	0.58	0.15 U	0.15 U	0.15 U	0.16 U
LEAD	0.93	0.75	0.59 U	1.9	0.58 U
MERCURY	0.03 U	0.03 J	0.03 J	0.03 J	0.03 U
NICKEL	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U
SELENIUM	0.13 U	0.13 U	0.13 UJ	0.13 U	0.14 U
SILVER	0.45 U	0.45 U	0.46 U	0.47 U	0.49 U
THALLIUM	0.13 U	0.13 U	0.13 U	0.13 U	0.14 U
TIN	4 J	2.8 J	2.2 J	2.2 J	3 J
VANADIUM	1.7 J	1.9 J	2.5 J	0.71 J	1.2 J
ZINC	2.9 J	2.8 J	2 J	2.5 J	2.4 J

"D" in sample ID denotes duplicate sample.
OBBS00104D is a duplicate of OBBS00104.

from bkgso_sam.dbf
from bkgso_res.dbf
from bkgso_res.xls
from p:\mayport\more_1026

TABLE A-3
Groundwater Background Data
Mayport NAVSTA

Sample Location Sample ID Sample Date	MPT-01-MW01S 01MW001 07/08/94	MPT-S-MW01S 0SMW001R 07/08/94	MPT-S-MW01S 0SMW001RD 07/08/94	MPT-B-MW1S 0BMW001S 07/08/94	MPT-B-MW1I 0BMW001I 07/09/94	MPT-B-MW1D 0BMW001D 07/08/94	MPT-08-MW05S 08MW005S 07/26/94	MPT-08-MW05I 08MW005I 07/26/94	MPT-08-MW05D 08MW005D 08/29/94
Volatile Organics (ug/L)									
ACETONE	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	44 U	16
BROMODICHLOROMETHANE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 J	5 U
CHLOROFORM	5 U	5 U	5 U	5 U	3 J	5 U	5 U	2 J	5 U
Semivolatile Organics (ug/L)									
3&4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U	29	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	6 J	10 U	10 U	10 U	10 U	10 U	10 U
Inorganics (ug/L)									
ANTIMONY	2.2 U	3 U	2.2 U	2.2 U	2.2 U	22.3 UJ	5 U	5 U	50 UJ
ARSENIC	6 J	1.9 J	1.9 J	3.3 J	0.9 U	5.5 J	0.6 U	0.6 J	6 U
BARIUM	3.3 U	9.2 J	9.2 J	8.2 J	6.4 J	48.9 J	1.4 U	1.2 U	75.5 J
BERYLLIUM	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.3 UJ	0.3 UJ	0.3 UJ
CADMIUM	3 U	3 U	3 U	3 U	3 U	3 U	1 U	1 U	1 U
CALCIUM	65000	113000	113000	79000	100000	251000	84500 J	82000 J	130000
CHROMIUM	2.09 U	2 U	2 U	2 U	2.09 U	2 U	2.6 UJ	2.6 UJ	2.6 U
COBALT	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	3.1 UJ	3.1 UJ	3.1 U
COPPER	12.7 U	9.86 U	9.86 U	10.1 U	4 U	9.86 U	0.9 U	0.9 U	0.9 U
CYANIDE	0.95 J	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	2.7 U	2.7 U	2.7 U
IRON	15.4 J	95 J	75 J	425	660	609	78.6 UJ	68.2 UJ	108
LEAD	0.97 U	2 U	0.97 U	2 UJ	1.5 J	2.6 U	0.6 U	0.6 U	6 UJ
MAGNESIUM	2860 J	7670	7450	12300	23600	419000	18800 U	19700 U	253000
MANGANESE	7.1 J	67.8	64.7	70.9	119	228	23.6 UJ	20.1 UJ	49.5
MERCURY	0.1 J	0.08 J	0.08 U	0.08 U	0.08 U	0.08 U	0.1 U	0.1 U	0.5 UJ
NICKEL	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	5.9 UJ	5.9 UJ	5.9 U
SELENIUM	1.3 UJ	---	---	---	1.3 UJ	13.2 UJ	0.6 U	0.6 UJ	6 UJ
SILVER	2.3 U	2.1 U	2.1 U	2.1 U	2.3 U	2.1 U	2.1 U	2.1 U	2.1 U
SODIUM	9300	13800 J	13300 J	10500 J	79500	3310000 J	31500 U	39500 U	2640000
THALLIUM	1.3 UJ	1.3 UJ	1.3 U	1.3 UJ	1.3 U	1.3 UJ	0.6 U	0.6 U	6 UJ
TIN	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	8 U	8 U	8 U
VANADIUM	4.4 J	5.8 J	5.8 J	2.6 J	3.6 J	1.7 U	1.5 UJ	2.3 J	3.6 J
ZINC	6.1 U	4.2 U	4.2 U	8.8 U	8 U	5.8 U	1.82 U	3.1 U	4.3 J
Miscellaneous Parameters (mg/L)									
AMMONIA, AS NITROGEN		0.3 U	0.3 U	0.3 U	0.3 U	0.7	1.3	1.1	
CHLORIDE		15	15.1	20	146	6600	31.7	39.7	
SULFATE		57.7	59	67	99.6	1230	36.4	49.3	
TOTAL DISSOLVED SOLIDS		776	470	824	811	8150	417	460	

OSMW001RD is a duplicate of OSMW001R.
"S", "I", and "D" at end of sample location indicate "shallow", "intermediate", and "deep" wells, respectively, in the surficial aquifer.

from bkgw_samrev1.dbf
from bkgw_resrev1.dbf
from bkgw_resrev1.xls
from p:\mayport\z_new_cms\background

TABLE A-4
Surface Water Background Data
Mayport NAVSTA

Sample Location Sample ID Sample Data	MPT-B-SW/SD-1 MPT-B-SW-1 01/21/92	MPT-B-SW/SD-2 MPT-B-SW-2 01/21/92	MPT-B-SW/SD-3 MPT-B-SW-3 01/21/92	MPT-B-SW/SD-1 (3) MPTBSWDUP1 01/21/92	MPT-B-SW/SD-4 MPTBSW4 02/17/93	MPT-B-SW/SD-5 MPTBSW5 02/18/93	MPT-B-SW/SD-5 00SW001 08/03/94	MPT-B-SW/SD-6 MPTBSW6 02/17/93	MPT-B-SW/SD-7 MPTBSW7 02/17/93	MPT-B-SW/SD-7 MPTBSW7D 02/17/93
Volatile Organics (ug/L)										
1,2-DIBROMO-3-CHLOROPROPANE	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 J	10 J	10 J
Semivolatile Organics (ug/L)										
2-ACETYLAMINOFLUORENE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	3 J	10 U	10 U	10 U	40 U	1 J	10 U	10 U	10 U
Inorganics (ug/L)										
ANTIMONY	40 U	40 U	57.5 J	40 U	24.6 U	24.6 U	3.1 U	24.6 U	24.6 U	24.6 U
ARSENIC	1.2 J	0.86 J	1.2 J	1.4 J	6.9 U	3.8 J	0.9 UJ	8.1 J	5.1 U	4.8 U
BARIUM	11.1 J	12.3 J	15.4 J	15.4 J	11.7 J	10.6 J	10.9 J	11.6 J	6.8 J	7.6 J
BERYLLIUM	0.1 U	0.1 U	0.1 U	0.1 U	0.27 U	0.27 U	0.18 U	0.27 U	0.27 U	0.27 U
CADMIUM	1.6 U	1.6 U	1.6 U	2.4 J	4 U	4 U	3 U	4 U	4 U	4 U
CALCIUM					168000 J	166000 J		159000 J	71600 J	71100 J
CHROMIUM	1.9 U	1.9 U	1.9 U	4 J	2.4 U	2.4 U	2 U	2.4 U	2.4 U	2.4 U
COBALT	5.1 U	5.6 J	9.7 J	9.7 J	2.3 U	2.3 U	2.7 U	2.3 U	2.3 U	2.3 U
COPPER	1.4 U	37.2	2.4 J	1.4 U	1.7 U	2.4 J	29.5 U	1.7 U	1.7 U	1.7 U
CYANIDE	3 J	1.8 U	1.8 U	1.8 U	3 U	3 U	0.92 J	3 U	3 U	3 U
IRON					435	187 U		155	92.5 J	85.7 J
LEAD	1.3 J	0.78 UJ	0.91 J	1.5 J	2.6 R	2.6 UJ	20.5 R	2.6 R	2.6 R	2.6 R
MAGNESIUM					490000	453000		345000	54600	54000
MANGANESE					10.4 J	23.7		36.5	94	98.7
MERCURY	0.16 U	0.16 U	0.16 U	0.16 U	0.1 U	0.1 U	0.09 U	0.1 U	0.1 U	0.1 U
NICKEL	7 U	19.8 U	7 U	7 U	12.5 U	13 J	7.3 U	12.5 U	12.5 U	12.5 U
SELENIUM	2.6 J	1.1 UJ	1.8 J	1.3 UJ	10.6 U	10.6 U	13.7 J	10.6 U	10.6 U	10.6 U
SILVER	2.3 U	2.3 U	2.3 U	2.3 U	2.4 U	2.4 U	2.1 U	2.4 U	2.4 U	2.4 U
SODIUM					55.6 U	55.6 U		55.6 U	386000	380000
THALLIUM	1.4 UJ	1.4 UJ	1.4 UJ	1.4 UJ	12.7 R	73.7 J	1.8 J	12.7 R	12.7 R	12.7 R
TIN	208 U	208 U	208 U	208 U	34.8 U	776	9.4 U	34.8 U	34.8 U	34.8 U
VANADIUM	3.6 J	2.7 U	2.7 U	2.7 U	4.5 J	5 J	3.4 J	5.2 J	3.5 J	2.2 U
ZINC	6.1 U	23.5 U	10.7 U	8.4 U	1.6 UJ	6.6 U	23.5 U	1.6 UJ	1.6 UJ	3.2 J
Miscellaneous Parameters (mg/L)										
AMMONIA, AS NITROGEN					0.06 U	0.6 U	0.3 U	0.06 U	0.06 U	
CHLORIDE					8340	8680	11500	5160	710	
SULFATE					1160	1100	1320	857	130	
TOTAL DISSOLVED SOLIDS					18600	14400		10500	1550	

MPTBSWDUP1 and MPTBSW7D are duplicates of MPT-B-SW-3 and MPTBSW7, respectively.
OOSW001 is a re-sample at location MPT-B-SW/SD-5.

from bksw_sam.dbf
from bksw_res.dbf
from bksw_res.xls

TABLE A-5
Sediment Background Data
Mayport NAVSTA

Sample Location Sample ID Sample Data	MPT-B-SW/SD-1 MPT-B-SD-1 01/21/92	MPT-B-SW/SD-2 MPT-B-SD-2 01/21/92	MPT-B-SW/SD-3 MPT-B-SD-3 01/21/92	MPT-B-SW/SD-1 (3) MPTBSDDUP1 01/21/92	MPT-B-SW/SD-4 MPTBSD4 02/17/93	MPT-B-SW/SD-5 MPTBSD5 02/18/93	[MPT-B-SW/SD-5] 00SD001 08/03/94	MPT-B-SW/SD-6 MPTBSD6 02/17/93	MPT-B-SW/SD-7 MPTBSD7 02/17/93	MPT-B-SW/SD-7 MPTBSD7D 02/17/93
Volatile Organics (ug/kg)										
CARBON DISULFIDE	7 U	7 U	83	19	6 U	6 U	12 U	7 U	7 U	7 U
TOLUENE	7 U	3 J	14 U	16 U	6 U	6 U	12 U	7 U	7 U	7 U
Semivolatile Organics (ug/kg)										
BIS(2-ETHYLHEXYL)PHTHALATE	440 U	430 U	260 J	650 U	840 U	45 U	7200 U	960 U	140 J	200 J
DI-N-BUTYL PHTHALATE	440 U	54 J	70 J	71 J	840 U	410 U	7200 U	960 U	940 U	930 U
PYRENE	440 U	430 U	610 U	650 U	840 U	410 U	7200 U	960 U	99 J	930 U
Pesticides/PCBs (ug/kg)										
4,4'-DDD	1.1 U	1 U	7.4 U	1.6 U	1.5 U	1.6 U	2.4 U	4.2	1.7 U	1.8 U
4,4'-DDE	3	1 U	7.4 U	1.6 U	0.7 U	0.82 U	1.2 U	7.9	0.89 U	0.9 U
4,4'-DDT	0.8 J	1 U	7.4 U	1.6 U	1.5 U	1.6 U	2.4 U	1.7 U	1.7 U	1.8 U
Inorganics (mg/kg)										
ANTIMONY	11.4 UJ	11 UJ	18.2 UJ	16.4 UJ	6.3 U	6.1 U	0.94 U	7.2 U	7.1 U	6.9 U
ARSENIC	0.68 J	0.21 U	4.2 J	6.6	0.01 U	1.3 J	3.6 J	0.02 U	0.01 U	0.01 U
BARIUM	3.6 J	7.4 J	16.1 J	15.2 J	6.5 J	4.7 J	12.3 J	4.4 J	4 J	4 J
BERYLLIUM	0.059 U	0.045 U	0.59 U	0.54 U	0.07 U	0.07 U	0.47 J	0.08 U	0.08 U	0.1 J
CADMIUM	0.46 U	0.44 U	0.82 J	0.66 U	1 U	0.98 U	1.3 U	1.2 U	1.1 U	1.1 U
CHROMIUM	2.5 J	4.4	28.1	26.6	1.3 J	2.4 J	17.1	3.1	3	2.8
COBALT	2.1 U	1.5 U	6.4 U	4.9 U	0.57 U	0.56 U	2.4 J	0.66 U	0.65 U	0.63 U
COPPER	2 J	2.3 J	3.1 J	3.5 J	0.43 U	5 J	7.5 J	2.6 J	0.88 J	0.88 J
CYANIDE					0.19 U	0.19 U	0.07 U	0.22 U	0.22 U	0.21 U
LEAD	3.4	3	8.5	10	1.2 U	1.5 J	7.7	0.2 U	3.1	2.5
MERCURY	0.078 U	0.068 U	0.15 U	0.13 U	0.04 UJ	0.24 U	1.1 J	0.24 J	0.22 J	0.04 UJ
NICKEL	2 U	5.5 J	7.1 J	6.4 J	3.2 U	3.1 U	5.1 J	3.6 U	3.6 U	3.5 U
SELENIUM	0.39 J	0.32 J	0.52 J	0.62 J	0.71 J	1.1 U	0.56 UJ	0.81 J	0.65 J	0.6 U
SILVER	0.66 U	0.64 U	1.1 U	0.95 U	0.62 U	0.6 U	0.87 U	0.71 U	0.7 U	0.68 U
THALLIUM	0.4 UJ	0.39 UJ	0.64 UJ	0.58 UJ	0.65 UJ	0.63 U	0.55 U	0.74 UJ	0.68 J	0.72 UJ
TIN	59.1 U	57.3 U	94.8 U	85.4 U	8.9 U	12.3 J	5 U	10.2 U	10.1 U	9.8 U
VANADIUM	2.2 J	3.7 J	28.4	26.2	1.6 J	1.8 J	17 J	3.3 J	2.7 J	2.2 J
ZINC	7.7	6.1	26.7	32.1	3 J	2.1 J	34.3	11.6 J	9.5 J	7.9 J
Miscellaneous Parameters (mg/kg)										
TOTAL ORGANIC CARBON					5870	8760	20400	10800	7250	5160

MPTBSDDUP1 and MPTBSD7D are duplicates of MPT-B-SD-3 and MPTBSD7, respectively.
OOSD001 is a re-sample at location MPTBSD5.

from bksd_sam.dbf
from bksd_res.dbf
from bksd_res.xls

APPENDIX K

HUMAN HEALTH RISK ASSESSMENT SUPPORTING DOCUMENTATION

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SURFACE SOIL
AREA OF CONCERN C - NAVAL AIR STATION
MAYPORT, FLORIDA
1 OF1

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil/ Air
Exposure Point: AOC C

CAS Number	Chemical	Fraction	Minimum Concentration	Minimum Qualifier	Maximum Concentration	Maximum Qualifier	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used For Screening[1]	Background Value[2]	Region 9 PRG [3]	Potential ARAR/TBC Value [4]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [5]
Organic Volatiles (mg/kg)																
100-41-4	Ethylbenzene	OV	0.0665		0.0665		94-05-077	1/10	0.005-0.0068	0.0665	NA	23 N	110	FL Residential	no	BSL
75-09-2	Methylene Chloride	OV	0.002	J	0.0046	J	AC-SS04-01	3/10	0.005-0.0062	0.0046	NA	0.89 C	1.6	FL Residential	no	BSL
108-88-3	Toluene	OV	0.00677		0.0182		94-05-077	2/10	0.005-0.0068	0.0182	NA	520 Csat	38	FL Residential	no	BSL
Organic Semivolatiles (mg/kg)																
120-12-7	Anthracene	OS	0.16	J	0.16	J	55-SS-06	1/8	0.340-0.380	0.16	NA	2200 N	1800	FL Residential	no	BSL
56-55-3	**Benzo(a)anthracene**	OS	0.051	J	2.6		55-SS-06	4/8	0.340-0.380	2.6	NA	0.062 C	0.14	FL Residential	yes	ASL
50-32-8	**Benzo(a)pyrene**	OS	0.082	J	3.5		55-SS-06	3/8	0.340-0.380	3.5	NA	0.0062 C	0.01	FL Residential	yes	ASL
205-99-2	**Benzo(b)fluoranthene**	OS	0.1	J	5.7		55-SS-06	3/8	0.340-0.380	5.7	NA	0.062 C	0.14	FL Residential	yes	ASL
191-24-2	Benzo(g,h,I)perylene	OS	0.085	J	2.7		55-SS-06	2/8	0.350-0.380	2.7	NA	NA - N	230	FL Residential	no	BSL
207-08-9	**Benzo(k)fluoranthene**	OS	0.11	J	2.2		55-SS-06	3/8	0.340-0.380	2.2	NA	0.62 C	1.5	FL Residential	yes	ASL
86-74-8	Carbazole	OS	0.29	J	0.29	J	55-SS-06	1/3	0.350-0.360	0.29	NA	2.4 C	5.3	FL Residential	no	BSL
218-01-9	**Chyrsene**	OS	0.047	J	3.9		55-SS-06	5/8	0.350-0.380	3.9	NA	6.2 C	14	FL Residential	yes	cPAH
53-70-3	**Dibenzo(a,h)anthracene**	OS	0.73		0.73		55-SS-06	1/8	0.340-0.380	0.73	NA	0.0062 C	0.01	FL Residential	yes	ASL
131-11-3	Dimethyl Phthalate	OS	0.11	J	0.11	J	TC-MW06S	1/8	0.340-0.720	0.11	NA	10000 N	59000	FL Residential	no	BSL
206-44-0	Fluoranthene	OS	0.064	J	5.6		55-SS-06	5/8	0.350-0.380	5.6	NA	230 - N	290	FL Residential	no	BSL
193-39-5	**Indeno(1,2,3-cd)pyrene**	OS	0.087	J	2.6		55-SS-06	2/8	0.340-0.380	2.6	NA	0.062 C	0.15	FL Residential	yes	ASL
85-01-8	Phenanthrene	OS	0.057	J	1.4		55-SS-06	3/8	0.340-0.380	1.4	NA	NA - N	200	FL Residential	no	BSL
129-00-0	Pyrene	OS	0.042	J	4		55-SS-06	5/8	0.350-0.380	4	NA	230 - N	220	FL Residential	no	BSL
Pesticides (mg/kg)																
72-55-9	4,4'-DDE	PES	0.002		0.014	J	55-SS-06	3/8	0.0007-0.0019	0.014	NA	0.17 C	0.33	FL Residential	no	BSL
11096-82-	**Aroclor-1260**	PES	0.025	J	0.8		55-SS-06	5/8	0.02-0.036	0.8	NA	0.022 C	0.05	FL Residential	yes	ASL
57-74-9	Chlordane	PES	0.012		0.093		TCS00401	3/5	0.007-0.0078	0.093	NA	0.16 C	0.31	FL Residential	no	BSL
76-44-8	Heptachlor	PES	0.0012	J	0.0013	J	TCS00401	2/8	0.0007-0.018	0.0013	NA	0.011 C	0.02	FL Residential	no	BSL
1024-57-3	Heptachlor Epoxide	PES	0.0087		0.0089		TCS00401	2/8	0.0007-0.018	0.0089	NA	0.0053 C	0.01	FL Residential	no	BSL
Metals (mg/kg)																
7429-90-5	Aluminum	M	436	J	978	J	55-SS-06	3/3	--	978	Not Avail	7600 - N	7200	FL Residential	no	BSL
7440-36-0	**Antimony**	M	2.7		2.7		55-SS-06	1/8	0.33-1.2	2.7	Not Avail	3.1 N	2.6	FL Residential	yes	ASL
7440-38-2	**Arsenic**	M	0.49		1.6	J	TCS00101	4/8	0.34-1	1.6	Not Avail	0.039 C	0.08	FL Residential	yes	ASL
7440-39-3	Barium	M	3.4	J	56.7		TCS00101	8/8	--	56.7	5.5	540 - N	110 (s)	FL Residential	no	BSL
7440-41-7	Beryllium	M	0.08	J	0.12	J	TCS00401	4/8	0.02-0.11	0.12	0.09	15 N	12	FL Residential	no	BSL
7440-43-9	Cadmium	M	0.44	J	0.58		55-SS-06	2/8	0.05-0.28	0.58	1.1	3.7 N	75 (s)	FL Residential	no	BSL, BKG
7440-70-2	Calcium	M	12900		57300		AC-SS03-01	3/3	--	57300	Not Avail	NA	NA	--	no	NUT
7440-47-3	Chromium	M	2.1	J	12.8		TCS00101	8/8	--	12.8	2.6	3 C	21	FL Residential	no	BSL
7440-48-4	Cobalt	M	0.54		0.76	J	TCS00101	2/8	0.22-0.72	0.76	Not Avail	470 - N	470	FL Residential	no	BSL
7440-50-8	Copper	M	1.9	J	30.3	J	55-SS-06	6/8	0.34-0.38	30.3	0.69	290 - N	110(s)	FL Residential	no	BSL
7439-89-6	**Iron**	M	668		4510		55-SS-06	3/3	--	4510	Not Avail	2300 - N	2300	FL Residential	yes	ASL
7439-92-1	Lead	M	0.62	J	89.6		55-SS-06	8/8	--	89.6	Not Avail	400	400	FL Residential	no	BSL
7439-95-4	Magnesium	M	146		485		55-SS-06	3/3	--	485	Not Avail	NA	NA	--	no	NUT
7439-96-5	Manganese	M	8.5		25.7		55-SS-06	3/3	--	25.7	Not Avail	180 - N	160	FL Residential	no	BSL
7439-97-6	Mercury	M	0.03	J	0.05		55-SS-06	2/8	0.02-0.03	0.05	Not Avail	2.3 - N	0.34	FL Residential	no	BSL
7439-98-7	Molybdenum	M	0.32		0.32		55-SS-06	1/1	--	0.32	Not Avail	39 N	39	FL Residential	no	BSL
7440-02-0	Nickel	M	1.8	J	3.6	J	TCS00101	3/8	0.31-3.1	3.6	Not Avail	160 - N	110(s)	FL Residential	no	BSL
7440-09-7	Potassium	M	36.3		36.3		55-SS-06	1/3	55.5-67.7	36.3	Not Avail	NA	NA	--	no	NUT
7782-49-2	Selenium	M	0.2	J	0.2	J	TCS00401	1/8	0.1-0.47	0.2	1.2	39 N	39	FL Residential	no	BSL
7440-23-5	Sodium	M	506		506		AC-SS03-01	1/3	26.2-78.9	506	Not Avail	NA	NA	--	no	NUT
7440-31-5	Tin	M	5.7	J	5.7	J	TCS00401	1/8	1.1-36.2	5.7	Not Avail	4700 N	4400	FL Residential	no	BSL
7440-62-2	Vanadium	M	1.5		9.6		55-SS-06	8/8	--	9.6	3.4	55 - N	15(s)	FL Residential	no	BSL
7440-66-6	Zinc	M	3.2	J	139	J	55-SS-06	8/8	--	139	2.7	2300 - N	2300	FL Residential	no	BSL
Cyanide (mg/kg)																
57-12-5	Cyanide		0.09	J	0.15	J	TCS00401	5/8	0.54-0.55	0.15		1.1 - N	30(s)	FL Residential	no	BSL

[1] Maximum concentration used as screening value
[2] The background screening value is twice the average of background concentrations for inorganic analytes.
[3] Based on Superfund Preliminary Remediation Goals, USEPA Region IX, Residential land use (Cancer benchmark value = 1E-06, Hazard Quotient = 0.1) (May 2000)
[4] FL Residential from Technical Report: Development of Soil Cleanup Levels for Chapter 62-777, F.A.C. (May 1999)(Cancer benchmark value = 1E-06, Hazard Quotient = 0.1)
[5] Rationale Codes

Selection Reason	Above Screening Levels (ASL)
	If one cPAH is selected as a COPC, all are selected (PAH)
Deletion Reason	Maximum detected concentration is below background screening level (BKG)
	Essential Nutrient (NUT)
	Below Screening Levels (BSL)

Chemical names in bold indicate that chemical was selected as a COPC

Definitions:
NA = Not Applicable
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
J = Estimated Value
COPC = Chemical of Potential Concern
s = direct exposure based on acute toxicity
N = noncarcinogen
C = carcinogen

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SUBSURFACE SOIL
AREA OF CONCERN C - NAVAL AIR STATION
MAYPORT, FLORIDA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soi
Exposure Point: AOC C

CAS Number	Chemical	Fraction	Minimum Concentration	Minimum Qualifier	Maximum Concentration	Maximum Qualifier	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used For Screening[1]	Background Value[2]	Region 9 PRG [3]	Potential ARAR/TBC Value [4]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [5]
Organic Volatiles (mg/kg)																
75-15-0	Carbon Disulfide	OV	0.001	J	0.0014	J	G4-SU-40	2/10	0.0059-0.0073	0.0014	NA	36 N	20	FL Residential	no	BSL
75-09-2	Methylene Chloride	OV	0.001	J	0.004	J	TCB002, TCB003	6/12	0.0058-0.0073	0.004	NA	1.5 C	2.7	FL Residential	no	BSL
75-69-4	Trichlorofluoromethane	OV	0.002	J	0.002	J	TCB004	1/12	0.006-0.015	0.002	NA	39 N	20	FL Residential	no	BSL
Pesticides (mg/kg)																
72-55-9	4,4'-DDE	PES	0.0011	J	0.0029		AC-SU-02	2/8	0.00075-0.0022	0.0029	NA	0.28 C	0.55	FL Residential	no	BSL
50-29-3	4,4-DDT	PES	0.0032		0.0032		AC-SU-02	1/8	0.0015-0.0022	0.0032	NA	0.28 C	0.55	FL Residential	no	BSL
57-74-9	Chlordane	PES	0.019		0.019		TCB004	1/4	0.0082-0.0086	0.019	NA	0.27 C	0.52	FL Residential	no	BSL
OPesticides (mg/kg)																
60-51-5	Dimethoate	OPES	0.01	J	0.01	J	AC-SU03	1/2	0.043	0.01	NA	1.2 N	0.84	FL Residential	no	BSL
Metals (mg/kg)																
7429-90-5	Aluminum	M	167	J	569		G4-SU-39	6/6	--	569	Not Avail	7600 - N	7200	FL Residential	no	BSL
7440-38-2	**Arsenic**	M	0.56		0.75		AC-SU-01	2/10	0.2-0.88	0.75	0.7	0.065 C	0.13	FL Residential	yes	ASL
7440-39-3	Barium	M	1.9	J	6.1		AC-SU-01	10/10	--	6.1	7.2	540 - N	110 (s)	FL Residential	no	BSL, BKG
7440-41-7	Beryllium	M	0.07	J	0.15	J	TCB003	3/10	0.02-0.07	0.15	0.09	15 N	12	FL Residential	no	BSL
7440-43-9	Cadmium	M	0.051		0.053		AC-SU-02	2/10	0.03-0.31	0.053	Not Avail	3.7 N	75 (s)	FL Residential	no	BSL
7440-70-2	Calcium	M	499		91700		AC-SU03	6/6	--	91700	Not Avail	NA	NA	--	no	NUT
7440-47-3	Chromium	M	1.2		2.1	J	TCB002	7/10	0.4-2.8	2.1	2.7	5 C	35	FL Residential	no	BSL, BKG
7440-48-4	Cobalt	M	0.25		0.25		G4-SU-39	1/10	0.11-0.8	0.25	0.8	470 - N	470	FL Residential	no	BSL, BKG
7440-50-8	Copper	M	1	J	2.2	J	TCB001	4/10	0.23-0.73	2.2	2.1	290 - N	110(s)	FL Residential	no	BSL
7439-89-6	Iron	M	183		814		G4-SU-39	6/6	--	814	Not Avail	2300 - N	2300	FL Residential	no	BSL
7439-92-1	Lead	M	0.3	J	4.2		G4-SU-39	10/10	--	4.2	1.66	400	400	FL Residential	no	BSL
7439-95-4	Magnesium	M	38.5		297		AC-SU03	5/6	29.5	297	Not Avail	NA	NA	--	no	NUT
7439-96-5	Manganese	M	1.6		13.1		G4-SU-39	6/6	--	13.1	Not Avail	180 - N	160	FL Residential	no	BSL
7439-97-6	**Mercury**	M	0.02		0.56		G4-SU-39	2/10	0.02-0.04	0.56	0.05	2.3 - N	0.34	FL Residential	yes	ASL
7440-02-0	Nickel	M	0.56		0.56		G4-SU-39	1/10	0.23-1.5	0.56	Not Avail	160 - N	110(s)	FL Residential	no	BSL
7440-09-7	Potassium	M	19.5		52		G4-SU-39	4/6	57.7-70.1	52	Not Avail	NA	NA	--	no	NUT
7782-49-2	Selenium	M	0.56		0.58		G4-SU-39	2/10	0.11-0.57	0.58	Not Avail	39 N	39	FL Residential	no	BSL
7440-23-5	Sodium	M	69.3		982		AC-SU03	3/6	31.4-57.8	982	Not Avail	NA	NA	--	no	NUT
7440-31-5	Tin	M	2.1		4.8	J	TCB004	4/10	1.4-3.3	4.8	5.4	4700 N	4400	FL Residential	no	BSL, BKG
7440-62-2	Vanadium	M	0.97		2.1		G4-SU-39	9/10	0.78	2.1	3.1	55 - N	15(s)	FL Residential	no	BSL, BKG
7440-66-6	Zinc	M	2.8	J	38.2	J	AC-SU-02	8/10	1.9-2.4	38.2	4.9	2300 - N	2300	FL Residential	no	BSL
Cyanide (mg/kg)																
57-12-5	Cyanide		0.09	J	0.17	J	TCB003	4/10	0.56-0.66	0.17	Not Avail	1.1 - N	30(s)	FL Residential	no	BSL

[1] Maximum concentration used as screening value
[2] The background screening value is twice the average of background concentrations for inorganic analytes.
[3] Based on Superfund Preliminary Remediation Goals, USEPA Region IX, Residential land use (Cancer benchmark value = 1E-06, Hazard Quotient = 0.1) (May 2000)
[4] FL Residential from Technical Report: Development of Soil Cleanup Levels for Chapter 62-777, F.A.C. (May 1999)(Cancer benchmark value = 1E-06, Hazard Quotient = 0.1)
[5] Rationale Codes

Selection Reason	Above Screening Levels (ASL)
	If one cPAH is selected as a COPC, all are selected (PAH)
Deletion Reason	Maximum detected concentration is below background screening level (BKG)
	Essential Nutrient (NUT)
	Below Screening Levels (BSL)

Chemical names in bold indicate that chemical was selected as a COPC

Definitions:
NA = Not Applicable
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
J = Estimated Value
COPC = Chemical of Potential Concern
s = direct exposure based on acute toxicity
N = noncarcinogen
C = carcinogen

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SURFACE WATER
AREA OF CONCERN C - MAYPORT NAVAL STATION
MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Ponds

CAS Number	Chemical	fraction	Minimum Concentration	Minimum Qualifier	Maximum Concentration	Maximum Qualifier	units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used For Screening[1]	Background Value[2]	Screening Toxicity Values[3]	Potential ARAR/TBC Value[4]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[5]
Organic Volatiles (µg/l)																	
75-27-4	Bromodichloromethane	OV	1.9		1.9		µg/l	AC-SW01	1/1	--	1.9	NA	0.006 C	7.3	Florida SW	no	BSL
124-48-1	Chlorodibromomethane	OV	0.98	J	0.98	J	µg/l	AC-SW01	1/1	--	0.98	NA	0.04 C	11	Florida SW	no	BSL
67-66-3	Chloroform	OV	3.9		3.9		µg/l	AC-SW01	1/1	--	3.9	NA	0.05 C	157	Florida SW	no	BSL
Metals (µg/l)																	
7440-39-3	Barium	M	21.6		21.6		µg/l	AC-SW01	1/1	--	21.6	22.9	260 N	(6)	Florida SW	no	BSL, BKG
7440-70-2	Calcium	M	36400		36400		µg/l	AC-SW01	1/1	--	36400	282175	nutrient	Not Avail	--	no	NUT, BKG
7439-95-4	Magnesium	M	10800		10800		µg/l	AC-SW01	1/1	--	10800	671150	nutrient	Not Avail	--	no	NUT, BKG
7440-09-7	Potassium	M	2100		2100		µg/l	AC-SW01	1/1	--	2100	Not Avail	nutrient	Not Avail	--	no	NUT
7440-23-5	Sodium	M	8950		8950		µg/l	AC-SW01	1/1	--	8950	191542	nutrient	(7)	Florida SW	no	BSL, NUT, BKG
Misc (µg/l)								AC-SW01									
57-12-5	**Cyanide**	MIS	19.1		19.1		mg/l	AC-SW01	1/1	--	19.1	Not Avail	0.62 N	0.52	Florida SW	yes	ASL

Data from groundwater collected from 11/1999 through 01/2000 except where noted.

(1) Maximum concentration used as screening value
(2) The background screening value is twice the average of detected concentrations for inorganic analytes.
(3) Based on Superfund Preliminary Remediation Goals, USEPA Region IX, Residential land use (Cancer benchmark value = 1E-06, Hazard Quotient = 0.1) (May 2000)
(4) Based on Freshwater Surface Water Criteria from Technical Report: Development of Soil Cleanup Levels for Chapter 62-777, F.A.C. (May 1999)(Cancer benchmark value = 1E-06, Hazard Quotient = 0.1)
(5) Rationale Codes

Selection Reason: Above Screening Levels (ASL)

Deletion Reason:
Infrequent Detection (IFD)
Background Levels (BKG)
No Toxicity Information (NTX)
Essential Nutrient (NUT)
Below Screening Level (BSL)

(6) Screening concentration should not be greater than 10% above background.
(7) Shall not be increased more than 50% above background or to 1275, whichever is greater (per Chapter 62-302, F.A.C.)

Definitions:
Not Avail = Not available
NA = Not Applicable
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
N = noncarcinogen
C = Carcinogenic
Florida SW = Freshwater SW criteria from Technical Report: Development of Soil Cleanup Target Levels for Chapter 62-777, F.A.C. (May 1999)
s = Secondary Standard, presented but not used in COPC selection

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
SEDIMENT
AREA OF CONCERN C - NAVAL AIR STATION
MAYPORT, FLORIDA
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Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: AOC C

CAS Number	Chemical	Fraction	Minimum Concentration	Minimum Qualifier	Maximum Concentration	Maximum Qualifier	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used For Screening[1]	Background Value[2]	Region 9 PRG [3]	Potential ARAR/TBC Value [4]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection [5]
Organic Volatiles (mg/kg)																
75-35-4	1,1-Dichloroethene	OV	0.0012	J	0.0012	J	AC-SD01	1/1	--	0.0012	NA	0.018 C	0.03	FL Residential	no	BSL
75-15-0	Carbon Disulfide	OV	0.0031	J	0.0031	J	AC-SD01	1/1	--	0.0031	NA	36 N	20	FL Residential	no	BSL
127-18-4	Tetrachloroethene	OV	0.0015	J	0.0015		AC-SD01	1/1	--	0.0015	NA	1.9 C	2.97	FL Residential	no	BSL
Metals (mg/kg)																
7429-90-5	Aluminum	M	317	J	317	J	AC-SD01	1/1	--	317	Not Avail	7600 - N	7200	FL Residential	no	BSL
7440-38-2	**Arsenic**	M	0.98		0.98		AC-SD01	1/1	--	0.98	Not Avail	0.13 C	0.27	FL Residential	yes	ASL
7440-39-3	Barium	M	2.4	J	2.4	J	AC-SD01	1/1	--	2.4	14.3	540 - N	110 (s)	FL Residential	no	BSL, BKG
7440-70-2	Calcium	M	565		565		AC-SD01	1/1	--	565	Not Avail	NA	NA	--	no	NUT
7440-48-4	Cobalt	M	0.84		0.84		AC-SD01	1/1	--	0.84	2	470 - N	470	FL Residential	no	BSL, BKG
7439-89-6	Iron	M	493	J	493	J	AC-SD01	1/1	--	493	Not Avail	2300 - N	2300	FL Residential	no	BSL
7439-92-1	Lead	M	0.32		0.32		AC-SD01	1/1	--	0.32	6.8	400	400	FL Residential	no	BSL, BKG
7439-95-4	Magnesium	M	35.6		35.6		AC-SD01	1/1	--	35.6	Not Avail	NA	NA	--	no	NUT
7439-96-5	Manganese	M	1.9		1.9		AC-SD01	1/1	--	1.9	Not Avail	180 - N	160	FL Residential	no	BSL
7440-02-0	Nickel	M	1.3		1.3		AC-SD01	1/1	--	1.3	6.2	160 - N	110(s)	FL Residential	no	BSL, BKG

[1] Maximum concentration used as screening value
[2] The background screening value is twice the average of background concentrations for inorganic analytes.
[3] Based on Superfund Preliminary Remediation Goals, USEPA Region IX, Residential land use (Cancer benchmark value = 1E-06, Hazard Quotient = 0.1) (May 2000)
[4] FL Residential from Technical Report: Development of Soil Cleanup Levels for Chapter 62-777, F.A.C. (May 1999)(Cancer benchmark value = 1E-06, Hazard Quotient = 0.1)
[5] Rationale Codes

Selection Reason	Above Screening Levels (ASL)
	If one cPAH is selected as a COPC, all are selected (PAH)
Deletion Reason	Maximum detected concentration is below background screening level (BKG)
	Essential Nutrient (NUT)
	Below Screening Levels (BSL)

Chemical names in bold indicate that chemical was selected as a COPC

Definitions:
NA = Not Applicable
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
J = Estimated Value
COPC = Chemical of Potential Concern
s = direct exposure based on acute toxicity
N = noncarcinogen
C = carcinogen

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
GROUNDWATER
AREA OF CONCERN C - MAYPORT NAVAL STATION
MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/ Vapor

CAS Number	Chemical	Fraction	Minimum Concentration	Minimum Qualifier	Maximum Concentration	Maximum Qualifier	units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used For Screening[1]	Background Value[2]	Screening Toxicity Values[3]	Potential ARAR/TBC Value[4]	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection[5]
Organic Volatiles (µg/l)																	
75-34-3	**1,1-Dichloroethane**	OV	0.2	J	42		µg/l	AC-DPW02D	21/51	1-5	42	NA	81 N	7	FL GCTL	yes	ASL
75-35-4	**1,1-Dichloroethene**	OV	0.18	J	7.8	J	µg/l	TC-DPW07D	11/51	1-5	7.8	NA	0.003 C	7 P	FL GCTL	yes	ASL
107-06-2	1,2-Dichloroethane	OV	0.081	J	0.27	J	µg/l	TC-DPW07D	4/51	1-5	0.27	NA	0.008 C	3 P	FL GCTL	no	BSL
540-59-0	**1,2-Dichloroethene (total)**	OV	0.11	J	74		µg/l	TC-DPW02D	18/51	1-1.7	74	NA	Not Avail N	6.3	FL GCTL	yes	ASL
75-27-4	**Bromodichloromethane**	OV	0.33	J	0.33	J	µg/l	AC-DPW01D	1/51	1-5	0.33	NA	0.012 C	0.04	FL GCTL	yes	ASL
75-15-0	Carbon disulfide	OV	0.13	J	4.5	J	µg/l	EP-MW03S	13/51	1-5	4.5	NA	100 N	70	FL GCTL	no	BSL
108-90-7	Chlorobenzene	OV	0.086	J	0.086	J	µg/l	TC-DPW03DD	1/51	1-5	0.086	NA	11 N	100 P	FL GCTL	no	BSL
124-48-1	**Chlorodibromomethane**	OV	0.2	J	0.2	J	µg/l	AC-DPW01D	1/51	1-5	0.2	NA	0.009 C	0.027	FL GCTL	yes	ASL
67-66-3	**Chloroform**	OV	0.1	J	4.6		µg/l	AC-DPW11I	6/51	1-5	4.6	NA	0.011 C	0.38	FL GCTL	yes	ASL
156-59-2	Cis-1,2-dichloroethene	OV	0.11	J	57		µg/l	TC-DPW02D	20/51	0.5-0.83	57	NA	6.1 N	70 P	FL GCTL	no	BSL
75-71-8	Dichlorodifluoromethane	OV	0.78	J	0.78	J	µg/l	EP-MW04S	1/51	1-5	0.78	NA	39 N	140	FL GCTL	no	BSL
74-82-8	Methane	OV	15		4400		µg/l	AC-DPW08D	26/26	--	4400	NA	Not Avail	Not Avail		no	NTX
127-18-4	**Tetrachloroethene**	OV	0.83	J	3.4		µg/l	TC-DPW09I	2/51	1-5	3.4	NA	0.073 C	3 P	FL GCTL	yes	ASL
156-60-5	Trans-1,2-dichloroethene	OV	0.07	J	17		µg/l	TC-DPW02D	10/51	0.5-2.5	17	NA	12 N	100 P	FL GCTL	no	BSL
79-01-6	**Trichloroethene**	OV	0.065	J	81		µg/l	TC-DPW02D	15/51	1-5	81	NA	0.11 C	3 P	FL GCTL	yes	ASL
75-01-4	**Vinyl chloride**	OV	0.13	J	4.3		µg/l	EP-DPW02I	8/51	1-5	4.3	NA	0.0027 C	1 P	FL GCTL	yes	ASL
Organic Semivolatiles (µg/l)																	
123-91-1	**1,4-Dioxane**	OS	2	J	16		µg/l	TC-DPW07	3/51	10	16	NA	0.41 C	0.33	FL GCTL	yes	ASL
91-57-6	**2-Methylnaphthalene**[7]	OS	95		95		µg/l	EP-DPW02I	1/51	10-13	95	NA	0.62 N	2	FL GCTL	yes	ASL
83-32-9	**Acenaphthene**	OS	1.7	J	99		µg/l	EP-DPW02I	2/51	10-13	99	NA	37 N	2	FL GCTL	yes	ASL
208-96-8	Acenaphthylene	OS	1.8	J	1.8	J	µg/l	EP-DPW02I	1/51	10-13	1.8	NA	Not Avail N	21	FL GCTL	no	BSL
120-12-7	Anthracene	OS	2.1	J	2.1	J	µg/l	EP-DPW02I	1/51	10-13	2.1	NA	180 N	210	FL GCTL	no	BSL
86-74-8	**Carbazole**	OS	18		18		µg/l	EP-DPW02I	1/51	10-13	18	NA	0.23 C	0.27	FL GCTL	yes	ASL
132-64-9	**Dibenzofuran**	OS	56		56		µg/l	EP-DPW02I	1/51	10-13	56	NA	2.4 N	2.8	FL GCTL	yes	ASL
206-44-0	**Fluoranthene**	OS	4.8	J	38		µg/l	AC-DPW04S	2/51	10-13	38	NA	150 N	28	FL GCTL	yes	ASL
86-73-7	**Fluorene**	OS	40		40		µg/l	EP-DPW02I	1/51	10-13	40	NA	24 N	28	FL GCTL	yes	ASL
91-20-3	**Naphthalene**	OS	140		140		µg/l	EP-DPW02I	1/51	10-13	140	NA	0.62 N	2	FL GCTL	yes	ASL
85-01-8	**Phenanthrene**	OS	29		29		µg/l	EP-DPW02I	1/51	10-13	29	NA	Not Avail N	21	FL GCTL	yes	ASL
129-00-0	**Pyrene**	OS	3.6	J	46		µg/l	AC-DPW04S	2/51	10-13	46	NA	18 N	21	FL GCTL	yes	ASL
Herbicides (µg/l)																	
94-75-7	2,4-D	HERB	0.28	J	0.28	J	µg/l	AC-DPW02I	2/50	4	0.28	NA	36 N	70 P	FL GCTL	no	BSL
Pesticides (µg/l)																	
50-29-3	**4,4-DDT**	PEST	0.011	J	0.011	J	µg/l	TC-DPW01S	1/51	0.05	0.011	NA	0.013 C	0.0067	FL GCTL	yes	ASL
309-00-2	**Aldrin**	PEST	0.0062	J	0.0062	J	µg/l	TC-DPW01S	1/51	0.05	0.0062	NA	0.00027 C	0.00033	FL GCTL	yes	ASL
319-85-7	**beta-BHC**	PEST	0.069	J	0.069	J	µg/l	TC-DPW03D	1/50	0.05	0.069	NA	0.0025 C	0.00013	FL GCTL	yes	ASL
58-89-9	gamma-BHC	PEST	0.0081	J	0.076	J	µg/l	TC-DPW03D	2/49	0.05	0.076	NA	0.0035 C	0.2 P	FL GCTL	no	BSL
3689-24-5	**Sulfotepp**	PEST	0.4	J	0.4	J	µg/l	AC-DPW10I	1/51	1-100	0.4	NA	1.8 N	0.35	FL GCTL	yes	ASL
OPesticides (µg/l)																	
298-02-2	**Phorate**	OPEST	0.42	J	0.42	J	µγ/λ	AC-DPW10I	1/51	1-100	0.42	NA	0.73 N	0.14	FL GCTL	yes	ASL
297-97-2	Thionazin	OPEST	0.5	J	0.5	J	µγ/λ	AC-DPW10I	1/51	1-100	0.5	NA	Not Avail	Not Avail		no	NTX

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
GROUNDWATER
AREA OF CONCERN C - MAYPORT NAVAL STATION
MAYPORT, FLORIDA
PAGE 2 OF 2

CAS Number	Chemical	Fraction	Minimum Concentration	Minimum Qualifier	Maximum Concentration	Maximum Qualifier	units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used For Screening (1)	Background Value (2)	Screening Toxicity Values (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (5)
Metals (µg/l)																	
7429-90-5	**Aluminum**	M	128		1650		µg/l	AC-DPW01D	5/51	15.5-73.6	1650	NA	3600 N	200 S	FL GCTL	yes	ASL
7440-36-0	Antimony	M	3.2		3.4		µg/l	TC-DPW03DD	3/51	1.6-3.1	3.4	NA	1.5 N	6 P	FL GCTL	no	BSL
7440-38-2	Arsenic	M	3.1		9.2	J	µg/l	TC-DPW02DD	6/51	2.5-12.2	9.2	5.3	0.003 C	50 P	FL GCTL	no	BSL
7440-39-3	Barium	M	2.6	J	52.7	J	µg/l	TC-DPW02DD	35/51	0.69-3.4	52.7	37.8	260 N	2000 P	FL GCTL	no	BSL
7440-41-7	Beryllium	M	0.21		0.21		µg/l	AC-DPW07I	1/51	0.2-0.39	0.21	NA	7.3 N	4 P	FL GCTL	no	BSL
7440-43-9	Cadmium	M	0.22		0.83		µg/l	AC-DPW06S	2/51	0.2-0.7	0.83	NA	1.8 N	5 P	FL GCTL	no	BSL
7440-70-2	Calcium	M	16400	J	199000		µg/l	TC-DPW02DD	51/51	--	199000	226125	nutrient	Not Avail	FL GCTL	no	NUT, BKG
18540-29-9	Chromium	M	2.5		4		µg/l	TC-DPW01S	3/51	1.6-3.3	4	NA	11 N	100 P	FL GCTL	no	BSL
7440-48-4	Cobalt	M	1.6		1.6		µg/l	AC-DPW09D	1/51	0.7-1.5	1.6	NA	220 N	42	FL GCTL	no	BSL
7440-50-8	Copper	M	3		3		µg/l	EP-DPW02I	1/51	1.1-7	3	NA	140 N	1000 S	FL GCTL	no	BSL
7439-89-6	**Iron**	M	207		8630	J	µg/l	AC-DPW02S	28/51	22.5-341	8630	494	1100 N	300 S	FL GCTL	yes	ASL (8)
7439-92-1	Lead	M	1.7		1.7		µg/l	AC-DPW01D	1/51	1.4-1.5	1.7	2	Not Avail	15 P	FL GCTL	no	BSL, BKG
7439-95-4	Magnesium	M	949	J	376000		µg/l	TC-DPW02DD	51/51	--	376000	184393	nutrient	Not Avail	FL GCTL	no	NUT
7439-96-5	**Manganese**	M	7.8	J	386	J	µg/l	AC-DPW03D	49/51	8.1-8.6	386	141	88 N	50 S	FL GCTL	yes	ASL
7440-02-0	Nickel	M	1.4		13.5		µg/l	TC-DPW03D	10/51	1.3-5.7	13.5	NA	73 N	100 P	FL GCTL	no	BSL
7440-09-7	Potassium	M	1120		198000		µg/l	TC-DPW02DD	48/51	536-1940	198000	NA	nutrient	Not Avail	FL GCTL	no	NUT
7782-49-2	Selenium	M	3.5		3.5		µg/l	AC-DPW06I	1/51	3.1-4.7	3.5	NA	18 N	50 P	FL GCTL	no	BSL
7440-23-5	Sodium	M	5460	J	3490000		µg/l	TC-DPW02DD	51/51	--	3490000	1524588	nutrient	160000 P	FL GCTL	no	NUT
7440-28-0	**Thallium**	M	7.3		10.7		µg/l	TC-DPW02DD	8/51	7.1-9.4	10.7	NA	0.24 N	2 P	FL GCTL	yes	ASL
7440-62-2	Vanadium	M	0.59		3.9		µg/l	EP-MW03S	16/51	0.5-6.2	3.9	6	26 N	4.9	FL GCTL	no	BSL, BKG
7440-66-6	Zinc	M	26.4		223		µg/l	EP-DPW02I	5/51	1.7-23.1	223	5.8	1100 N	5000 S	FL GCTL	no	BSL
Misc (mg/l)																	
	Alkalinity as caco3 (9)	MIS	201		280		mg/l	TC-DPW03S	12/12	--	280		Not Avail	Not Avail	--	NA	--
	Ammonia (9)	MIS	0.8		1.1		mg/l	TC-MW01S	6/12	0.3	1.1		Not Avail	280	FL GCTL	no	BSL
	Chloride (9)	MIS	3.66		30		mg/l	TC-MW02S	12/12	--	30		Not Avail	250000 S	FL GCTL	no	BSL
	Hardness as caco3 (9)	MIS	102		505		mg/l	TC-MW01S	12/12	--	505		Not Avail	Not Avail	--	NA	--
	Nitrate, as nitrogen	MIS	0.01		0.2		mg/l	AC-DPW05S	2/26	0.1-2.5	0.2		1000 N	1000	FL GCTL	no	BSL
	Sulfate	MIS	8		570		mg/l	AC-DPW03D	23/26	5-10	570		Not Avail	250000 S	FL GCTL	no	BSL
	Sulfide (9)	MIS	1.6		1.6		mg/l	MPT-20-MW03S	1/12	1	1.6		Not Avail	Not Avail	--	NA	--
	Total dissolved solids (9)	MIS	145		631		mg/l	TC-MW01S	12/12	--	631		Not Avail	500000 S	FL GCTL	no	BSL
	Total kjeldahl nitrogen (9)	MIS	0.4		1.5		mg/l	TC-MW01S	9/12	0.3	1.5		Not Avail	Not Avail	--	NA	--
7723-14-0	Total phosphorus (9)	MIS	0.1		0.63		mg/l	TC-MW02S	11/12	0.1	0.63		Not Avail	Not Avail	--	NA	--
	Total organic carbon (9)	MIS	3.5		19.5		mg/l	TC-MW01S	12/12	--	19.5		Not Avail	Not Avail	--	NA	--

Data from groundwater collected from 11/1999 through 01/2000 except where noted.

(1) Maximum concentration used as screening value

(2) The background screening value is twice the average of detected concentrations for inorganic analytes.

(3) Based on Superfund Preliminary Remediation Goals, USEPA Region IX, Residential land use (Cancer benchmark value = 1E-06, Hazard Quotient = 0.1) (May 2000)

(4) The FL CGTLs were divided by either the number of detected carcinogens or by 10 for noncarcinogens to account for cummulative cancer effects or noncancer effects on the same target organ or system, respectively. GCTLS based on Primary and Secondary Standards were not adjusted.

(5) Rationale Codes

Selection Reason	Above Screening Levels (ASL)
	Background Levels (BKG)
	No Toxicity Information (NTX)
	Essential Nutrient (NUT)
	Below Screening Level (BSL)

(7) Naphthalene screening values used for 2-methylnaphthlene

(8) The RfD for iron is not a proper RfD-it is derived based on iron consumption of beer brewed in iron vessels. See the uncertainty section.

(9) Data from groundwater collected 06/1995.

Definitions:
Not Avail = Not available
NA = Not Applicable
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
N = Noncarcinogen
C = Carcinogenic
FL GCTL from Technical Report: Development of Soil Cleanup Target Levels for Chapter 62-777, F.A.C. (May 1999)
P = Primary Drinking Water Standard as published by the FDEP
S = Secondary Drinking Water Standard as published by the FDEP

TABLE 3.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/ Vapors

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
1,1-Dichloroethane	µg/l	2.67E+00	4.48E+00	4.20E+01		µg/l	2.42E+00	L	[3]
1,1-Dichloroethene	µg/l	8.18E-01	1.10E+00	6.70E+00	J	µg/l	8.67E-01	L	[3]
1,2-Dichloroethene (total)	µg/l	3.35E+00	6.29E+00	7.40E+01		µg/l	2.45E+00	L	[3]
Bromodichloromethane	µg/l	6.06E-01	7.10E-01	3.30E-01	J	µg/l	3.30E-01	max	[4]
Chlorodibromomethane	µg/l	6.03E-01	7.08E-01	2.00E-01	J	µg/l	2.00E-01	max	[4]
Chloroform	µg/l	6.77E-01	8.58E-01	4.60E+00		µg/l	7.65E-01	L	[3]
Tetrachloroethene	µg/l	6.80E-01	8.25E-01	3.40E+00		µg/l	7.29E-01	L	[3]
Trichloroethene	µg/l	2.77E+00	5.81E+00	8.10E+01		µg/l	1.66E+00	L	[3]
Vinyl chloride	µg/l	6.55E-01	8.27E-01	4.30E+00		µg/l	7.04E-01	L	[3]
1,4-Dioxane	µg/l	5.14E+00	5.51E+00	1.45E+01		µg/l	5.41E+00	L	[3]
2-Methylnaphthalene	µg/l	6.97E+00	1.03E+01	9.50E+01		µg/l	6.62E+00	L	[3]
Acenaphthene	µg/l	6.99E+00	1.04E+01	9.90E+01		µg/l	6.66E+00	L	[3]
Carbazole	µg/l	5.30E+00	5.77E+00	1.80E+01		µg/l	5.12E+00	L	[3]
Dibenzofuran	µg/l	6.13E+00	7.99E+00	5.60E+01		µg/l	6.20E+00	L	[3]
Fluoranthene	µg/l	5.37E+00	5.97E+00	2.15E+01		µg/l	5.60E+00	L	[3]
Fluorene	µg/l	5.78E+00	7.06E+00	4.00E+01		µg/l	5.96E+00	L	[3]
Naphthalene	µg/l	7.95E+00	1.29E+01	1.40E+02		µg/l	6.98E+00	L	[3]
Phenanthrene	µg/l	5.54E+00	6.41E+00	2.90E+01		µg/l	5.77E+00	L	[3]
Pyrene	µg/l	5.43E+00	6.18E+00	2.55E+01		µg/l	5.67E+00	L	[3]
4,4-DDT	µg/l	2.47E-02	2.52E-02	1.10E-02	J	µg/l	1.10E-02	max	[4]
Aldrin	µg/l	2.46E-02	2.53E-02	6.20E-03	J	µg/l	6.20E-03	max	[4]
beta-BHC	µg/l	2.60E-02	2.76E-02	6.90E-02	J	µg/l	2.69E-02	L	[3]
Sulfotepp	µg/l	1.57E+00	3.38E+00	4.00E-01	J	µg/l	4.00E-01	max	[4]
Phorate	µg/l	1.57E+00	3.38E+00	4.20E-01	J	µg/l	4.20E-01	max	[4]
Aluminum	µg/l	7.46E+01	1.34E+02	1.65E+03		µg/l	7.08E+01	L	[3]
Iron	µg/l	8.35E+02	1.20E+03	8.63E+03	J	µg/l	3.02E+03	L	[3]
Manganese	µg/l	6.12E+01	7.77E+01	3.86E+02	J	µg/l	8.87E+01	L	[2]
Thallium	µg/l	4.65E+00	5.09E+00	1.07E+01		µg/l	5.02E+00	L	[3]

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-L);

(1) Shapiro-Wilk W Test indicates data are normally distributed
(2) Shapiro-Wilk W Test indicates data are log-normally distributed
(3) Shapiro-Wilk W Test is inconclusive. Therefore, data are assumed to fit a log-normal distribution.
(4) The appropriate 95% UCL exceeded the maximum; therefore the maximum was used.
(5) There were less than 10 samples taken. Therefore, maximum detected concentration was used.

TABLE 3.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Current/ Future
Medium: Surface Water
Exposure Medium: Surface Water/ Air
Exposure Point: Pond

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Cyanide	µg/l	1.91E+01	1.91E+01	1.91E+01		µg/l	1.91E+01	max	[5]

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-L);

(1) Shapiro-Wilk W Test indicates data are normally distributed
(2) Shapiro-Wilk W Test indicates data are log-normally distributed
(3) Shapiro-Wilk W Test is inconclusive. Therefore, data are assumed to fit a log-normal distribution.
(4) The appropriate 95% UCL exceeded the maximum; therefore the maximum was used.
(5) There were less than 10 samples taken. Therefore, maximum detected concentration was used.

TABLE 3.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SEDIMENT
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Current/ Future
Medium: Sediments
Exposure Medium: Sediments
Exposure Point: Pond

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	mg/kg	0.98	0.98	0.98		mg/kg	0.98	max	[5]

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-L);

(1) Shapiro-Wilk W Test indicates data are log-normally distributed
(2) Shapiro-Wilk W Test indicates data are normally distributed
(3) Shapiro-Wilk W Test is inconclusive. Therefore, data are assumed to fit a log-normal distribution.
(4) The appropriate 95% UCL exceeded the maximum; therefore the maximum was used.
(5) There were less than 10 samples taken. Therefore, maximum detected concentration was used.

TABLE 3.4
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Current/ Future
Medium: Surface Soil
Exposure Medium: Surface Soil/ Air
Exposure Point: Area of Concern C - Exposed areas

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Benzo(a)pyrene (equiv)	µg/kg	1.11E+03	--	5.35E+03		mg/kg	5.35E+00	max	[5]
Aroclor 1260	µg/kg	1.70E+02	--	8.00E+02		mg/kg	8.00E-01	max	[5]
Antimony	mg/kg	7.51E-01	--	2.70E+00		mg/kg	2.70E+00	max	[5]
Arsenic	mg/kg	6.81E-01	--	1.60E+00	J	mg/kg	1.60E+00	max	[5]
Iron	mg/kg	2066	--	4.51E+03		mg/kg	4.51E+03	max	[5]

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-L);

(1) Shapiro-Wilk W Test indicates data are normally distributed
(2) Shapiro-Wilk W Test indicates data are log-normally distributed
(3) Shapiro-Wilk W Test is inconclusive. Therefore, data are assumed to fit a log-normal distribution.
(4) The appropriate 95% UCL exceeded the maximum; therefore the maximum was used.
(5) There were less than 10 samples taken. Therefore, maximum detected concentration was used.

TABLE 3.5
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
SUBSURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Current/ Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil
Exposure Point: Area of Concern C

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	mg/kg	3.21E-01	4.54E-01	7.50E-01		mg/kg	5.75E-01	L	[2]
Mercury	mg/kg	1.56E-02	1.93E-02	3.00E-02		mg/kg	2.02E-02	L	[2]

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-L);

(1) Shapiro-Wilk W Test indicates data are normally distributed
(2) Shapiro-Wilk W Test indicates data are log-normally distributed
(3) Shapiro-Wilk W Test is inconclusive. Therefore, data are assumed to fit a log-normal distribution.
(4) The appropriate 95% UCL exceeded the maximum; therefore the maximum was used.
(5) There were less than 10 samples taken. Therefore, maximum detected concentration was used.

TABLE 4.1
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
BASE WORKERS TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Base Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI[(2)] (mg/kg-day) =
	IR	Ingestion Rate of Soil	mg/day	50	USEPA 1991	Csoil x IR x FI x EF x ED x CF
	FI	Fraction ingested from contaminated source	unitless	1.0	USEPA Region 4 1995	BW x AT
						USEPA, December 1989
	EF	Exposure Frequency	days/year	250	USEPA Region 4 1995	
	ED	Exposure Duration	years	25	USEPA Region 4 1995	
	CF	Conversion Factor	kg/mg	1.0E-06	--	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI[(2)] (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.0E-06	--	oil x CF x SA x AF x ABS x EF x E
	SA	Skin Surface Area Available for Contact	cm^2/day	3,300	USEPA 2000	BW x AT
	AF	Soil to Skin Adherence Factor	mg/cm^2	0.2	USEPA 2000	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics) 0.1% (inorganics)	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	250	USEPA Region 4 1995	
	ED	Exposure Duration	years	25	USEPA Region 4 1995	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Inhalation CDI[(2)] (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	250	USEPA Region 4 1995	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	25	USEPA Region 4 1995	
	BW	Body Weight	kg	70	USEPA, March 1991	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA 1989	

1 Surface is defined as soil collected from depths of 0 to 1 foot bgs.
2 CDI = Chronic Daily Intake

Ingestion RME - Cancer	1.75E-07
Ingestion RME - Noncancer	4.89E-07
Dermal RME - Cancer	2.31E-06
Dermal RME - Noncancer	6.46E-06
Inhalation RME - Cancer	6.99E-02
Inahalation RME - Noncancer	1.96E-01

TABLE 4.2
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
CONSTRUCTION WORKERS TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI[(2)] (mg/kg-day) =
	IR	Ingestion Rate of Soil	mg/day	480	USEPA 1989	Csoil x IR x FI x EF x ED x CF
	FI	Fraction ingested from contaminated source	unitless	1.0	USEPA Region 4 1995	BW x AT
						USEPA, December 1989
	EF	Exposure Frequency	days/year	250	USEPA 1989	
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	CF	Conversion Factor	kg/mg	1.0E-06	--	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI[(2)] (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.0E-06	--	oil x CF x SA x AF x ABS x EF x I
	SA	Skin Surface Area Available for Contact	$cm^{2/}$day	3,300	USEPA 2000	BW x AT
	AF	Soil to Skin Adherence Factor	mg/cm^2	0.7	USEPA 2000	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics)	USEPA Region 4 1995	
				0.1% (inorganics)		
	EF	Exposure Frequency	days/year	250	USEPA 1989	
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Inhalation CDI[(2)] (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	250	USEPA 1989	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	BW	Body Weight	kg	70	USEPA 1989	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	

1 Surface is defined as soil collected from depths of 0 to 1 foot bgs.

2 CDI = Chronic Daily Intake

3 Risk Assessment Information System - http://risk.lsd.ornl.gov/homepage/tm/for_exc_so.shtml, 4-3-01

TABLE 4.3
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
CONSTRUCTION WORKERS TO SUBSURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI[(2)] (mg/kg-day) =
	IR	Ingestion Rate of Soil	mg/day	480	USEPA 1989	Csoil x IR x FI x EF x ED x CF
	FI	Fraction ingested from contaminated source	unitless	1.0	USEPA Region 4 1995	BW x AT
						USEPA, December 1989
	EF	Exposure Frequency	days/year	250	USEPA 1989	
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	CF	Conversion Factor	kg/mg	1.0E-06	--	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI[(2)] (mg/kg-day) =
	CF	Conversion Factor	kg/mg	1.0E-06	--	oil x CF x SA x AF x ABS x EF x I
	SA	Skin Surface Area Available for Contact	$cm^{2/}$day	3,300	USEPA 2000	BW x AT
	AF	Soil to Skin Adherence Factor	mg/cm^2	0.7	USEPA 2000	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics)	USEPA Region 4 1995	
				0.1% (inorganics)		
	EF	Exposure Frequency	days/year	250	USEPA 1989	
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Inhalation CDI[(2)] (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	250	USEPA 1989	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	BW	Body Weight	kg	70	USEPA 1989	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	

1 Surface is defined as soil collected from depths of 0 to 1 foot bgs.

2 CDI = Chronic Daily Intake

3 Risk Assessment Information System - http://risk.lsd.ornl.gov/homepage/tm/for_exc_so.shtml, 4-3-01

TABLE 4.4
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
CONSTRUCTION WORKER TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Excavation Trench
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cwater	Chemical Concentration in Groundwater	ug/l	See Table 3	See Table 3	Ingestion CDI[1] (mg/kg-day) =
	CF	Conversion Factor	mg/ug	0.001		
	IR	Ingestion Rate of Groundwater	l/day	0.01	USEPA Region 4 1995	$\frac{Cwater \times IR \times EF \times ED \times CF}{BW \times AT}$
	EF	Exposure Frequency	days/year	250	USEPA 1989	
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	BW	Body Weight	kg	70	USEPA 1989	USEPA 1989
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	
Dermal	Cwater	Chemical Concentration in Groundwater	ug/l	See Table 3	See Table 3	DAD [3] (mg/kg-day) =
	DAevent	Absorbed Dose per Event	mg/cm^2-event	chemical-specific	USEPA 2000	
	EV	Event Frequency	events/day	1	USEPA 2000	$\frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$
	ED	Exposure Duration	years	1	OSWER Directive USEPA 1991	
	EF	Exposure Frequency	days/year	250	USEPA 1989	
	A	Skin Surface Available for Contact	cm^2	18,000	USEPA 2000 (4)	
	t_{event}	Duration of Event	hours/event	0.2	USEPA 2000	
	Kp	Permeability Coefficient from Water	cm/hour	chemical-specific	USEPA 2000	
	τ	Lag Time	hours	chemical-specific	USEPA 2000	
	t*	Time to Reach Steady State	hours	chemical-specific	USEPA 2000	
	B	Bunge Model Constant	dimensionless	chemical-specific	USEPA 2000	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA 1989	
Inhalation						Inhalation risk assumed to be equal to ingestion risk for VOAs.

(1) CDI = Chronic Daily Intake
(2) Risk Assessment Information System - http://risk.lsd.ornl.gov/homepage/tm/for_exc_so.shtml, 4-3-01
(3) DAD = Dermally Absorbed Dose
(4) USEPA 20000 gives 18,000 cm^2 mean total surface area for adult.

TABLE 4.5
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
ADOLESCENT TRESPASSER TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Trespasser
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI(2) (mg/kg-day) =
	IR	Ingestion rate	mg/day	100	Assumption	Csoil x EF x IR x CF x FI x ED
	CF	Conversion Factor	kg/mg	1.E-06		BW x AT
	FI	Fraction Ingested	unitless	1	USEPA Region 4 1995	
	EF	Exposure Frequency	day/year	50	Assumption	
	ED	Exposure Duration	years	10	Assumption	USEPA 1989
	BW	Body Weight	kg	45	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	3,650	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI(2) (mg/kg-day) =
	CF	Conversion Factor	kg^2/mg^2	1.0E-06	--	Csoil x CF x SA x AF x ABS x EF x ED
	SA	Skin Surface Area Available for Contact	cm^2 /day	8700 (3)	USEPA 2000	BW x AT
	AF	Adherence Factor	mg/cm^2	1.0	USEPA Region 4 1995	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics) 0.1% (inorganics)	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	50	Assumption	
	ED	Exposure Duration	years	10	Assumption	
	BW	Body Weight	kg	45	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	3,650	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3		Inhalation CDI(2) (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	50	Assumption	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	10	Assumption	
	BW	Body Weight	kg	45	USEPA Region 4 1995	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	3,650	USEPA 1989	

(1) Surface is defined as soil collected from depths of 0 to 1 foot bgs.

(2) CDI = Chronic Daily Intake

(3) Table C-1 of USEPA 2000; sum of head, arms, hands, legs, and feet for 7-18 yr old child.

Ingestion RME - Cancer	4.35E-08
Ingestion RME - Noncancer	3.04E-07
Dermal RME - Cancer	3.78E-06
Dermal RME - Noncancer	2.65E-05
Inhalation RME - Cancer	8.70E-03
Inahalation RME - Noncancer	6.09E-02

TABLE 4.6
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
ADULT TRESPASSER TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Trespasser
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI(2) (mg/kg-day) =
	IR	Ingestion rate	mg/day	100	Assumption	Csoil x EF x IR x CF x FI x ED
	CF	Conversion Factor	kg/mg	1.E-06		BW x AT
	FI	Fraction Ingested	unitless	1	USEPA Region 4 1995	
	EF	Exposure Frequency	day/year	45	Assumption	
	ED	Exposure Duration	years	20	Assumption	USEPA 1989
	BW	Body Weight	kg	70	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	7,300	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI(2) (mg/kg-day) =
	CF	Conversion Factor	kg^2/mg^2	1.0E-06	--	Csoil x CF x SA x AF x ABS x EF x ED
	SA	Skin Surface Area Available for Contact	cm^2 /day	5700	USEPA 2000	BW x AT
	AF	Adherence Factor	mg/cm^2	1.0	USEPA Region 4 1995	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics) 0.1% (inorganics)	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	45	Assumption	
	ED	Exposure Duration	years	20	Assumption	
	BW	Body Weight	kg	70	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	7,300	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3		Inhalation CDI(2) (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	45	Assumption	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	20	Assumption	
	BW	Body Weight	kg	70	USEPA Region 4 1995	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	7,300	USEPA 1989	

(1) Surface is defined as soil collected from depths of 0 to 1 foot bgs.
(2) CDI = Chronic Daily Intake
(3) Table C-1 of USEPA 2000

Ingestion RME - Cancer	5.03E-08
Ingestion RME - Noncancer	1.76E-07
Dermal RME - Cancer	2.87E-06
Dermal RME - Noncancer	1.00E-05
Inhalation RME - Cancer	1.01E-02
Inahalation RME - Noncancer	3.52E-02

TABLE 4.7
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
ADULT RESIDENT TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI(2) (mg/kg-day) =
	IR	Ingestion rate	mg/day	100	USEPA Region 4 1995	Csoil x EF x IR x CF x FI x ED
	CF	Conversion Factor	kg/mg	1.E-06		BW x AT
	FI	Fraction Ingested	unitless	1	USEPA Region 4 1995	
	EF	Exposure Frequency	day/year	350	USEPA Region 4 1995	
	ED	Exposure Duration	years	24	USEPA Region 4 1995	USEPA 1989
	BW	Body Weight	kg	70	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI(2) (mg/kg-day) =
	CF	Conversion Factor	kg^2/mg^2	1.0E-06	--	Csoil x CF x SA x AF x ABS x EF x ED
	SA	Skin Surface Area Available for Contact	cm^2 /day	5700	USEPA 2000	BW x AT
	AF	Adherence Factor	mg/cm^2	1.0	USEPA Region 4 1995	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics) 0.1% (inorganics)	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	
	ED	Exposure Duration	years	24	USEPA Region 4 1995	
	BW	Body Weight	kg	70	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3		Inhalation CDI(2) (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	24	USEPA Region 4 1995	
	BW	Body Weight	kg	70	USEPA Region 4 1995	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	USEPA 1989	

(1) Surface is defined as soil collected from depths of 0 to 1 foot bgs.
(2) CDI = Chronic Daily Intake

Ingestion RME - Cancer	4.70E-07
Ingestion RME - Noncancer	1.37E-06
Dermal RME - Cancer	2.68E-05
Dermal RME - Noncancer	7.81E-05
Inhalation RME - Cancer	9.39E-02
Inahalation RME - Noncancer	2.74E-01

TABLE 4.8
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
CHILD RESIDENT TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Ingestion CDI(2) (mg/kg-day) =
	IR	Ingestion rate	mg/day	200	USEPA Region 4 1995	Csoil x EF x IR x CF x FI x ED
	CF	Conversion Factor	kg/mg	1.E-06		BW x AT
	FI	Fraction Ingested	unitless	1	USEPA Region 4 1995	
	EF	Exposure Frequency	day/year	350	USEPA Region 4 1995	
	ED	Exposure Duration	years	6	USEPA Region 4 1995	USEPA 1989
	BW	Body Weight	kg	15	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	
Dermal	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3	See Table 3	Dermal CDI(2) (mg/kg-day) =
	CF	Conversion Factor	kg^2/mg^2	1.0E-06	--	Csoil x CF x SA x AF x ABS x EF x ED
	SA	Skin Surface Area Available for Contact	cm^2 /day	2800	USEPA 2000	BW x AT
	AF	Adherence Factor	mg/cm^2	1.0	USEPA Region 4 1995	USEPA, December 1989
	ABS	Absorption Factor	unitless	1% (organics) 0.1% (inorganics)	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	
	ED	Exposure Duration	years	6	USEPA Region 4 1995	
	BW	Body Weight	kg	15	USEPA Region 4 1995	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	
Inhalation	Csoil	Chemical Concentration in Soil	mg/kg	See Table 3		Inhalation CDI(2) (mg/kg/day) =
	Cair	Chemical Concentration in Air	mg/m^3	calculated		Cair x IR x EF x ED
	IR	Inhalation Rate of Air	m^3/day	20	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	Cair = Csoil x (1/PEF + 1/VF)
	ED	Exposure Duration	years	6	USEPA Region 4 1995	
	BW	Body Weight	kg	15	USEPA Region 4 1995	USEPA, December 1989
	PEF	Particulate Emission Factor	m^3/kg	1.24E+09	USEPA 1996 - SSG	
	VF	Volatization Factor	mg^3/kg	chemical specific		
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	

(1) Surface is defined as soil collected from depths of 0 to 1 foot bgs.
(2) CDI = Chronic Daily Intake

Ingestion RME - Cancer	1.10E-06
Ingestion RME - Noncancer	1.28E-05
Dermal RME - Cancer	1.53E-05
Dermal RME - Noncancer	1.79E-04
Inhalation RME - Cancer	1.10E-01
Inahalation RME - Noncancer	1.28E+00

TABLE 4.9
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
ADULT RESIDENT TO SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Pond
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cwater	Chemical Concentration in Surface Water	ug/l	See Table 3	See Table 3	Ingestion CDI[1] (mg/kg-day) =
	CF	Conversion Factor	mg/ug	1.0E-03	--	
	ET	Exposure Time	hours/event	2.6	USEPA 1989	Cwater x EF x ET x CR x ED
	CR	Contact Rate	l/hr	0.01	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	events/year	45	USEPA Region 4 1995	
	ED	Exposure Duration	years	24	USEPA 1989	
	BW	Body Weight	kg	70	USEPA 1989	USEPA 1989
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	USEPA 1989	
Dermal	Cwater	Chemical Concentration in Surface Water	ug/l	See Table 3	See Table 3	DAD [2] (mg/kg-day) =
	DAevent	Absorbed Dose per Event	mg/cm^2-event	chemical-specific	USEPA 2000	
	EV	Event Frequency	events/day	1	Assumption	DAevent X EV X ED x EF X A
	ED	Exposure Duration	years	24	USEPA 1989	BW x AT
	EF	Exposure Frequency	days/year	45	USEPA Region 4 1995	
	A	Skin Surface Available for Contact	cm^2	9075	USEPA 2000 [3]	
	tevent	Duration of Event	hours/event	2.6	USEPA 1989	
	Kp	Permeability Coefficient from Water	cm/hour	chemical-specific	USEPA 2000	
	t	Lag Time	hours	chemical-specific	USEPA 2000	
	t*	Time to Reach Steady State	hours	chemical-specific	USEPA 2000	
	B	Bunge Model Constant	dimensionless	chemical-specific	USEPA 2000	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8760	USEPA 1989	

(1) CDI = Chronic Daily Intake
(2) DAD = Dermally Absorbed Dose
(3) USEPA 2000 gives 18,150 cm^2 mean total surface area for adult;
approximately 50% of total surface area assumed exposed by wading

TABLE 4.10
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
CHILD RESIDENT TO SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water/Air
Exposure Point: Pond
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cwater	Chemical Concentration in Surface Water	ug/l	See Table 3	See Table 3	Ingestion CDI[1] (mg/kg-day) =
	CF	Conversion Factor	mg/ug	1.0E-03	--	
	ET	Exposure Time	hours/event	2.6	USEPA 1989	Cwater x EF x ET x CR x ED
	CR	Contact Rate	l/hr	0.05	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	events/year	100	Assumption	
	ED	Exposure Duration	years	6	USEPA Region 4 1995	
	BW	Body Weight	kg	15	USEPA Region 4 1995	USEPA 1989
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	
Dermal	Cwater	Chemical Concentration in Surface Water	ug/l	See Table 3	See Table 3	DAD[2] (mg/kg-day) =
	DAevent	Absorbed Dose per Event	mg/cm^2-event	chemical-specific	USEPA 2000	
	EV	Event Frequency	events/day	1	Assumption	DAevent X EV X ED x EF X A
	ED	Exposure Duration	years	6	USEPA Region 4 1995	BW x AT
	EF	Exposure Frequency	days/year	100	Assumption	
	A	Skin Surface Available for Contact	cm^2	3,965	USEPA 2000	DAevent as defined in USEPA 2000
	tevent	Duration of Event	hours/event	2.6	USEPA 1989	
	Kp	Permeability Coefficient from Water	cm/hour	chemical-specific	USEPA 2000	
	τ	Lag Time	hours	chemical-specific	USEPA 2000	
	t*	Time to Reach Steady State	hours	chemical-specific	USEPA 2000	
	B	Bunge Model Constant	dimensionless	chemical-specific	USEPA 2000	
	BW	Body Weight	kg	15	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	

(1) CDI = Chronic Daily Intake
(2) DAD = Dermally Absorbed Dose
(3) USEPA 2000 gives 7,930 cm2 total surface area for 5-6 yr old boys;
approximately 50% of total surface area assumed exposed by wading

Ingestion RME - Cancer	2.04E-07
Ingestion RME - Noncancer	2.37E-06
Dermal RME - Cancer	6.21E+00
Dermal RME - Noncancer	7.24E+01

TABLE 4.11
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
ADULT RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cwater	Chemical Concentration in Groundwater	ug/l	See Table 3	See Table 3	Ingestion CDI[1] (mg/kg-day) =
	CF	Conversion Factor	mg/ug	0.001		
	IR	Ingestion Rate of Groundwater	l/day	2	USEPA Region 4 1995	$\frac{Cwater \times IR \times EF \times ED \times CF}{BW \times AT}$
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	
	ED	Exposure Duration	years	24	USEPA Region 4 1995	
	BW	Body Weight	kg	70	USEPA 1989	USEPA 1989
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	USEPA 1989	
Dermal	Cwater	Chemical Concentration in Groundwater	ug/l	See Table 3	See Table 3	DAD [2] (mg/kg-day) =
	DAevent	Absorbed Dose per Event	mg/cm^2-event	chemical-specific	USEPA 2000	
	EV	Event Frequency	events/day	1	USEPA 2000	$\frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$
	ED	Exposure Duration	years	24	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	
	A	Skin Surface Available for Contact	cm^2	18,000	USEPA 2000 (3)	
	t_{event}	Duration of Event	hours/event	0.2	USEPA 2000	
	Kp	Permeability Coefficient from Water	cm/hour	chemical-specific	USEPA 2000	
	τ	Lag Time	hours	chemical-specific	USEPA 2000	
	t*	Time to Reach Steady State	hours	chemical-specific	USEPA 2000	
	B	Bunge Model Constant	dimensionless	chemical-specific	USEPA 2000	
	BW	Body Weight	kg	70	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	8,760	USEPA 1989	
Inhalation						Inhalation risk assumed to be equal to ingestion risk for VOAs.

(1) CDI = Chronic Daily Intake
(2) DAD = Dermally Absorbed Dose
(3) USEPA 20000 gives 18,000 cm^2 mean total surface area for adult.

Ingestion RME - Cancer	9.39E-06
Ingestion RME - Noncancer	2.74E-05
Dermal RME - Cancer	8.45E+01
Dermal RME - Noncancer	2.47E+02

TABLE 4.12
VALUES OF DAILY INTAKE CALCULATIONS FOR EXPOSURE OF
CHILD RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cwater	Chemical Concentration in Groundwater	ug/l	See Table 3	See Table 3	Ingestion CDI[1] (mg/kg-day) =
	CF	Conversion Factor	mg/ug	0.001		
	IR	Ingestion Rate of Groundwater	l/day	1	USEPA Region 4 1995	$\frac{Cwater \times IR \times EF \times ED \times CF}{BW \times AT}$
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	
	ED	Exposure Duration	years	6	USEPA Region 4 1995	
	BW	Body Weight	kg	15	USEPA 1989	USEPA 1989
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	
Dermal	Cwater	Chemical Concentration in Groundwater	ug/l	See Table 3	See Table 3	DAD [2] (mg/kg-day) =
	DAevent	Absorbed Dose per Event	mg/cm^2-event	chemical-specific	USEPA 2000	
	EV	Event Frequency	events/day	1	USEPA 2000	$\frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$
	ED	Exposure Duration	years	6	USEPA Region 4 1995	
	EF	Exposure Frequency	days/year	350	USEPA Region 4 1995	
	A	Skin Surface Available for Contact	cm^2	6,600	USEPA 2000	
	t_{event}	Duration of Event	hours/event	0.2	USEPA 2000	
	Kp	Permeability Coefficient from Water	cm/hour	chemical-specific	USEPA 2000	
	τ	Lag Time	hours	chemical-specific	USEPA 2000	
	t*	Time to Reach Steady State	hours	chemical-specific	USEPA 2000	
	B	Bunge Model Constant	dimensionless	chemical-specific	USEPA 2000	
	BW	Body Weight	kg	15	USEPA 1989	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA 1989	
Inhalation						Inhalation risk assumed to be equal to ingestion risk for VOAs.

(1) CDI = Chronic Daily Intake
(2) DAD = Dermally Absorbed Dose
(3) USEPA 20000 gives 6,600 cm^2 mean total surface area for child.

Ingestion RME - Cancer	5.48E-06
Ingestion RME - Noncancer	6.39E-05
Dermal RME - Cancer	3.62E+01
Dermal RME - Noncancer	4.22E+02

TABLE 5.1
NON-CANCER TOXICITY DATA - ORAL/DERMAL
AREA OF CONCERN C
NAS MAYPORT

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD	Oral RfD Units	Oral to Dermal Adjustment Factor [1]	Adjusted Dermal RfD[1]	Dermal RfD Units	Primary Target Organ	Comment
1,1-Dichloroethane		1.0E-01	mg/kg-day	1.00	1.00E-01	mg/kg-day	Liver	
1,1-Dichloroethene		9.0E-03	mg/kg-day	1.00	9.00E-03	mg/kg-day	Liver	
1,2-Dichloroethane		NA	mg/kg-day	1.00	NA	mg/kg-day	Carcinogen	
1,2-Dichloroethene (total)		9.0E-03	mg/kg-day	0.80	7.20E-03	mg/kg-day	Blood/Liver	
1,4-Dioxane		NA	mg/kg-day	0.50	NA	mg/kg-day	Carcinogen	
2-Methylnaphthalene		2.0E-02	mg/kg-day	0.80	1.60E-02	mg/kg-day	Body Weight - Nasal	(2)
4,4-DDT		5.0E-04	mg/kg-day	0.80	4.00E-04	mg/kg-day	Liver	
Acenaphthene		6.0E-02	mg/kg-day	0.50	3.00E-02	mg/kg-day	Liver	
Aldrin		3.0E-05	mg/kg-day	1.00	3.00E-05	mg/kg-day	Liver	
Aluminum		1.0E+00	mg/kg-day	0.04	4.00E-02	mg/kg-day	Body weight	
Antimony		4.0E-04	mg/kg-day	0.01	4.00E-06	mg/kg-day	Blood - Mortality	
Aroclor-1260		2.0E-05	mg/kg-day	0.85	1.70E-05	mg/kg-day	Immunological	(3)
Arsenic	Chronic	3.0E-04	mg/kg-day	0.95	2.85E-04	mg/kg-day	Skin - Cardiovascular	(4)
Benzo(a)pyrene (equiv)		NA	mg/kg-day	0.90	NA	mg/kg-day	Carcinogen	
beta-BHC		NA	mg/kg-day	0.91	NA	mg/kg-day	Carcinogen	
Bromodichloromethane		2.0E-02	mg/kg-day	0.98	1.96E-02	mg/kg-day	Kidney	
Cadmium		1.0E-03	mg/kg-day	0.04	4.40E-05	mg/kg-day	Kidney	
Carbazole		NA	mg/kg-day	0.80	NA	mg/kg-day	Carcinogen	
Chlorodibromomethane		2.00E-02	mg/kg-day	0.75	1.50E-02	mg/kg-day	Liver	
Chloroform	Chronic	1.0E-02	mg/kg-day	0.20	2.00E-03	mg/kg-day	Liver	
cis-1,2-dichloroethene		1.0E-02	mg/kg-day	0.80	8.00E-03	mg/kg-day	Blood	
Cyanide		2.0E-02	mg/kg-day	0.50	1.00E-02	mg/kg-day	ody Weight/Neurological/Thyroid	
Dibenzofuran		4.0E-03	mg/kg-day	0.80	3.20E-03	mg/kg-day	None Specified	
Fluoranthene		4.0E-02	mg/kg-day	0.50	2.00E-02	mg/kg-day	Blood/Kidney/Liver	
Fluorene		4.0E-02	mg/kg-day	0.50	2.00E-02	mg/kg-day	Blood	
gamma-BHC		3.0E-04	mg/kg-day	0.99	2.98E-04	mg/kg-day	Kidney - Liver	
Iron		3.0E-01	mg/kg-day	0.09	2.55E-02	mg/kg-day	Blood - Gastrointestinal	
Magnesium		NA	mg/kg-day	0.20	NA	mg/kg-day		
Manganese	Chronic	2.3E-02	mg/kg-day	0.04	9.20E-04	mg/kg-day	Neurological	(5)
Mercury	Chronic	3.0E-04	mg/kg-day	0.1000	3.00E-05	mg/kg-day	Neurological	
Naphthalene		2.0E-02	mg/kg-day	1.00	2.00E-02	mg/kg-day	Body Weight - Nasal	
Nickel		2.0E-02	mg/kg-day	0.05	1.00E-03	mg/kg-day	Body Weight	
Phenanthrene		3.0E-02	mg/kg-day	0.50	1.50E-02	mg/kg-day	Kidney	
Phorate		2.0E-04	mg/kg-day	1.00	2.00E-04	mg/kg-day	Neurological	
Pyrene		3.0E-02	mg/kg-day	0.50	1.50E-02	mg/kg-day	Kidney	
Sodium		NA	mg/kg-day	1.00	NA	mg/kg-day		
Sulfotepp		5.0E-04	mg/kg-day	0.50	2.50E-04	mg/kg-day	Bone marrow - Neurological	
Tetrachloroethene	Chronic	1.0E-02	mg/kg-day	1.00	1.00E-02	mg/kg-day	Body Weight - Liver	
Thallium		9.00E-05	mg/kg-day	0.15	1.35E-05	mg/kg-day	None Specified	(5)
Trans-1,2-dichloroethene		2.00E-02	mg/kg-day	0.80	1.60E-02	mg/kg-day	Blood - Liver	
Trichloroethene		6.0E-03	mg/kg-day	0.95	5.67E-03	mg/kg-day	Carcinogen	
Vinyl chloride		3.0E-03	mg/kg-day	1.00	3.00E-03	mg/kg-day	Carcinogen	

Source: FDEP 1999

[1] RfD dermal = RfDoral x (Oral to Dermal Adjustment Factor)

[2] Value given for Naphthalene

[3] Values given for PCBs (aroclor miture)

[4] GI Adsorption for arsenic is given as 0.95 in Saranko, Christopher J., Roberts, Stephen M. (University of Florida). 1998. Letter to Florida Department of Environmental Protection, August 19, 1998. Gainesville, FL.

[5] Integrated Risk Information System Oral RfD

RfD = Reference dose
NA = Not applicable since an oral RfD is not available for this compound
CNS = Central Nervous System
GI = Gastrointestinal
NOAEL = No Observed Adverse Effect Level

TABLE 5.2
NON-CANCER TOXICITY DATA - INHALATION
AREA OF CONCERN C
NAS MAYPORT

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC	Inhalation RfC Units	Adjusted Inhalation RfD [1]	Adjusted Inhalation RfD Units	Primary Target Organ	Comment
1,1-Dichloroethane		5.01E-01	mg/m3	1.43E-01	mg/kg-day		
1,1-Dichloroethene		3.15E-02	mg/m^3	9.00E-03	mg/kg-day	Liver	
1,2-Dichloroethane		NA	mg/m^3	NA	mg/kg-day	Carcinogen	
1,2-Dichloroethene (total)		NA	mg/m^3	NA	mg/kg-day	Blood/Liver	
1,4-Dioxane		NA	mg/m^3	NA	mg/kg-day	Carcinogen	
2-Methylnaphthalene		3.00E-03	mg/m^3	8.57E-04	mg/kg-day	Body Weight - Nasal	
4,4-DDT		1.40E-03	mg/m^3	4.00E-04	mg/kg-day	Liver	
Acenaphthene		1.05E-01	mg/m^3	3.00E-02	mg/kg-day	Liver	
Aldrin		1.05E-04	mg/m^3	3.00E-05	mg/kg-day	Liver	
Aluminum		3.50E-03	mg/m^3	1.00E-03	mg/kg-day	Body weight	
Antimony		4.00E-04	mg/m^3	1.14E-04	mg/kg-day	Blood - Mortality	(2)
Aroclor-1260		5.95E-05	mg/m^3	1.70E-05	mg/kg-day	Immunological	(3)
Arsenic	Chronic	1.00E-03	mg/m^3	2.86E-04	mg/kg-day	Skin - Cardiovascular	
Benzo(a)pyrene (equiv)		NA	mg/m^3	NA	mg/kg-day	Carcinogen	
beta-BHC		NA	mg/m^3	NA	mg/kg-day	Carcinogen	
Bromodichloromethane		6.86E-02	mg/m^3	1.96E-02	mg/kg-day	Kidney	
Cadmium		9.00E-04	mg/m^3	2.57E-04	mg/kg-day	Kidney	
Carbazole		NA	mg/m^3	NA	mg/kg-day	Carcinogen	
Chlorodibromomethane		5.25E-02	mg/m^3	1.50E-02	mg/kg-day	Liver	
Chloroform	Chronic	3.50E-02	mg/m^3	1.00E-02	mg/kg-day	Liver	
cis-1,2-dichloroethene		2.80E-02	mg/m^3	8.00E-03	mg/kg-day	Blood	
Cyanide		NA	mg/m^3	NA	mg/kg-day	y Weight/Neurological/Thyroid	
Dibenzofuran		1.12E-02	mg/m^3	3.20E-03	mg/kg-day	None Specified	
Fluoranthene		7.00E-02	mg/m^3	2.00E-02	mg/kg-day	Blood/Kidney/Liver	
Fluorene		7.00E-02	mg/m^3	2.00E-02	mg/kg-day	Blood	
gamma-BHC		1.04E-03	mg/m^3	2.98E-04	mg/kg-day	Kidney - Liver	
Iron		8.92E-02	mg/m^3	2.55E-02	mg/kg-day	Blood - Gastrointestinal	
Magnesium		NA	mg/m^3	NA	mg/kg-day		
Manganese	Chronic	5.00E-05	mg/m^3	1.43E-05	mg/kg-day	Neurological	
Mercury	Chronic	3.00E-04	mg/m^3	8.57E-05	mg/kg-day	Neurological	
Naphthalene		3.00E-03	mg/m^3	8.57E-04	mg/kg-day	Body Weight - Nasal	
Nickel		3.50E-03	mg/m^3	1.00E-03	mg/kg-day	Body Weight	
Phenanthrene		5.25E-02	mg/m^3	1.50E-02	mg/kg-day	Kidney	
Phorate		7.00E-04	mg/m^3	2.00E-04	mg/kg-day	Neurological	
Pyrene		5.25E-02	mg/m^3	1.50E-02	mg/kg-day	Kidney	
Sodium		NA	mg/m^3	NA	mg/kg-day		
Sulfotepp		NA	mg/m^3	NA	mg/kg-day	one marrow - Neurological	
Tetrachloroethene	Chronic	6.00E-01	mg/m^3	1.71E-01	mg/kg-day	Body Weight - Liver	(2)
Thallium		NA	mg/m^3	NA	mg/kg-day		
Trans-1,2-dichloroethene		5.60E-02	mg/m^3	1.60E-02	mg/kg-day	Blood - Liver	
Trichloroethene		1.98E-02	mg/m^3	5.67E-03	mg/kg-day	Carcinogen	
Vinyl chloride		1.00E-01	mg/m^3	2.86E-02	mg/kg-day	Carcinogen	(2)

Source: FDEP 1999

[1] Adjusted Inhalation RfD = Inhalation RfC * [20 m^3/(day-70 kg)]

[2] From Risk Assessment Information System http://risk.lsd.ornl.gov, 4-3-01

[3] Values given for PCBs (aroclor miture)

Notes: RfC = Reference concentration
RfD = Reference dose
NA = Not applicable since an inhalation RfC is not available for this compound

TABLE 6.1
CANCER TOXICITY DATA - ORAL/DERMAL
AREA OF CONCERN C
NAS MAYPORT

Chemical of Potential Concern	Oral CSF	Oral to Dermal Adjustment Factor[1]	Adjusted Dermal Cancer Slope Factor[1]	Units	Weight of Evidence/ Cancer Guideline Description	Comments
1,1-Dichloroethene	6.0E-01	1.00	6.00E-01	$(mg/kg\text{-}day)^{-1}$	C	
1,2-Dichloroethane	9.1E-02	1.00	9.10E-02	$(mg/kg\text{-}day)^{-1}$	B2	
1,2-Dichloroethene (total)	NA	0.80	NA	$(mg/kg\text{-}day)^{-1}$		(2)
1,4-Dioxane	1.1E-02	0.50	2.20E-02	$(mg/kg\text{-}day)^{-1}$	B2	
2-Methylnaphthalene	NA	0.80	NA	$(mg/kg\text{-}day)^{-1}$		
4,4-DDT	3.4E-01	0.80	4.25E-01	$(mg/kg\text{-}day)^{-1}$	B2	
Acenaphthene	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
Aldrin	1.7E+01	1.00	1.70E+01	$(mg/kg\text{-}day)^{-1}$	B2	
Aluminum	NA	0.04	N/A	$(mg/kg\text{-}day)^{-1}$	NA	
Antimony	NA	0.01	NA	$(mg/kg\text{-}day)^{-1}$		
Aroclor-1260	2.0E+00	0.85	2.35E+00	$(mg/kg\text{-}day)^{-1}$	B2	(3)
Arsenic	1.5E+00	0.95	1.58E+00	$(mg/kg\text{-}day)^{-1}$	A	(4)
Benzo(a)pyrene (equiv)	7.3E+00	0.90	8.11E+00	$(mg/kg\text{-}day)^{-1}$	B2	
beta-BHC	1.8E+00	0.91	1.98E+00	$(mg/kg\text{-}day)^{-1}$	C	
Bromodichloromethane	6.2E-02	0.98	6.33E-02	$(mg/kg\text{-}day)^{-1}$	B2	
Cadmium	0.0E+00	0.04	0.00E+00	$(mg/kg\text{-}day)^{-1}$	B1	
Carbazole	2.0E-02	0.80	2.50E-02	$(mg/kg\text{-}day)^{-1}$	B2	
Chlorodibromomethane	8.4E-02	0.75	1.12E-01	$(mg/kg\text{-}day)^{-1}$	C	
Chloroform	6.1E-03	0.20	3.05E-02	$(mg/kg\text{-}day)^{-1}$	B2	
cis-1,2-dichloroethene	NA	0.80	N/A	$(mg/kg\text{-}day)^{-1}$	NA	
Cyanide	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
Dibenzofuran	NA	0.80	NA	$(mg/kg\text{-}day)^{-1}$		
Fluoranthene	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
Fluorene	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
gamma-BHC	1.3E+00	0.99	1.31E+00	$(mg/kg\text{-}day)^{-1}$	B2-C	
Iron	NA	0.09	N/A	$(mg/kg\text{-}day)^{-1}$	NA	
Magnesium	NA	0.20	NA	$(mg/kg\text{-}day)^{-1}$		(2)
Manganese	NA	0.04	N/A	$(mg/kg\text{-}day)^{-1}$	D	
Mercury	NA	0.1000	N/A	$(mg/kg\text{-}day)^{-1}$	D	
Naphthalene	NA	1.00	NA	$(mg/kg\text{-}day)^{-1}$		
Nickel	NA	0.05	NA	$(mg/kg\text{-}day)^{-1}$		
Phenanthrene	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
Phorate	NA	1.00	NA	$(mg/kg\text{-}day)^{-1}$		
Pyrene	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
Sodium	NA	1.00	NA	$(mg/kg\text{-}day)^{-1}$		(2)
Sulfotepp	NA	0.50	NA	$(mg/kg\text{-}day)^{-1}$		
Tetrachloroethene	5.2E-02	1.00	5.20E-02	$(mg/kg\text{-}day)^{-1}$	C-B2	
Thallium	NA	0.15	NA	$(mg/kg\text{-}day)^{-1}$		(2)
Trans-1,2-dichloroethene	NA	0.80	NA	$(mg/kg\text{-}day)^{-1}$		
Trichloroethene	1.1E-02	0.95	1.16E-02	$(mg/kg\text{-}day)^{-1}$	B2	
Vinyl chloride	1.4E+00	1.00	1.40E+00	$(mg/kg\text{-}day)^{-1}$	A	(5)

Source: FDEP 1999

[1] CSFdermal = CSForal/(Oral to Dermal Adjustment Factor)

[2] From Risk Assessment Information System http://risk.lsd.ornl.gov, 4-3-01

[3] Values given for PCBs (aroclor miture)

[4] GI Adsorption for arsenic is given as 0.95 in Saranko, Christopher J., Roberts, Stephen M. (University of Florida). 1998. Letter to Florida Department of Environmental Protection, August 19, 1998. Gainesville, FL.

[5] Updated value from IRIS

Notes:

CSF = Cancer Slope Factor

N/A = Not Applicable since an oral CSF is not available for this compound

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in anima inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

NA - Not available

TABLE 6.2
CANCER TOXICITY DATA - INHALATION
AREA OF CONCERN C
NAS MAYPORT

Chemical of Potential Concern	Inhalation Unit Risk	Units for Inhalation Unit Risk	Adjustment Factor(1)	Inhalation CSF	Units for Inhalation CSF	Weight of Evidence/ Cancer Guideline Description	Comments
1,1-Dichloroethene	5.00E-02	$(mg/m^3)^{-1}$	3.50E+00	1.75E-01	$(mg/kg\text{-}day)^{-1}$	C	
1,2-Dichloroethane	2.60E-02	$(mg/m^3)^{-1}$	3.50E+00	9.10E-02	$(mg/kg\text{-}day)^{-1}$	B2	
1,2-Dichloroethene (total)	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
1,4-Dioxane	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$	B2	
2-Methylnaphthalene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
4,4-DDT	9.70E-02	$(mg/m^3)^{-1}$	3.50E+00	3.40E-01	$(mg/kg\text{-}day)^{-1}$	B2	
Acenaphthene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Aldrin	4.90E+01	$(mg/m^3)^{-1}$	3.50E+00	1.72E+02	$(mg/kg\text{-}day)^{-1}$	B2	
Aluminum	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$	NA	
Antimony	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Aroclor-1260	5.70E-01	$(mg/m^3)^{-1}$	3.50E+00	2.00E+00	$(mg/kg\text{-}day)^{-1}$	B2	(2)
Arsenic	4.30E+00	$(mg/m^3)^{-1}$	3.50E+00	1.51E+01	$(mg/kg\text{-}day)^{-1}$	A	
Benzo(a)pyrene (equiv)	8.80E-01	$(mg/m^3)^{-1}$	3.50E+00	3.08E+00	$(mg/kg\text{-}day)^{-1}$	B2	
beta-BHC	5.30E-01	$(mg/m^3)^{-1}$	3.50E+00	1.86E+00	$(mg/kg\text{-}day)^{-1}$	C	
Bromodichloromethane	1.81E-02	$(mg/m^3)^{-1}$	3.50E+00	6.33E-02	$(mg/kg\text{-}day)^{-1}$	B2	
Cadmium	1.80E+00	$(mg/m^3)^{-1}$	3.50E+00	6.30E+00	$(mg/kg\text{-}day)^{-1}$	B1	
Carbazole	7.14E-03	$(mg/m^3)^{-1}$	3.50E+00	2.50E-02	$(mg/kg\text{-}day)^{-1}$	B2	
Chlorodibromomethane	3.20E-02	$(mg/m^3)^{-1}$	3.50E+00	1.12E-01	$(mg/kg\text{-}day)^{-1}$	C	
Chloroform	2.30E-02	$(mg/m^3)^{-1}$	3.50E+00	8.05E-02	$(mg/kg\text{-}day)^{-1}$	B2	
cis-1,2-dichloroethene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$	NA	
Cyanide	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Dibenzofuran	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Fluoranthene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Fluorene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
gamma-BHC	3.74E-01	$(mg/m^3)^{-1}$	3.50E+00	1.31E+00	$(mg/kg\text{-}day)^{-1}$	B2-C	
Iron	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$	NA	
Magnesium	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Manganese	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$	D	
Mercury	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$	D	
Naphthalene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Nickel	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Phenanthrene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Phorate	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Pyrene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Sodium	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Sulfotepp	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Tetrachloroethene	5.80E-04	$(mg/m^3)^{-1}$	3.50E+00	2.03E-03	$(mg/kg\text{-}day)^{-1}$	C-B2	
Thallium	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Trans-1,2-dichloroethene	NA	$(mg/m^3)^{-1}$	NA	NA	$(mg/kg\text{-}day)^{-1}$		
Trichloroethene	1.72E-03	$(mg/m^3)^{-1}$	3.50E+00	6.00E-03	$(mg/kg\text{-}day)^{-1}$	B2	
Vinyl chloride	8.80E-03	$(mg/m^3)^{-1}$	3.50E+00	3.08E-02	$(mg/kg\text{-}day)^{-1}$	A	(3)

Source: IRIS, HEAST

(1) Adjustment factor used to convert unit risk to CSF.

(2) From Risk Assessment Information System http://risk.lsd.ornl.gov, 4-3-01

(3) Update from IRIS

Notes:

CSF = Cancer Slope Factor

IRIS = Integrated Risk Information System, on-line database search (USEPA, 4-3-01)

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human dat

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

NA - Not available

TABLE 7.1 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF BASE WORKERS TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Area of Concern C
Receptor Population: Base Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient	
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.6E-06	mg/kg-day		mg/kg-day				
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	3.9E-07	mg/kg-day	2.00E-05	mg/kg-day			2.0E-02	
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.3E-06	mg/kg-day	4.00E-04	mg/kg-day			3.3E-03	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	7.8E-07	mg/kg-day	3.00E-04	mg/kg-day			2.6E-03	
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.2E-03	mg/kg-day	3.00E-01	mg/kg-day			7.4E-03	
	(total)												3.3E-02	
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	3.5E-07	mg/kg-day		mg/kg-day				0.01
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	5.2E-08	mg/kg-day	1.70E-05	mg/kg-day			3.0E-03	0.01
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.7E-08	mg/kg-day	4.00E-06	mg/kg-day			4.4E-03	0.001
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.0E-08	mg/kg-day	2.85E-04	mg/kg-day			3.6E-05	0.001
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.9E-05	mg/kg-day	2.55E-02	mg/kg-day			1.1E-03	0.001
	(total)												8.6E-03	
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	8.44E-10	mg/kg-day		mg/kg-day				na
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.26E-10	mg/kg-day	1.70E-05	mg/kg-day			7.4E-06	na
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	4.26E-10	mg/kg-day	1.14E-04	mg/kg-day			3.7E-06	na
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.53E-10	mg/kg-day	2.85E-04	mg/kg-day			8.9E-07	na
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	7.12E-07	mg/kg-day	2.55E-02	mg/kg-day			2.8E-05	na
													4.0E-05	
												Total Hazard Index Across All Exposure Routes/Pathways	**4.1E-02**	

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.2 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CONSTRUCTION WORKERS TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Area of Concern C
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.5E-05	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	3.8E-06	mg/kg-day	2.00E-05	mg/kg-day			1.9E-01
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.3E-05	mg/kg-day	4.00E-04	mg/kg-day			3.2E-02
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	7.5E-06	mg/kg-day	3.00E-04	mg/kg-day			2.5E-02
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.1E-02	mg/kg-day	3.00E-01	mg/kg-day			7.1E-02
	(total)												3.2E-01
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.2E-06	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.8E-07	mg/kg-day	1.70E-05	mg/kg-day			1.1E-02
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	6.1E-08	mg/kg-day	4.00E-06	mg/kg-day			1.5E-02
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	3.6E-08	mg/kg-day	2.85E-04	mg/kg-day			1.3E-04
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.0E-04	mg/kg-day	2.55E-02	mg/kg-day			4.0E-03
	(total)												3.0E-02
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	8.44E-10	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.26E-10	mg/kg-day	1.70E-05	mg/kg-day			7.4E-06
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	4.26E-10	mg/kg-day	1.14E-04	mg/kg-day			3.7E-06
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.53E-10	mg/kg-day	2.85E-04	mg/kg-day			8.9E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	7.12E-07	mg/kg-day	2.55E-02	mg/kg-day			2.8E-05
													4.0E-05
										Total Hazard Index Across All Exposure Routes/Pathways			**3.5E-01**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.3 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CONSTRUCTION WORKERS TO SUBSURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil/Air
Exposure Point: Area of Concern C
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	5.75E-01	mg/kg	5.75E-01	mg/kg	M	2.7E-06	mg/kg-day	3.00E-04	mg/kg-day			9.0E-03
	Mercury	2.02E-02	mg/kg	2.02E-02	mg/kg	M	9.5E-08	mg/kg-day	3.00E-04	mg/kg-day			3.2E-04
	(total)												9.3E-03
Dermal	Arsenic	5.75E-01	mg/kg	5.75E-01	mg/kg	M	1.3E-07	mg/kg-day	2.85E-04	mg/kg-day			4.6E-04
	Mercury	2.02E-02	mg/kg	2.02E-02	mg/kg	M	4.6E-10	mg/kg-day	3.00E-05	mg/kg-day			1.5E-05
	(total)												4.7E-04
Inhalation	Arsenic	5.75E-01	mg/kg	5.75E-01	mg/kg	M	9.07E-11	mg/kg-day	2.85E-04	mg/kg-day			3.2E-07
	Mercury	2.02E-02	mg/kg	2.02E-02	mg/kg	M	3.19E-12	mg/kg-day	8.57E-05	mg/kg-day			3.7E-08
													3.6E-07
												Total Hazard Index Across All Exposure Routes/Pathways	**9.8E-03**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.4 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CONSTRUCTION WORKER TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Excavation Trench
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Hazard Quotient
Ingestion	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	2.4E-07	mg/kg-day	1.00E-01	mg/kg-day	2.4E-06
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	8.5E-08	mg/kg-day	9.00E-03	mg/kg-day	9.4E-06
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	2.4E-07	mg/kg-day	9.00E-03	mg/kg-day	2.7E-05
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	3.2E-08	mg/kg-day	2.00E-02	mg/kg-day	1.6E-06
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	2.0E-08	mg/kg-day	2.00E-02	mg/kg-day	9.8E-07
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	7.5E-08	mg/kg-day	1.00E-02	mg/kg-day	7.5E-06
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	7.1E-08	mg/kg-day	1.00E-02	mg/kg-day	7.1E-06
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	1.6E-07	mg/kg-day	6.00E-03	mg/kg-day	2.7E-05
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	6.9E-08	mg/kg-day	3.00E-03	mg/kg-day	2.3E-05
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	5.3E-07	mg/kg-day	NA	mg/kg-day	
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	6.5E-07	mg/kg-day	2.00E-02	mg/kg-day	3.2E-05
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	6.5E-07	mg/kg-day	6.00E-02	mg/kg-day	1.1E-05
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	5.0E-07	mg/kg-day	NA	mg/kg-day	
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	6.1E-07	mg/kg-day	4.00E-03	mg/kg-day	1.5E-04
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	5.5E-07	mg/kg-day	4.00E-02	mg/kg-day	1.4E-05
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	5.8E-07	mg/kg-day	4.00E-02	mg/kg-day	1.5E-05
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	6.8E-07	mg/kg-day	2.00E-02	mg/kg-day	3.4E-05
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	5.6E-07	mg/kg-day	3.00E-02	mg/kg-day	1.9E-05
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	5.5E-07	mg/kg-day	3.00E-02	mg/kg-day	1.8E-05
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	1.1E-09	mg/kg-day	5.00E-04	mg/kg-day	2.2E-06
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	6.1E-10	mg/kg-day	3.00E-05	mg/kg-day	2.0E-05
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	2.6E-09	mg/kg-day	NA	mg/kg-day	
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	3.9E-08	mg/kg-day	5.00E-04	mg/kg-day	7.8E-05
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	4.1E-08	mg/kg-day	2.00E-04	mg/kg-day	2.1E-04
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	6.9E-06	mg/kg-day	1.00E+00	mg/kg-day	6.9E-06
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	3.0E-04	mg/kg-day	3.00E-01	mg/kg-day	9.8E-04
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	8.7E-06	mg/kg-day	2.30E-02	mg/kg-day	3.8E-04
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	4.9E-07	mg/kg-day	9.00E-04	mg/kg-day	5.5E-04
											2.6E-03

TABLE 7.4 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CONSTRUCTION WORKER TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Excavation Trench
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Hazard Quotient
Dermal	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	2.3E-06	mg/kg-day	1.00E-01	mg/kg-day	2.3E-05
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	1.4E-06	mg/kg-day	9.00E-03	mg/kg-day	1.5E-04
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	2.6E-06	mg/kg-day	7.20E-03	mg/kg-day	3.6E-04
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	3.2E-07	mg/kg-day	1.96E-02	mg/kg-day	1.6E-05
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	1.8E-07	mg/kg-day	1.50E-02	mg/kg-day	1.2E-05
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	8.3E-07	mg/kg-day	2.00E-03	mg/kg-day	4.1E-04
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	5.3E-06	mg/kg-day	1.00E-02	mg/kg-day	5.3E-04
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	3.3E-06	mg/kg-day	5.67E-03	mg/kg-day	5.9E-04
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	4.3E-07	mg/kg-day	3.00E-03	mg/kg-day	1.4E-04
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	2.3E-07	mg/kg-day	NA	mg/kg-day	
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	1.7E-04	mg/kg-day	1.60E-02	mg/kg-day	1.1E-02
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	1.2E-04	mg/kg-day	3.00E-02	mg/kg-day	3.9E-03
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	5.0E-05	mg/kg-day	NA	mg/kg-day	
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	1.3E-04	mg/kg-day	3.20E-03	mg/kg-day	4.2E-02
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	3.5E-04	mg/kg-day	2.00E-02	mg/kg-day	1.8E-02
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	1.5E-04	mg/kg-day	2.00E-02	mg/kg-day	7.6E-03
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	5.6E-05	mg/kg-day	2.00E-02	mg/kg-day	2.8E-03
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	2.0E-04	mg/kg-day	1.50E-02	mg/kg-day	1.3E-02
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	4.6E-04	mg/kg-day	1.50E-02	mg/kg-day	3.0E-02
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	1.6E-06	mg/kg-day	4.00E-04	mg/kg-day	4.0E-03
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	6.8E-09	mg/kg-day	3.00E-05	mg/kg-day	2.3E-04
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	1.6E-07	mg/kg-day	NA	mg/kg-day	
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	7.2E-08	mg/kg-day	2.50E-04	mg/kg-day	2.9E-04
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	3.1E-06	mg/kg-day	2.00E-04	mg/kg-day	1.6E-02
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	2.5E-06	mg/kg-day	4.00E-02	mg/kg-day	6.2E-05
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	1.1E-04	mg/kg-day	2.55E-02	mg/kg-day	4.2E-03
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	9.5E-10	mg/kg-day	9.20E-04	mg/kg-day	1.0E-06
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	1.8E-07	mg/kg-day	1.35E-04	mg/kg-day	1.3E-03
	(total)										1.6E-01
Inhalation							Inhalation risk assumed to be equal to ingestion risk for VOAs				
											1.1E-04
											1.6E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.
(2) Specify if subchronic.

TABLE 7.5 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF ADOLESCENT TRESPASSER TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Trespasser
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.6E-06	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	2.4E-07	mg/kg-day	2.00E-05	mg/kg-day			1.2E-02
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	8.2E-07	mg/kg-day	4.00E-04	mg/kg-day			2.1E-03
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	4.9E-07	mg/kg-day	3.00E-04	mg/kg-day			1.6E-03
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.4E-03	mg/kg-day	3.00E-01	mg/kg-day			4.6E-03
	(total)												2.0E-02
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.4E-06	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	2.1E-07	mg/kg-day	1.70E-05	mg/kg-day			1.2E-02
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	7.2E-08	mg/kg-day	4.00E-06	mg/kg-day			1.8E-02
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	4.2E-08	mg/kg-day	2.85E-04	mg/kg-day			1.5E-04
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.2E-04	mg/kg-day	2.55E-02	mg/kg-day			4.7E-03
	(total)												3.5E-02
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.62E-10	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	3.93E-11	mg/kg-day	1.70E-05	mg/kg-day			2.3E-06
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.33E-10	mg/kg-day	1.14E-04	mg/kg-day			1.2E-06
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	7.86E-11	mg/kg-day	2.85E-04	mg/kg-day			2.8E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.21E-07	mg/kg-day	2.55E-02	mg/kg-day			8.7E-06
													1.2E-05
												Total Hazard Index Across All Exposure Routes/Pathways	**5.6E-02**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.6 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF ADULT TRESPASSER TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Trespasser
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	9.4E-07	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.4E-07	mg/kg-day	2.00E-05	mg/kg-day			7.0E-03
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	4.8E-07	mg/kg-day	4.00E-04	mg/kg-day			1.2E-03
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.8E-07	mg/kg-day	3.00E-04	mg/kg-day			9.4E-04
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	7.9E-04	mg/kg-day	3.00E-01	mg/kg-day			2.6E-03
	(total)												1.2E-02
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	5.4E-07	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	8.0E-08	mg/kg-day	1.70E-05	mg/kg-day			4.7E-03
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	2.7E-08	mg/kg-day	4.00E-06	mg/kg-day			6.8E-03
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.6E-08	mg/kg-day	2.85E-04	mg/kg-day			5.6E-05
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	4.5E-05	mg/kg-day	2.55E-02	mg/kg-day			1.8E-03
	(total)												1.3E-02
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.52E-10	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	2.27E-11	mg/kg-day	1.70E-05	mg/kg-day			1.3E-06
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	7.67E-11	mg/kg-day	1.14E-04	mg/kg-day			6.7E-07
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	4.55E-11	mg/kg-day	2.85E-04	mg/kg-day			1.6E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.28E-07	mg/kg-day	2.55E-02	mg/kg-day			5.0E-06
													7.2E-06
												Total Hazard Index Across All Exposure Routes/Pathways	**2.5E-02**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.7 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF ADULT RESIDENT TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	7.3E-06	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.1E-06	mg/kg-day	2.00E-05	mg/kg-day			5.5E-02
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	3.7E-06	mg/kg-day	4.00E-04	mg/kg-day			9.2E-03
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.2E-06	mg/kg-day	3.00E-04	mg/kg-day			7.3E-03
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	6.2E-03	mg/kg-day	3.00E-01	mg/kg-day			2.1E-02
	(total)												9.2E-02
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	4.2E-06	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	6.2E-07	mg/kg-day	1.70E-05	mg/kg-day			3.7E-02
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	2.1E-07	mg/kg-day	4.00E-06	mg/kg-day			5.3E-02
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.2E-07	mg/kg-day	2.85E-04	mg/kg-day			4.4E-04
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	3.5E-04	mg/kg-day	2.55E-02	mg/kg-day			1.4E-02
	(total)												1.0E-01
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.18E-09	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.77E-10	mg/kg-day	1.70E-05	mg/kg-day			1.0E-05
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	5.97E-10	mg/kg-day	1.14E-04	mg/kg-day			5.2E-06
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	3.54E-10	mg/kg-day	2.85E-04	mg/kg-day			1.2E-06
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	9.96E-07	mg/kg-day	2.55E-02	mg/kg-day			3.9E-05
													5.6E-05
												Total Hazard Index Across All Exposure Routes/Pathways	**2.0E-01**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.8 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CHILD RESIDENT TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	6.8E-05	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.0E-05	mg/kg-day	2.00E-05	mg/kg-day			5.1E-01
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	3.5E-05	mg/kg-day	4.00E-04	mg/kg-day			8.6E-02
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.0E-05	mg/kg-day	3.00E-04	mg/kg-day			6.8E-02
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	5.8E-02	mg/kg-day	1.10E+00	mg/kg-day			5.2E-02
	(total)												7.2E-01
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	9.6E-06	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.4E-06	mg/kg-day	1.70E-05	mg/kg-day			8.4E-02
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	4.8E-07	mg/kg-day	4.00E-06	mg/kg-day			1.2E-01
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.9E-07	mg/kg-day	2.85E-04	mg/kg-day			1.0E-03
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	8.1E-04	mg/kg-day	9.35E-02	mg/kg-day			8.6E-03
	(total)												2.1E-01
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	5.51E-09	mg/kg-day		mg/kg-day			
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	8.25E-10	mg/kg-day	1.70E-05	mg/kg-day			4.9E-05
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	2.78E-09	mg/kg-day	1.14E-04	mg/kg-day			2.4E-05
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.65E-09	mg/kg-day	2.85E-04	mg/kg-day			5.8E-06
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	4.65E-06	mg/kg-day	9.35E-02	mg/kg-day			5.0E-05
													1.3E-04
												Total Hazard Index Across All Exposure Routes/Pathways	**9.3E-01**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.9 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF ADULT RESIDENT TO SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Pond
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake Non-Cancer Units	Reference Dose (2)	Reference Dose Units	Reference Concentratio	Reference Concentratio Units	Hazard Quotient
Ingestion	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	8.7E-07	mg/kg-day	2.00E-02	mg/kg-day			4.4E-05
	(total)												4.4E-05
Dermal	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	7.9E-07	mg/kg-day	1.00E-02	mg/kg-day			7.9E-05
	(total)												7.9E-05
												Total Hazard Index Across All Exposure Routes/Pathways	**1.2E-04**

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 7.10 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CHILD RESIDENT TO SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water/Air
Exposure Point: Pond
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient	
Ingestion	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	4.5E-05	mg/kg-day	2.00E-02	mg/kg-day			2.3E-03	
	(total)												2.3E-03	
Dermal	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	3.6E-06	mg/kg-day	1.00E-02	mg/kg-day			3.6E-04	4.97E-08
	(total)												3.6E-04	
												Total Hazard Index Across All Exposure Routes/Pathways	**2.6E-03**	

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 7.11 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF ADULT RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Hazard Quotient
Ingestion	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	6.6E-05	mg/kg-day	1.00E-01	mg/kg-day	6.6E-04
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	2.4E-05	mg/kg-day	9.00E-03	mg/kg-day	2.6E-03
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	6.7E-05	mg/kg-day	9.00E-03	mg/kg-day	7.5E-03
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	9.0E-06	mg/kg-day	2.00E-02	mg/kg-day	4.5E-04
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	5.5E-06	mg/kg-day	2.00E-02	mg/kg-day	2.7E-04
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	2.1E-05	mg/kg-day	1.00E-02	mg/kg-day	2.1E-03
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	2.0E-05	mg/kg-day	1.00E-02	mg/kg-day	2.0E-03
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	4.5E-05	mg/kg-day	6.00E-03	mg/kg-day	7.6E-03
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	1.9E-05	mg/kg-day	3.00E-03	mg/kg-day	6.4E-03
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	1.5E-04	mg/kg-day	NA	mg/kg-day	
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	1.8E-04	mg/kg-day	2.00E-02	mg/kg-day	9.1E-03
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	1.8E-04	mg/kg-day	6.00E-02	mg/kg-day	3.0E-03
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	1.4E-04	mg/kg-day	NA	mg/kg-day	
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	1.7E-04	mg/kg-day	4.00E-03	mg/kg-day	4.2E-02
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	1.5E-04	mg/kg-day	4.00E-02	mg/kg-day	3.8E-03
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	1.6E-04	mg/kg-day	4.00E-02	mg/kg-day	4.1E-03
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	1.9E-04	mg/kg-day	2.00E-02	mg/kg-day	9.6E-03
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	1.6E-04	mg/kg-day	3.00E-02	mg/kg-day	5.3E-03
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	1.6E-04	mg/kg-day	3.00E-02	mg/kg-day	5.2E-03
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	3.0E-07	mg/kg-day	5.00E-04	mg/kg-day	6.0E-04
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	1.7E-07	mg/kg-day	3.00E-05	mg/kg-day	5.7E-03
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	7.4E-07	mg/kg-day	NA	mg/kg-day	
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	1.1E-05	mg/kg-day	5.00E-04	mg/kg-day	2.2E-02
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	1.2E-05	mg/kg-day	2.00E-04	mg/kg-day	5.8E-02
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	1.9E-03	mg/kg-day	1.00E+00	mg/kg-day	1.9E-03
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	8.3E-02	mg/kg-day	3.00E-01	mg/kg-day	2.8E-01
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	2.4E-03	mg/kg-day	2.30E-02	mg/kg-day	1.1E-01
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	1.4E-04	mg/kg-day	9.00E-04	mg/kg-day	1.5E-01
											7.3E-01

TABLE 7.11 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF ADULT RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Hazard Quotient
Dermal	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	3.2E-06	mg/kg-day	1.00E-01	mg/kg-day	3.2E-05
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	1.9E-06	mg/kg-day	9.00E-03	mg/kg-day	2.2E-04
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	3.6E-06	mg/kg-day	7.20E-03	mg/kg-day	5.0E-04
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	4.5E-07	mg/kg-day	1.96E-02	mg/kg-day	2.3E-05
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	2.6E-07	mg/kg-day	1.50E-02	mg/kg-day	1.7E-05
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	1.2E-06	mg/kg-day	2.00E-03	mg/kg-day	5.8E-04
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	7.4E-06	mg/kg-day	1.00E-02	mg/kg-day	7.4E-04
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	4.7E-06	mg/kg-day	5.67E-03	mg/kg-day	8.2E-04
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	6.0E-07	mg/kg-day	3.00E-03	mg/kg-day	2.0E-04
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	3.2E-07	mg/kg-day	NA	mg/kg-day	
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	2.4E-04	mg/kg-day	1.60E-02	mg/kg-day	1.5E-02
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	1.6E-04	mg/kg-day	3.00E-02	mg/kg-day	5.4E-03
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	6.9E-05	mg/kg-day	NA	mg/kg-day	
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	1.9E-04	mg/kg-day	3.20E-03	mg/kg-day	5.9E-02
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	4.9E-04	mg/kg-day	2.00E-02	mg/kg-day	2.5E-02
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	2.1E-04	mg/kg-day	2.00E-02	mg/kg-day	1.1E-02
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	7.8E-05	mg/kg-day	2.00E-02	mg/kg-day	3.9E-03
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	2.8E-04	mg/kg-day	1.50E-02	mg/kg-day	1.9E-02
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	6.4E-04	mg/kg-day	1.50E-02	mg/kg-day	4.3E-02
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	2.2E-06	mg/kg-day	4.00E-04	mg/kg-day	5.6E-03
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	9.6E-09	mg/kg-day	3.00E-05	mg/kg-day	3.2E-04
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	2.3E-07	mg/kg-day	NA	mg/kg-day	
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	1.0E-07	mg/kg-day	2.50E-04	mg/kg-day	4.1E-04
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	4.4E-06	mg/kg-day	2.00E-04	mg/kg-day	2.2E-02
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	3.5E-06	mg/kg-day	4.00E-02	mg/kg-day	8.7E-05
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	1.5E-04	mg/kg-day	2.55E-02	mg/kg-day	5.8E-03
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	1.3E-09	mg/kg-day	9.20E-04	mg/kg-day	1.4E-06
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	2.5E-07	mg/kg-day	1.35E-04	mg/kg-day	1.8E-03
	(total)										2.2E-01
Inhalation							Inhalation risk assumed to be equal to ingestion risk for VOAs				
											3.0E-02
											9.8E-01

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.
(2) Specify if subchronic.

TABLE 7.12 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CHILD RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Hazard Quotient
Ingestion	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	1.6E-04	mg/kg-day	1.00E-01	mg/kg-day	1.6E-03
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	5.5E-05	mg/kg-day	9.00E-03	mg/kg-day	6.2E-03
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	1.6E-04	mg/kg-day	9.00E-03	mg/kg-day	1.7E-02
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	2.1E-05	mg/kg-day	2.00E-02	mg/kg-day	1.1E-03
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	1.3E-05	mg/kg-day	2.00E-02	mg/kg-day	6.4E-04
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	4.9E-05	mg/kg-day	1.00E-02	mg/kg-day	4.9E-03
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	4.7E-05	mg/kg-day	1.00E-02	mg/kg-day	4.7E-03
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	1.1E-04	mg/kg-day	6.00E-03	mg/kg-day	1.8E-02
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	4.5E-05	mg/kg-day	3.00E-03	mg/kg-day	1.5E-02
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	3.5E-04	mg/kg-day	NA	mg/kg-day	
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	4.2E-04	mg/kg-day	2.00E-02	mg/kg-day	2.1E-02
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	4.3E-04	mg/kg-day	6.00E-02	mg/kg-day	7.1E-03
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	3.3E-04	mg/kg-day	NA	mg/kg-day	
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	4.0E-04	mg/kg-day	4.00E-03	mg/kg-day	9.9E-02
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	3.6E-04	mg/kg-day	4.00E-02	mg/kg-day	8.9E-03
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	3.8E-04	mg/kg-day	4.00E-02	mg/kg-day	9.5E-03
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	4.5E-04	mg/kg-day	2.00E-02	mg/kg-day	2.2E-02
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	3.7E-04	mg/kg-day	3.00E-02	mg/kg-day	1.2E-02
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	3.6E-04	mg/kg-day	3.00E-02	mg/kg-day	1.2E-02
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	7.0E-07	mg/kg-day	5.00E-04	mg/kg-day	1.4E-03
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	4.0E-07	mg/kg-day	3.00E-05	mg/kg-day	1.3E-02
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	1.7E-06	mg/kg-day	NA	mg/kg-day	
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	2.6E-05	mg/kg-day	5.00E-04	mg/kg-day	5.1E-02
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	2.7E-05	mg/kg-day	2.00E-04	mg/kg-day	1.3E-01
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	4.5E-03	mg/kg-day	1.00E+00	mg/kg-day	4.5E-03
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	1.9E-01	mg/kg-day	1.10E+00	mg/kg-day	1.8E-01
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	5.7E-03	mg/kg-day	2.30E-02	mg/kg-day	2.5E-01
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	3.2E-04	mg/kg-day	9.00E-04	mg/kg-day	3.6E-01
											1.2E+00

TABLE 7.12 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF NON-CANCER HAZARDS FROM EXPOSURE OF CHILD RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose (2)	Reference Dose Units	Hazard Quotient
Dermal	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	5.4E-06	mg/kg-day	1.00E-01	mg/kg-day	5.4E-05
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	3.3E-06	mg/kg-day	9.00E-03	mg/kg-day	3.7E-04
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	6.2E-06	mg/kg-day	7.20E-03	mg/kg-day	8.6E-04
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	7.7E-07	mg/kg-day	1.96E-02	mg/kg-day	3.9E-05
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	4.4E-07	mg/kg-day	1.50E-02	mg/kg-day	2.9E-05
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	2.0E-06	mg/kg-day	2.00E-03	mg/kg-day	9.9E-04
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	1.3E-05	mg/kg-day	1.00E-02	mg/kg-day	1.3E-03
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	8.0E-06	mg/kg-day	5.67E-03	mg/kg-day	1.4E-03
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	1.0E-06	mg/kg-day	3.00E-03	mg/kg-day	3.4E-04
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	5.4E-07	mg/kg-day	NA	mg/kg-day	
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	4.1E-04	mg/kg-day	1.60E-02	mg/kg-day	2.6E-02
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	2.8E-04	mg/kg-day	3.00E-02	mg/kg-day	9.3E-03
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	1.2E-04	mg/kg-day	NA	mg/kg-day	
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	3.2E-04	mg/kg-day	3.20E-03	mg/kg-day	1.0E-01
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	8.4E-04	mg/kg-day	2.00E-02	mg/kg-day	4.2E-02
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	3.6E-04	mg/kg-day	2.00E-02	mg/kg-day	1.8E-02
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	1.3E-04	mg/kg-day	2.00E-02	mg/kg-day	6.7E-03
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	4.8E-04	mg/kg-day	1.50E-02	mg/kg-day	3.2E-02
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	1.1E-03	mg/kg-day	1.50E-02	mg/kg-day	7.3E-02
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	3.8E-06	mg/kg-day	4.00E-04	mg/kg-day	9.5E-03
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	1.6E-08	mg/kg-day	3.00E-05	mg/kg-day	5.5E-04
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	3.9E-07	mg/kg-day	NA	mg/kg-day	
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	1.7E-07	mg/kg-day	2.50E-04	mg/kg-day	6.9E-04
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	7.5E-06	mg/kg-day	2.00E-04	mg/kg-day	3.7E-02
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	6.0E-06	mg/kg-day	4.00E-02	mg/kg-day	1.5E-04
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	2.5E-04	mg/kg-day	9.35E-02	mg/kg-day	2.7E-03
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	2.3E-09	mg/kg-day	9.20E-04	mg/kg-day	2.5E-06
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	4.2E-07	mg/kg-day	1.35E-04	mg/kg-day	3.1E-03
	(total)										3.7E-01
Inhalation							Inhalation risk assumed to be equal to ingestion risk for VOAs				
											6.9E-02
											1.7E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.
(2) Specify if subchronic.

TABLE 8.1 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF BASE WORKERS TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Area 1
Receptor Population: Base Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	9.3E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	6.8E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.4E-07	mg/kg-day	2.00E+00	(mg/kg-day)-1	2.8E-07
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	4.7E-07	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.8E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	4.2E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	7.9E-04	mg/kg-day		(mg/kg-day)-1	
	(total)										7.5E-06
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.2E-07	mg/kg-day	8.11E+00	(mg/kg-day)-1	1.0E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.8E-08	mg/kg-day	2.35E+00	(mg/kg-day)-1	4.3E-08
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	6.2E-09	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	3.7E-09	mg/kg-day	1.58E+00	(mg/kg-day)-1	5.8E-09
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.0E-05	mg/kg-day		(mg/kg-day)-1	
	(total)										1.0E-06
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	3.0E-10	mg/kg-day	3.08E+00	(mg/kg-day)-1	9.3E-10
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	4.5E-11	mg/kg-day	2.00E+00	(mg/kg-day)-1	9.0E-11
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.5E-10	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	9.0E-11	mg/kg-day	1.51E+00	(mg/kg-day)-1	1.4E-10
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.5E-07	mg/kg-day		(mg/kg-day)-1	
											1.2E-09
											8.6E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.2 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CONSTRUCTION WORKERS TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Area 1
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation[1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	3.6E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.6E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	5.4E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.1E-07
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.8E-07	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.1E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.6E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	3.0E-04	mg/kg-day		(mg/kg-day)-1	
	(total)										2.9E-06
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.7E-08	mg/kg-day	8.11E+00	(mg/kg-day)-1	1.4E-07
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	2.6E-09	mg/kg-day	2.35E+00	(mg/kg-day)-1	6.1E-09
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	8.7E-10	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	5.2E-10	mg/kg-day	1.58E+00	(mg/kg-day)-1	8.2E-10
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.5E-06	mg/kg-day		(mg/kg-day)-1	
	(total)										1.5E-07
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.2E-11	mg/kg-day	3.08E+00	(mg/kg-day)-1	3.7E-11
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.8E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	3.6E-12
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	6.1E-12	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	3.6E-12	mg/kg-day	1.51E+00	(mg/kg-day)-1	5.4E-12
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.0E-08	mg/kg-day		(mg/kg-day)-1	
											4.6E-11
											3.0E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.3 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CONSTRUCTION WORKERS TO SUBSURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil/Air
Exposure Point: Area 1
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation[1]	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	5.75E-01	mg/kg	5.75E-01	mg/kg	M	3.9E-08	mg/kg-day	1.50E+00	(mg/kg-day)-1	5.8E-08
	Mercury	2.02E-02	mg/kg	2.02E-02	mg/kg	M	1.4E-09	mg/kg-day		(mg/kg-day)-1	
	(total)										5.8E-08
Dermal	Arsenic	5.75E-01	mg/kg	5.75E-01	mg/kg	M	1.9E-09	mg/kg-day	1.58E+00	(mg/kg-day)-1	2.9E-09
	Mercury	2.02E-02	mg/kg	2.02E-02	mg/kg	M	6.5E-12	mg/kg-day		(mg/kg-day)-1	
	(total)										2.9E-09
Inhalation	Arsenic	5.75E-01	mg/kg	5.75E-01	mg/kg	M	1.3E-12	mg/kg-day	1.51E+00	(mg/kg-day)-1	2.0E-12
	Mercury	2.02E-02	mg/kg	2.02E-02	mg/kg	M	4.6E-14	mg/kg-day		(mg/kg-day)-1	
											2.0E-12
											6.1E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.4 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CONSTRUCTION WORKER TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Excavation Trench
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	3.4E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	1.2E-09	mg/kg-day	6.00E-01	$(mg/kg\text{-}day)^{-1}$	7.3E-10
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	3.4E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	4.6E-10	mg/kg-day	6.20E-02	$(mg/kg\text{-}day)^{-1}$	2.9E-11
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	2.8E-10	mg/kg-day	8.40E-02	$(mg/kg\text{-}day)^{-1}$	2.3E-11
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	1.1E-09	mg/kg-day	6.10E-03	$(mg/kg\text{-}day)^{-1}$	6.5E-12
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	1.0E-09	mg/kg-day	5.20E-02	$(mg/kg\text{-}day)^{-1}$	5.3E-11
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	2.3E-09	mg/kg-day	1.10E-02	$(mg/kg\text{-}day)^{-1}$	2.5E-11
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	9.8E-10	mg/kg-day	1.40E+00	$(mg/kg\text{-}day)^{-1}$	1.4E-09
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	7.6E-09	mg/kg-day	1.10E-02	$(mg/kg\text{-}day)^{-1}$	8.3E-11
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	9.3E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	9.3E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	7.2E-09	mg/kg-day	2.00E-02	$(mg/kg\text{-}day)^{-1}$	1.4E-10
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	8.7E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	7.8E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	8.3E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	9.8E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	8.1E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	7.9E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	1.5E-11	mg/kg-day	3.40E-01	$(mg/kg\text{-}day)^{-1}$	5.2E-12
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	8.7E-12	mg/kg-day	1.70E+01	$(mg/kg\text{-}day)^{-1}$	1.5E-10
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	3.8E-11	mg/kg-day	1.80E+00	$(mg/kg\text{-}day)^{-1}$	6.8E-11
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	5.6E-10	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	5.9E-10	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	9.9E-08	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	4.2E-06	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	1.2E-07	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	7.0E-09	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	(total)										2.7E-09

TABLE 8.4 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CONSTRUCTION WORKER TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Excavation Trench
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	3.2E-08	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	2.0E-08	mg/kg-day	6.00E-01	$(mg/kg-day)^{-1}$	1.2E-08
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	3.7E-08	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	4.6E-09	mg/kg-day	6.33E-02	$(mg/kg-day)^{-1}$	2.9E-10
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	2.6E-09	mg/kg-day	1.12E-01	$(mg/kg-day)^{-1}$	2.9E-10
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	1.2E-08	mg/kg-day	3.05E-02	$(mg/kg-day)^{-1}$	3.6E-10
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	7.6E-08	mg/kg-day	5.20E-02	$(mg/kg-day)^{-1}$	3.9E-09
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	4.7E-08	mg/kg-day	1.16E-02	$(mg/kg-day)^{-1}$	5.5E-10
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	6.1E-09	mg/kg-day	1.40E+00	$(mg/kg-day)^{-1}$	8.6E-09
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	3.2E-09	mg/kg-day	2.20E-02	$(mg/kg-day)^{-1}$	7.1E-11
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	2.5E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	1.7E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	7.1E-07	mg/kg-day	2.50E-02	$(mg/kg-day)^{-1}$	1.8E-08
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	1.9E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	5.0E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	2.2E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	7.9E-07	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	2.8E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	6.5E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	2.3E-08	mg/kg-day	4.25E-01	$(mg/kg-day)^{-1}$	9.7E-09
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	9.8E-11	mg/kg-day	1.70E+01	$(mg/kg-day)^{-1}$	1.7E-09
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	2.4E-09	mg/kg-day	1.98E+00	$(mg/kg-day)^{-1}$	4.7E-09
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	1.0E-09	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	4.5E-08	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	3.6E-08	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	1.5E-06	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	1.4E-11	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	2.5E-09	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	(total)										6.0E-08
Inhalation	Inhalation risk assumend to be equal to ingestion risk for VOAs.										
											2.2E-09
											6.5E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.5 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF ADOLESCENT TRESPASSER TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Trespasser
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.3E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.7E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	3.5E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	7.0E-08
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.2E-07	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	7.0E-08	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.0E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.0E-04	mg/kg-day		(mg/kg-day)-1	
	(total)										1.9E-06
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.0E-07	mg/kg-day	8.11E+00	(mg/kg-day)-1	1.6E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	3.0E-08	mg/kg-day	2.35E+00	(mg/kg-day)-1	7.1E-08
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.0E-08	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	6.1E-09	mg/kg-day	1.58E+00	(mg/kg-day)-1	9.6E-09
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.7E-05	mg/kg-day		(mg/kg-day)-1	
	(total)										1.7E-06
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	3.75E-11	mg/kg-day	3.08E+00	(mg/kg-day)-1	1.2E-10
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	5.61E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.1E-11
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.89E-11	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.12E-11	mg/kg-day	1.51E+00	(mg/kg-day)-1	1.7E-11
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	3.16E-08	mg/kg-day		(mg/kg-day)-1	
											1.4E-10
											3.6E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.6 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF ADULT TRESPASSER TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Trespasser
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.7E-07	mg/kg-day	7.30E+00	(mg/kg-day)-1	2.0E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	4.0E-08	mg/kg-day	2.00E+00	(mg/kg-day)-1	8.1E-08
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.4E-07	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	8.1E-08	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.2E-07
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.3E-04	mg/kg-day		(mg/kg-day)-1	
	(total)										2.2E-06
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.5E-07	mg/kg-day	8.11E+00	(mg/kg-day)-1	1.2E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	2.3E-08	mg/kg-day	2.35E+00	(mg/kg-day)-1	5.4E-08
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	7.7E-09	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	4.6E-09	mg/kg-day	1.58E+00	(mg/kg-day)-1	7.3E-09
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.3E-05	mg/kg-day		(mg/kg-day)-1	
	(total)										1.3E-06
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	4.34E-11	mg/kg-day	3.08E+00	(mg/kg-day)-1	1.3E-10
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	6.49E-12	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.3E-11
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	2.19E-11	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.30E-11	mg/kg-day	1.51E+00	(mg/kg-day)-1	2.0E-11
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	3.66E-08	mg/kg-day		(mg/kg-day)-1	
											1.7E-10
											3.5E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.7 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF ADULT RESIDENT TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	2.5E-06	mg/kg-day	7.30E+00	(mg/kg-day)-1	1.8E-05
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	3.8E-07	mg/kg-day	2.00E+00	(mg/kg-day)-1	7.5E-07
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	1.3E-06	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	7.5E-07	mg/kg-day	1.50E+00	(mg/kg-day)-1	1.1E-06
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	2.1E-03	mg/kg-day		(mg/kg-day)-1	
	(total)										2.0E-05
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	1.4E-06	mg/kg-day	8.11E+00	(mg/kg-day)-1	1.2E-05
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	2.1E-07	mg/kg-day	2.35E+00	(mg/kg-day)-1	5.0E-07
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	7.2E-08	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	4.3E-08	mg/kg-day	1.58E+00	(mg/kg-day)-1	6.8E-08
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	1.2E-04	mg/kg-day		(mg/kg-day)-1	
	(total)										1.2E-05
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	4.05E-10	mg/kg-day	3.08E+00	(mg/kg-day)-1	1.2E-09
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	6.06E-11	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.2E-10
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	2.05E-10	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.21E-10	mg/kg-day	1.51E+00	(mg/kg-day)-1	1.8E-10
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	3.42E-07	mg/kg-day		(mg/kg-day)-1	
											1.6E-09
											3.2E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.8 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CHILD RESIDENT TO SURFACE SOIL
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Soil (1)
Exposure Medium: Surface Soil/Air
Exposure Point: Exposed Areas
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	5.9E-06	mg/kg-day	7.30E+00	(mg/kg-day)-1	4.3E-05
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	8.8E-07	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.8E-06
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	3.0E-06	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.8E-06	mg/kg-day	1.50E+00	(mg/kg-day)-1	2.6E-06
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	4.9E-03	mg/kg-day		(mg/kg-day)-1	
	(total)										4.7E-05
Dermal	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	8.2E-07	mg/kg-day	8.11E+00	(mg/kg-day)-1	6.7E-06
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	1.2E-07	mg/kg-day	2.35E+00	(mg/kg-day)-1	2.9E-07
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	4.1E-08	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	2.5E-08	mg/kg-day	1.58E+00	(mg/kg-day)-1	3.9E-08
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	6.9E-05	mg/kg-day		(mg/kg-day)-1	
	(total)										7.0E-06
Inhalation	Benzo(a)pyrene (equiv)	5.35E+00	mg/kg	5.35E+00	mg/kg	M	4.72E-10	mg/kg-day	3.08E+00	(mg/kg-day)-1	1.5E-09
	Aroclor 1260	8.00E-01	mg/kg	8.00E-01	mg/kg	M	7.07E-11	mg/kg-day	2.00E+00	(mg/kg-day)-1	1.4E-10
	Antimony	2.70E+00	mg/kg	2.70E+00	mg/kg	M	2.39E-10	mg/kg-day		(mg/kg-day)-1	
	Arsenic	1.60E+00	mg/kg	1.60E+00	mg/kg	M	1.41E-10	mg/kg-day	1.51E+00	(mg/kg-day)-1	2.1E-10
	Iron	4.51E+03	mg/kg	4.51E+03	mg/kg	M	3.99E-07	mg/kg-day		(mg/kg-day)-1	
											1.8E-09
											5.4E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.9 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF ADULT RESIDENT TO SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Pond
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	3.0E-07	mg/kg-day		(mg/kg-day)-1	
	(total)										0.0E+00
Dermal	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	2.7E-07	mg/kg-day		(mg/kg-day)-1	
	(total)										0.0E+00
											0.0E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.10 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CHILD RESIDENT TO SURFACE WATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Surface Water/Air
Exposure Point: Pond
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	3.9E-06	mg/kg-day		(mg/kg-day)-1	
	(total)										0.0E+00
Dermal	Cyanide	1.91E+01	ug/l	1.91E+01	ug/l	M	3.1E-07	mg/kg-day		(mg/kg-day)-1	
	(total)										0.0E+00
											0.0E+00

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 8.11 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF ADULT RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	2.3E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	8.1E-06	mg/kg-day	6.00E-01	$(mg/kg-day)^{-1}$	4.9E-06
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	2.3E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	3.1E-06	mg/kg-day	6.20E-02	$(mg/kg-day)^{-1}$	1.9E-07
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	1.9E-06	mg/kg-day	8.40E-02	$(mg/kg-day)^{-1}$	1.6E-07
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	7.2E-06	mg/kg-day	6.10E-03	$(mg/kg-day)^{-1}$	4.4E-08
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	6.9E-06	mg/kg-day	5.20E-02	$(mg/kg-day)^{-1}$	3.6E-07
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	1.6E-05	mg/kg-day	1.10E-02	$(mg/kg-day)^{-1}$	1.7E-07
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	6.6E-06	mg/kg-day	1.40E+00	$(mg/kg-day)^{-1}$	9.3E-06
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	5.1E-05	mg/kg-day	1.10E-02	$(mg/kg-day)^{-1}$	5.6E-07
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	6.2E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	6.3E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	4.8E-05	mg/kg-day	2.00E-02	$(mg/kg-day)^{-1}$	9.6E-07
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	5.8E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	5.3E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	5.6E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	6.6E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	5.4E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	5.3E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	1.0E-07	mg/kg-day	3.40E-01	$(mg/kg-day)^{-1}$	3.5E-08
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	5.8E-08	mg/kg-day	1.70E+01	$(mg/kg-day)^{-1}$	9.9E-07
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	2.5E-07	mg/kg-day	1.80E+00	$(mg/kg-day)^{-1}$	4.5E-07
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	3.8E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	3.9E-06	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	6.6E-04	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	2.8E-02	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	8.3E-04	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	4.7E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	(total)										1.8E-05

TABLE 8.11 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF ADULT RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	1.1E-06	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	6.7E-07	mg/kg-day	6.00E-01	$(mg/kg\text{-}day)^{-1}$	4.0E-07
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	1.2E-06	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	1.5E-07	mg/kg-day	6.33E-02	$(mg/kg\text{-}day)^{-1}$	9.8E-09
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	8.7E-08	mg/kg-day	1.12E-01	$(mg/kg\text{-}day)^{-1}$	9.8E-09
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	4.0E-07	mg/kg-day	3.05E-02	$(mg/kg\text{-}day)^{-1}$	1.2E-08
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	2.5E-06	mg/kg-day	5.20E-02	$(mg/kg\text{-}day)^{-1}$	1.3E-07
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	1.6E-06	mg/kg-day	1.16E-02	$(mg/kg\text{-}day)^{-1}$	1.9E-08
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	2.1E-07	mg/kg-day	1.40E+00	$(mg/kg\text{-}day)^{-1}$	2.9E-07
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	1.1E-07	mg/kg-day	2.20E-02	$(mg/kg\text{-}day)^{-1}$	2.4E-09
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	8.3E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	5.6E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	2.4E-05	mg/kg-day	2.50E-02	$(mg/kg\text{-}day)^{-1}$	5.9E-07
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	6.5E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	1.7E-04	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	7.3E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	2.7E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	9.5E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	2.2E-04	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	7.6E-07	mg/kg-day	4.25E-01	$(mg/kg\text{-}day)^{-1}$	3.3E-07
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	3.3E-09	mg/kg-day	1.70E+01	$(mg/kg\text{-}day)^{-1}$	5.6E-08
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	7.9E-08	mg/kg-day	1.98E+00	$(mg/kg\text{-}day)^{-1}$	1.6E-07
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	3.5E-08	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	1.5E-06	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	1.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	5.1E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	4.5E-10	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	8.5E-08	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	(total)										2.0E-06
Inhalation									Inhalation risk assumend to be equal to ingestion risk for VOAs.		
											1.5E-05
											3.5E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 8.12 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CHILD RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	1.3E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	4.7E-06	mg/kg-day	6.00E-01	$(mg/kg\text{-}day)^{-1}$	2.8E-06
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	1.3E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	1.8E-06	mg/kg-day	6.20E-02	$(mg/kg\text{-}day)^{-1}$	1.1E-07
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	1.1E-06	mg/kg-day	8.40E-02	$(mg/kg\text{-}day)^{-1}$	9.2E-08
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	4.2E-06	mg/kg-day	6.10E-03	$(mg/kg\text{-}day)^{-1}$	2.6E-08
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	4.0E-06	mg/kg-day	5.20E-02	$(mg/kg\text{-}day)^{-1}$	2.1E-07
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	9.1E-06	mg/kg-day	1.10E-02	$(mg/kg\text{-}day)^{-1}$	1.0E-07
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	3.9E-06	mg/kg-day	1.40E+00	$(mg/kg\text{-}day)^{-1}$	5.4E-06
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	3.0E-05	mg/kg-day	1.10E-02	$(mg/kg\text{-}day)^{-1}$	3.3E-07
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	3.6E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	3.7E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	2.8E-05	mg/kg-day	2.00E-02	$(mg/kg\text{-}day)^{-1}$	5.6E-07
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	3.4E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	3.1E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	3.3E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	3.8E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	3.2E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	3.1E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	6.0E-08	mg/kg-day	3.40E-01	$(mg/kg\text{-}day)^{-1}$	2.0E-08
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	3.4E-08	mg/kg-day	1.70E+01	$(mg/kg\text{-}day)^{-1}$	5.8E-07
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	1.5E-07	mg/kg-day	1.80E+00	$(mg/kg\text{-}day)^{-1}$	2.7E-07
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	2.2E-06	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	2.3E-06	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	3.9E-04	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	1.7E-02	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	4.9E-04	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	2.8E-05	mg/kg-day	NA	$(mg/kg\text{-}day)^{-1}$	
	(total)										1.1E-05

TABLE 8.12 REASONABLE MAXIMUM EXPOSURE (RME)
CALCULATION OF CANCER RISKS FROM EXPOSURE OF CHILD RESIDENT TO GROUNDWATER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater/Air
Exposure Point: Tap Water/Vapor
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	1,1-Dichloroethane	2.42E+00	ug/l	2.42E+00	ug/l	M	4.7E-07	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	1,1-Dichloroethene	8.67E-01	ug/l	8.67E-01	ug/l	M	2.8E-07	mg/kg-day	6.00E-01	$(mg/kg-day)^{-1}$	1.7E-07
	1,2-Dichloroethene (total)	2.45E+00	ug/l	2.45E+00	ug/l	M	5.3E-07	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Bromodichloromethane	3.30E-01	ug/l	3.30E-01	ug/l	M	6.6E-08	mg/kg-day	6.33E-02	$(mg/kg-day)^{-1}$	4.2E-09
	Chlorodibromomethane	2.00E-01	ug/l	2.00E-01	ug/l	M	3.7E-08	mg/kg-day	1.12E-01	$(mg/kg-day)^{-1}$	4.2E-09
	Chloroform	7.65E-01	ug/l	7.65E-01	ug/l	M	1.7E-07	mg/kg-day	3.05E-02	$(mg/kg-day)^{-1}$	5.2E-09
	Tetrachloroethene	7.29E-01	ug/l	7.29E-01	ug/l	M	1.1E-06	mg/kg-day	5.20E-02	$(mg/kg-day)^{-1}$	5.7E-08
	Trichloroethene	1.66E+00	ug/l	1.66E+00	ug/l	M	6.8E-07	mg/kg-day	1.16E-02	$(mg/kg-day)^{-1}$	7.9E-09
	Vinyl chloride	7.04E-01	ug/l	7.04E-01	ug/l	M	8.8E-08	mg/kg-day	1.40E+00	$(mg/kg-day)^{-1}$	1.2E-07
	1,4-Dioxane	5.41E+00	ug/l	5.41E+00	ug/l	M	4.6E-08	mg/kg-day	2.20E-02	$(mg/kg-day)^{-1}$	1.0E-09
	2-Methylnaphthalene	6.62E+00	ug/l	6.62E+00	ug/l	M	3.6E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Acenaphthene	6.66E+00	ug/l	6.66E+00	ug/l	M	2.4E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Carbazole	5.12E+00	ug/l	5.12E+00	ug/l	M	1.0E-05	mg/kg-day	2.50E-02	$(mg/kg-day)^{-1}$	2.5E-07
	Dibenzofuran	6.20E+00	ug/l	6.20E+00	ug/l	M	2.8E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Fluoranthene	5.60E+00	ug/l	5.60E+00	ug/l	M	7.2E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Fluorene	5.96E+00	ug/l	5.96E+00	ug/l	M	3.1E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Naphthalene	6.98E+00	ug/l	6.98E+00	ug/l	M	1.1E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Phenanthrene	5.77E+00	ug/l	5.77E+00	ug/l	M	4.1E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Pyrene	5.67E+00	ug/l	5.67E+00	ug/l	M	9.4E-05	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	4,4-DDT	1.10E-02	ug/l	1.10E-02	ug/l	M	3.3E-07	mg/kg-day	4.25E-01	$(mg/kg-day)^{-1}$	1.4E-07
	Aldrin	6.20E-03	ug/l	6.20E-03	ug/l	M	1.4E-09	mg/kg-day	1.70E+01	$(mg/kg-day)^{-1}$	2.4E-08
	beta-BHC	2.69E-02	ug/l	2.69E-02	ug/l	M	3.4E-08	mg/kg-day	1.98E+00	$(mg/kg-day)^{-1}$	6.7E-08
	Sulfotepp	4.00E-01	ug/l	4.00E-01	ug/l	M	1.5E-08	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Phorate	4.20E-01	ug/l	4.20E-01	ug/l	M	6.4E-07	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	Aluminum	7.08E+01	ug/l	7.08E+01	ug/l	M	5.1E-07	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	
	Iron	3.02E+03	ug/l	3.02E+03	ug/l	M	2.2E-05	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	
	Manganese	8.87E+01	ug/l	8.87E+01	ug/l	M	1.9E-10	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	
	Thallium	5.02E+00	ug/l	5.02E+00	ug/l	M	3.6E-08	mg/kg-day	NA	$(mg/kg-day)^{-1}$	
	(total)										8.6E-07
Inhalation									Inhalation risk assumend to be equal to ingestion risk for VOAs.		
											8.8E-06
											2.0E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

(2) Specify if subchronic.

TABLE 9.1 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - BASE WORKER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current/Future
Receptor Population: Base Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Soil	Exposed Areas	Benzo(a)pyrene (equiv)	6.82E-06	9.3E-10	1.0E-06	7.8E-06	Benzo(a)pyrene (equiv)					
			Aroclor 1260	2.80E-07	9.0E-11	4.3E-08	3.2E-07	Aroclor 1260	Immunological	2.0E-02	7.4E-06	3.0E-03	2.3E-02
			Antimony					Antimony	Blood - Mortality	3.3E-03	3.7E-06	4.4E-03	7.7E-03
			Arsenic	4.19E-07	1.4E-10	5.8E-09	4.3E-07	Arsenic	Skin - Cardiovascular	2.6E-03	8.9E-07	3.6E-05	2.6E-03
			Iron					Iron	Blood -Gastrointestinal	7.4E-03	2.8E-05	1.1E-03	8.5E-03
			(Total)	7.5E-06	1.2E-09	1.0E-06	8.6E-06	(Total)		3.3E-02	4.0E-05	8.6E-03	4.1E-02
						Total Risk Across Soil	8.6E-06					Total Hazard Index Across All Media and All Exposure Routes	4.1E-02

Total Risk Across All Media and All Exposure Routes	8.6E-06

Total Immunological HI =	2.3E-02
Total Blood HI =	1.6E-02
Total Skin HI =	2.6E-03
Total Cardiovascular HI =	2.6E-03
Total Gastrointestinal HI =	8.5E-03
Total Mortality HI =	7.7E-03

TABLE 9.2 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater/Air	Excavation Trench	1,1-Dichloroethane					1,1-Dichloroethane	Kidney	1.9E-07	1.9E-07	1.8E-06	2.2E-06
			1,1-Dichloroethene	5.8E-11	5.8E-11	9.5E-10	1.1E-09	1,1-Dichloroethene	Liver	7.5E-07	7.5E-07	1.2E-05	1.4E-05
			1,2-Dichloroethene (total)					1,2-Dichloroethene (total)	Blood, Liver	2.1E-06	2.1E-06	2.9E-05	3.3E-05
			Bromodichloromethane	2.3E-12	2.3E-12	2.3E-11	2.8E-11	Bromodichloromethane	Kidney	1.3E-07	1.3E-07	1.3E-06	1.6E-06
			Chlorodibromomethane	1.9E-12	1.9E-12	2.3E-11	2.7E-11	Chlorodibromomethane	Liver	7.8E-08	7.8E-08	9.7E-07	1.1E-06
			Chloroform	5.2E-13	5.2E-13	2.9E-11	3.0E-11	Chloroform	Liver	6.0E-07	6.0E-07	3.3E-05	3.4E-05
			Tetrachloroethene	4.2E-12	4.2E-12	3.2E-10	3.2E-10	Tetrachloroethene	Body Weight - Liver	5.7E-07	5.7E-07	4.2E-05	4.4E-05
			Trichloroethene	2.0E-12	2.0E-12	4.4E-11	4.8E-11	Trichloroethene	None Specified	2.2E-06	2.2E-06	4.7E-05	5.1E-05
			Vinyl chloride	1.1E-10	1.1E-10	6.9E-10	9.1E-10	Vinyl chloride	None Specified	1.8E-06	1.8E-06	1.1E-05	1.5E-05
			1,4-Dioxane	6.7E-12		5.7E-12	1.2E-11	1,4-Dioxane					
			2-Methylnaphthalene					2-Methylnaphthalene	Body Weight - Nasal	2.6E-06		8.7E-04	8.7E-04
			Acenaphthene					Acenaphthene	Liver	8.7E-07		3.1E-04	3.1E-04
			Carbazole	1.1E-11		1.4E-09	1.4E-09	Carbazole					
			Dibenzofuran					Dibenzofuran	None Specified	1.2E-05		3.4E-03	3.4E-03
			Fluoranthene					Fluoranthene	Blood/Kidney/Liver	1.1E-06		1.4E-03	1.4E-03
			Fluorene					Fluorene	Blood	1.2E-06		6.0E-04	6.1E-04
			Naphthalene					Naphthalene	Body Weight - Nasal	2.7E-06		2.2E-04	2.2E-04
			Phenanthrene					Phenanthrene	Kidney	1.5E-06		1.1E-03	1.1E-03
			Pyrene					Pyrene	Kidney	1.5E-06		2.4E-03	2.4E-03
			4,4-DDT	4.2E-13		7.7E-10	7.7E-10	4,4-DDT	Liver	1.7E-07		3.2E-04	3.2E-04
			Aldrin	1.2E-11		1.3E-10	1.4E-10	Aldrin	Liver	1.6E-06		1.8E-05	2.0E-05
			beta-BHC	5.4E-12		3.7E-10	3.8E-10	beta-BHC					
			Sulfotepp					Sulfotepp	Bone marrow - Neurological	6.3E-06		2.3E-05	2.9E-05
			Phorate					Phorate	Neurological	1.6E-05		1.3E-03	1.3E-03
			Aluminum					Aluminum	Body weight	5.5E-07		5.0E-06	5.5E-06
			Iron					Iron	Blood - Gastrointestinal	7.9E-05		3.3E-04	4.1E-04
			Manganese					Manganese	Neurological	3.0E-05		8.2E-08	3.0E-05
			Thallium					Thallium	None Specified	4.4E-05		1.0E-04	1.5E-04
				2.2E-10	1.8E-10	4.8E-09	5.17E-09			2.1E-04	8.5E-06	1.3E-02	1.3E-02

TABLE 9.2 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - CONSTRUCTION WORKER
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Soil	Exposed Areas	Benzo(a)pyrene (equiv)	2.1E-07	3.0E-12	1.1E-08	2.2E-07	Benzo(a)pyrene (equiv)					
			Aroclor 1260	8.6E-09	2.9E-13	4.9E-10	9.1E-09	Aroclor 1260	Immunological	1.5E-02	5.9E-07	8.5E-04	1.6E-02
			Antimony					Antimony	Blood - Mortality	2.5E-03	3.0E-07	1.2E-03	3.8E-03
			Arsenic	1.3E-08	4.4E-13	6.5E-11	1.3E-08	Arsenic	Skin - Cardiovascular	2.0E-03	7.1E-08	1.0E-05	2.0E-03
			Iron					Iron	Blood -Gastrointestinal	5.6E-03	2.2E-06	3.2E-04	6.0E-03
			(Total)	2.3E-07	3.7E-12	1.2E-08	2.4E-07	(Total)		2.5E-02	3.2E-06	2.4E-03	2.8E-02
Subsurface Soil	Soil	Excavations	Arsenic	4.6E-09	1.6E-13	2.3E-10	4.9E-09	Arsenic	Skin - Cardiovascular	7.2E-04	2.5E-08	3.6E-05	7.6E-04
			Mercury					Mercury	Neurological	2.5E-05	3.0E-09	1.2E-06	2.7E-05
			(Total)	4.6E-09	1.6E-13	2.3E-10	4.9E-09	(Total)		7.5E-04	2.8E-08	3.8E-05	7.8E-04

Total Risk Across Surface Soil	2.4E-07
Total Risk Across Subsurface Soil	4.9E-09
Total Risk Across Groundwater	5.2E-09
Total Risk Across All Media and All Exposure Routes	2.5E-07

Total Hazard Index Across All Media and All Exposure Routes	4.1E-02
Total Immunological HI =	1.6E-02
Total Blood HI =	1.2E-02
Total Skin HI =	2.8E-03
Total Cardiovascular HI =	2.8E-03
Total Gastrointestinal HI =	6.4E-03
Total Mortality HI =	4.8E-03
Total Neurological HI =	1.4E-03
Total Kidney HI =	4.9E-03
Total Liver HI =	2.2E-03
Total Body Weight HI =	1.1E-03
Total Nasal HI =	1.1E-03
Total Bone Marrow HI =	2.9E-05

TABLE 9.3 REASONABLE MAXIMUM EXPOSURE (RME)

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - TRESPASSER ADOLESCENT

AREA OF CONCERN C

NAS MAYPORT, FLORIDA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Soil	Exposed Areas	Benzo(a)pyrene (equiv)	1.70E-06	1.15E-10	1.64E-06	3.3E-06	Benzo(a)pyrene (equiv)					
			Aroclor 1260	6.96E-08	1.12E-11	7.11E-08	1.4E-07	Aroclor 1260	Immunological	1.2E-02	2.3E-06	1.2E-02	2.5E-02
			Antimony					Antimony	Blood - Mortality	2.1E-03	1.2E-06	1.8E-02	2.0E-02
			Arsenic	1.04E-07	1.69E-11	9.56E-09	1.1E-07	Arsenic	Skin - Cardiovascular	1.6E-03	2.8E-07	1.5E-04	1.8E-03
			Iron					Iron	Blood -Gastrointestina	4.6E-03	8.7E-06	4.7E-03	9.3E-03
			(Total)	1.9E-06	1.4E-10	1.7E-06	3.6E-06	(Total)		2.0E-02	1.2E-05	3.5E-02	5.6E-02
						Total Risk Across Soil	3.6E-06					Total Hazard Index Across All Media and All Exposure Routes	5.6E-02

Total Risk Across All Media and All Exposure Routes	3.6E-06

Total Immunological HI =	2.5E-02
Total Blood HI =	2.9E-02
Total Skin HI =	1.8E-03
Total Cardiovascular HI =	1.8E-03
Total Gastrointestinal HI =	9.3E-03
Total Mortality HI =	2.0E-02

TABLE 9.4 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - TRESPASSER ADULT
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Soil	Exposed Areas	Benzo(a)pyrene (equiv)	1.96E-06	1.3E-10	1.2E-06	3.2E-06	Benzo(a)pyrene (equiv)					
			Aroclor 1260	8.05E-08	1.3E-11	5.4E-08	1.3E-07	Aroclor 1260	Immunological	7.0E-03	1.3E-06	4.7E-03	1.2E-02
			Antimony					Antimony	Blood - Mortality	1.2E-03	6.7E-07	6.8E-03	8.0E-03
			Arsenic	1.21E-07	2.0E-11	7.3E-09	1.3E-07	Arsenic	Skin - Cardiovascular	9.4E-04	1.6E-07	5.6E-05	1.0E-03
			Iron					Iron	Blood -Gastrointestina	2.6E-03	5.0E-06	1.8E-03	4.4E-03
			(Total)	2.2E-06	1.7E-10	1.3E-06	3.5E-06	(Total)		1.2E-02	7.2E-06	1.3E-02	2.5E-02
							Total Risk Across Soil 3.5E-06						Total Hazard Index Across All Media and All Exposure Routes 2.5E-02

Total Risk Across All Media and All Exposure Routes 3.5E-06

Total Immunological HI = 1.2E-02
Total Blood HI = 1.2E-02
Total Skin HI = 1.0E-03
Total Cardiovascular HI = 1.0E-03
Total Gastrointestinal HI = 4.4E-03
Total Mortality HI = 8.0E-03

TABLE 9.5 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT ADULT
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater/Air	Tap/Air	1,1-Dichloroethane					1,1-Dichloroethane	Kidney	6.6E-04	6.6E-04	3.2E-05	1.4E-03
			1,1-Dichloroethene	4.9E-06	4.9E-06	4.0E-07	1.0E-05	1,1-Dichloroethene	Liver	2.6E-03	2.6E-03	2.2E-04	5.5E-03
			1,2-Dichloroethene (total)					1,2-Dichloroethene (total)	Blood/Liver	7.5E-03	7.5E-03	5.0E-04	1.5E-02
			Bromodichloromethane	1.9E-07	1.9E-07	9.8E-09	3.9E-07	Bromodichloromethane	Kidney	4.5E-04	4.5E-04	2.3E-05	9.3E-04
			Chlorodibromomethane	1.6E-07	1.6E-07	9.8E-09	3.3E-07	Chlorodibromomethane	Liver	2.7E-04	2.7E-04	1.7E-05	5.6E-04
			Chloroform	4.4E-08	4.4E-08	1.2E-08	1.0E-07	Chloroform	Liver	2.1E-03	2.1E-03	5.8E-04	4.8E-03
			Tetrachloroethene	3.6E-07	3.6E-07	1.3E-07	8.5E-07	Tetrachloroethene	Body Weight - Liver	2.0E-03	2.0E-03	7.4E-04	4.7E-03
			Trichloroethene	1.7E-07	1.7E-07	1.9E-08	3.6E-07	Trichloroethene	None Specified	7.6E-03	7.6E-03	8.2E-04	1.6E-02
			Vinyl chloride	9.3E-06	9.3E-06	2.9E-07	1.9E-05	Vinyl chloride	None Specified	6.4E-03	6.4E-03	2.0E-04	1.3E-02
			1,4-Dioxane	5.6E-07		2.4E-09	5.6E-07	1,4-Dioxane					
			2-Methylnaphthalene					2-Methylnaphthalene	Body Weight - Nasal	9.1E-03		1.5E-02	2.4E-02
			Acenaphthene					Acenaphthene	Liver	3.0E-03		5.4E-03	8.5E-03
			Carbazole	9.6E-07		5.9E-07	1.6E-06	Carbazole					
			Dibenzofuran					Dibenzofuran	None Specified	4.2E-02		5.9E-02	1.0E-01
			Fluoranthene					Fluoranthene	Blood/Kidney/Liver	3.8E-03		2.5E-02	2.8E-02
			Fluorene					Fluorene	Blood	4.1E-03		1.1E-02	1.5E-02
			Naphthalene					Naphthalene	Body Weight - Nasal	9.6E-03		3.9E-03	1.3E-02
			Phenanthrene					Phenanthrene	Kidney	5.3E-03		1.9E-02	2.4E-02
			Pyrene					Pyrene	Kidney	5.2E-03		4.3E-02	4.8E-02
			4,4-DDT	3.5E-08		3.3E-07	3.6E-07	4,4-DDT	Liver	6.0E-04		5.6E-03	6.2E-03
			Aldrin	9.9E-07		5.6E-08	1.0E-06	Aldrin	Liver	5.7E-03		3.2E-04	6.0E-03
			beta-BHC	4.5E-07		1.6E-07	6.1E-07	beta-BHC					
			Sulfotepp					Sulfotepp	Bone marrow - Neurological	2.2E-02		4.1E-04	2.2E-02
			Phorate					Phorate	Neurological	5.8E-02		2.2E-02	7.9E-02
			Aluminum					Aluminum	Body weight	1.9E-03		8.7E-05	2.0E-03
			Iron					Iron	Blood - Gastrointestinal	2.8E-01		5.8E-03	2.8E-01
			Manganese					Manganese	Neurological	1.1E-01		1.4E-06	1.1E-01
			Thallium					Thallium	None Specified	1.5E-01		1.8E-03	1.5E-01
				1.8E-05	1.5E-05	2.0E-06	3.5E-05			7.3E-01	3.0E-02	2.2E-01	9.8E-01

TABLE 9.5 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT ADULT
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Soil	Exposed Areas	Benzo(a)pyrene (equiv)	1.8E-05	1.2E-09	1.2E-05	3.0E-05	Benzo(a)pyrene (equiv)					
			Aroclor 1260	7.5E-07	1.2E-10	5.0E-07	1.3E-06	Aroclor 1260	Immunological	5.5E-02	1.0E-05	3.7E-02	9.2E-02
			Antimony					Antimony	Blood - Mortality	9.2E-03	5.2E-06	5.3E-02	6.2E-02
			Arsenic	1.1E-06	1.8E-10	6.8E-08	1.2E-06	Arsenic	Skin - Cardiovascular	7.3E-03	1.2E-06	4.4E-04	7.7E-03
			Iron					Iron	Blood -Gastrointestinal	2.1E-02	3.9E-05	1.4E-02	3.4E-02
			(Total)	2.0E-05	1.6E-09	1.2E-05	3.2E-05	(Total)		9.2E-02	5.6E-05	1.0E-01	2.0E-01
Surface Water	Surface Water	Pond	Cyanide					Cyanide	Body Weight/Neurological/Thyroid	4.4E-05		7.9E-05	1.2E-04
			(Total)					(Total)		4.4E-05		7.9E-05	1.2E-04

Total Risk Across Surface Soil	3.2E-05
Total Risk Across Surface Water	
Total Risk Across Groundwater	3.5E-05
Total Risk Across All Media and All Exposure Routes	6.8E-05

Total Hazard Index Across All Media and All Exposure Routes	1.2E+00
Total Immunological HI =	9.2E-02
Total Blood HI =	5.4E-01
Total Skin HI =	2.0E-01
Total Cardiovascular HI =	2.0E-01
Total Gastrointestinal HI =	3.2E-01
Total Mortality HI =	1.8E-01
Total Neurological HI =	2.1E-01
Total Kidney HI =	1.1E-01
Total Liver HI =	8.4E-02
Total Body Weight HI =	4.6E-02
Total Nasal HI =	3.8E-02
Total Bone Marrow HI =	2.2E-02
Total Thyroid HI =	1.2E-04

TABLE 9.6 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT CHILD
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater/Air	Tap/Air	1,1-Dichloroethane					1,1-Dichloroethane	Kidney	1.6E-03	1.6E-03	5.4E-05	3.2E-03
			1,1-Dichloroethene	2.8E-06	2.8E-06	1.7E-07	5.9E-06	1,1-Dichloroethene	Liver	6.2E-03	6.2E-03	3.7E-04	1.3E-02
			1,2-Dichloroethene (total)					1,2-Dichloroethene (total)	Blood/Liver	1.7E-02	1.7E-02	8.6E-04	3.6E-02
			Bromodichloromethane	1.1E-07	1.1E-07	4.2E-09	2.3E-07	Bromodichloromethane	Kidney	1.1E-03	1.1E-03	3.9E-05	2.1E-03
			Chlorodibromomethane	9.2E-08	9.2E-08	4.2E-09	1.9E-07	Chlorodibromomethane	Liver	6.4E-04	6.4E-04	2.9E-05	1.3E-03
			Chloroform	2.6E-08	2.6E-08	5.2E-09	5.6E-08	Chloroform	Liver	4.9E-03	4.9E-03	9.9E-04	1.1E-02
			Tetrachloroethene	2.1E-07	2.1E-07	5.7E-08	4.7E-07	Tetrachloroethene	Body Weight - Liver	4.7E-03	4.7E-03	1.3E-03	1.1E-02
			Trichloroethene	1.0E-07	1.0E-07	7.9E-09	2.1E-07	Trichloroethene	None Specified	1.8E-02	1.8E-02	1.4E-03	3.7E-02
			Vinyl chloride	5.4E-06	5.4E-06	1.2E-07	1.1E-05	Vinyl chloride	None Specified	1.5E-02	1.5E-02	3.4E-04	3.0E-02
			1,4-Dioxane	3.3E-07		1.0E-09	3.3E-07	1,4-Dioxane					
			2-Methylnaphthalene					2-Methylnaphthalene	Body Weight - Nasal	2.1E-02		2.6E-02	4.7E-02
			Acenaphthene					Acenaphthene	Liver	7.1E-03		9.3E-03	1.6E-02
			Carbazole	5.6E-07		2.5E-07	8.2E-07	Carbazole					
			Dibenzofuran					Dibenzofuran	None Specified	9.9E-02		1.0E-01	2.0E-01
			Fluoranthene					Fluoranthene	Blood/Kidney/Liver	8.9E-03		4.2E-02	5.1E-02
			Fluorene					Fluorene	Blood	9.5E-03		1.8E-02	2.8E-02
			Naphthalene					Naphthalene	Body Weight - Nasal	2.2E-02		6.7E-03	2.9E-02
			Phenanthrene					Phenanthrene	Kidney	1.2E-02		3.2E-02	4.4E-02
			Pyrene					Pyrene	Kidney	1.2E-02		7.3E-02	8.5E-02
			4,4-DDT	2.0E-08		1.4E-07	1.6E-07	4,4-DDT	Liver	1.4E-03		9.5E-03	1.1E-02
			Aldrin	5.8E-07		2.4E-08	6.0E-07	Aldrin	Liver	1.3E-02		5.5E-04	1.4E-02
			beta-BHC	2.7E-07		6.7E-08	3.3E-07	beta-BHC					
			Sulfotepp					Sulfotepp	Bone marrow - Neurological	5.1E-02		6.9E-04	5.2E-02
			Phorate					Phorate	Neurological	1.3E-01		3.7E-02	1.7E-01
			Aluminum					Aluminum	Body weight	4.5E-03		1.5E-04	4.7E-03
			Iron					Iron	Blood - Gastrointestinal	1.8E-01		2.7E-03	1.8E-01
			Manganese					Manganese	Neurological	2.5E-01		2.5E-06	2.5E-01
			Thallium					Thallium	None Specified	3.6E-01		3.1E-03	3.6E-01
				1.1E-05	8.8E-06	8.6E-07	2.0E-05			1.2E+00	6.9E-02	3.7E-01	1.7E+00

TABLE 9.6 REASONABLE MAXIMUM EXPOSURE (RME)
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - RESIDENT CHILD
AREA OF CONCERN C
NAS MAYPORT, FLORIDA

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Soil	Exposed Areas	Benzo(a)pyrene (equiv)	4.3E-05	1.5E-09	6.7E-06	4.9E-05	Benzo(a)pyrene (equiv)					
			Aroclor 1260	1.8E-06	1.4E-10	2.9E-07	2.0E-06	Aroclor 1260	Immunological	5.1E-01	4.9E-05	8.4E-02	6.0E-01
			Antimony					Antimony	Blood - Mortality	8.6E-02	2.4E-05	1.2E-01	2.1E-01
			Arsenic	2.6E-06	2.1E-10	3.9E-08	2.7E-06	Arsenic	Skin - Cardiovascular	6.8E-02	5.8E-06	1.0E-03	6.9E-02
			Iron					Iron	Blood -Gastrointestinal	5.2E-02	5.0E-05	8.6E-03	6.1E-02
			(Total)	4.7E-05	1.8E-09	7.0E-06	5.4E-05	(Total)		7.2E-01	1.3E-04	2.1E-01	9.3E-01
Surface Water	Surface Water	Pond	Cyanide					Cyanide	Body Weight/Neurological/Thyroid	2.3E-03		3.6E-04	2.6E-03
			(Total)					(Total)		2.3E-03		3.6E-04	2.6E-03

Total Risk Across Surface Soil	5.4E-05
Total Risk Across Surface Water	
Total Risk Across Groundwater	2.0E-05
Total Risk Across All Media and All Exposure Routes	7.4E-05

Total Hazard Index Across All Media and All Exposure Routes	2.6E+00
Total Immunological HI =	6.0E-01
Total Blood HI =	8.0E-01
Total Skin HI =	5.2E-01
Total Cardiovascular HI =	5.2E-01
Total Gastrointestinal HI =	2.4E-01
Total Mortality HI =	4.7E-01
Total Neurological HI =	4.7E-01
Total Kidney HI =	2.0E-01
Total Liver HI =	1.7E-01
Total Body Weight HI =	9.8E-02
Total Nasal HI =	7.6E-02
Total Bone Marrow HI =	5.2E-02
Total Thyroid HI =	2.6E-03

Acenaphthene - CAS Number 83329

Acenaphthene is a tricyclic aromatic hydrocarbon, crystalline solid at ambient temperature. Acenaphthene does not dissolve in water but is soluble in many organic solvents. Acenaphthene occurs in coal tar produced during the high temperature carbonization or coking of coal. It is used as a dye intermediate in the manufacture of some plastics and as an insecticide and fungicide. Acenaphthene is an environmental pollutant and has been detected in cigarette smoke, automobile exhausts, and urban air; in effluents from petrochemical, pesticide, and wood preservative industries; and in soils, groundwater, and surface waters at hazardous waste sites. This compound is one of a number of polycyclic aromatic hydrocarbons (PAHs) on EPA's priority pollutant list.

The toxic effects to humans of PAH exposure is well studied, however, the human studies of acenaphthene are limited. Acenaphthene is irritating to the skin and mucous membranes of humans and animals. Oral exposure of rats to acenaphthene for 32 days produced peripheral blood changes, mild liver and kidney damage, and pulmonary effects. Subchronic oral exposure to acenaphthene for 90 days produced increased liver weights, hepatocellular hypertrophy, and increased cholesterol levels in mice. Reproductive effects included decreased ovary weights and decreased ovarian and uterine activity as well as smaller and fewer corpora lutea. Adverse effects on the blood, lungs, and glandular tissues were reported in rats exposed daily for 5 months.

The EPA has not assigned a weight-of-evidence classification for carcinogenicity to acenaphthene.

The following is a presentation of the toxicity information associated with **Acenaphthene**:

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 6.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 3000.
- The Oral Chronic Reference Dose is based on the U.S. EPA study from 1989.
- The Oral Chronic Reference Dose study target organ is liver.
- The Oral Chronic Reference Dose study critical effect is hepatotoxicity.
- The overall confidence in the Oral Chronic Reference Dose is low.
- The Dermal Chronic Reference Dose is 1.86E-02 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.3100.

Aluminum - CAS Number 7429905

Aluminum is a silver-white flexible metal with a vast number of uses. It makes up about 8% of the earth's crust. The aluminum content of seawater ranges from 3 to 2400 ppb. Aluminum metal is used as a structural material in the construction, automotive, and aircraft industries, in the production of metal alloys, and in the electrical industry in power lines, insulated cables and wiring. Other uses of aluminum metal include cooking utensils, decorations, fencing, highway signs, cans, food packaging, foil, and dental crowns and dentures. Aluminum powder is used in paints and fireworks, and natural aluminum minerals are used in water purification, sugar refining, and in the brewing and paper industries. Aluminum borate is used in the production of glass and ceramics, and aluminum chloride is used to make rubber, lubricants, wood preservatives, and cosmetics. Aluminum chlorohydrate is the active ingredient in antiperspirants and deodorants, while aluminum hydroxide is used as a pharmaceutical to lower plasma phosphorus levels of patients with kidney failure. Until recently, aluminum has existed in forms not available to humans and most other species. However, acid rain has increased the availability of aluminum to biological systems and has resulted in destructive effects on fish and plant species. It is unknown if humans are susceptible to this increased bioavailability. It is poorly absorbed and efficiently eliminated; however, when absorption does occur, aluminum is distributed mainly in bone, liver, testes, kidneys, and brain. Aluminum may be involved in Alzheimer's disease (dialysis dementia) and in Amyotrophic Lateral Sclerosis and Parkinsonism-Dementia Syndromes of Guam. Aluminum content of brain, muscle, and bone increases in Alzheimer's patients. Neurofibrillary tangles are found in patients suffering from aluminum encephalopathy and Alzheimer's disease. Symptoms of "dialysis dementia" include speech disorders, dementia, convulsions, and myoclonus. Neurological effects have also been observed in rats orally exposed to aluminum compounds.

The respiratory system appears to be the primary target following inhalation exposure to aluminum. Alveolar proteinosis has been observed in guinea pigs, rats, and hamsters exposed to aluminum powders. Rats and guinea pigs exposed to aluminum chlorohydrate exhibited an increase in alveolar macrophages, increased relative lung weight, and multifocal granulomatous pneumonia. Male rats exposed to aluminum (as aluminum chloride) via gavage for 6 months exhibited decreased spermatozoa counts and sperm motility, and testicular histological and histochemical changes. Male rats exposed to drinking water containing aluminum (as aluminum potassium sulfate) for a lifetime exhibited increases in unspecified malignant and nonmalignant tumors and similarly exposed female mice exhibited an increased incidence of leukemia. Rats and guinea pigs exposed via inhalation to aluminum chlorohydrate developed lung granulomas while granulomatous foci developed in similarly exposed male hamsters.

The Department of Health and Human Services, the International Agency for Research on Cancer, and the EPA have not classified aluminum for carcinogenicity. Aluminum has not been shown to cause cancer in animals.

Antimony (metallic) - CAS Number 7440360

Antimony is a naturally occurring silvery-white metal that is found in the earth's crust. Antimony ores are mined and then mixed with other metals to form antimony alloys or combined with oxygen to form antimony oxide. Little antimony is currently mined in the United States. It is brought into this country from other countries for processing. However, there are companies in the United States that produce antimony as a by-product of smelting lead and other metals. Antimony is used in lead storage batteries, solder, sheet and pipe metal, bearings, castings, and pewter. Antimony oxide is added to textiles and plastics to prevent them from catching fire. It is also used in paints, ceramics, and fireworks, and as enamels for plastics, metal, and glass.

Metallic antimony and a few trivalent antimony compounds are the most significant regarding exposure potential and toxicity. Antimony is a common urban air pollutant, occurring at an average concentration of 0.001 $\mu g/m^3$. Exposure to antimony may occur via inhalation and by ingestion of contaminated food.

Acute oral and inhalation exposure of humans and animals to high doses of antimony or antimony-containing compounds (antimonials) may cause gastrointestinal disorders (vomiting, diarrhea), respiratory difficulties, and death at extremely high doses. Subchronic and chronic oral exposure may affect hematologic parameters. Long-term oral exposure to high doses of antimony or antimonials has been shown to adversely affect longevity in animals. Long-term occupational exposure of humans has resulted in electrocardiac disorders, respiratory disorders, and possibly increased mortality. Antimony levels for these occupational exposure evaluations ranged from 2.2 to 11.98 mg Sb/m^3. Based on limited data, occupational exposure of women to metallic antimony and several antimonials has reportedly caused alterations in the menstrual cycle and an increased incidence of spontaneous abortions.

The Department of Health and Human Services, the International Agency for Research on Cancer, and the Environmental Protection Agency (EPA) have not classified antimony as to its human carcinogenicity.

The following is a presentation of the toxicity information associated with **Antimony**:

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 4.00E-04 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 1000.
- The Oral Chronic Reference Dose is based on the Schroeder et al. study from 1970.
- The Oral Chronic Reference Dose study effects are longevity, blood glucose, and cholesterol.
- The overall confidence in the Oral Chronic Reference Dose is low.
- The Dermal Chronic Reference Dose is 4.00E-06 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.0200.

Aroclor® 1260 - CAS Number 11096825

Aroclor® 1260 is a colorless, liquid polychlorinated biphenyl (PCB) mixture containing approximately 38% $C_{12}H_4Cl_6$, 41% $C_{12}H_3Cl_7$, 8% $C_{12}H_2Cl_8$, and 12% $C_{12}H_5Cl_5$ with an average chlorine content of 60%. PCBs are inert, thermally and physically stable, and have dielectric properties. They have been used in closed systems such as heat transfer liquids, hydraulic fluids and lubricants, and in open systems such as plasticizers, surface coatings, inks, adhesives, pesticide extenders, and for microencapsulation of dyes for carbonless duplicating papers. In the environment, the behavior of PCB mixtures is directly correlated to the degree of chlorination. Aroclor® is strongly sorbed to soil and remains immobile when leached with water; however, the mixture is highly mobile in the presence of organic solvents. PCBs are resistant to chemical degradation by oxidation or hydrolysis. PCBs have high bioconcentration factors, and tend to accumulate in the fat of fish, birds, mammals, and humans. In humans, relatively greater amounts of PCBs have also been identified in skin, liver, and breast milk.

PCBs are absorbed after oral, inhalation, or dermal exposure and are stored in adipose tissue. Accidental human poisonings and data from occupational exposure to PCBs suggest initial dermal and mucosal disturbances followed by systemic effects that may manifest themselves several years post-exposure. Initial effects are enlargement and hypersecretion of the Meibomian gland of the eye, swelling of the eyelids, pigmentation of the fingernails and mucous membranes, fatigue, and nausea. These effects were followed by hyperkeratosis, darkening of the skin, acneform eruptions, edema of the arms and legs, neurological symptoms, such as headache and limb numbness, and liver disturbance. Hepatotoxicity is a prominent effect of PCBs, including Aroclor® 1260, that has been well characterized. Effects include hepatic microsomal enzyme induction, increased serum levels of liver-related enzymes (indicative of hepatocellular damage), liver enlargement, lipid deposition, fibrosis, and necrosis.

Data are suggestive but not conclusive concerning the carcinogenicity of PCBs in humans. However, hepatocellular carcinomas in three strains of rats and two strains of mice have led the EPA to classify PCBs as group B2, probable human carcinogen.

The following is a presentation of the toxicity information associated with **Aroclor-1260**:

Carcinogenic Health Effects

- The Oral Slope Factor is for exposure to soil or food is 2.00E+00 (mg/kg-day)-1.
- The Oral Slope Factor is for exposure to water is 4.00E-01 (mg/kg-day)-1.
- The Inhalation Unit Risk for exposure to soil or food is 5.7E-01 (mg/m3)-1.
- The Inhalation Unit Risk for exposure to water is 1.0E-01 (mg/m3)-1.
- The Dermal Slope Factor for exposure to soil or food is 2.22E+00 (mg/kg-day)-1.
- The Dermal Slope Factor for exposure to water is 4.44E-01 (mg/kg-day)-1.
- The Dermal Slope Factors are based on a gastrointestinal absorption factor of 0.9000.

Arsenic, Inorganic - CAS Number 7440382

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton plants. Arsenic cannot be destroyed in the environment. It can only change its form. Arsenic in air will settle to the ground or is washed out of the air by rain. Many arsenic compounds can dissolve in water. Fish and shellfish can accumulate arsenic, but the arsenic in fish is mostly in a form that is not harmful. The toxicity of inorganic arsenic depends on its valence state and also on the physical and chemical properties of the compound in which it occurs.

Water soluble inorganic arsenic compounds are absorbed through the gastrointestinal tract and lungs; distributed primarily to the liver, kidney, lung, spleen, aorta, and skin; and excreted mainly in the urine at rates as high as 80%. Symptoms of acute inorganic arsenic poisoning in humans are nausea, anorexia, vomiting, epigastric and abdominal pain, and diarrhea. Dermatitis (exfoliative erythroderma), muscle cramps, cardiac abnormalities, hepatotoxicity, bone marrow suppression and hematologic abnormalities (anemia), vascular lesions, and peripheral neuropathy (motor dysfunction, paresthesia) have also been reported. Oral doses as low as 20-60 g/kg/day have been reported to cause toxic effects in some individuals. Severe exposures can result in acute encephalopathy, congestive heart failure, stupor, convulsions, paralysis, coma, and death. The acute lethal dose to humans has been estimated to be about 0.6 mg/kg/day.

General symptoms of chronic arsenic poisoning in humans are weakness, general debility and lassitude, loss of appetite and energy, loss of hair, hoarseness of voice, loss of weight, and mental disorders. Primary target organs are the skin (hyperpigmentation and hyperkeratosis), nervous system (peripheral neuropathy), and vascular system. Anemia, leukopenia, hepatomegaly, and portal hypertension have also been reported. In addition, possible reproductive effects include a high male to female birth ratio.

Epidemiological studies have revealed an association between arsenic concentrations in drinking water and increased incidences of skin cancers, as well as cancers of the liver, bladder, respiratory and gastrointestinal tracts. Occupational exposure studies have shown a clear correlation between exposure to arsenic and lung cancer mortality. Several studies have shown that inorganic arsenic can increase the risk of lung cancer, skin cancer, bladder cancer, liver cancer, kidney cancer, and prostate cancer. The World Health Organization (WHO), the Department of Health and Human Services (DHHS), and the EPA have determined that inorganic arsenic is a human carcinogen and is classified: A; human carcinogen.

The following is a presentation of the toxicity information associated with **Arsenic**:

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 3.00E-04 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 3.
- The Oral Chronic Reference Dose is based on the Tseng study from 1977 (date).
- The Oral Chronic Reference Dose study critical effects are hyperpigmentation, keratosis, and possible vascular complications.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Dermal Chronic Reference Dose is 1.23E-04 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.4100.

Carcinogenic Health Effects

- The Oral Slope Factor is 1.50E+00 (mg/kg-day)-1.
- The Oral Slope Factor study target organ is skin.
- The Oral Slope Factor study cancer type is skin cancer.
- The Oral Slope Factor is based on the U.S. EPA study from 1988.
- The Inhalation Unit Risk is 4.3E+00 (mg/m3)-1.
- The Inhalation Risk study target organ is lung.
- The Inhalation Unit Risk study cancer type of lung cancer.
- The Inhalation Unit Risk is based on the Brown and Chu study from 1983.
- The Dermal Slope Factor is 3.66E+00 (mg/kg-day)-1.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 0.4100.

Benzo[a]pyrene - CAS Number 50328

Benzo[a]pyrene is one of many chemicals known as polycyclic aromatic hydrocarbons (PAH). It exists as yellowish plates and needles. Benzo[a]pyrene is practically insoluble in water but is soluble in benzene, toluene, xylene and sparingly soluble in alcohol and methanol. No current commercial production or use of benzo[a]pyrene is known. It occurs ubiquitously in products of incomplete combustion and in fossil fuels. It has been identified in surface water, tap water, rain water, groundwater, waste water, and sewage sludge. Benzo[a]pyrene is primarily released to the air and removed from the atmosphere by photochemical oxidation and dry deposition to land or water. Biodegradation is the most important transformation process in soil or sediment.

No data are available on the systemic (non-carcinogenic) effects of benzo[a]pyrene in humans. Benzo[a]pyrene is readily absorbed following inhalation, oral, and dermal routes of administration. Following inhalation exposure, benzo[a]pyrene is rapidly distributed to several tissues in rats. The metabolism of benzo[a]pyrene is complex and includes the formation of a proposed ultimate carcinogen, benzo[a]pyrene 7,8 diol-9,10-epoxide. Dietary administration of doses as low as 10 mg/kg during gestation caused reduced fertility and reproductive capacity in mice offspring, and treatment by gavage with 120 mg/kg/day during gestation caused stillbirths, resorptions, and malformations.

Numerous epidemiologic studies have shown a clear association between exposure to various mixtures of PAHs containing benzo[a]pyrene (e.g., coke oven emissions, roofing tar emissions, and cigarette smoke) and increased risk of lung cancer and other tumors. However, each of the mixtures also contained other potentially carcinogenic PAHs; therefore, it is not possible to evaluate the contribution of benzo[a]pyrene to the carcinogenicity of these mixtures. Based on United States Environmental Protection Agency (EPA) guidelines, benzo[a]pyrene was assigned to weight-of-evidence group B2, probable human carcinogen.

The following is a presentation of the toxicity information associated with **Benzo[a]pyrene**:

Carcinogenic Health Effects

- The Oral Slope Factor is 7.30E+00 $(mg/kg\text{-}day)^{-1}$.
- The Oral Slope Factor study target organ is forestomach.
- The Oral Slope Factor study cancer type is squamous cell papillomas and carcinomas.
- The Oral Slope Factor is based on the Neal and Rigdon study from 1967.
- The Inhalation Unit Risk is 8.8E-01 $(mg/m^3)^{-1}$.
- The Dermal Slope Factor is 2.35E+01 $(mg/kg\text{-}day)^{-1}$.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 0.3100.

Chloroform - CAS Number 67663

Chloroform is an organic, colorless liquid with a pleasant, nonirritating odor and a slightly sweet taste. It will burn only when it reaches very high temperatures. In the past, chloroform was used as an inhaled anesthetic during surgery, but the Food and Drug Administration banned the use of chloroform as an ingredient in human drug and cosmetic products in July 1976. Today, chloroform is used to make other chemicals and can also be formed in small amounts when chlorine is added to water. Chloroform is widely used as an intermediate in the production of refrigerants, plastics, and pharmaceuticals, and as a general solvent or constituent of solvent mixtures.

Chloroform is rapidly absorbed from the lungs and the digestive tract, and to some extent through the skin. Breathing about 900 parts of chloroform per million parts air (900 ppm) for a short time can cause dizziness, fatigue, and headache. Breathing air, eating food, or drinking water containing high levels of chloroform for long periods of time may damage your liver and kidneys. Large amounts of chloroform can cause sores when chloroform touches your skin. Animal studies have shown that miscarriages occurred in rats and mice that breathed air containing 30 to 300 ppm chloroform during pregnancy and also in rats that ate chloroform during pregnancy. Offspring of rats and mice that breathed chloroform during pregnancy had birth defects. Abnormal sperm were found in mice that breathed air containing 400 ppm chloroform for a few days.

Epidemiological studies indicate a possible relationship between exposure to chloroform present in chlorinated drinking water and cancer of the bladder, large intestine, and rectum. Based on U.S. EPA guidelines, chloroform was assigned to weight-of-evidence Group B2, probable human carcinogen. Rats and mice that ate food or drank water with chloroform developed cancer of the liver and kidneys.

The following is a presentation of the toxicity information associated with **Chloroform**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 1.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 1000.
- The Oral Chronic Reference Dose is based on the Heywood et al. study from 1979.
- The Oral Chronic Reference Dose study target organ is liver.
- The Oral Chronic Reference Dose study critical effect is fatty cyst formation.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Dermal Chronic Reference Dose is 2.00E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.2000.

Carcinogenic Health Effects

- The Oral Slope Factor is 6.10E-03 $(mg/kg\text{-}day)^{-1}$.
- The Oral Slope Factor study target organ is kidney.
- The Oral Slope Factor study cancer type is tumors.
- The Oral Slope Factor is based on the Jorgensen et al. study from 1985.

- The Inhalation Unit Risk is 2.3E-02 $(mg/m^3)^{-1}$.
- The Inhalation Unit Risk study target organ is liver.
- The Inhalation Unit Risk study cancer type is carcinoma.
- The Inhalation Unit Risk is based on the NCI study from 1976.
- The Dermal Slope Factor is 3.05E-02 $(mg/kg\text{-}day)^{-1}$.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 0.2000.

Cyanide - CAS Number 57125

Cyanide is usually found joined with other chemicals to form compounds. Examples of simple cyanide compounds are hydrogen cyanide, sodium cyanide and potassium cyanide. Hydrogen cyanide is a colorless gas with a faint, bitter, almond-like odor. Sodium cyanide and potassium cyanide are both white solids with a bitter, almond-like odor in damp air. Cyanide and hydrogen cyanide are used in electroplating, metallurgy, production of chemicals, photographic development, making plastics, fumigating ships, and some mining processes. Cyanide can be produced by certain bacteria, fungi, and, algae and is found in a number of foods and plants. Cyanide occurs naturally in cassava roots, which are potato-like tubers of cassava plants grown in tropical countries. In the body, cyanide combines with a chemical to form Vitamin B12.

In large amounts, cyanide is very harmful to humans. Cyanides are readily absorbed by the inhalation, oral, and dermal routes of exposure. Exposure to high levels of cyanide in the air for a short time harms the brain and heart and may cause coma and death. Exposure to lower levels of cyanide for a long time may result in breathing difficulties, heart pains, vomiting, blood changes, headaches, and enlargement of the thyroid gland. Human consumption of large amounts of cyanide may cause deep breathing and shortness of breath, convulsions, loss of consciousness, and possibly death. Use of cassava roots as a primary food source in tropical Africa has led to high blood cyanide levels. Skin contact with cyanide can produce irritation and sores.

No suitable cancer bioassays or epidemiological studies are available to assess the carcinogenicity of cyanide. EPA has therefore placed cyanide in weight-of-evidence group D, not classifiable as to human carcinogenicity.

The following is a presentation of the toxicity information associated with **Cyanide**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 2.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 5.
- The Oral Chronic Reference Dose has an uncertainty factor of 100.
- The Oral Chronic Reference Dose is based on the Philbrick et al. study from 1979.
- The Oral Chronic Reference Dose study critical effects are weight loss, thyroid effects, myelin degeneration.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Dermal Chronic Reference Dose is 3.40E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.1700.

1,1-Dichloroethylene - CAS Number 75354

1,1-Dichloroethylene is an industrial chemical that is not found naturally in the environment. It is a colorless liquid with a mild, sweet smell. Also called 1,1-dichloroethene. 1,1-Dichloroethylene is used primarily in the production of polyvinylidine chloride (PVC) copolymers and as an intermediate for synthesis of organic chemicals. 1,1-Dichloroethylene is also used to make certain plastics, such as flexible films like food wrap; used in packaging materials; used to make flame retardant coatings for fiber and carpet backings; and used in piping, coating for steel pipes, and adhesive applications.

The main effect from breathing high levels (approximately 4000 ppm) of 1,1-dichloroethylene is on the central nervous system. Breathing high levels of the chemical may cause loss of breath and fainting. Breathing lower levels of 1,1-dichloroethylene in air for a long time may damage the nervous system, liver, and lungs. Workers exposed to 1,1-dichloroethylene have reported a loss in liver function, but other chemicals were present. Animals that breathed high levels of 1,1-dichloroethylene had damaged livers, kidneys, and lungs. Animals that ingested high levels of 1,1-dichloroethylene had damaged livers, kidneys, and lungs. Spilling 1,1-dichloroethylene on skin or in eyes can cause irritation.

Studies on workers who breathed 1,1-dichloroethylene have not shown an increase in cancer. These studies, however, are not conclusive because of the small numbers of workers and the short time studied. Animal studies have shown mixed results. Several studies reported an increase in tumors in rats and mice, and other studies reported no such effects. In one inhalation study, statistically significant increases in renal adenocarcinomas were noted in male Swiss mice exposed to 25 ppm for 12 months. Also observed were statistically significant increases in mammary gland carcinomas in females and lung tumors in both sexes. Based on EPA guidelines, 1,1-dichloroethylene was assigned to weight-of-evidence group C, possible human carcinogen.

The following is a presentation of the toxicity information associated with **1,1-Dichloroethylene**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 9.00E-03 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 1000.
- The Oral Chronic Reference Dose is based on the Quast et al. study from 1983.
- The Oral Chronic Reference Dose study target organ is liver.
- The Oral Chronic Reference Dose study critical effect is lesions.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Dermal Chronic Reference Dose is 9.00E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 1.0000.

Carcinogenic Health Effects

- The Oral Slope Factor is 6.00E-01 $(mg/kg\text{-}day)^{-1}$.
- The Oral Slope Factor study target organ is adrenal.
- The Oral Slope Factor study cancer type is pheochromocytomas.
- The Oral Slope Factor is based on the NTP study from 1982.

- The Inhalation Unit Risk is 5.0E-02 $(mg/m^3)^{-1}$.
- The Inhalation Unit Risk study target organ is kidney.
- The Inhalation Unit Risk study cancer type is Adenocarcinoma.
- The Inhalation Unit Risk is based on the Maltoni et al. study from 1985.
- The Dermal Slope Factor is 6.00E-01 $(mg/kg\text{-}day)^{-1}$.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 1.0000.

cis- and *trans-* 1,2-Dichloroethylene - CAS Numbers 156592 and 156605, respectively

1,2-Dichloroethylene, also called 1,2-dichloroethene, is a highly flammable, colorless liquid with a sharp, harsh odor. It is used to produce solvents and in chemical mixtures. Very small amounts of 1,2-dichloroethylene may be smelled in air (about 17 ppm). There are two forms of 1,2-dichloroethylene: cis-1,2-dichloroethylene and trans-1,2-di-chloroethylene. Sometimes both forms are present as a mixture. Commercial use is not extensive, but trans-1,2-dichloroethylene and mixtures of cis- and trans-1,2-dichloroethylene have been used as intermediates in the production of other chlorinated solvents and compounds, as well as low temperature extraction solvents for dyes, perfumes, and lacquers. Additionally, cis- and trans -1,2-dichloroethylene react violently with potassium hydroxide, sodium, and sodium hydroxide and form shock-sensitive explosives when combined with dinitrogen tetraoxide.

Humans are exposed to 1,2-dichloroethylene primarily by inhalation, but exposure can also occur by oral and dermal routes. Breathing high levels of 1,2-dichloroethylene can cause nauseous, drowsiness, and tiredness in humans; very high levels can cause death. Breathing high levels of trans-1,2-dichloroethylene caused liver and lung damage in animals, and the effects were more severe with longer exposure times. Animals that breathed very high levels of trans-1,2-dichloroethylene had damaged hearts. Animals that ingested extremely high doses of cis- or trans-1,2-dichloroethylene died. Lower doses of cis-1,2-dichloroethylene caused effects on the blood, such as decreased numbers of red blood cells and also effects on the liver.

No cancer bioassays or epidemiological studies were available to assess the carcinogenicity of 1,2-dichloroethylene. EPA has placed cis-1,2-dichloro-ethene in weight-of-evidence group D, not classifiable as to human carcinogenicity, based on the lack of or negative human or animal cancer data. Trans-1,2-dichloroethylene has not undergone a complete evaluation and determination under US EPA's IRIS program for evidence of human carcinogenic potential.

The following is a presentation of the toxicity information associated with **1,2-Dichloroethylene**.

***Cis*-1,2-Dichloroethylene**

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 1.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 3000.
- The Oral Chronic Reference Dose is based on the U.S. EPA study from 1990.
- The Oral Chronic Reference Dose study target organ is blood.
- The Oral Chronic Reference Dose study critical effect is decreased hematocrit.
- The Dermal Chronic Reference Dose is 1.00E-02 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 1.0000.

***Trans*-1,2-Dichloroethylene**

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 2.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 1000.

- The Oral Chronic Reference Dose is based on the Barnes et al. study from 1985.
- The Oral Chronic Reference Dose study critical effect is increased serum alkaline phosphatase in males.
- The overall confidence in the Oral Chronic Reference Dose is low.
- The Dermal Chronic Reference Dose is 2.00E-02 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 1.0000.

1,2-Dichloroethylene (Mixed Isomers)

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 9.00E-03 (mg/kg-day).
- The Oral Chronic Reference Dose has an uncertainty factor of 1000.
- The Oral Chronic Reference Dose is based on the U.S. EPA study from 1991.
- The Oral Chronic Reference Dose study target organ is liver.
- The Oral Chronic Reference Dose study critical effect is lesions.
- The Dermal Chronic Reference Dose is 7.20E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.8000.

Fluoranthene - CAS Number 206440

Fluoranthene is a polycyclic aromatic hydrocarbon (PAH). It exists as pale yellow needles or plates. Fluoranthene is almost insoluble in water, but is soluble in alcohol, ether, benzene, and acetic acid. Fluoranthene can be produced by the pyrolysis of organic raw materials such as coal and petroleum at high temperatures; it is also known to occur naturally as a product of plant biosynthesis. Fluoranthene is a constituent of coal tar and petroleum-derived asphalt. Currently, there is no known production or use of this compound.

Fluoranthene can be absorbed through dermal exposure and, based on similar PAHs, would be expected to be absorbed from the digestive tract and lungs. Although a large body of literature exists on the toxicity and carcinogenicity of PAHs, toxicity data for fluoranthene are very limited. No human data were available that addressed the toxicity of fluoranthene. Toxicity studies in animals have shown that fluoranthene exposure can cause eye irritation, nephropathy, increased liver weights, and increased liver enzyme levels.

No oral or inhalation bioassays were available to assess the carcinogenicity of fluoranthene to humans; bioassays by other exposure routes generally gave negative results. Studies involving topical application to the skin of mice and subcutaneous injection in mice provided no evidence of carcinogenicity. Fluoranthene was also inactive in mouse skin initiation and promotion assays. Based on no human data and inadequate data from animal bioassays, U.S. EPA has placed fluoranthene in weight-of-evidence group D, not classifiable as to human carcinogenicity.

The following is a presentation of the toxicity information associated with **Fluoranthene**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 4.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 3000.
- The Oral Chronic Reference Dose is based on the U.S. EPA study from 1988.
- The Oral Chronic Reference Dose study target organ is liver.
- The Oral Chronic Reference Dose study critical effects are nephropathy, increased weight, alterations and clinical effects.
- The overall confidence in the Oral Chronic Reference Dose is low.
- The Dermal Chronic Reference Dose is 1.24E-02 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.3100.

Mercury - CAS Number 7439976

Mercury is a naturally occurring metal which has several forms. The metallic mercury is a shiny, silver-white, odorless liquid; if heated, it is a colorless, odorless gas. Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually white powders or crystals. Mercury also combines with carbon to make organic mercury compounds; methylmercury is the most common organic mercury compound and is produced mainly by microscopic organisms in the water and soil. More mercury in the environment can increase the amounts of methylmercury that these small organisms make. Metallic mercury is used to produce chlorine gas and caustic soda and is also used in thermometers, dental fillings, electrical switches, and batteries. Mercury salts are sometimes used in skin lightening creams and as antiseptic creams and ointments.

The nervous system is very sensitive to all forms of mercury. Methylmercury and metallic mercury vapors are more harmful than other forms, because more mercury reaches the brain in these forms. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

No data were available regarding the carcinogenicity of mercury in humans or animals. EPA has placed inorganic mercury in weight-of-evidence classification D, not classifiable as to human carcinogenicity. Other forms of mercury are possible human carcinogens.

The following is a presentation of the toxicity information associated with **Mercury**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 3.00E-04 (mg/kg-day).
- The Inhalation Chronic Reference Concentration has a modifying factor of 1.
- The Inhalation Chronic Reference Concentration has an uncertainty factor of 30.
- The Inhalation Chronic Reference Concentration is based on the Liang et al. study from 1993.
- The Inhalation Chronic Reference Concentration study critical effects are hand tremor; memory disturbance, objective autonomic dysfunction.
- The overall confidence in the Inhalation Chronic Reference Concentration is medium.
- The Dermal Chronic Reference Dose is 2.10E-05 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.0700.

Manganese - CAS Number 7439965

Manganese is a silver-colored, naturally occurring metal that is found in many types of rocks and makes up about 0.10% of the earth's crust. Manganese is not found alone but combines with other substances such as oxygen, sulfur, or chlorine. Manganese can also be combined with carbon to make organic manganese compounds, including pesticides (e.g., maneb or mancozeb) and methylcyclopentadienyl manganese tricarbonyl (MMT), a fuel additive in some gasolines. Manganese is an essential trace element and is necessary for good health. Normal nutritional requirements of manganese are satisfied through the diet, which is the normal source of the element, with minor contributions from water and air. The National Research Council recommends a dietary allowance of 2-5 mg/day for a safe and adequate intake of manganese for an adult human. Manganese can be found in several food items, including grains, cereals, and tea.

Manganese can elicit a variety of serious toxic responses upon prolonged exposure to elevated concentrations, either orally or by inhalation. The central nervous system is the primary target. Initial symptoms are headache, insomnia, disorientation, anxiety, lethargy, and memory loss. These symptoms progress with continued exposure and eventually include motor disturbances, tremors, and difficulty in walking, symptoms similar to those seen with Parkinsonism. These motor difficulties are often irreversible. Some individuals exposed to very high levels of manganese for long periods of time at work developed mental and emotional disturbances and slow and clumsy body movements. This combination of symptoms is a disease called "manganism."

There are no human cancer data available for manganese. Some conflicting data exist on possible carcinogenesis following injections of manganese chloride and manganese sulfate in mice. However, the EPA weight-of-evidence classification is D, not classifiable as to human carcinogenicity, based on no evidence in humans and inadequate evidence in animals.

The following is a presentation of the toxicity information associated with **Manganese**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose for Manganese in the diet is 1.40E-01 (mg/kg-day).
- The Oral Chronic Reference Dose for Manganese in water is 4.60E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 1.
- The Oral Chronic Reference Dose is based on the NRC study from 1989.
- The Oral Chronic Reference Dose study critical effect is CNS effects.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Inhalation Chronic Reference Concentration is 5.00E-05 (mg/m^3).
- The Inhalation Chronic Reference Concentration has a modifying factor of 1.
- The Inhalation Chronic Reference Concentration has an uncertainty factor of 1000.
- The Inhalation Chronic Reference Concentration is based on the Roels et al. study from 1992.

- The Inhalation Chronic Reference Concentration study critical effect is impairment of neuro-behavioral function.
- The overall confidence in the Inhalation Chronic Reference Concentration is medium.
- The Dermal Chronic Reference Dose for Manganese in the diet is 5.60E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose for Manganese in water is 1.84E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.0400.

Naphthalene - CAS Number 91203

Naphthalene is a white solid that is found naturally in fossil fuels and that exhibits a typical mothball odor. Naphthalene is a polycyclic aromatic hydrocarbon composed of two fused benzene rings. Burning tobacco or wood produces naphthalene. It occurs in crude oil, from which it may be recovered directly as white flakes; it can also be isolated from cracked petroleum, coke-oven emissions, or from high-temperature carbonization of bituminous coal. The major products made from naphthalene are moth repellents. It is also used for making dyes, resins, leather, tanning agents, and the insecticide carbaryl.
Naphthalene can be absorbed by the oral, inhalation, and dermal routes of exposure and can cross the placenta in amounts sufficient to cause fetal toxicity. Exposure to large amounts of naphthalene may damage or destroy some red blood cells, causing a low level until the body replaces the destroyed cells. People, particularly children, have developed this problem after eating naphthalene-containing mothballs or deodorant blocks. Some of the symptoms of this problem are fatigue, lack of appetite, restlessness, and pale skin. Exposure to large amounts of naphthalene may also cause neurotoxic effects (confusion, lethargy, listlessness, vertigo), gastrointestinal distress, hepatic effects (jaundice, hepatomegaly, elevated serum enzyme levels), renal effects, and ocular effects (cataracts, optical atrophy). The estimated lethal dose of naphthalene is 5-15 g for adults and 2-3 g for children. Animals sometimes develop cloudiness in their eyes after swallowing naphthalene. It is not clear if this also develops in people. When mice were repeatedly exposed to naphthalene vapors for 2 years, their noses and lungs became inflamed and irritated.
Available cancer bioassays were insufficient to assess the carcinogenicity of naphthalene. Using the EPA's 1996 Proposed Guidelines for Carcinogen Risk Assessment, the human carcinogenic potential of naphthalene via the oral or inhalation routes "cannot be determined" at this time based on human and animal data. However, there is suggestive evidence (observations of benign respiratory tumors and one carcinoma in female mice only exposed to naphthalene by inhalation) that naphthalene may cause cancer. Additional support includes increase in respiratory tumors associated with exposure to 1-methylnaphthalene.
The following is a presentation of the toxicity information associated with **Naphthalene**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 2.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 3000.
- The Oral Chronic Reference Dose is based on the BCL study from 1980.
- The Oral Chronic Reference Dose study critical effect is decreased mean terminal body weights in males.
- The overall confidence in the Oral Chronic Reference Dose is low.
- The Inhalation Chronic Reference Concentration is 3.00E-03 (mg/m^3).
- The Inhalation Chronic Reference Concentration has a modifying factor of 1.
- The Inhalation Chronic Reference Concentration has an uncertainty factor of 3000.
- The Inhalation Chronic Reference Concentration is based on the NTP study from 1992.
- The Inhalation Chronic Reference Concentration study target organ is nasal.

- The Inhalation Chronic Reference Concentration study critical effect is hyperplasia and metaplasia in respiratory & olfactory epithelium.
- The overall confidence in the Inhalation Chronic Reference Concentration is medium.
- The Dermal Chronic Reference Dose is 1.60E-02 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.8000.

Pyrene - CAS Number 129000

Pyrene, also known as benzo(def)phenanthrene, is a polycyclic aromatic hydrocarbon (PAH) with four aromatic carbon rings. Pure pyrene is a colorless crystalline solid at ambient temperature; the presence of tetracene, a common contaminant, gives it a yellow color. Pyrene can be derived from coal tar, but there is no commercial production or known commercial use of this compound. Pyrene from coal tar has been used as the starting material for the synthesis of benzo[a]pyrene.

Human exposure to pyrene occurs primarily through inhalation of tobacco smoke and polluted air and by ingestion of water polluted by combustion effluents. Pyrene is common in the environment as a product of incomplete combustion and has been identified in water, food, and in the air. Although a large body of literature exists on the toxicity and carcinogenicity of other PAHs, toxicity data for pyrene are limited. No human data were available that addressed the toxicity of pyrene. Subchronic oral exposure to pyrene produced nephropathy, decreased kidney weights, increased liver weights, and slight hematological changes in mice and produced fatty livers in rats. A single intraperitoneal injection of pyrene produced swelling and congestion of the liver and increased serum aspartate amino transferase (AST) and bilirubin levels in rats. No data were available concerning the toxic effects of inhalation exposure to pyrene.

No oral or inhalation bioassays were available to assess the carcinogenicity of pyrene in humans. Many studies involving different routes of pyrene exposure were done on animals. None of these studies saw an increase in tumor rates, but there is evidence that pyrene enhances the tumor causing ability of benzo[a]pyrene. Based on no human data and inadequate data from animal bioassays, U.S. EPA has placed pyrene in weight-of-evidence group D, not classifiable as to human carcinogenicity.

The following is a presentation of the toxicity information associated with **Pyrene**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 3.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 3000.
- The Oral Chronic Reference Dose is based on the U.S. EPA study from 1989.
- The Oral Chronic Reference Dose study target organ is kidney.
- The Oral Chronic Reference Dose study critical effect is effects.
- The overall confidence in the Oral Chronic Reference Dose is low.
- The Dermal Chronic Reference Dose is 9.30E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.3100.

Phenanthrene - CAS Number 85018

Phenanthrene, also known as phenanthrin, is a polycyclic aromatic hydrocarbon (PAH) with three aromatic carbon rings. It exists as a colorless crystalline solid that occurs in fossil fuels and is present in products of incomplete combustion. Some of the known sources of phenanthrene in the atmosphere are vehicular emissions, coal and oil burning, wood combustion, coke plants, aluminum plants, iron and steel works, foundries, municipal incinerators, synfuel plants, and oil shale plants. According to U.S. EPA, there is no current commercial production of phenanthrene in the United States. Phenanthrene can be used in the manufacture of dyestuffs, explosives, drugs, in the synthesis of other chemicals, and in biochemical research. A derivative of phenanthrene has been used as a starting material for synthesizing bile acids, cholesterol, and other steroids.

Phenanthrene is absorbed following oral and dermal exposure. Data from structurally related PAHs suggest that phenanthrene would be absorbed from the lungs. Although a large body of literature exists on the toxicity and carcinogenicity of other PAHs, toxicity data for phenanthrene are very limited. No human data were available that addressed the toxicity of phenanthrene. Phenanthrene produced slight liver toxicity in rats.

No inhalation bioassays were available to assess the carcinogenicity of phenanthrene in humans. Many animal studies failed to increase tumor incidence. However, phenanthrene was found to be an active tumor initiator in one mouse study. Based on no human data and inadequate data from animal bioassays, U.S. EPA has placed phenanthrene in weight-of-evidence group D, not classifiable as to human carcinogenicity.

Thallium - CAS Number 7440280

Pure thallium is a bluish-white metal that is found in trace amounts in the earth's crust. In the past, thallium was obtained as a by-product from smelting other metals; however, it has not been produced in the United States since 1984. Currently, all the thallium is obtained from imports and from thallium reserves. In its pure form, thallium is odorless and tasteless. It can also be found combined with other substances such as bromine, chlorine, fluorine, and iodine. When it's combined, it appears colorless-to-white or yellow. The EPA has evaluated the toxicity of the following thallium compounds: thallic oxide, CAS number 1314-32-5; thallium acetate, CAS number 563-68-8; thallium carbonate, CAS number 6533-73-9; thallium chloride, CAS number 7791-12-0; thallium nitrate, CAS number 10102-45-1; thallium selenite, CAS number 12039-52-0; and thallium sulfate CAS number 7446-18-6. Thallium is used mostly in manufacturing electronic devices, switches, and closures, primarily for the semiconductor industry. It also has limited use in the manufacture of special glass and for certain medical procedures.

Exposure to high levels of thallium can result in harmful health effects. A study on workers exposed on the job over several years reported nervous system effects, such as numbness of fingers and toes, from breathing thallium. Humans who ingested large amounts of thallium over a short time have reported vomiting, diarrhea, temporary hair loss, and effects on the nervous system, lungs, heart, liver, and kidneys as well as death. It is not known what the effects are from ingesting low levels of thallium over a long time. Birth defects were not reported in the children of mothers exposed to low levels from eating vegetables and fruits contaminated with thallium. Studies in rats, however, exposed to high levels of thallium, showed adverse developmental effects.

Data suitable for evaluating the carcinogenicity of thallium to humans or animals by ingestion, inhalation, or other routes of exposure were not found. Thallium sulfate, selenite, nitrate, chloride, carbonate, acetate, and thallic oxide have been placed in EPA's weight-of evidence Group D, not classifiable as to human carcinogenicity based on inadequate human and animal data. The Department of Health and Human Services and the International Agency for Research on Cancer, have not classified pure thallium as to its human carcinogenicity. No studies are available in humans or animals on the carcinogenic effects of breathing, ingesting, or touching thallium.

The following is a presentation of the toxicity information associated with **Thallium**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose for Thallic Oxide is 7.00E-05 (mg/kg-day).
- The Oral Chronic Reference Dose for Thallium(I) Nitrate, Thallium Acetate, and Thallium Selenite is 9.00E-05 (mg/kg-day).
- The Oral Chronic Reference Dose for Thallium Carbonate, Thallium Chloride, and Thallium Sulfate is 8.00E-05 (mg/kg-day).
- The Oral Chronic Reference Doses have a modifying factor of 1.
- The Oral Chronic Reference Doses have an uncertainty factor of 3000.
- The Oral Chronic Reference Doses are based on the U.S. EPA study from 1986.
- The Oral Chronic Reference Dose study critical effect is increased levels of SGOT and LDH for Thallium(I) Nitrate, Thallium Acetate, Thallium Carbonate, and Thallium Chloride.
- The overall confidence in the Oral Chronic Reference Doses is low.
- The Dermal Chronic Reference Dose for Thallic Oxide is 3.50E-05 (mg/kg-day).

- The Dermal Chronic Reference Dose for Thallium(I) Nitrate is 1.80E-05 (mg/kg-day).
- The Dermal Chronic Reference Dose for Thallium Acetate is 4.50E-05 (mg/kg-day).
- The Dermal Chronic Reference Dose for Thallium Carbonate is 4.00E-05 (mg/kg-day).
- The Dermal Chronic Reference Dose for Thallium Chloride is 1.60E-05 (mg/kg-day).
- The Dermal Chronic Reference Dose for Thallium Selenite is 1.80E-05 (mg/kg-day).
- The Dermal Chronic Reference Dose for Thallium Sulfate is 1.60E-05 (mg/kg-day).
- The Dermal Chronic Reference Doses for Thallic Oxide, Thallium Acetate, and Thallium Carbonate are based on a gastrointestinal absorption factor of 0.5000.
- The Dermal Chronic Reference Doses for Thallium(I)Nitrate, Thallium Chloride, Thallium Selenite, and Thallium Sulfate are based on a gastrointestinal absorption factor of 0.2000.

Tetrachloroethylene - CAS Number 127184

Tetrachloroethylene is a manufactured organic chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products. Other names for tetrachloroethylene include perchloroethylene, PCE, and tetrachloroethene. It is a nonflammable liquid at room temperature that evaporates easily into the air and has a sharp, sweet odor.
Tetrachloroethylene is rapidly absorbed by the lungs and the digestive tract, but not through the skin. High concentrations of tetrachloroethylene in the air can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Acute exposure to high concentrations of the chemical (estimated to be greater than 1500 ppm for a 30-minute exposure) may be fatal to humans. Irritation may result from repeated or extended skin contact with Tetrachloroethylene. These symptoms occur almost entirely in work (or hobby) environments due to accidental exposure to high concentrations or intention use of tetrachloroethylene to get a "high". In industry, most workers are exposed to levels lower than those causing obvious nervous system effects. The health effects of breathing air or drinking water with low levels of tetrachloroethylene are not known. Results from some studies suggest that women who work in dry cleaning industries where exposures to tetrachloroethylene can be quite high may have more menstrual problems and spontaneous abortions than women who are not exposed. It is not known, however, if tetrachloroethylene was responsible for these problems because other possible causes were not considered. Results of animal studies, conducted with amounts much higher than those that most humans are exposed to, show that tetrachloroethylene can cause liver and kidney damage.
Epidemiology studies of dry cleaning and laundry workers have demonstrated excesses in mortality due to various types of cancer, including liver cancer, but the data are regarded as inconclusive because of various confounding factors. The tenuous finding of an excess of liver tumors in humans is strengthened by the results of carcinogenicity bioassays, in which tetrachloroethylene, administered either orally or by inhalation, induced hepatocellular tumors in mice. The chemical also induced mononuclear cell leukemia and renal tubular cell tumors in rats. Although U.S. EPA's Science Advisory Board recommended a weight-of-evidence classification of C-B2 continuum (C = possible human carcinogen; B2 = probable human carcinogen), the agency has not adopted a current position on the weight-of-evidence classification. The Department of Health and Human Services (DHHS) has determined that tetrachloroethylene may reasonably be anticipated to be a carcinogen.
The following is a presentation of the toxicity information associated with **Tetrachloroethylene**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 1.00E-02 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 1000.
- The Oral Chronic Reference Dose is based on the Buben and O'Flaherty study from 1985.
- The Oral Chronic Reference Dose study critical effects are hepatotoxicity and weight gain.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Inhalation Chronic Reference Concentration is 6.00E-01 (mg/m^3).
- The Inhalation Chronic Reference Concentration has a modifying factor of 1.
- The Inhalation Chronic Reference Concentration has an uncertainty factor of 30.

- The Inhalation Chronic Reference Concentration is based on the NTP study from 1986.
- The Inhalation Chronic Reference Concentration study target organ is kidney.
- The Inhalation Chronic Reference Concentration study critical effect is tubular cell karyomegaly.
- The overall confidence in the Inhalation Chronic Reference Concentration is medium.
- The Dermal Chronic Reference Dose is 1.00E-02 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 1.0000.

Carcinogenic Health Effects

- The Oral Slope Factor is 5.20E-02 $(mg/kg\text{-}day)^{-1}$.
- The Inhalation Unit Risk is 5.8E-04 $(mg/m^3)^{-1}$.
- The Dermal Slope Factor is 5.20E-02 $(mg/kg\text{-}day)^{-1}$.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 1.0000.

Vinyl Chloride - CAS Number 83329

Vinyl chloride (VC), also known as chloroethene, is a halogenated aliphatic hydrocarbon. It is a colorless gas with a mild sweetish odor that is slightly soluble in water and soluble in hydrocarbons, oil, alcohol, chlorinated solvents, and most common organic liquids. VC is produced by thermal cracking of ethylene chloride and does not occur naturally. It is used primarily as an intermediate in the manufacture of polyvinyl chloride (PVC); limited quantities are used as a refrigerant and as an intermediate in the production of chlorinated compounds. It is a biodegradation product of trichloroethylene, tetrachloroethylene, and 1,1,1-trichloroethane. VC may leach into groundwater from spills, landfills, and industrial sources.

VC is rapidly absorbed from the digestive tract and lungs. Breathing high levels of VC can cause dizziness or sleepiness. Breathing very high levels can cause passing out, and breathing extremely high levels can cause death. Humans exposed to VC in air for long periods of time can develop changes to the structure of their livers. Workers exposed to VC have developed nerve damage and immune reactions. Other workers have developed problems with the blood flow in their hands: the tips of their fingers turn white and hurt when they are in cold temperatures. Sometimes, the bones in the tips of their fingers have broken down. The effects of drinking high levels of VC are unknown. If VC is spilled on skin, numbness, redness, and blisters may occur. Animal studies have shown that long-term (365 days or longer) exposure to VC can damage the sperm and testes. It has not been proven that VC causes birth defects in humans, but animal studies have shown that breathing VC can harm unborn offspring and may also cause increases in early miscarriages.

Studies show that VC causes liver cancer in humans. On the basis of sufficient evidence for carcinogenicity in human epidemiology studies, VC is considered to best fit the weight-of-evidence Category "A," according to current EPA Risk Assessment Guidelines. Agents classified into this category are considered known human carcinogens. This classification is supported by positive evidence for carcinogenicity in animal bioassays including several species and strains, and strong evidence for genotoxicity.

The following is a presentation of the toxicity information associated with **Vinyl Chloride**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 3.00E-03 (mg/kg-day).
- The Oral Chronic Reference Dose has a modifying factor of 1.
- The Oral Chronic Reference Dose has an uncertainty factor of 30.
- The Oral Chronic Reference Dose is based on the Til et al. study from 1991.
- The Oral Chronic Reference Dose study target organ is liver.
- The Oral Chronic Reference Dose study critical effect is cell polymorphism.
- The overall confidence in the Oral Chronic Reference Dose is medium.
- The Inhalation Chronic Reference Concentration is 1.00E-01 (mg/m^3).
- The Inhalation Chronic Reference Concentration has a modifying factor of 1.
- The Inhalation Chronic Reference Concentration has an uncertainty factor of 30.
- The Inhalation Chronic Reference Concentration is based on the Til et al. study from 1991.
- The Inhalation Chronic Reference Concentration study target organ is liver.

- The Inhalation Chronic Reference Concentration study critical effect is cell polymorphism.
- The overall confidence in the Inhalation Chronic Reference Concentration is medium.
- The Dermal Chronic Reference Dose is 3.00E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 1.0000.

Carcinogenic Health Effects

- The Oral Slope Factor is 1.40E+00 $(mg/kg\text{-}day)^{-1}$.
- The Oral Slope Factor study target organ is liver.
- The Oral Slope Factor study cancer type is tumors.
- The Oral Slope Factor is based on the Feron et al. study from 1981.
- The Inhalation Unit Risk is 8.8E-03 $(mg/m^3)^{-1}$.
- The Inhalation Unit Risk study target organ is liver.
- The Inhalation Unit Risk study cancer type is tumors.
- The Inhalation Unit Risk is based on the Maltoni et al. study from 1984.
- The Dermal Slope Factor is 1.40E+00 $(mg/kg\text{-}day)^{-1}$.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 1.0000.

Trichloroethene - CAS Number 79016

Trichloroethene (TCE), also known as trichlorothylene, is a colorless, highly volatile liquid that is miscible with water and a number of organic solvents. TCE is a man-made chemical and is not known to occur naturally. It is mainly used as a solvent in industrial degreasing and cleaning of metals, but it is also used as a solvent for waxes, fats, resins, oils, and in numerous other applications. Prior to 1977, TCE had been used as an anesthetic, grain fumigant, disinfectant, and extractant of spice oleoresins in food and of caffeine in the production of decaffeinated coffee. The evaluation of the toxicity of TCE is complicated by the presence or absence of other chemicals. Industrial grade TCE usually contains stabilizers that are known to be toxic such as triethylamine, triethanolamine, epichlorohydrin, or stearates. In the absence of stabilizers, TCE readily decomposes. These decomposition products are also toxic.

Human and animal data indicate that exposure to TCE can result in toxic effects on a number of organs and systems, including the liver, kidney, blood, skin, immune system, reproductive system, nervous system, and cardiovascular system. Breathing small amounts of TCE may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating. Breathing large amounts of TCE may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage. Drinking large amounts of TCE may cause nausea, liver damage, unconsciousness, impaired heart function, or death. Drinking small amounts of TCE for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women, although the extent of some of these effects is not yet clear. Skin contact with TCE for short periods may cause skin rashes.

Epidemiologic studies have been inadequate to determine if a correlation exists between exposure to TCE and increased cancer risk in humans. Some human studies with exposure over long periods to high levels of TCE in drinking water or in workplace air have found evidence of increased cancer; however, these results are inconclusive because the cancer could have been caused by other chemicals. Some studies with mice and rats have suggested that high levels of TCE may cause liver or lung cancer. Although U.S. EPA's Science Advisory Board recommended a weight-of-evidence classification of C-B2 continuum (C = possible human carcinogen; B2 = probable human carcinogen), the agency has not adopted a current position on the weight-of-evidence classification. In an earlier evaluation, TCE was assigned to weight-of-evidence Group B2, probable human carcinogen. The International Agency for Research on Cancer (IARC) has determined that TCE is not classifiable as to human carcinogenicity.

The following is a presentation of the toxicity information associated with **Trichloroethene**.

Noncarcinogenic Health Effects

- The Oral Chronic Reference Dose is 6.00E-03 (mg/kg-day).
- The Dermal Chronic Reference Dose is 9.00E-04 (mg/kg-day).
- The Dermal Chronic Reference Dose is based on a gastrointestinal absorption factor of 0.1500.

Carcinogenic Health Effects

- The Oral Slope Factor is 1.10E-02 $(mg/kg\text{-}day)^{-1}$.
- The Inhalation Unit Risk is 1.7E-03 $(mg/m^3)^{-1}$.
- The Dermal Slope Factor is 7.33E-02 $(mg/kg\text{-}day)^{-1}$.
- The Dermal Slope Factor is based on a gastrointestinal absorption factor of 0.1500.

1,4-DIOXANE

A toxicity profile is not available at this time.

2-METHYLNAPHTHALENE

A toxicity profile is not available at this time.

4,4-DDT
A toxicity profile is not available at this time.

ALDRIN

A toxicity profile is not available at this time.

BETA-BHC
A toxicity profile is not available at this time.

BROMODICHLOROMETHANE
A toxicity profile is not available at this time.

CARBAZOLE
A toxicity profile is not available at this time.

CHLORODIBROMOMETHANE

A toxicity profile is not available at this time.

DIBENZOFURAN

A toxicity profile is not available at this time.

FLUORENE
A toxicity profile is not available at this time.

IRON
A toxicity profile is not available at this time.

PHORATE

A toxicity profile is not available at this time.

SULFOTEPP
A toxicity profile is not available at this time.

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