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SITE ASSESSMENT REPORT FOR SITE 163B NS MAYPORT FL  
3/1/2003  
TETRA TECH NUS

**Site Assessment Report**  
for  
**Site 163B**

**Naval Station Mayport**  
Mayport, Florida



**Southern Division**  
**Naval Facilities Engineering Command**  
Contract Number N62467-94-D-0888  
Contract Task Order 0247

March 2003

**SITE ASSESSMENT REPORT  
FOR  
SITE 163B**

**NAVAL STATION MAYPORT  
MAYPORT, FLORIDA**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION-NAVY (CLEAN) CONTRACT**

**Submitted to:  
Southern Division  
Naval Facilities Engineering Command  
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**CONTRACT NUMBER N62467-94-D-0888  
CONTRACT TASK ORDER 0247**

**MARCH 2003**

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**PROFESSIONAL CERTIFICATION**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

This Site Assessment Report was prepared in general accordance with Chapter 62-770 of the Florida Administrative Code under the direct supervision of the undersigned geologist using geologic and hydrogeologic principles standard to the profession at the time the report was prepared. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of additional information on the assessment described in this report. This report was developed specifically for the referenced site and should not be construed to apply to any other site.



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*3/21/03*

\_\_\_\_\_  
Date

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## ACRONYMS

AES	Aerostar Environmental Services, Inc.
AST	Aboveground Storage Tank
BDL	Below Detection Limits
bls	Below Land Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
CLEAN	Comprehensive Long-term Environmental Action Navy
COCs	Constituents of Concern
CTO	Contract Task Order
DPT	Direct-Push Technology
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame-Ionization Detector
FL-PRO	Florida Petroleum Range Organics
ft	Foot or Feet
ft/day	Feet (or Foot) per Day
ft/ft	Feet (or Foot) per Foot
GAG	Gasoline Analytical Group
GCTLs	Groundwater Cleanup Target Levels
HSA	Hollow Stem Auger
ID	Inside Diameter
KAG	Kerosene Analytical Group
mg/L	Micrograms per Liter
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mgd	Million Gallons per Day
msl	Mean Sea Level
MTBE	Methyl Tertiary-Butyl Ether
Navy	United States Navy
NS	Naval Station
OVA	Organic Vapor Analyzer
PAHs	Polynuclear Aromatic Hydrocarbons
ppm	Parts per Million
PVC	Polyvinyl Chloride
SA	Site Assessment
SAR	Site Assessment Report

## ACRONYMS (Continued)

SCTLs	Soil Cleanup Target Levels
SOPs	Standard Operating Procedures
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TBM	Temporary Benchmark
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOAs	Volatile Organic Aromatics
VOCs	Volatile Organic Compounds

## EXECUTIVE SUMMARY

Tetra Tech NUS, Inc. (TtNUS) has completed a Site Assessment (SA) at Site 163B at Naval Station (NS) Mayport, Mayport, Florida in accordance with the requirements of Chapter 62-770, Florida Administrative Code (FAC). This assessment report is being submitted to the Florida Department of Environmental Protection (FDEP) for approval.

TtNUS performed the following tasks during the SA:

- Reviewed available United States Navy (Navy) documents to:
  - Identify potential sources and receptors for petroleum hydrocarbons in the vicinity.
  - Identify private potable wells within a 0.25-mile radius of the site and public water supply wells within a 0.5-mile radius of the site.
  - Locate nearby surface water bodies.
  - Evaluate surface hydrology and drainage.
- Conducted a site survey to construct a site plan, installed piezometers, and measured depth to groundwater at specific locations to calculate groundwater flow direction and gradient.
- Performed a soil vapor survey in the unsaturated zone to delineate areas of excessively contaminated soil, if present.
- Advanced eight soil borings on site using direct-push technology (DPT) and collected soil and groundwater samples from the borings for analysis by mobile and fixed-base laboratories.
- Installed one shallow monitoring well and collected groundwater samples for analysis of Gasoline Analytical Group (GAG) and Kerosene Analytical Group (KAG) constituents.
- Referenced and obtained appropriate aquifer data from the United States Geological Survey (USGS) to determine aquifer characteristics at NS Mayport.

The results of the soil vapor analysis during the SA revealed no "excessively contaminated" soil, as defined by Chapter 62-770.200, FAC. Soil samples analyzed on site by the mobile laboratory and confirmatory samples analyzed by the fixed-base laboratory contained no reported concentrations of analyzed compounds exceeding FDEP Soil Cleanup Target Levels (SCTLs). Similarly, groundwater

samples analyzed by the mobile and fixed-base laboratories contained no analyzed compounds with reported concentrations exceeding FDEP Groundwater Cleanup Target Levels (GCTLs).

Based on the results of this SA, TtNUS recommends No Further Action for Site 163B.

## **1.0 INTRODUCTION**

### **1.1 PURPOSE AND SCOPE**

A SA was conducted at Site 163B, NS Mayport, by TtNUS for the Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under Contract Task Order (CTO) 0247, for the Comprehensive Long-term Environmental Action Navy (CLEAN) III, Contract Number N62467-94-D-0888. The data collected during the investigation was used to prepare a Site Assessment Report (SAR). Information from the field investigation has been assimilated into this SAR to provide a characterization of site conditions from which to base future courses of action.

The purpose of this SA was to evaluate the extent of petroleum hydrocarbons in subsurface soils and groundwater at Site 163B in accordance with the requirements of Chapter 62-770, FAC. Site 163B was previously investigated in March 2000 during removal and closure of an aboveground storage tank (AST). Excessively contaminated soil and petroleum-impacted groundwater was documented in the Tank Closure Report [Aerostar Environmental Services, Inc. (AES), 2000], which is provided as Appendix A.

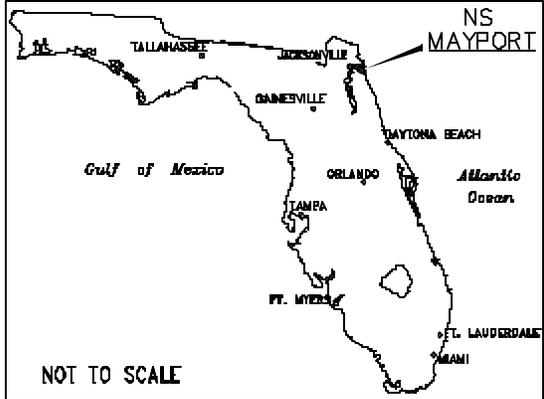
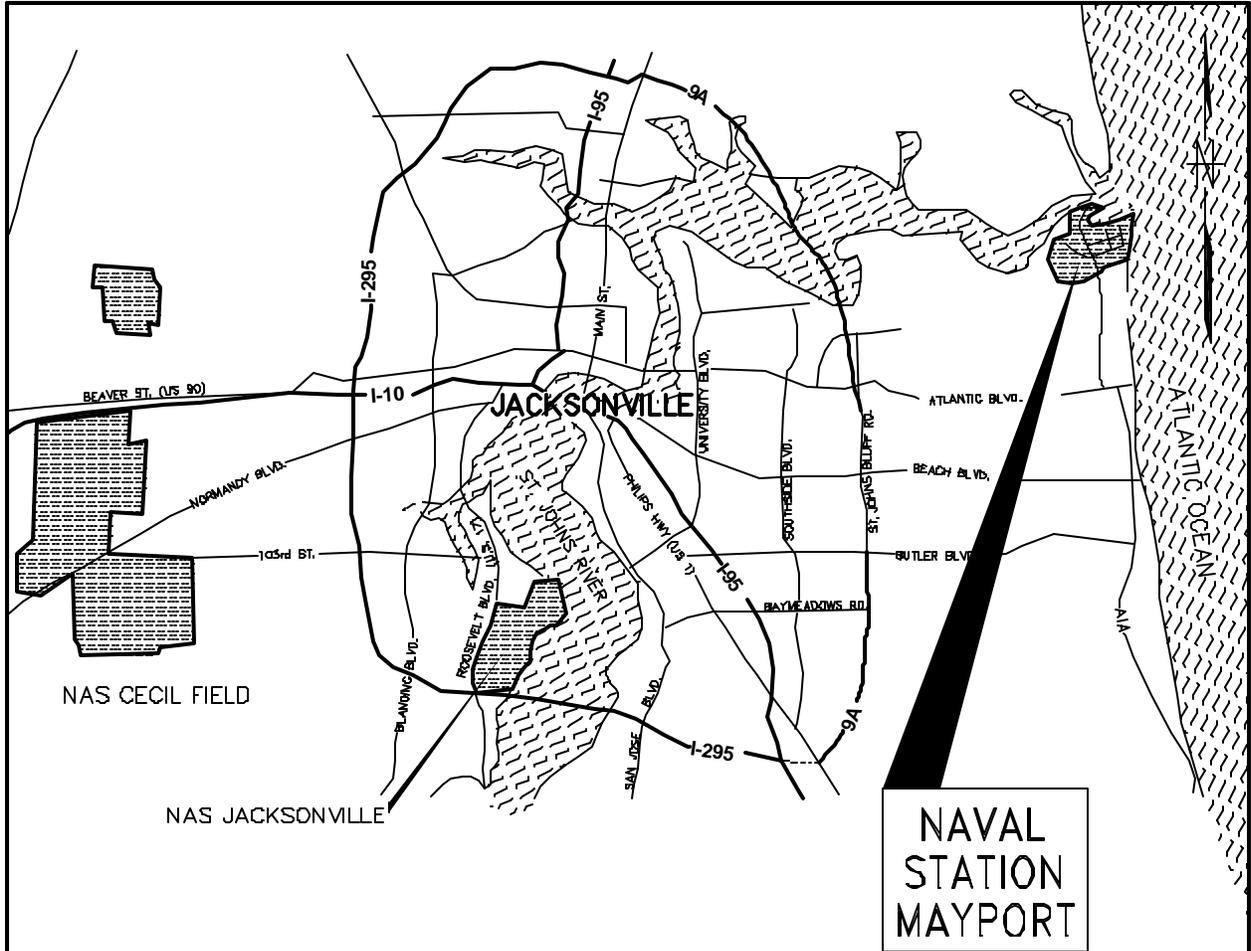
### **1.2 FACILITY AND SITE LOCATION**

NS 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. A Regional Area Map is provided as 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. NS Mayport occupies the entire northern part of the peninsula except for the town of Mayport, which is located to the west between the station and the St. Johns River.

Building 163 is located on a spit of land in the northern portion of the facility between the St. Johns River to the north and the fleet turning basin to the south as indicated on the Site Location Map on Figure 1-2. Site 163B is located on the southeastern corner of Building 163.

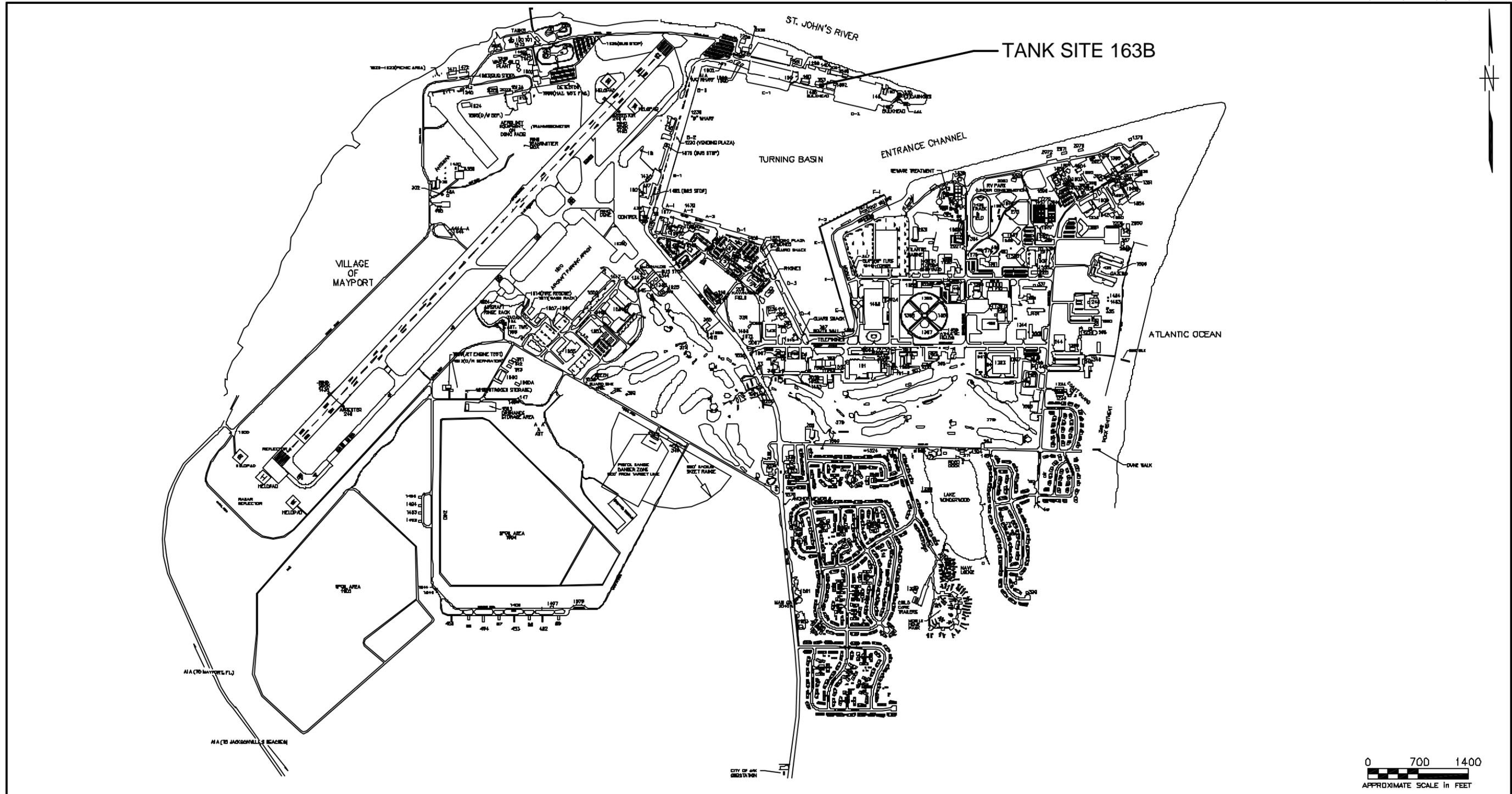
### **1.3 REGIONAL GEOLOGY AND HYDROGEOLOGY**

Northeast Florida is underlain by two main aquifer systems: the surficial aquifer system and the Floridan aquifer system. The surficial aquifer system in the vicinity of NS Mayport includes sediments of the Upper Hawthorn Group, upper Miocene and Pliocene deposits, and Pleistocene and Holocene



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deposits [United States Department of Agriculture (USDA), 1978]. These undifferentiated surficial deposits extend from land surface to the top of the Hawthorn Group about 50 feet (ft) below land surface (bls) (USGS, 1997).

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 (Spechler, 1994).

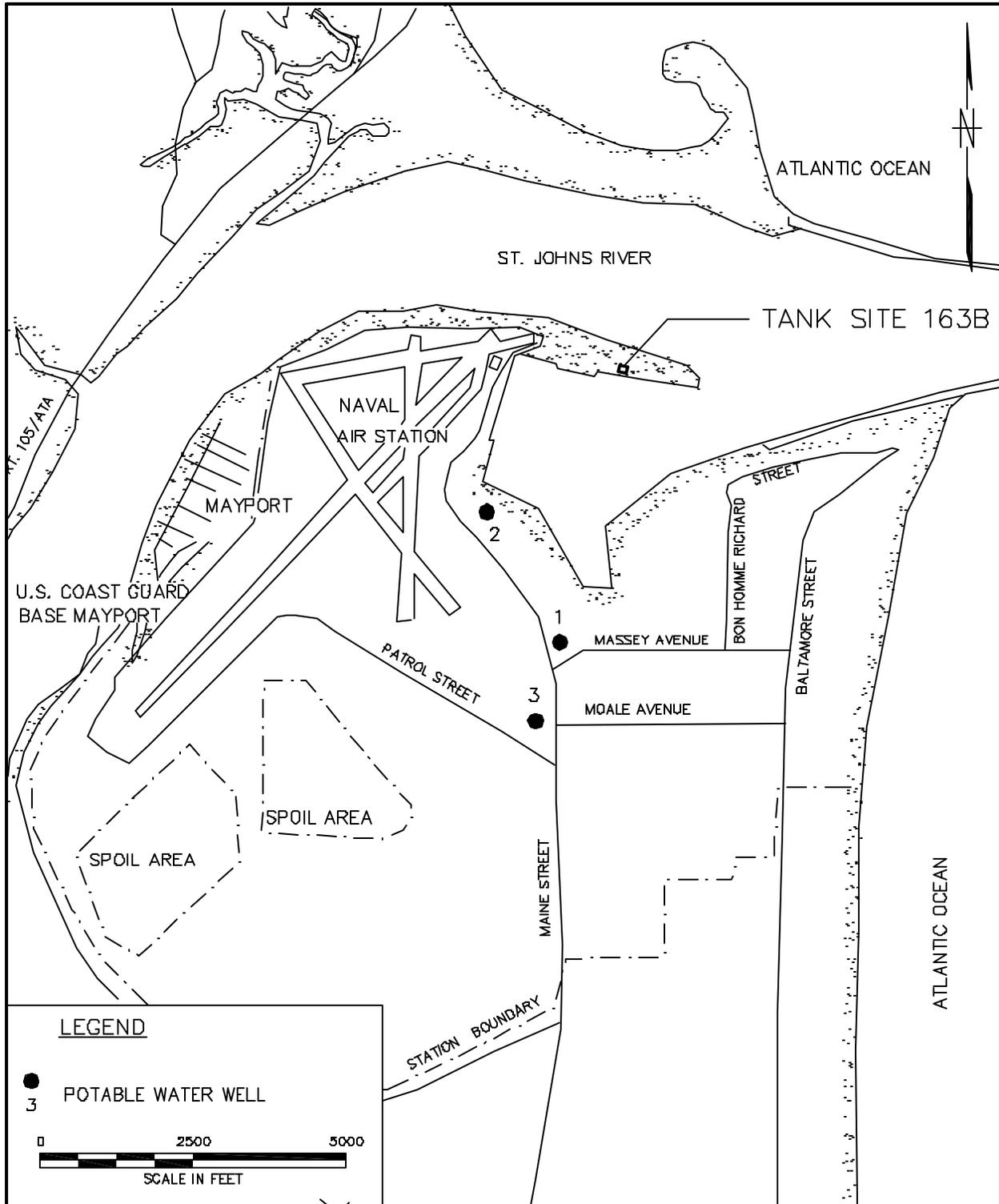
The Floridan aquifer system is the principal source of groundwater for public drinking water in most of northern peninsular Florida. In the area of investigation, the system is comprised of (from youngest to oldest) the Ocala Formation, the Avon Park Formation, and the Oldsmar Limestone. The Hawthorn Group, a confining unit between the surficial aquifer system and Floridan aquifer system, unconformably overlies the Floridan aquifer (USDA, 1978).

#### **1.4 POTABLE WATER WELL SURVEY**

The potable water supply information presented in this report was obtained from a Contamination Assessment Report for Site 1330 prepared by the United States Army Corps of Engineers (USACE) in 1992 (USACE, 1992). Personnel at the water treatment plant and the maintenance contractor, Lon Coleman Jones, confirm the accuracy of the water well information.

Potable water is supplied to NS Mayport by four on-base supply wells. Currently, three of the wells are active and one is inactive. One of the three active wells is 12 inches in diameter, and the other two are 16-inch diameter wells. All three wells draw water from the Floridan aquifer at depths of 1,000 ft. Well capacities range between 2.1 and 2.9 million gallons per day (mgd) with a combined total pumping capacity of 9 mgd. The base water treatment plant treats the water prior to distribution.

Potable well information is summarized on Table 1-1. The locations of the potable wells are depicted on Figure 1-3. No wells are within a 0.50-mile radius of the study site.



<b>LEGEND</b>  3 POTABLE WATER WELL			POTABLE WATER WELL LOCATIONS SITE 163B MAYPORT NAVAL STATION MAYPORT, FLORIDA		CONTRACT NO. 4240	
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**Table 1-1  
Potable Water Well Survey Results**

Site Assessment Report, Site 163B  
Naval Station Mayport  
Mayport, Florida

Well ID	Distance from Site (miles)	Diameter (inches)	Depth of Well (ft bls)	Use
1	Greater than 0.5 miles	12	1,000	In use
2	Greater than 0.5 miles	16	1,000	In use
3	Greater than 0.5 miles	16	1,000	In use

## 1.5 TOPOGRAPHY AND DRAINAGE

NS Mayport is located in the Southeastern Coastal Plain physiographic province. The topography is mostly low, gentle to flat, and composed of a series of ancient marine terraces. NS Mayport is located within the Silver Bluff Terrace. The average land surface elevation at NS Mayport is between 8 and 10 ft above mean sea level (msl) (USGS, 1992).

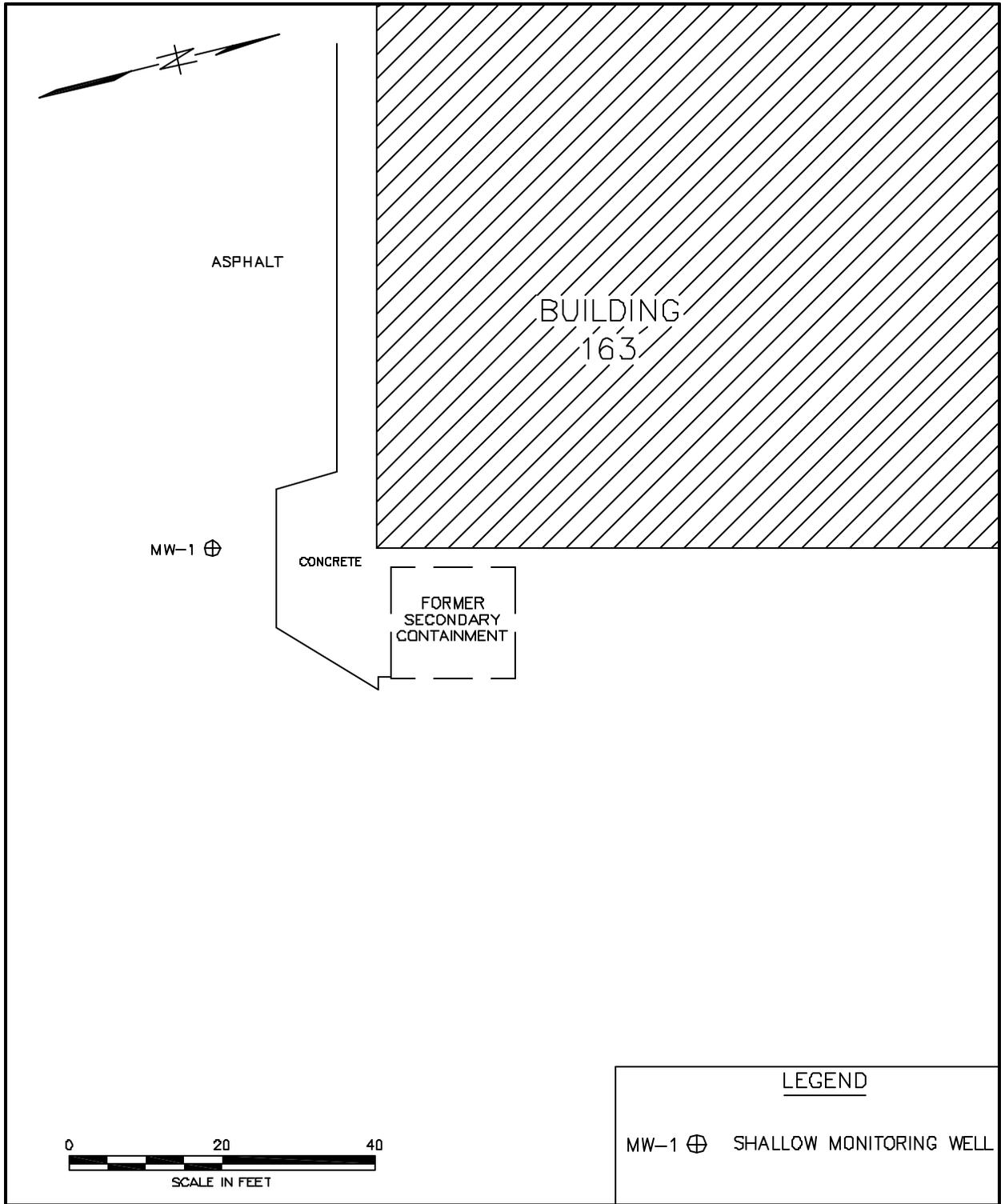
As mentioned in Section 1.2, Site 163B is located on a spit of land between the St. Johns River and the turning basin that connects to the St. Johns River shortly before its outflow to the Atlantic Ocean (see Figure 1-1). Site surface drainage is to the south and east toward the turning basin, but drainage is generally sluggish and poorly defined due to low relief over the area.

## 1.6 LAND USE IN SITE VICINITY

The site is located in an industrial/commercial area of the base. Buildings in the site vicinity are used for operations such as supply and maintenance in support of fleet activities. Vehicles and heavy equipment are common in the area surrounding Building 163.

## 1.7 SITE DESCRIPTION

A site plan showing surface features in the area of investigation is provided as Figure 1-4. Building 163 is constructed with metal frame and sides. The surface surrounding the building is paved with concrete and asphalt. The area under investigation is near the southeastern corner of the building where an AST containing fuel oil is mounted on a concrete slab that was part of the secondary containment structure. Guard posts surround the fueling system. Several utilities traverse the site underground near the AST.



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SITE PLAN  
 SITE ASSESSMENT REPORT  
 SITE 163B  
 MAYPORT NAVAL STATION  
 MAYPORT, FLORIDA

CONTRACT NO. 4240	
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One pre-existing monitoring well is located between the area of investigation and the turning basin to the south.

## **1.8 SITE HISTORY AND OPERATIONS**

A 500-gallon steel AST containing fuel oil was installed at Site 163B in 1959. The AST was surrounded by concrete-block secondary containment. Omega Environmental Services, Inc. of Atlanta, Georgia removed the tank in March 2000. AES of Jacksonville, Florida supervised removal operations and prepared a Tank Closure Report describing closure activities (AES, 2000), which is provided as Appendix A. A new double walled AST replaced the former AST and is placed on the concrete pad of the former secondary containment structure.

Upon removal, the AST was inspected and no cracks or pinholes were observed. During the tank closure, 16 soil samples were collected from the tank pit and screened for organic vapors using an Organic Vapor Analyzer (OVA) equipped with a Flame-Ionization Detector (FID). Organic vapor readings of 20 and 50 parts-per million (ppm) were recorded from SB-2 and 40 ppm from SB-1, indicating “excessively contaminated” soil was present. The highest OVA-FID reading of 50 ppm was collected from SB-2 at seven ft bls. This sample was taken to a laboratory and analyzed for volatile organic aromatics (VOAs) by United States Environmental Protection Agency (USEPA) Method 8021/5035, polynuclear aromatic hydrocarbons (PAHs) by USEPA Method 8310, and total recoverable petroleum hydrocarbons (TRPH) by Florida Petroleum Range Organics (FL-PRO) method. Analytical results document exceedences to Chapter 62-777, FAC SCTLs for VOAs, PAHs, and TRPH. Soil boring SB-2 is located on the eastern side of the AST.

One temporary well was installed in the area with the greatest potential for groundwater contamination, based upon soil screening results (SB-2). Groundwater from this well was analyzed for VOAs, including methyl tertiary-butyl ether (MTBE), by USEPA Method 602 and for PAHs by USEPA Method 610. The only constituents identified were PAHs, but no reported concentrations exceeded FDEP GCTLs.

No remedial action was taken to mitigate the impacts.

## **1.9 PURPOSE OF CURRENT INVESTIGATION**

The objective of the most current field investigation was to determine if soil and/or groundwater have been adversely impacted by previous operations at the site. The data collected during the investigation was used to prepare this SAR as required by Chapter 62-770.600, FAC. This SAR provides a characterization of site conditions from which to base future courses of action. A SAR summary sheet is provided as Appendix B.

## **2.0 SUBSURFACE INVESTIGATION METHODS**

### **2.1 QUALITY ASSURANCE**

The site investigation was conducted in accordance with the Standard Operating Procedures (SOPs) described by the FDEP SOPs DEP-SOP-001/01 and adopted by TtNUS.

### **2.2 CALCULATION OF GROUNDWATER GRADIENT**

On August 2, 2002, TtNUS personnel installed three piezometers (PZ-01, PZ-02, and PZ-03) in a triangular array at the subject site for the purpose of estimating groundwater flow direction. The top-of-casing elevations of the three piezometers and one existing monitoring well (MW-1) were surveyed relative to a selected temporary benchmark (TBM) on site. The TBM was assigned an elevation of 25 ft. Depth-to-water was measured from the top-of-casing of the monitoring well and three piezometers using an electronic water level indicator. The relative water table elevation at each location was calculated by subtracting the depth-to-water measurement from the surveyed top-of-casing elevation, and a groundwater flow direction (potentiometric) map was generated from the water table elevation data. The data indicated a northwesterly flow direction. This information was used to select boring locations. The results are discussed in Section 3.1.

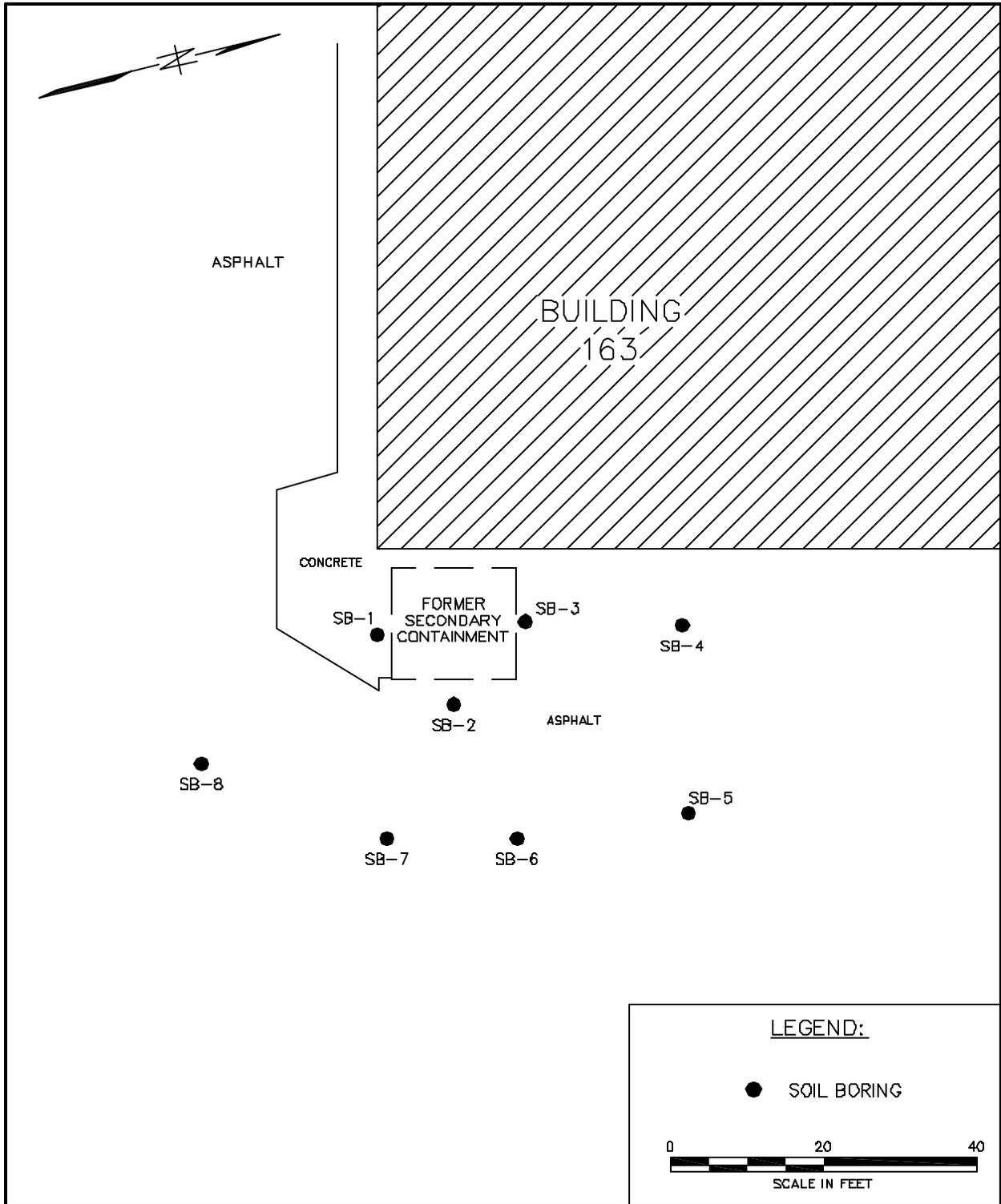
### **2.3 SOIL QUALITY ASSESSMENT**

#### **2.3.1 Soil Borings**

A total of eight shallow soil borings (SB-01 through SB-08) and one deep boring (at the location of SB-02) were advanced around the area of the former and current AST on August 2, 2002. Shallow borings were advanced using a stainless steel, 3-inch, inside diameter (ID) hand-auger assembly, and the deep boring was advanced using a truck mounted DPT rig. Soil boring locations are shown on Figure 2-1. Soil boring SB-3 is located within 24 inches of the AES soil boring, SB-2, that recorded impacts to the soil. Asphalt patches mark the locations of the former boreholes.

Shallow borings were advanced to an approximate depth of 7 ft bls. A TtNUS geologist described the material encountered during advancement of the borings. Soil Boring Logs compiled from these descriptions are provided in Appendix C.

Boring SB-02 was excavated to a depth of 40 ft bls to establish a site lithologic profile. The boring was advanced from 7 to 40 ft bls using a DPT push rod attached to a GeoProbe. A 4-ft long, stainless steel macrocore sampler lined with plastic sleeves was attached to the end of the DPT push rod. Continuous



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samples were collected with the macrocore tool from 7 to 40 ft bls. A lithologic description of materials retrieved in the macrocores is also included in Appendix C.

### **2.3.2 Field Screening Procedures**

At the eight boring locations, soil samples were collected beginning at 1 ft bls and at subsequent 2-ft vertical intervals to a depth of approximately 1 ft above the water table. After allowing for equilibration, samples were screened for organic vapors using an OVA-FID. Soil vapor analyses were performed in accordance with the headspace screening method described in Chapter 62-770.200(2), FAC. Results of the soil vapor screening survey conducted at Site 163B are discussed in Section 3.2.

### **2.3.3 Soil Sampling Strategy for Laboratory Analysis**

#### **2.3.3.1 Mobile Laboratory**

One soil sample from each boring was submitted to an on-site mobile laboratory for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX); MTBE; naphthalene; 1-methylnaphthalene; and 2-methylnaphthalene. Each sample was collected in a 4-ounce glass jar provided by the mobile laboratory. The sample selected for mobile laboratory analysis was a split of the sample exhibiting the highest organic vapor reading at each location. If all OVA values at a particular location were equal to background levels, the sample collected from immediately above the water table was selected for mobile laboratory analysis.

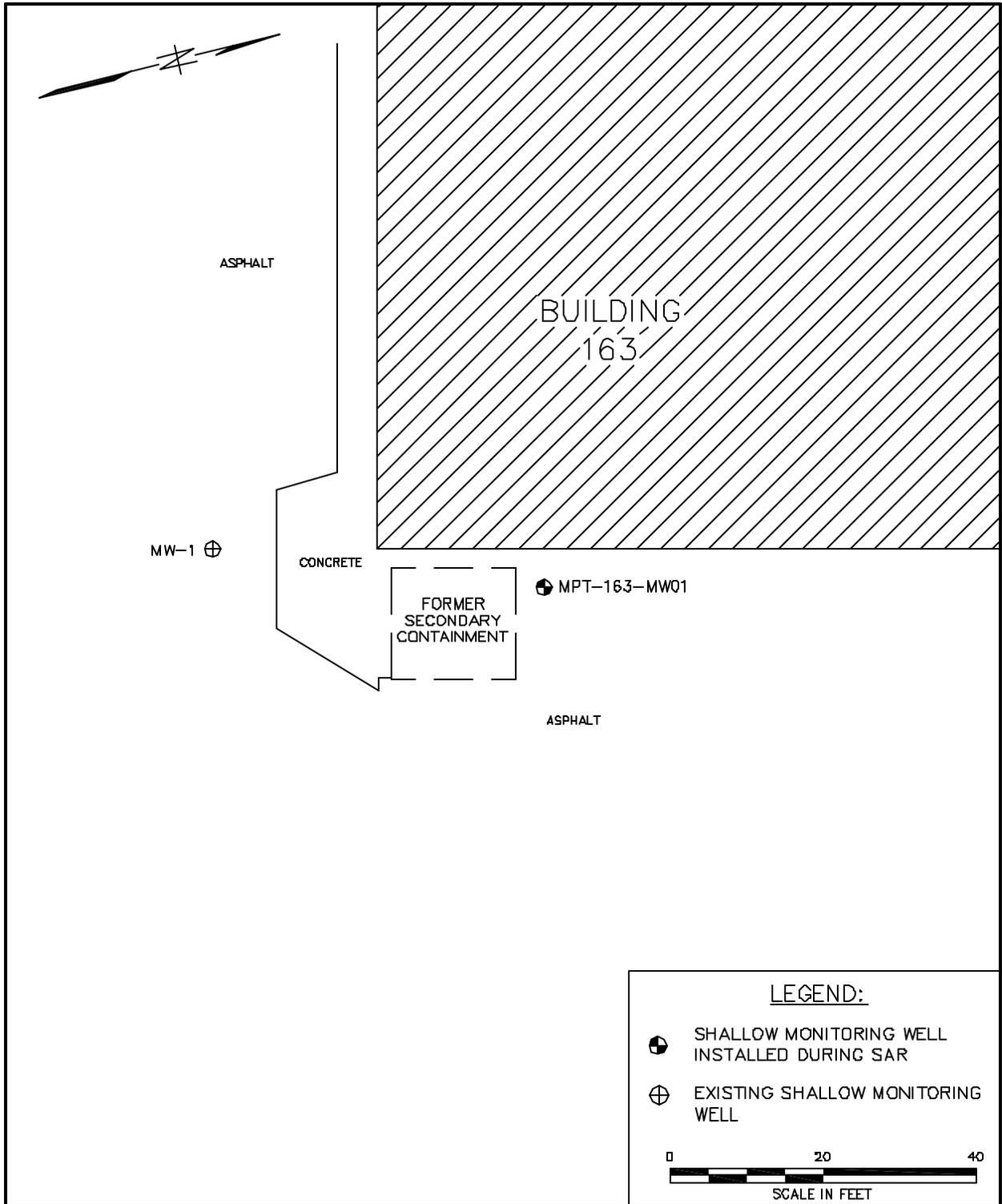
#### **2.3.3.2 Fixed-Base Laboratory**

A split of the sample exhibiting highest contaminant concentrations was collected for fixed-base laboratory analysis, assuming the mobile laboratory identified contaminants. If the mobile laboratory identified no targeted constituents, the sample considered to be nearest the potential source area would be selected for fixed-base analysis.

## **2.4 GROUNDWATER ASSESSMENT METHODS**

### **2.4.1 Monitoring Well Installation**

On August 8, 2002, one permanent shallow monitoring well, MPT-163-MW-01 (MW-01), was installed by Precision Sampling under the supervision of TtNUS personnel. Base personnel cleared underground utilities prior to well installation. The well was installed at a location downgradient of the historically documented source area. The well location is shown on Figure 2-2.



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MONITORING WELL LOCATIONS  
SITE ASSESSMENT REPORT  
SITE 163B  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
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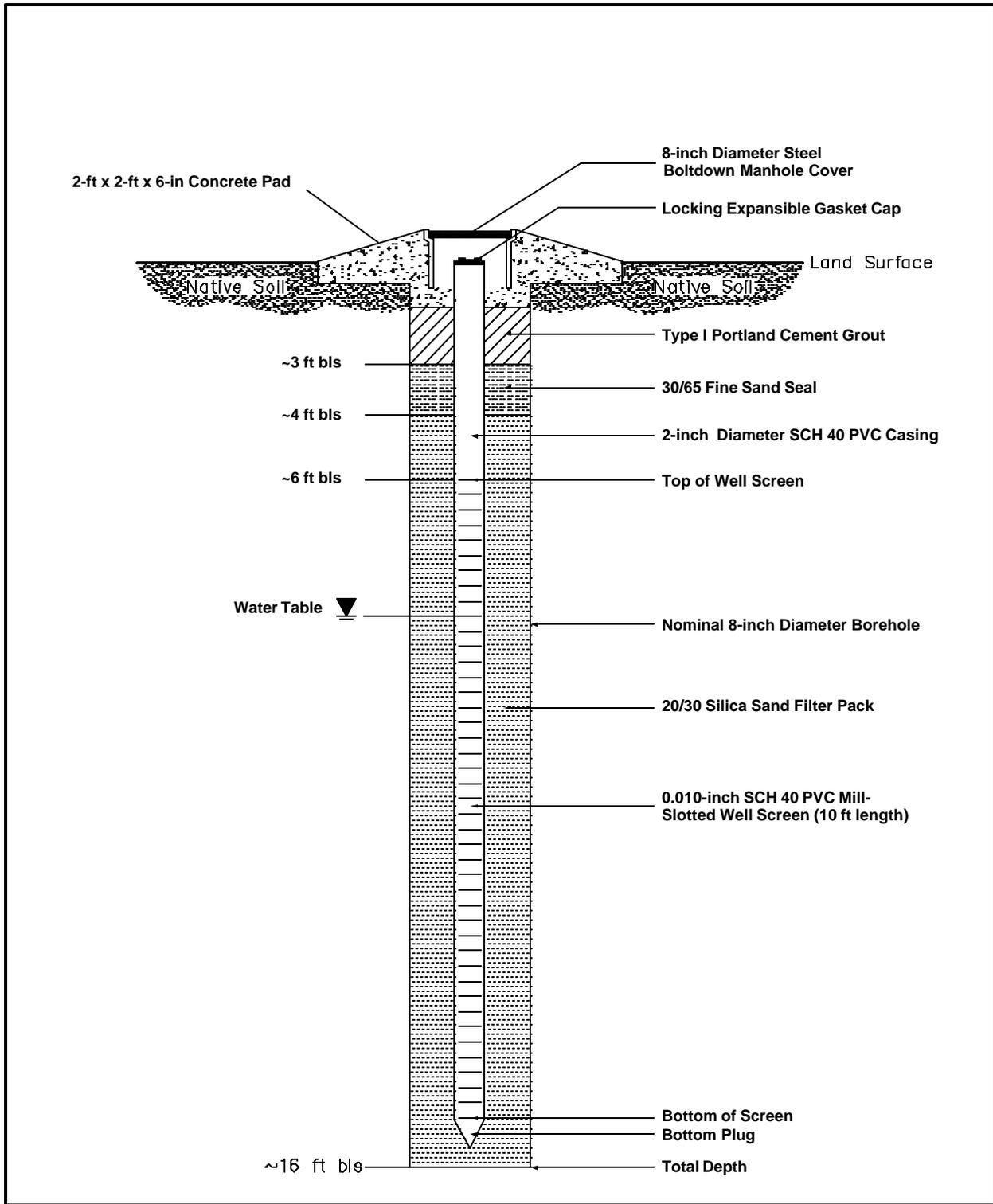
#### **2.4.1.1 Borehole Advancement**

A posthole digger was used to excavate the borehole for MW-01 from ground surface to a depth of 5 ft bls to verify absence of subsurface utilities. From that point (5 ft bls) to total depth, the borehole was advanced using 4¼-inch ID hollow stem augers (HSAs) attached to a truck-mounted drill rig. Soil cuttings were described during borehole advancement to further characterize site lithology. A soil boring log is included in Appendix C.

#### **2.4.1.2 Well Construction and Development**

The borehole for MW-01 was advanced to a total depth of 16 ft bls. Wells constructed of 2-inch diameter, 0.010-inch mill slotted Schedule 40 polyvinyl chloride (PVC) screen (10-ft lengths), and solid riser (flush threaded) were inserted through the HSAs after attaining total depth. Graded 20/30 silica sand was poured between the PVC well and HSAs at the surface, as the augers were being slowly removed from the borehole to create a filter pack in the annular space between borehole and monitoring well. The filter pack was poured into the annular space to a depth approximately 2 ft above the top of the screen (i.e., 4 ft bls) and was capped by 1 ft of 30/65 fine sand. The remaining annular space from the top of the fine sand seal to within 6 inches of ground surface was filled with Type I Portland cement grout. The well was completed at the surface with an 8-inch diameter steel manhole equipped with bolt down cover. Manholes were secured in place with concrete pads 2-ft square and 6 inches thick. A well construction diagram for MW-01 is provided as Figure 2-3 and well construction details are listed in Table 2-1. A well completion log is provided in Appendix D.

The day after completion, MW-01 was developed using a submersible pump. Field measurements of pH, temperature, and specific conductance were recorded during development. The well was developed until field measurements became stable and purge water was virtually clear. Water quality stabilization was determined using the following criteria: temperature  $\pm 5$  degrees Celsius, pH  $\pm 0.1$  unit, and specific conductance  $\pm 10$  micro-ohms per centimeter. A monitoring well development record is provided in Appendix E (Groundwater Field Sampling Data Sheets). All development water was containerized for disposal in 55-gallon steel drums. The water in the drums was sampled prior to disposal.



DRAWN BY LLK	DATE 10/17/02		MONITORING WELL DESIGN SITE 163B NAVAL STATION MAYPORT MAYPORT, FLORIDA		CONTRACT NO. 4240	
CHECKED BY	DATE		APPROVED BY	DATE	APPROVED BY	DATE
COST/SCHED-AREA					DRAWING NO. FIGURE 2-3	REV. 0
SCALE NOT TO SCALE						

**Table 2-1  
Well Construction Details**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

Well Number	Date Installed	Installation Method	Top of Casing Elevation (ft msl)	A/G Riser Length	Total Well Depth (ft)	Screened Interval (ft bls)	Well Diameter (inches)	Lithology of Screened Interval
163-MW-01	8-Aug-02	HSA	8.83	N/A	16.00	6 to 16	2.00	Medium to fine sand

**Notes:**

HSA = hollow stem auger

N/A = not applicable

## **2.4.2 Groundwater Sampling**

### **2.4.2.1 DPT Grab Samples**

On the day of soil screening activities (August 2, 2002), groundwater samples were collected at the eight soil boring locations discussed in Section 2.3.1. Samples were collected from the upper 2 ft of the saturated zone at borings SB-01 through SB-08 using DPT (i.e., Geoprobe) methodology. The samples were collected using a detachable drive tip attached to a 24-inch, retractable stainless steel well screen encased in the lead drive casing. After the water sampler was advanced into the water-bearing zone, the casing was withdrawn 24 inches to allow influx of groundwater to the retractable screen. For groundwater recovery, Tygon<sup>®</sup> tubing was inserted into the probe and connected to a peristaltic pump. Several screen volumes were then pumped from the probe in order to reduce turbidity. After purging, groundwater samples were collected by pumping directly into 40-milliliter vials. The samples were immediately delivered to the on-site mobile laboratory for analysis of BTEX, MTBE, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

### **2.4.2.2 Permanent Monitoring Well Samples**

On August 23, 2002, TtNUS personnel collected groundwater samples from MPT-163-MW-01. Prior to sampling, a minimum three well volumes of groundwater were removed from the well using the low flow quiescent purging method. During purging, field parameters pH, specific conductance, turbidity, dissolved oxygen, temperature, and oxidation/reduction potential were measured periodically using a Horiba U-22 instrument. A groundwater sampling log and low flow purge sheet, compiled during purging and sampling of MW-01, are provided in Appendix E.

Samples were collected in accordance with the procedures described in the FDEP-approved Comprehensive Quality Assurance Plan in effect at the time of sampling. After collection, samples were immediately placed on ice and shipped under proper chain-of-custody protocol to Mitkem Corporation for analysis of volatile organic compounds (VOCs) by USEPA Method 8021B, PAHs by USEPA Method 8310, ethylene dibromide by USEPA Method 504.1, lead by USEPA Method 6010, and TRPH by FL-PRO. Sampling activities were documented in a site-specific field logbook.

## 3.0 RESULTS OF INVESTIGATION

### 3.1 SITE GEOLOGY AND HYDROGEOLOGY

#### 3.1.1 Lithology

The upper 40 ft of material underlying the site is composed of light brown to light green to mottled gray fine sand with varying percentages of shell fragments. Silt lenses measuring 1 to 2 inches in thickness are present at depths of approximately 30 ft, 37 ft, and 40 ft bls. Soil boring logs are presented in Appendix C.

#### 3.1.2 Groundwater Flow Direction

Using the method discussed in Section 2.2, the direction of groundwater flow in the uppermost surficial aquifer underlying the site was estimated to be northwesterly. Groundwater elevation data obtained on August 2, 2002 is presented in Table 3-1 and a groundwater flow map generated from the data is provided as Figure 3-1. The measured depth to groundwater at the piezometer and well locations was approximately 7 to 9 ft bls.

#### 3.1.3 Aquifer Classification and Characteristics

The State of Florida classifies the surficial aquifer underlying the site as G-II (USGS, 1997). Previous USGS aquifer test data indicate that the average hydraulic conductivity of the surficial aquifer is approximately 4.34 ft per day (ft/day).

The horizontal groundwater (hydraulic) gradient across the site was evaluated from water level data listed in Table 3-1 and shown on Figure 3-1. The average horizontal hydraulic gradient beneath the site, calculated from potentiometric contours depicted on Figure 3-1, was calculated to be 0.045 ft per ft (ft/ft).

Based on information provided by Driscoll (Driscoll, 1986) and on lithologic descriptions of material encountered during the current investigation, the effective porosity of surficial aquifer sediments was estimated to be 0.30.

Potential movement of groundwater at the site may be described in terms of transportation by natural flow in the saturated zone while assuming groundwater flow follows Darcy's Law.

**Table 3-1  
Water Table Elevation**

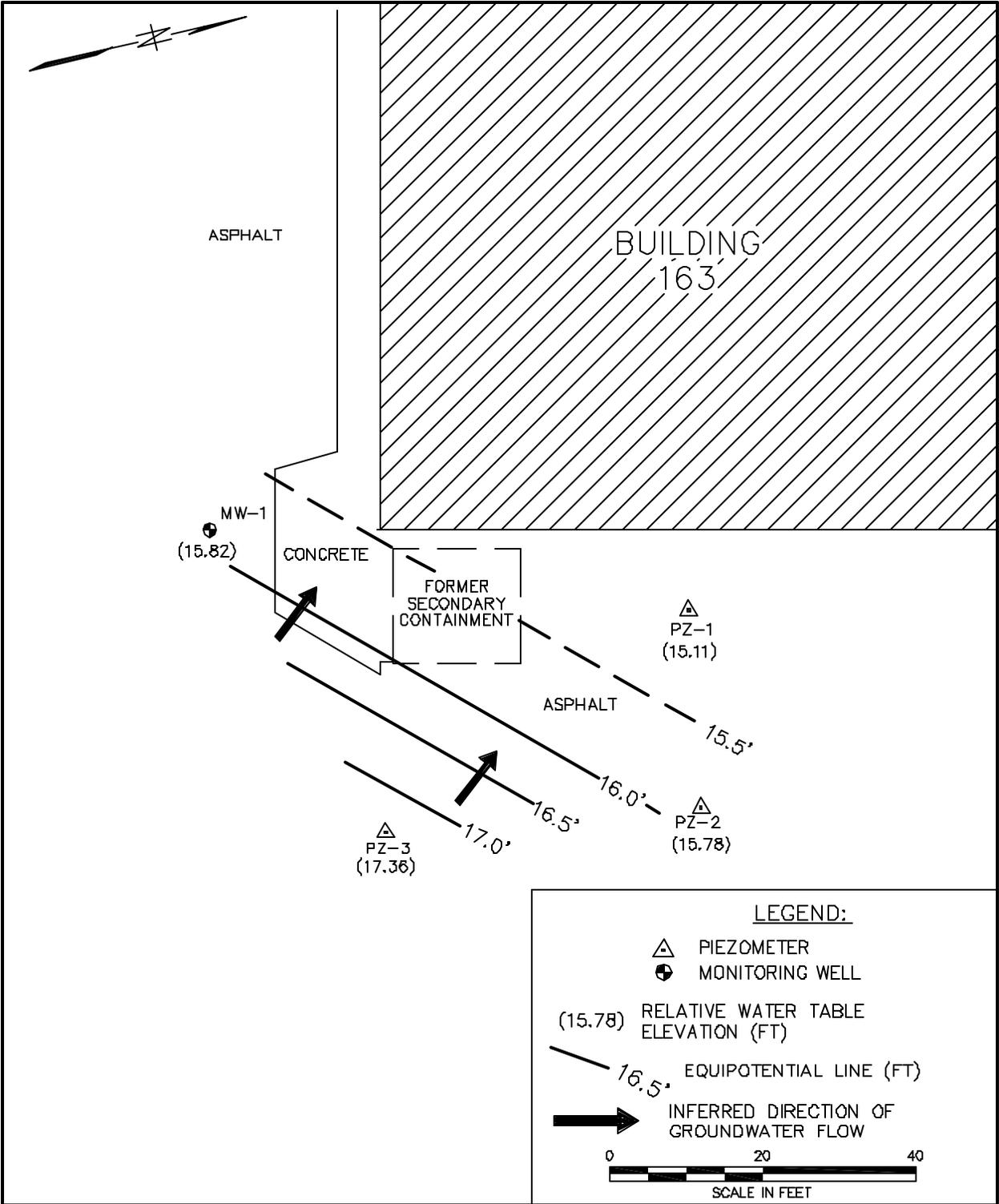
Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

**Water Table Elevations - 1st Event, 08/02/2002\***

<b>Monitoring Well ID</b>	<b>Screened Interval Depth (ft bls)</b>	<b>Relative Top-of-Casing Elevation (ft)</b>	<b>Relative Depth to Water Below Top-of-Casing (ft)</b>	<b>Relative Water Elevation (ft)</b>
PZ-1	7 to 11	24.34	9.23	15.11
PZ-2	7 to 11	24.52	8.74	15.78
PZ-3	7 to 11	25.00	7.64	17.36
MW-01	3 to 13	23.87	8.05	15.82

**Notes:**

\* Piezometers were installed on 08/02/02 and were measured on 08/02/02. MW-1 is not a TtNUS installed well. Elevations are relative to an assumed benchmark of 25 ft above msl.



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POTENTIOMETRIC CONTOUR MAP  
 SITE ASSESSMENT REPORT  
 SITE 163B  
 MAYPORT NAVAL STATION  
 MAYPORT, FLORIDA

CONTRACT NO. 4240	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-1	REV. 0

Darcy's Law may be expressed as follows:

$$V = \frac{(K \times I)}{n}$$

where:

V = average seepage velocity

K = hydraulic conductivity

n = effective porosity

I = average hydraulic gradient

Using a hydraulic conductivity of 4.34 ft/day, a hydraulic gradient of 0.045 ft/ft, an inferred effective porosity value of 0.30, and Darcy's law, the groundwater seepage velocity across the site was calculated at 0.651 ft/day or 238 ft per year in a northwesterly direction.

### **3.2 SOIL SCREENING RESULTS**

Soil vapor screening methods and sampling locations for headspace analyses are discussed in Section 2.3.2. Results of the soil vapor survey are listed on Table 3-2 and illustrated on Figure 3-2. No organic vapors were detected by the OVA-FID in any of the samples analyzed.

### **3.3 SOIL SAMPLE ANALYTICAL RESULTS**

#### **3.3.1 Mobile Laboratory**

Since none of the soil samples produced an instrument response during the field screening survey, each sample submitted to the mobile laboratory was collected immediately above the water table from an approximate depth of 7 ft bls per the sampling strategy discussed in Section 2.3.3.1. Mobile laboratory soil analytical results are summarized on Table 3-3 and illustrated in Figure 3-3. A complete report provided by KB Labs, Inc. is included in Appendix F.

The only targeted constituents identified in the eight soil samples were toluene and o-xylene at concentrations of 0.008 milligrams per kilogram (mg/kg) and 0.006 mg/kg, respectively, in the sample collected from SB-04. The laboratory detection limit for these two constituents was 0.005 mg/kg; the SCTL is 0.5 mg/kg for toluene and 0.2 mg/kg for xylenes.

TtNUS' field geologist determined that the location of SB-02 was nearer to potential source(s) of contamination than the other soil sampling locations. Consequently, a sample collected from 7 ft bls at this location (SB-02) was submitted to a fixed-base laboratory for analysis of GAG and KAG constituents.

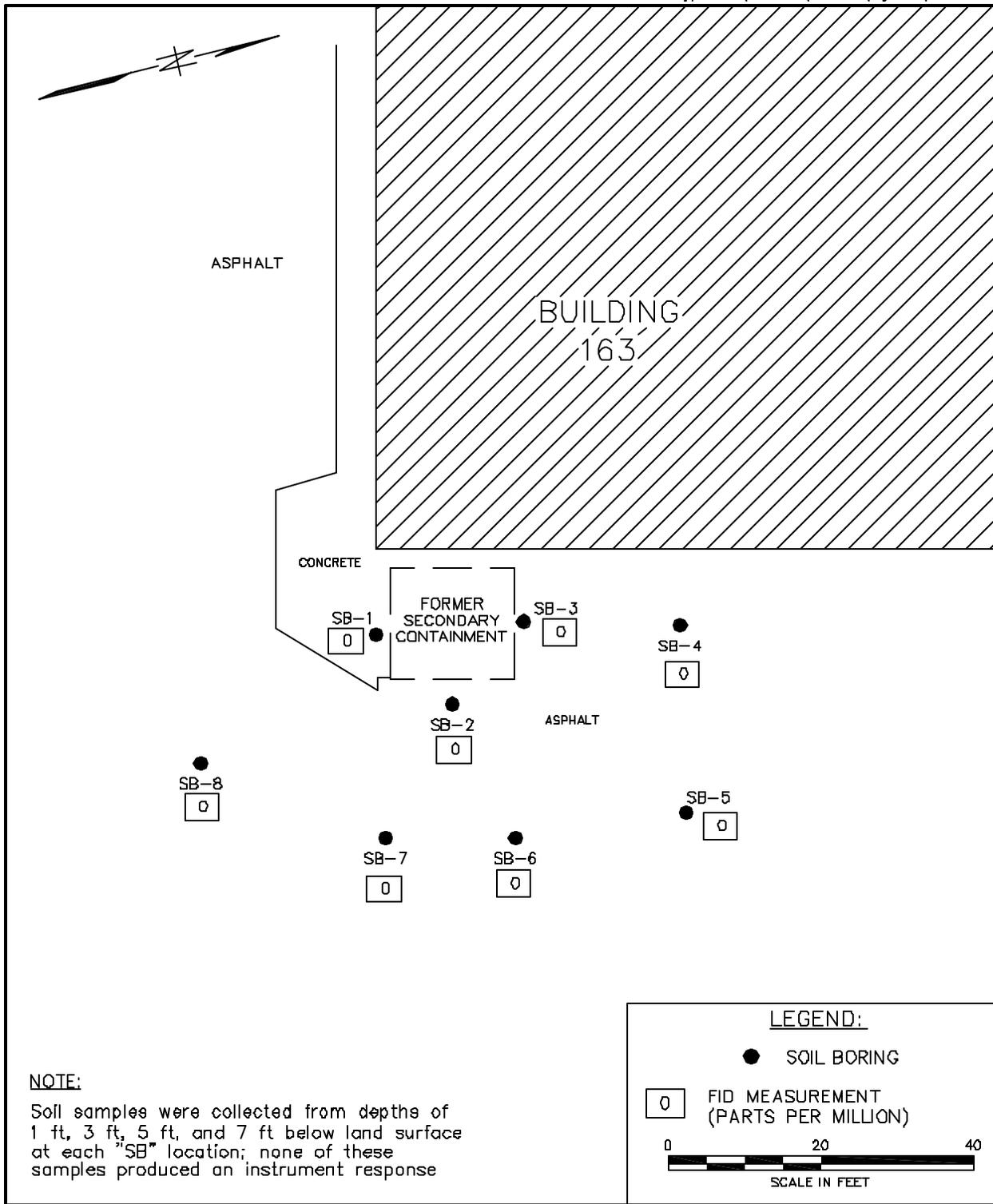
**Table 3-2  
Soil Vapor Results**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

Soil Boring Number	Date of Measurement	Sample Depth (ft bls)	Headspace Readings (ppm)		
			Total Organic Reading	Carbon Filtered Reading	Net Reading
SB-01	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-02	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-03	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-04	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-05	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-06	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-07	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-08	8/2/2002	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0

**Notes:**

Wet soils were encountered at depths ranging from approximately 7.5 ft to 8 ft bls.



**NOTE:**

Soil samples were collected from depths of 1 ft, 3 ft, 5 ft, and 7 ft below land surface at each "SB" location; none of these samples produced an instrument response

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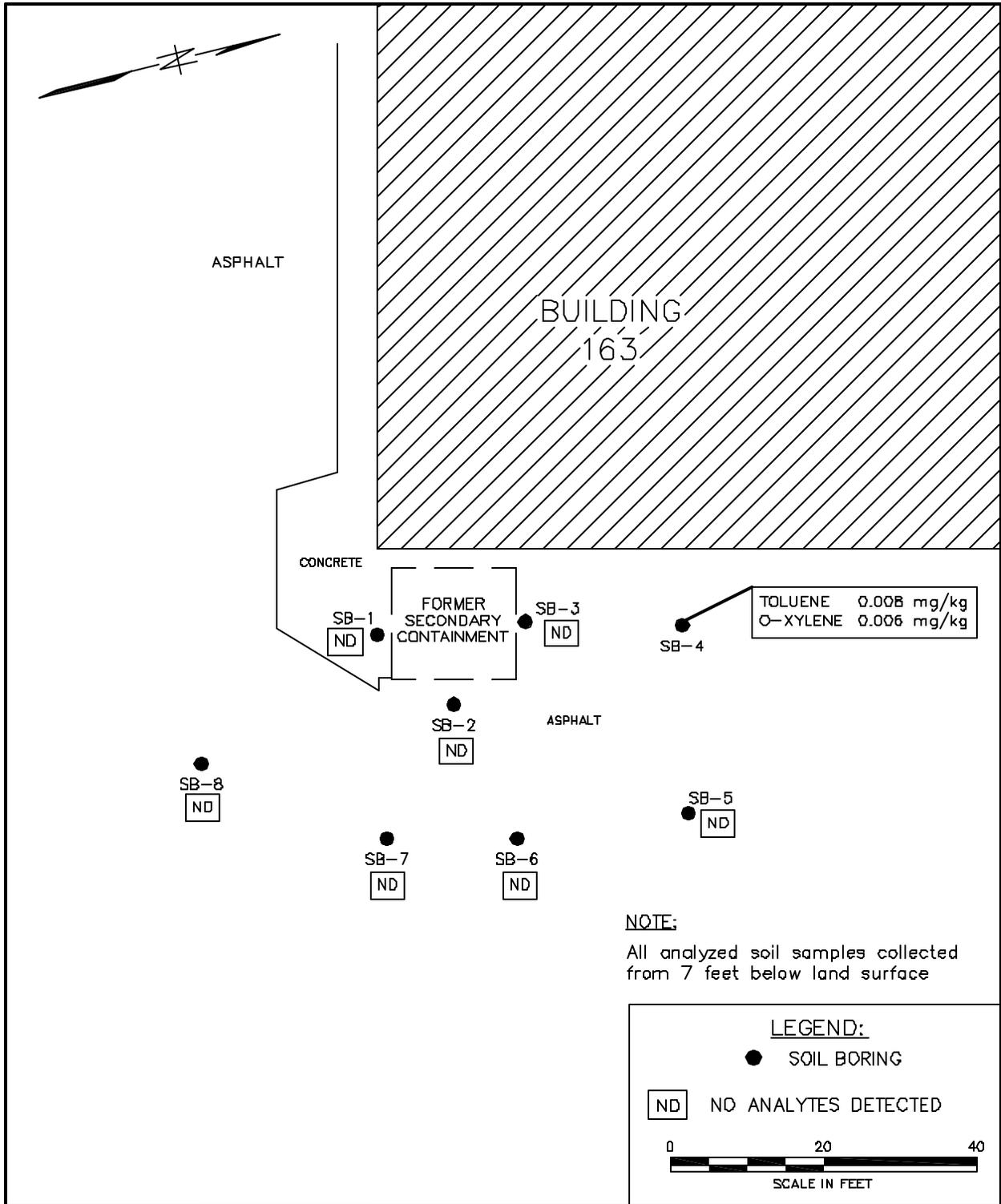
SOIL VAPOR MEASUREMENTS  
SITE ASSESSMENT REPORT  
SITE 163B  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-2	REV. 0

**Table 3-3  
Mobile Laboratory Soil Results**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

Compound	Direct Exposure Residential <sup>1</sup>	Leachability Based on Soil Criteria <sup>1</sup>	Sample ID, Sample Date, Sample Interval							
			SB-01	SB-02	SB-03	SB-04	SB-05	SB-06	SB-07	SB-08
			8/2/2002	8/2/2002	8/2/2002	8/2/2002	8/2/2002	8/2/2002	8/2/2002	8/2/2002
			7 ft	7 ft	7 ft	7 ft	7 ft	7 ft	7 ft	7 ft
<b>VOCs (USEPA Method 8021B) (mg/kg)</b>										
MTBE	3200	0.2	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Benzene	1.1	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	380	0.5	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	1100	0.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Xylenes	5600	0.2	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Napthalene	40	1.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1-Methylnapthalene	68	2.2	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
2-Methylnapthalene	80	6.1	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
<b>Notes:</b>										
<sup>1</sup> Chapter 62-770, FAC (April 30, 1999)										



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SCALE AS NOTED	



MOBILE LABORATORY SOIL  
ANALYTICAL RESULTS  
SITE ASSESSMENT REPORT  
SITE 163B  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-3	REV. 0

At the time of sample selection for fixed-base analysis, no detections had been reported from the SB-04 sample.

### **3.3.2 Fixed-Base Laboratory**

Results of fixed-base laboratory analyses are summarized in Table 3-4 and illustrated in Figure 3-4. A complete laboratory report is provided as Appendix G. The only constituent of concern (COC) identified is TRPH at a concentration of 2.6 mg/kg, which is just above the laboratory detection limit of 2.5 mg/kg and below the SCTL for residential exposure at 340 mg/kg and the leachability criteria at 340 mg/kg.

## **3.4 GROUNDWATER ANALYTICAL RESULTS**

### **3.4.1 Mobile Laboratory**

Groundwater analytical results reported by the mobile laboratory on grab samples collected using DPT methods are summarized in Table 3-5 and illustrated on Figure 3-5. A complete report submitted by KB Labs, Inc. is included in Appendix F along with KB Lab's soil analytical data. Due to the lack of impacts to groundwater, TtNUS contacted Mr. Jim Cason of the FDEP to discuss location and design of permanent monitoring wells. The consensus was to install a single monitoring well immediately downgradient of the former tank location screening the shallow portion of the aquifer. As a result, monitoring well MPT 163-MW-01 was installed on August 8, 2002, and subsequently developed, purged, and sampled at a later date.

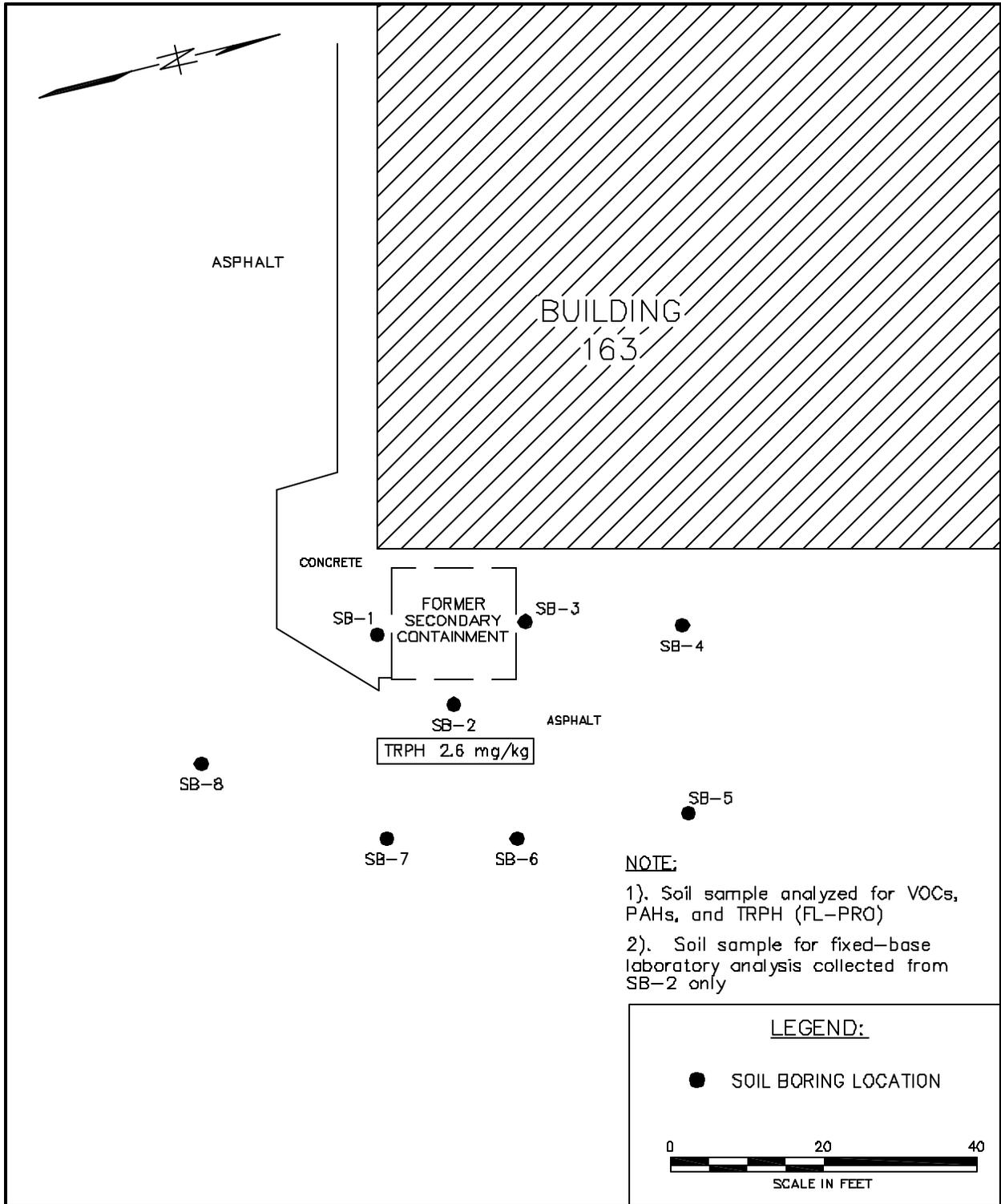
### **3.4.2 Fixed-Base Laboratory**

Results of fixed-base laboratory analyses performed on groundwater samples collected from MW-01 are summarized in Table 3-6 and illustrated on Figure 3-6. No analyzed constituents were reported at concentrations exceeding laboratory detection limits or FDEP GCTLs.

**Table 3-4  
Fixed-Base Laboratory Soil Results**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

Compound	Direct Exposure Residential <sup>1</sup>	Leachability Based on Groundwater Criteria <sup>1</sup>	Sample ID
			Sample Date
			SB-02
			8/5/2002
<b><u>VOCs (USEPA Method 8021B) (µg/kg)</u></b>			BDL
<b><u>PAHs (USEPA Method 8310) (µg/kg)</u></b>			BDL
<b><u>FL-PRO (USEPA Method 8270) (mg/kg)</u></b>			
TRPH	340	340	2.6
<b>Notes:</b> <sup>1</sup> Chapter 62-770, FAC (April 30, 1999) BDL= Below detection limits, which are below or equal to the leachability and residential soil exposure criteria. µg/kg = micrograms per kilogram mg/kg = milligrams per kilogram			



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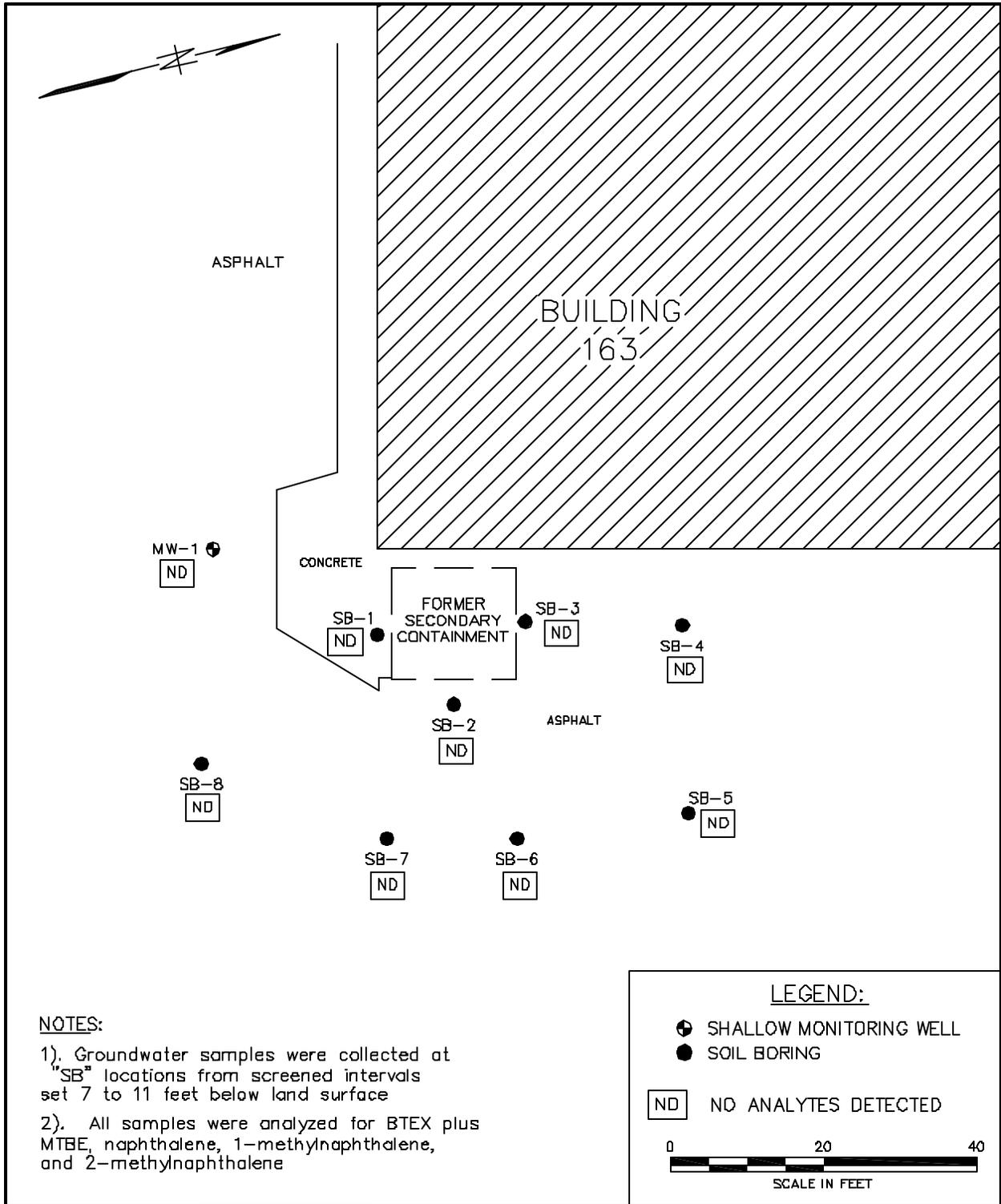
FIXED-BASE LABORATORY SOIL  
 ANALYTICAL RESULTS  
 SITE ASSESSMENT REPORT  
 SITE 163B  
 MAYPORT NAVAL STATION  
 MAYPORT, FLORIDA

CONTRACT NO. 4240	
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DRAWING NO. FIGURE 3-4	REV. 0

**Table 3-5  
Mobile Laboratory Groundwater Results**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

Compound	FDEP GCTLs <sup>1</sup> (µg/L)	Sample ID, Sample Date, Sample Interval										
		GW-01	GW-02	GW-02	GW-02	GW-03	GW-04	GW-05	GW-06	GW-07	GW-08	MW-1
		8/2/2002 7 to 11 ft	8/2/2002 7 to 11 ft	8/2/2002 16 to 20 ft	8/2/2002 36 to 40 ft	8/2/2002 7 to 11 ft						
<b>VOCs (USEPA Method 8021B) (µg/L)</b>												
MTBE	50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
Ethylbenzene	30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30
Total Xylenes	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Napthalene	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
1-Methylnapthalene	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
2-Methylnapthalene	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
<b>Notes:</b>												
MW-1 is an existing monitoring well See Figure 3-5.												
<sup>1</sup> GCTLs = Groundwater Cleanup Target Levels taken from Chapter 62-777, FAC.												
N/A = not applicable												
µg/L = micrograms per liter												



**NOTES:**

- 1). Groundwater samples were collected at "SB" locations from screened intervals set 7 to 11 feet below land surface
- 2). All samples were analyzed for BTEX plus MTBE, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

**LEGEND:**

-  SHALLOW MONITORING WELL
-  SOIL BORING
-  NO ANALYTES DETECTED

0                      20                      40  
SCALE IN FEET

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SCALE AS NOTED	



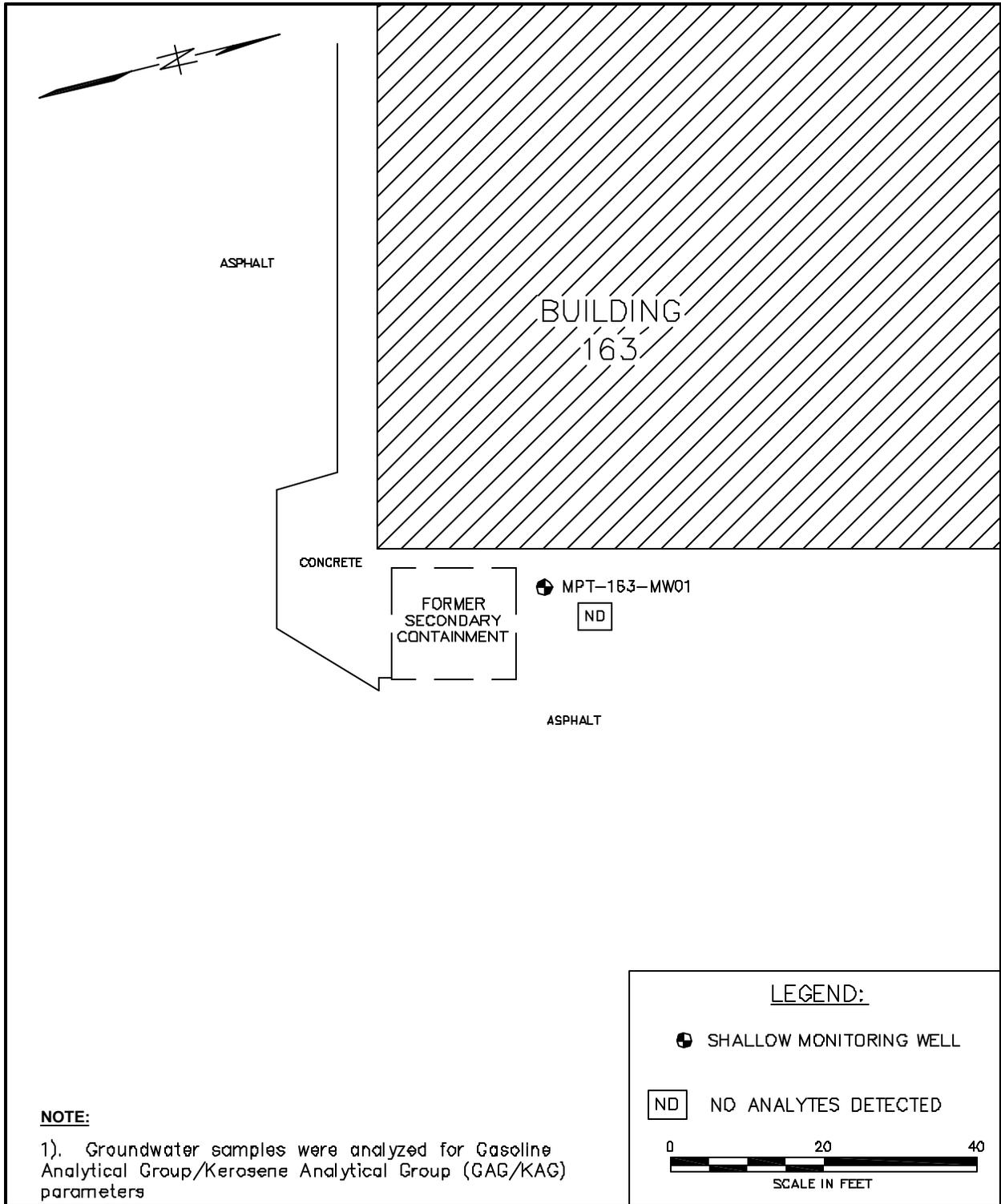
MOBILE LABORATORY GROUNDWATER  
ANALYTICAL RESULTS  
SITE ASSESSMENT REPORT  
SITE 163B  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-5	REV. 0

**Table 3-6  
Fixed-Base Laboratory Groundwater Results**

Site Assessment Report  
Site 163B  
Naval Station Mayport  
Mayport, Florida

Compound	FDEP Target Level <sup>1</sup>	Sample ID
		Sample Date
		MPT-163-MW-01*
		8/23/2002
<b><u>VOCs (USEPA Method 8021B) (µg/L)</u></b>		
Benzene	1	<1.0
Toluene	40	<1.0
Ethylbenzene	30	<1.0
Total Xylenes	20	<1.0
MTBE	50	<1.0
<b><u>USEPA 504.1 (µg/L)</u></b>		
1,2-Dibromoethane	0.02	<0.02
<b><u>PAHs (USEPA Method 8310) (µg/L)</u></b>		
Naphthalene	20	<1.0
<b><u>FL-PRO (USEPA Method 8270) (mg/L)</u></b>		
TRPH	5	<0.1
<b><u>Metals Analysis (µg/L)</u></b>		
Total Lead	15	<1.0
<b>Notes:</b>		
<sup>1</sup> Chapter 62-770, FAC (April 30, 1999)		
* Well was installed on 08/08/02.		



**NOTE:**

1). Groundwater samples were analyzed for Gasoline Analytical Group/Kerosene Analytical Group (GAG/KAG) parameters

**LEGEND:**

● SHALLOW MONITORING WELL

ND NO ANALYTES DETECTED



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CHECKED BY	DATE
DOST/SCHED-AREA	
SCALE AS NOTED	



FIXED-BASE LABORATORY GROUNDWATER  
ANALYTICAL RESULTS  
SITE ASSESSMENT REPORT  
SITE 163B  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-6	REV. 0

## 4.0 CONCLUSION AND RECOMMENDATIONS

Results of the SA at Site 163B indicate the following:

- Soil samples were collected in similar locations as the original assessment to reproduce the reported impacts. Based on the field data, No “excessively contaminated soil”, as defined by Chapter 62-777.200, FAC, is present at the site as estimated by OVA-FID headspace analyses. No GAG/KAG constituents were reported at concentrations exceeding leachability or direct exposure SCTLs in confirmatory soil samples submitted to a certified fixed-base laboratory or in eight soil samples analyzed by an on-site mobile laboratory.
- Two constituents, toluene at 0.008 mg/kg and xylene at 0.006 mg/kg were detected by the mobile laboratory in groundwater at one location. All other groundwater samples tested by the mobile laboratory were below detection limits.
- A confirmation monitoring well was installed and sampled for GAG/KAG constituents with all parameters reported as below detection limits.

Based on results obtained during this SA, neither past nor present activities at Site 163B have resulted in a continuing impact to environmental media that would require periodic monitoring or active remediation. Therefore, it is recommended that No Further Action status be granted to the site.

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**APPENDIX A**

**TANK CLOSURE REPORT  
BUILDING 163B – MAY 2000**

**Prepared by Aerostar Environmental Services, Inc.**

FOI(b) (7) - ACPA  
00 JUN 09 AM 9:01

**TANK CLOSURE REPORT  
NAVAL AIR STATION MAYPORT  
BUILDING 163B  
JACKSONVILLE, FLORIDA  
FDEP ID No. 16-8626008**

**PREPARED FOR:**

US Navy-Naval Air Station Mayport  
Naval Air Station Mayport  
Mayport, Florida 32228

**PREPARED THROUGH:**

The NTC Group  
300 Chastain Center Boulevard, Suite 395  
Kennesaw, Georgia 30144

**FOR SUBMITTAL TO:**

Ms. Allene McIntosh, P.G.  
Regulatory and Environmental Services Department  
117 West Duval Street  
Jacksonville, Florida 32202

**PREPARED BY:**

Aerostar Environmental Services, Inc.  
11200 St. Johns Industrial Parkway, Suite 1  
Jacksonville, Florida 32246  
(904) 565-2820

*Jessica Rogers for MCM*  
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M. Chris McNeas; Project Manager

*5/22/00*  
\_\_\_\_\_  
Date

*Leon J. Carrero*  
\_\_\_\_\_  
Leon J. Carrero, P.G.; Manager, Environmental Services

*5/22/00*  
\_\_\_\_\_  
Date

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3.0 ENVIRONMENTAL MONITORING ACTIVITIES .....	2
4.0 RECOMMENDATIONS .....	3

### TABLES

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TABLE 2	Summary of Soil Analyses
TABLE 3	Summary of Groundwater Analyses

### FIGURES

FIGURE 1	Topographic Site Location Map
FIGURE 2	Site Plan

### APPENDICES

APPENDIX A	Installation and Removal Form for Certified Contractors
APPENDIX B	Limited Closure Summary Report
APPENDIX C	Storage Tank Facility Registration Form
APPENDIX D	Photographic Documentation
APPENDIX E	Laboratory Analytical Results

## **1.0 INTRODUCTION**

Aerostar Environmental Services, Inc. (AEROSTAR) provided environmental services during removal of an aboveground storage tank (AST) system located at the Naval Air Station (NAS) Mayport, Building 163B, Jacksonville, Duval County, Florida, Florida Department of Environmental Protection (FDEP) I.D. #16-8626008, hereinafter referred to as the site. The AST system was removed under the direction of the NTC Group of Kennesaw, Georgia by Omega Environmental Services, Inc. (OES) of Atlanta, Georgia, a State of Florida licensed contractor under license number PCC056792. A copy of the UST Installation and Removal Form for Certified Contractors is included in Appendix A. Environmental assessment activities were conducted by AEROSTAR personnel in accordance with the guidelines established in the FDEP Storage Tank System Closure Assessment Requirements. The following sections present the storage tank removal procedures, environmental monitoring activities, and recommendations regarding the area of the former AST system. The location of the site is presented in Figure 1. Based on the results of the investigation, further assessment is recommended in the area of the former AST system.

## **2.0 ABOVEGROUND STORAGE TANK REMOVAL PROCEDURES**

The former AST system was removed in March 2000 by OES. The former AST system was located along the southern wall adjacent to Building 163B; and consisted of one 500-gallon steel tank containing vehicular diesel positioned within a raised, concrete block, secondary containment; and approximately ten feet of aboveground, one-inch diameter steel distribution piping. The location of the AST system is shown in Figure 2. According to information obtained from the FDEP, the former AST system was installed in January 1959.

Tank removal activities began by pumping the remaining contents of the former tank and subsequently removing the tank and the secondary containment. No cracks or pitholes were observed in the tank. The tank was degassed prior to transportation off-site for proper disposal. Copies of the Limited Closure Summary Report and the Storage Tank Facility Registration Form are included as Appendices B and C, respectively. Photographic documentation of the tank removal is included in Appendix D.

### **3.0 ENVIRONMENTAL MONITORING ACTIVITIES**

On March 29, 2000, four soil borings (SB-1 through SB-4) were advanced around the former secondary containment by AEROSTAR personnel. A boring could not be advanced in the center of the former secondary containment due to equipment being stored at this location. Soil samples were collected from each boring and screened with a calibrated, portable Heath Tech Porta-FID II<sup>™</sup> Organic Vapor Analyzer with a Flame Ionization Detector (OVA-FID) to evaluate soil quality. Soil sample collection and screening procedures were conducted in accordance with the guidelines established in Chapter 62-770, Florida Administrative Code (FAC) and AEROSTAR's FDEP approved Comprehensive Quality Assurance Project Plan (CQAPP) #940023G. Readings were also recorded using a carbon filter tip to distinguish the instrument's response to naturally occurring methane vapors. The difference of the two readings is the amount of the instrument's response attributed to hydrocarbon vapors. In addition to the OVA-FID screening, each sample was inspected for signs of hydrocarbon staining and unusual odors. Hydrocarbon vapors were detected at the locations of SB-1 and SB-2 above 10 parts per million (ppm), the level established by FDEP as a "positive field screening result. Petroleum staining and odors were observed at the location of SB-1 at two and three feet below land surface (BLS) and at the location of SB-2 from four feet to the water table. The water table was located at approximately eight feet BLS. Soil screening results are presented in Table 1. The soil sample locations are shown in Figure 2.

The soil sample indicating the highest OVA-FID reading (SB-2-7) was collected for laboratory analyses on March 29, 2000. The sample was collected along the eastern side of the secondary containment, at approximately seven feet BLS. The sample was stored in laboratory supplied containers, placed on ice, and shipped to Advanced Environmental Laboratories, Inc., for analyses of the parameters listed in EPA Method 8021/5035 for Volatile Organic Aromatics (VOAs), EPA Method 8310 for Polynuclear Aromatic Hydrocarbons (PAHs), and Total Recoverable Petroleum Hydrocarbons (TRPHs) via Method FL-PRO. Results of the soil laboratory analyses showed hydrocarbon concentrations above the State of Florida Soil Leachability Cleanup Target Levels. A summary of the soil laboratory results is presented in Table 2. The laboratory analytical results with the Chain of Custody Record are included in Appendix E.

On March 29, 2000, a temporary monitor well (TW-1) was installed at the location of the highest OVA reading (SB-2), to evaluate groundwater quality in the area of the former AST system. TW-1 was installed using a three-inch diameter steel hand auger to a completion depth of approximately twelve feet BLS. The well was constructed with ten feet of two-inch diameter, Schedule 40, 0.010-inch, machine slotted, PVC well screen and two feet of two-inch diameter well casing. The annular space between the borehole and the well screen was filled with a standard 20/30 silica sand. After installation, the well was developed by removing approximately five well volumes of groundwater and subsequently sampled. Groundwater sample collection was conducted in accordance with AEROSTAR's FDEP approved CQAPP #940023G. The groundwater samples were submitted to Advanced Environmental Laboratories, Inc. for analyses for the parameters listed in EPA Method 602 for VOAs, including methyl tert butyl ether (MTBE), and EPA Method 610 for PAHs. Results of the laboratory analyses showed dissolved hydrocarbon concentrations below the State of Florida Groundwater Cleanup Target Levels. A summary of the groundwater laboratory results is presented in Table 3. A copy of the laboratory analytical results with the appropriate Chain of Custody Record is included in Appendix E. The temporary well was removed following groundwater sample collection.

#### **4.0 RECOMMENDATIONS**

Results of the soil laboratory analyses showed hydrocarbon concentrations above the State's Soil Leachability Cleanup Target Levels. Results of the groundwater laboratory analyses showed dissolved hydrocarbon concentrations below the State's Groundwater Cleanup Target Levels. Based on the results of this closure assessment, further assessment is recommended for the area of the former 500-gallon AST.

## **TABLES**

**TABLE 1  
SUMMARY OF OVA-FID SCREENING**

NAS Mayport  
Building 163B  
Jacksonville, FL

<b>BORING LOCATION</b>	<b>DATE</b>	<b>DEPTH (feet)</b>	<b>UNFILTERED OVA-FID READING (ppm)</b>	<b>FILTERED OVA-FID READING (ppm)</b>	<b>TOTAL HYDROCARBON CONCENTRATION (ppm)</b>
SB-1	3-29-00	1	ND	NA	ND
		3	40	0	40*
		5	ND	NA	ND
		7	ND	NA	ND
SB-2	3-29-00	1	ND	NA	ND
		3	ND	NA	ND
		5	20	0	20*
		7	50	0	50*
SB-3	3-29-00	1	ND	NA	ND
		3	ND	NA	ND
		5	ND	NA	ND
		7	ND	NA	ND
SB-4	3-29-00	1	ND	NA	ND
		3	ND	NA	ND
		5	ND	NA	ND
		7	ND	NA	ND

ppm      parts per million  
 ND        Not Detected  
 NA        Not Analyzed  
 \*         Petroleum odors or staining observed

**TABLE 2  
SUMMARY OF SOIL ANALYSES**

NAS Mayport  
Building 163B  
Jacksonville, FL

PARAMETER	DATE	SS-6-4'	SSCTL L.	SSCTL D.E
Toluene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	1,090	500	380,000
Naphthalene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	3,600	1,700	40,000
2-Methylnaphthalene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	13,035	6,100	80,000
1-Methylnaphthalene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	12,195	2,200	68,000
Acenaphthylene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	880	27,000	1,100,000
Acenaphthene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	860	2,100	1,900,000
Fluorene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	3,675	160,000	2,200,000
Phenanthrene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	6,445	250,000	2,000,000
Anthracene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	6,990	2,500,000	18,000,000
Pyrene ( $\mu\text{g}/\text{Kg}$ )	3-29-00	685	880,000	2,200,000
TRPHs ( $\mu\text{g}/\text{Kg}$ )	3-29-00	759,450	340,000	340,000

$\mu\text{g}/\text{Kg}$             Micrograms per kilogram  
SSCTL            Select soil cleanup target level as indicated in Chapter 62-777, FAC  
D.E.                Residential Direct Exposure as indicated in Chapter 62-777, FAC  
L.                    Leachability as indicated in Chapter 62-777, FAC  
TRPHs            Total Recoverable Petroleum Hydrocarbons

**TABLE 3  
SUMMARY OF GROUNDWATER ANALYSES**

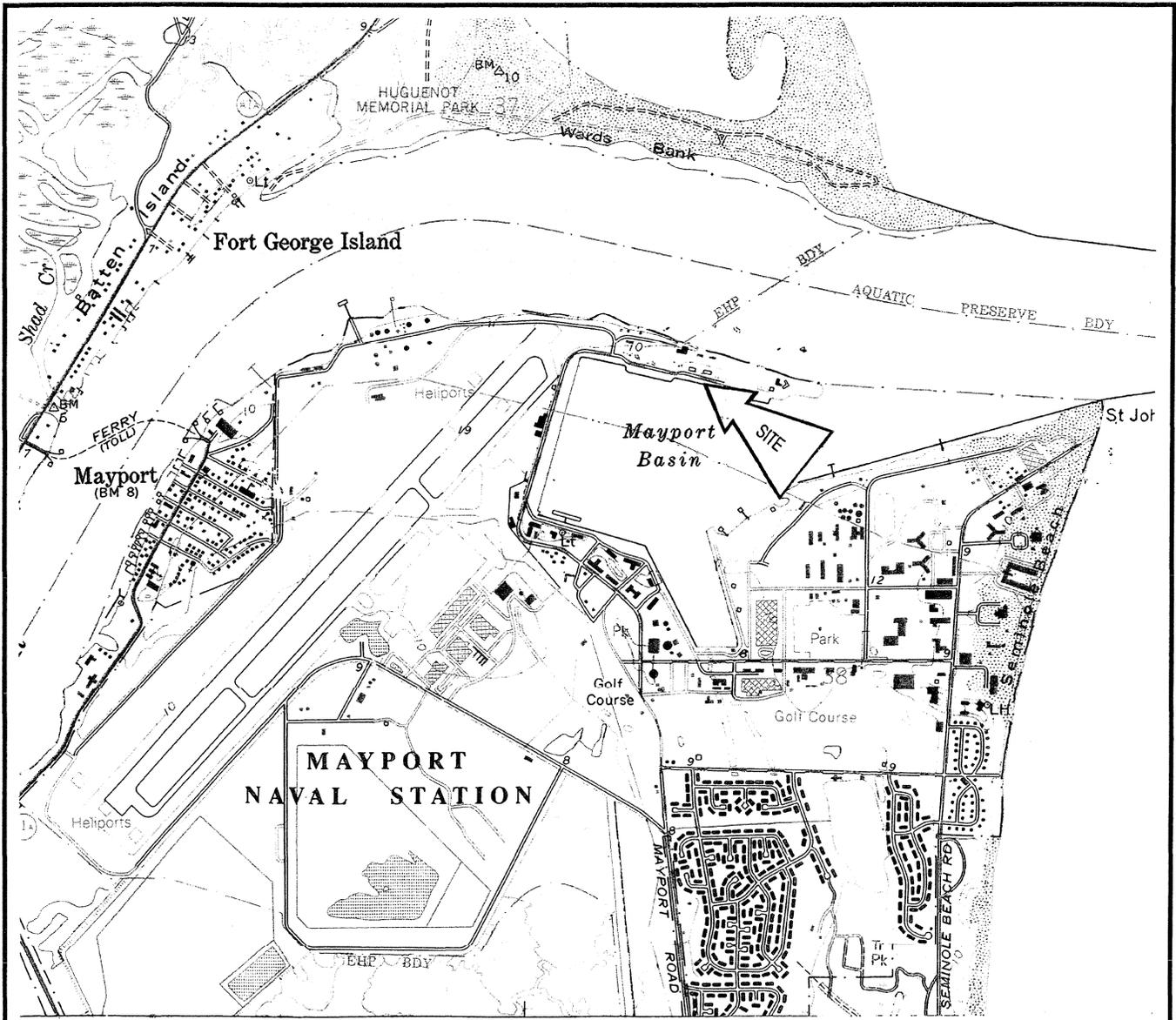
NAS Mayport  
Building 163B  
Jacksonville, FL

Parameter	Date	TW-1	SGCTL
Naphthalene ( $\mu\text{g/L}$ )	3-29-00	17.5	20
2-Methylnaphthalene ( $\mu\text{g/L}$ )	3-29-00	13.6	20
1-Methylnaphthalene ( $\mu\text{g/L}$ )	3-29-00	7.0	20
Acenaphthylene ( $\mu\text{g/L}$ )	3-29-00	3.30	210
Acenaphthene ( $\mu\text{g/L}$ )	3-29-00	3.30	20
Phenanthrene ( $\mu\text{g/L}$ )	3-29-00	1.60	210

$\mu\text{g/L}$   
SGCTL

Micrograms per Liter  
State Groundwater Cleanup Target Levels as Established in Chapter 62-777, FAC.

## **FIGURES**



**MAYPORT QUADRANGLE**

30081-D4-TF-024

REVISED 1992

DMA 4744 IV NW-SERIES V847

7.5 MINUTE SERIES  
(TOPOGRAPHIC)

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETTIC VERTICAL DATUM OF 1929



FLORIDA

QUADRANGLE LOCATION



SCALE:  
1:24000

**FIGURE 1 - TOPOGRAPHIC SITE LOCATION MAP**

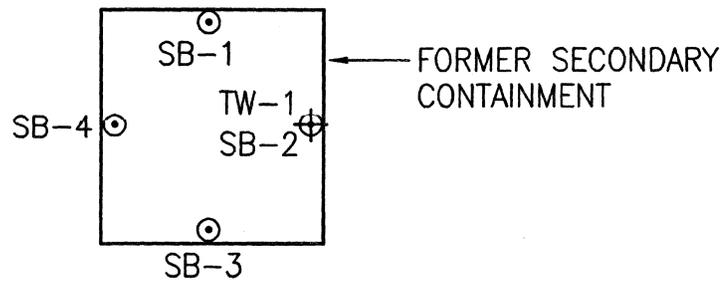


NAVAL AIR STATION MAYPORT  
BUILDING 163B  
JACKSONVILLE, FLORIDA

DRAWN BY: JJR

REFERENCE: MAP OF  
MAYPORT, FLA  
PREPARED BY: U.S.  
GEOLOGICAL SURVEY

BUILDING  
163B



LEGEND

⊙ SOIL BORING LOCATION  
SB-1

+ TEMPORARY WELL LOCATION  
TW-1



N.T.S.

JOB #99-244

FIGURE 2. SITE PLAN



NAS MAYPORT  
BUILDING 163B  
JACKSONVILLE, FLORIDA

DRAWN BY: KJS

DATE: 05/18/00

**APPENDICES**

**APPENDIX A**

INSTALLATION AND REMOVAL FORM FOR CERTIFIED CONTRACTORS



Florida Department of Environmental Protection  
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DEP Form # 62-761.900(5)
Form Title: <u>UST Contractor Form</u>
Effective Date: <u>July 13, 1998</u>

## Underground Storage System Installation and Removal Form for Certified Contractors

Pollutant Storage Systems Contractor as defined in Section 489.113, Florida Statutes (certified contractors as defined in Section 62-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the underground storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards. This includes system components such as dispenser liners, piping sumps, and overfill protection devices.

### General Facility Information

Facility Name: <u>US Navy-Mayport Naval Station-Building 163B</u>	DEP Facility Identification No. : <u>16-8626008</u>
Street Address (physical location): <u>Mayport Naval Air Station, Mayport, Florida 32228</u>	
County: <u>Duval</u>	Telephone #: <u>( 904 ) 270-6730</u>
Owner Name: <u>US Navy</u>	Telephone #: <u>(     )</u>
Owner Address: <u>Mayport Naval Air Station, Mayport, Florida 32228</u>	

### Storage Tank System Information

Number of Tanks Installed: <u>0</u>	Number of Tanks Removed: <u>1</u>
Date Work Initiated: <u>March 2000</u>	Date Work Completed: <u>March 2000</u>
Tank(s) Manufactured by: _____	
Description of work Completed: <u>Removal of one 500-gallon AST containing vehicular diesel.</u>	

### Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Protection; that to the best of my knowledge and belief, the storage tank system installation, replacement or removal at this facility was conducted in accordance with Chapter 489, Florida Statutes, Section 376.303, Florida Statutes, and Chapter 62-761, Florida Administrative Code, and its adopted reference standards and documents for underground storage tank systems.

\_\_\_\_\_  
Omega Environmental Services, Inc.

(Type or Print)

Certified Pollutant Tank Contractor Name

\_\_\_\_\_  
*M. Chris McNeess*  
Certified Tank Contractor Signature

\_\_\_\_\_  
PCC056792

PSSC Number

Pollutant Storage Systems  
Contractor License Number

\_\_\_\_\_  
6-19-00  
Date

\_\_\_\_\_  
M. Chris McNeess

Field Supervisor Name

\_\_\_\_\_  
5-17-00

Date

The owner or operator of the facility must register the tanks with the Department upon completion of the installation. The installer must submit this form to the County no more than 30 days after the completion of installation, replacement, or removal of a storage tank system.

**APPENDIX B**

LIMITED CLOSURE SUMMARY REPORT



# Department of Environmental Protection

1 Towers Office Building ♦ 2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form 62-761.900(8)  
Form Title: Limited Closure  
Summary Report  
Effective Date: July 13, 1998

## Limited Closure Summary Report

This form is required for facilities that have sites with documented contamination requiring a site assessment in accordance with Chapter 62-770, F.A.C. This includes those facilities that are eligible for the Early Detection Incentive Program (EDI), the Florida Petroleum Liability and Restoration Insurance Program (FPLRIP), and the Petroleum Cleanup Participation Program (PCPP), pursuant to Sections 376.3071 and 376.3072, F.S. Documentation of procedures followed, and results obtained during closure shall be reported in this form, along with any attachments. This form shall be submitted to the County within 60 days of completion of the closure in accordance with Section A of the "Storage Tank System Closure Assessment Requirements."

**Complete All Applicable Blanks. Please Print or Type**

### General Information

Date <u>5-17-00</u>	FDEP Facility ID Number <u>16-8626008</u>	County <u>Duval</u>
Facility Name <u>US Navy-Mayport Naval Station-Building 163B</u>		Facility Telephone #: ( <u>904</u> ) <u>270-6730</u>
Facility Address: <u>Mayport Naval Air Station, Mayport, Florida</u>		
Owner or Operator Name <u>US Navy</u>		Owner/Operator phone #: ( ) _____
Mailing Address: <u>Mayport Naval Air Station, Mayport, Florida</u>		

### Storage Tank System Closure Information

1. Were the storage tanks(s): (Check one or both)

<input checked="" type="checkbox"/> Aboveground	<input type="checkbox"/> Underground
---	--------------------------------------

2. General System Information

Types of Products Stored: <u>Vehicular Diesel</u>	Number of Tanks Closed <u>1</u>	Age(s) of Tanks <u>41 yrs</u>
---	---------------------------------	-------------------------------

3. Was the Limited Closure Summary Report Performed as a Result of: (check one or more)

<input checked="" type="checkbox"/> Tank Systems Removal?	<input type="checkbox"/> Spill Containment Installation?	<input type="checkbox"/> Change in Storage to a Non-Regulated Substance?
<input type="checkbox"/> Tank Systems Closed in Place?	<input type="checkbox"/> Dispenser Liners Installation?	<input type="checkbox"/> Release Prevention Barrier Installation?
<input type="checkbox"/> Piping Sump Installation?	<input type="checkbox"/> Secondary Containment Installation?	<input type="checkbox"/> Other? (please explain) _____

4. Please Check Yes or No to the following:

a. Was there previously reported contamination discovered on site? If yes, was	Yes	<input checked="" type="checkbox"/> No
1. A Discharge Report Form submitted to the County?	Yes	No
2. An investigation performed in accordance with Rule 62-761.820, F.A.C.?	Yes	No
b. Is the depth to groundwater less than 20 feet?	<input checked="" type="checkbox"/> Yes	No
c. Are there monitoring wells on site? If yes, were they	Yes	<input checked="" type="checkbox"/> No
1. Groundwater monitoring wells?	Yes	No
2. Vapor monitoring wells?	Yes	No
3. Used for closure assessment sampling?	Yes	No
4. Properly closed?	Yes	No
5. Retained for site assessment purposes?	Yes	No
d. If tanks were replaced, were contaminated soils returned to the tank excavation?	Yes	<input checked="" type="checkbox"/> No

Signature of owner or operator

Signature of person performing Limited Closure Assessment

M. Chris McNees  
Name of person performing Limited Closure Assessment

(date) 4/9/00

(date) 5/22/00  
*Printed on recycled paper.*

Affiliation AEROSTAR

**APPENDIX C**

**STORAGE TANK FACILITY REGISTRATION FORM**



**Florida Department of Environmental Protection**  
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

**Storage Tank Facility Registration Form**

DEP Form # 62-761.900(2)  
Form Title Storage Tank Registration Form  
Effective Date: July 13, 1998  
DEP Application No. \_\_\_\_\_  
(Filed in by DEP)

Submit a completed form for the facility when registration of storage tanks or compression vessels is required by Chapter 376.303, Florida Statutes

Please review **Registration Instructions** before completing the form.

Please check all that apply	<input type="checkbox"/> New Registration	<input type="checkbox"/> New Owner	<input type="checkbox"/> New Tanks
	<input checked="" type="checkbox"/> Facility Info Update/Correction	<input type="checkbox"/> Owner Info Update/Correction	<input type="checkbox"/> Tank Info Update/Correction

**A. FACILITY INFORMATION**

<b>County:</b> Duval	<b>DEP Facility ID:</b> 16-8626008
----------------------	------------------------------------

Facility Name: US Navy-Mayport Naval Station-Building 163B  
Facility Address: Mayport Naval Air Station City: Mayport Zip: 32228  
Facility Contact: Jan Bovier Business Phone: ( 904 ) 270-6730  
Facility Type(s): F NAICS Code: \_\_\_\_\_ Financial Responsibility: \_\_\_\_\_

**24 Hour Emergency Contact:** Jan Bovier **Emergency Phone:** ( 904 ) 270-6730

**B. RESPONSIBLE PERSON INFORMATION** - Identify Individual(s) or Business(es) responsible for storage tank management, fueling operations, and/or cleanup activities at the facility location named above. **Provide additional information in an attachment if necessary.**

Name: US Navy-Mayport Naval Station	Facility - Responsible Person Relation Type:	Effective Date
Mail address: Mayport Naval Air Station	<input checked="" type="checkbox"/> <b>Facility Account Owner (pays fees)</b>	
City, ST, Zip: Mayport, FL 32228	Facility Account Owner information must be provided when the facility contains active (in-use) storage tanks on site.	
Contact: Jan Bovier	<b>STCM Account Number (if known)</b>	
Telephone: 270-6730		
Identify other appropriate facility relationships for this party: <input checked="" type="checkbox"/> Facility Owner/Operator <input type="checkbox"/> Property Owner <input type="checkbox"/> Storage Tank Owner		

Name:	Other owner, relationship type(s)	Effective Date
Mail address:	<input type="checkbox"/> Facility Owner/Operator	
City, ST, Zip:	<input type="checkbox"/> Property Owner	
Contact:	<input type="checkbox"/> Storage Tank Owner	
Telephone:	<input type="checkbox"/> Other:	

**C. TANK/VESSEL INFORMATION** - Complete one row for each storage tank or compression vessel system located at this facility.

Tank ID	T/V	A/U	Capacity	Installed	Content	Status/Effective Date	Construction	Piping	Monitoring
163B	T	A	500	1-1-59	D	B 3-2000	CK	AB	M

Certified Contractor (performing tank installation or removal): Omega Environmental Services, Inc. DBPR License No.: PCC056792

**Registration Certification:** To the best of my knowledge and belief, all information submitted on this form is true, accurate, and complete.

Michael Edward Swartz Michael Edward Swartz 6-19-00  
Printed Name & Title Signature Date



**Client:** Aerostar Environmental Services  
**Project Name:** NAS Mayport - Bldg. 163B  
**Project No.:** 99-244

**Report No.:** J200705  
**Date Sampled:** 3/29/00  
**Date Submitted:** 3/30/00  
**Date Reported:** 4/6/00

**Address:** 11200-1 St. Johns Industrial Parkway  
Jacksonville, FL 32246

**Project Chemist:** KB/PW

**Attention:** Chris McNeas

**Page No.:** 1 of 6

**Sample Description**

The following water and soil samples were submitted by Aerostar Environmental Services on 3/30/00 for analysis outlined on the attached Chain of Custody:

Project Name: NAS Mayport - Bldg. 163B  
Project #: 99-244

1. SB-2-7 @ 08:20
2. TW-1 @ 13:30

Approved by: \_\_\_\_\_

*Jolene C. Wanke-Roszel*  
Jolene C. Wanke-Roszel, Project Manager

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Aerostar Environmental Services  
 Project No.: 99-244  
 Matrix: Soil

Report No.: J200705  
 Date Sampled: 3/29/00  
 Date Submitted: 3/30/00  
 Date Reported: 4/6/00

Page No.: 2 of 6

**Volatile Aromatic Hydrocarbons**

EPA Method 5035/8260

Units: µg/Kg

Lab Code: 200705-1<sup>a</sup>    200693-mb  
 Dilution Factor: 10    1  
 Date Analyzed: 4/3/00    4/3/00

Analytes	MRL	Sample Name:	SB-2-7	Method Blank
Methyl- <i>tert</i> -butyl Ether	5		U10	U
Benzene	5		U10	U
Toluene	5		1090	U
Chlorobenzene	5		U10	U
Ethylbenzene	5		U10	U
<i>m&amp;p</i> -Xylenes	5		U10	U
<i>o</i> -Xylenes	5		U10	U
1,3-Dichlorobenzene	5		U10	U
1,4-Dichlorobenzene	5		U10	U
1,2-Dichlorobenzene	5		U10	U

Surrogate	Acceptance Limits	Percent Recovery	Percent Recovery
1,2-Dichloroethane-d4	80-120	112	101
Toluene-d8	81-117	91	92
4-Bromofluorobenzene	74-121	110	110

A Results obtained through multiple analysis.  
 U Not detected above the MRL  
 MRL Method Reporting Limit

**Advanced Environmental Laboratories, Inc.**

*Analytical Report*

**Client:** Aerostar Environmental Services  
**Project No.:** 99-244  
**Matrix:** Soil

**Report No.:** J200705  
**Date Sampled:** 3/29/00  
**Date Submitted:** 3/30/00  
**Date Reported:** 4/6/00

**Page No.:** 3 of 6

**Polynuclear Aromatic Hydrocarbons**

**EPA Methods 3550B/8270C**

Units: µg/Kg

**Lab Code:** 200705-1    200708-mb  
**Dilution Factor:** 5            1  
**Date Extracted:** 4/3/00        4/3/00  
**Date Analyzed:** 4/3/00        4/3/00

<b>Analytes</b>	<b>MRL</b>	<b>Sample Name:</b>	<b>SB-2-7</b>	<b>Method Blank</b>
Naphthalene	100		3600	U
2-Methylnaphthalene	100		13035	U
1-Methylnaphthalene	100		12195	U
Acenaphthylene	100		880	U
Acenaphthene	100		860	U
Fluorene	100		3675	U
Phenanthrene	100		6445	U
Anthracene	100		6990	U
Fluoranthene	100		U500	U
Pyrene	100		685	U
Benzo(a)anthracene	100		U500	U
Chrysene	100		U500	U
Benzo(b)fluoranthene	100		U500	U
Benzo(k)Fluoranthene	100		U500	U
Benzo(a)pyrene	100		U500	U
Indeno-1,2,3(cd)pyrene	100		U500	U
Dibenzo(ah)anthracene	100		U500	U
Benzo(ghi)perylene	100		U500	U

<b>Surrogate</b>	<b>Acceptance Limit</b>	<b>Percent Recovery</b>	<b>Percent Recovery</b>
2-Fluorobiphenyl	43-130	82	78

U Not detected above the MRL  
MRL Method Reporting Limit

Advanced Environmental Laboratories, Inc.

Analytical Report

Client: Aerostar Environmental Services  
Project No.: 99-244  
Matrix: Soil

Report No.: J200705  
Date Sampled: 3/29/00  
Date Submitted: 3/30/00  
Date Reported: 4/6/00

Page No.: 4 of 6

**Florida Petroleum Residual Organics**  
EPA Method 3550B/FL-PRO  
Units:  $\mu\text{g/Kg}$

Lab Code: 200705-1    200670-mb  
Dilution Factor: 5    1  
Date Extracted: 4/3/00    4/3/00  
Date Analyzed: 4/3/00    4/3/00

Analytes	MRL	Sample Name:	Method Blank
TOTAL PHS	4000	SB-2-7	U

Surrogate	Acceptance Limit	Percent Recovery	Percent Recovery
Ortho-terphenyl (OTP)	42-142	68	96
Nonatricontane (C39)	60-118	90	98

U Not detected above the MRL  
MRL Method Reporting Limit

**Advanced Environmental Laboratories, Inc.**

*Analytical Report*

Client: Aerostar Environmental Services  
 Project No.: 99-244  
 Matrix: Water

Report No.: J200705  
 Date Sampled: 3/29/00  
 Date Submitted: 3/30/00  
 Date Reported: 4/6/00

Page No.: 5 of 6

**Volatile Aromatic Hydrocarbons**

EPA Method 5030/624

Units: µg/L

Lab Code: 200705-2      200709-mb  
 Dilution Factor: 1      1  
 Date Analyzed: 4/3/00      4/3/00

Analytes	MRL	Sample Name:	TW-1	Method Blank
Methyl- <i>tert</i> -butyl Ether	1		U	U
Benzene	1		U	U
Toluene	1		U	U
Chlorobenzene	1		U	U
Ethylbenzene	1		U	U
<i>m</i> & <i>p</i> -Xylenes	1		U	U
<i>o</i> -Xylenes	1		U	U
1,3-Dichlorobenzene	1		U	U
1,4-Dichlorobenzene	1		U	U
1,2-Dichlorobenzene	1		U	U

Surrogate	Acceptance Limits	Percent Recovery	Percent Recovery
1,2-Dichloroethane-d4	80-120	96	97
Toluene-d8	81-117	93	90
4-Bromofluorobenzene	74-121	96	93

A Results obtained through multiple analysis  
 U Not detected above the MRL  
 MRL Method Reporting Limit

**Advanced Environmental Laboratories, Inc.**

*Analytical Report*

**Client:** Aerostar Environmental Services  
**Project No.:** 99-244  
**Matrix:** Water

**Report No.:** J200705  
**Date Sampled:** 3/29/00  
**Date Submitted:** 3/30/00  
**Date Reported:** 4/6/00

**Page No.:** 6 of 6

**Polynuclear Aromatic Hydrocarbons**

EPA Methods 3510C/8310

Units: µg/L

**Lab Code:** 200705-2    200691-mb  
**Dilution Factor:** 1    1  
**Date Extracted:** 4/3/00    4/3/00  
**Date Analyzed:** 4/3/00    4/3/00

<b>Analytes</b>	<b>MRL</b>	<b>Sample Name:</b> TW-1	<b>Method Blank</b>
Naphthalene	1	17.5	U
2-Methylnaphthalene	1	13.6	U
1-Methylnaphthalene	1	7.0	U
Acenaphthylene	1	3.30	U
Acenaphthene	1	3.30	U
Fluorene	1	U	U
Phenanthrene	1	1.60	U
Anthracene	1	U	U
Fluoranthene	1	U	U
Pyrene	1	U	U
Benzo(a)anthracene	0.2	U	U
Chrysene	1	U	U
Benzo(b)fluoranthene	0.2	U	U
Benzo(k)Fluoranthene	0.5	U	U
Benzo(a)pyrene	0.2	U	U
Indeno-1,2,3(cd)pyrene	0.2	U	U
Dibenzo(ah)anthracene	0.2	U	U
Benzo(ghi)perylene	1	U	U

<b>Surrogate</b>	<b>Acceptance Limit</b>	<b>Percent Recovery</b>	<b>Percent Recovery</b>
2-Fluorobiphenyl	43-130	56	100

J Not detected above the MRL  
MRL Method Reporting Limit



**Advanced Environmental Laboratories, Inc.**

8936 Western Way, Suite 7, Jacksonville, FL 32256 • (904) 363-9350 Fax (904) 363-9354

**CHAIN OF CUSTODY RECORD**

JOB NUMBER 200705

CLIENT NAME: <b>AEROSTAR</b>	PROJECT NAME: <b>NAS MAYPORT BLDG 163B</b>	PRESERVATIVE CONTAINER SIZE AND TYPE ANALYSES REQUIRED LAB USE
ADDRESS:	P.O. NUMBER / PROJECT NUMBER: <b>99-244</b>	
PHONE: <b>565-2820</b> FAX:	PROJECT LOCATION: <b>JAX, FL</b>	
CONTACT: <b>CHRIS MCNEES</b>	SAMPLED BY: <b>MCN/EF/CB</b>	
TURN AROUND TIME or RESULTS DUE BY:		SPECIAL INSTRUCTIONS:
<input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> VERBAL <input type="checkbox"/> RUSH <input type="checkbox"/> FAX <input type="checkbox"/> OTHER <input type="checkbox"/> HARD COPY		

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLING		* MATRIX	NO. OF CONTAIN.								
		DATE	TIME										
	<b>SB-2-7</b>	<b>3-29-00</b>	<b>8:20</b>	<b>SO</b>	<b>4</b>	<b>X</b>	<b>X</b>	<b>X</b>					
	<b>TW-1</b>	<b>3-29-00</b>	<b>1330</b>	<b>GW</b>	<b>3</b>				<b>X</b>	<b>X</b>			

\* GW—Groundwater    SW—Surface Water    DW—Drinking Water    WW—Waste Water    SO—Solid/Soil    SL—Sludge    HW—Hazardous Waste    A—Air

FIELD PARAMETERS / COMMENTS:	TRANS. NO.	TRANSFERS RELINQUISHED BY:	ACCEPTED BY:	DATE:	TIME:
	1	<i>mcn/ef/cb</i>	<i>J. O'Connell</i>	<b>3-30-00</b>	<b>1700</b>
	2				
	3				
CONTAINERS/SEALS INTACT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	ON ICE/4°C <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	AEL SHIPPED VIA:			
		4			

**APPENDIX B**

**SAR SUMMARY SHEET**

**CONTAMINATION ASSESSMENT REPORT SUMMARY SHEET**

Facility Name: Site 163B, Naval Station Mayport Reimbursement Site:   
 Location: Mayport, Florida State Contract Site:   
 EDI #: \_\_\_\_\_ FAC I.D.# \_\_\_\_\_ Other: Non-Prog.

Date Reviewed: \_\_\_\_\_ Local Government: \_\_\_\_\_

(1) Source of Spill: Leaking UST Date of Spill: Unknown

(2) Type of Product: Gasoline Group Gallons Lost Kerosene Group Gallons Lost

<input type="checkbox"/> Leaded	_____	<input type="checkbox"/> Kerosene	_____
<input type="checkbox"/> Unleaded Regular	_____	<input type="checkbox"/> Diesel	_____
<input type="checkbox"/> Unleaded Premium	_____	<input type="checkbox"/> JP-4 Jet Fuel	_____
<input type="checkbox"/> Gasohol	_____	<input type="checkbox"/> Heating Fuel	_____
<input type="checkbox"/> Undetermined	_____	<input checked="" type="checkbox"/> Unknown	_____

(3) Description of IRA: Soil from tank excavation removed. -None-  
 Free product Removal: \_\_\_\_\_ (gals)  
 Soil Removal: none (cubic yds)  
 Soil Incineration: \_\_\_\_\_ (cubic yds)

(4) Free Product still present (yes/no) No Maximum apparent product thickness: N/A (feet)

(5) Maximum Groundwater contamination levels (ppb):  
 Total VOA: <1 benzene: <1 EDB: < 0.020  
 lead: <1 MTBE: <5.0 other: TRPH & PAHs

(6) Brief lithologic description: Medium to fine grained sand. No significant lithologic variations across site.

(7) Areal and vertical extent of soils contamination defined (yes/no) Yes

Highest current soil concentration (OVA: 0 ppm) or (EPA method 5030/8020: \_\_\_\_\_ ppb)

(8) Lower aquifer contaminated? (yes/no) No Depth of vertical contamination: N/A

(9) Date of last complete round of groundwater sampling: 8/23/02 Date of last soil sampling: 8/5/02

(10) QAPP approved? (yes/no) Date: 8/24/98

(11) Direction (e.g. NNW) of surficial groundwater flow: Northwest (Fig. 3-1 on page 3-3)

(12) Average depth to groundwater: 8.0 (ft)

(13) Observed range of seasonal groundwater fluctuations: > 0.5 ft GW flow report (USGS, 1997)

(14) Estimated rate of groundwater flow: 0.651 (ft/day)

(15) Hydraulic gradient across site: 0.045 (ft/ft)

(16) Aquifer characteristics:	Values	Units	Method
Hydraulic conductivity	<u>4.34</u>	<u>ft/day</u>	<u>Kasenow &amp; Pare, 1995</u>
Storage coefficient	<u>-</u>	<u>ft/ft</u>	<u>-</u>
Aquifer thickness	<u>40</u>	<u>ft</u>	<u>Literature</u>
Effective soil porosity	<u>30</u>	<u>%</u>	<u>Literature</u>
Transmissivity	<u>10</u>	<u>gal/day/ft</u>	<u>Specific Capacity Tests</u>

(17) Other remarks: None

**APPENDIX C**

**SOIL BORING LOGS AND LITHOLOGIC DESCRIPTIONS**



















# BORING LOG

PROJECT NAME: Tank Site 163 BORING NUMBER: SB-2 Macrocore  
 PROJECT NUMBER: N4240 DATE: 8/2/2002  
 DRILLING COMPANY: Precision Sampling, Inc. GEOLOGIST: DS  
 DRILLING RIG: Truck Mounted H.S. DRILLER: Shane Nowlen

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION		U S C S *	Remarks	PID/FID Reading (ppm)										
					Soil Density/ Consistency or Rock Hardness	Color			Material Classification	Sample	Sampler BZ	Borehole**	Driller BZ**						
	0-8	/																	
		/																	
	8-10	/																	
		/																	
	10-20	/																	
		/																	
	20-30	/																	
		/																	
	30-32	/																	
		/																	
	32-40	/																	
		/																	
		/																	
		/																	
		/																	
		/																	
		/																	
		/																	

\* When rock coring, enter rock brokenness.  
 \*\* Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: \_\_\_\_\_

Drilling Area Background (ppm):

Converted to Well: Yes  No  Well I.D. #: \_\_\_\_\_

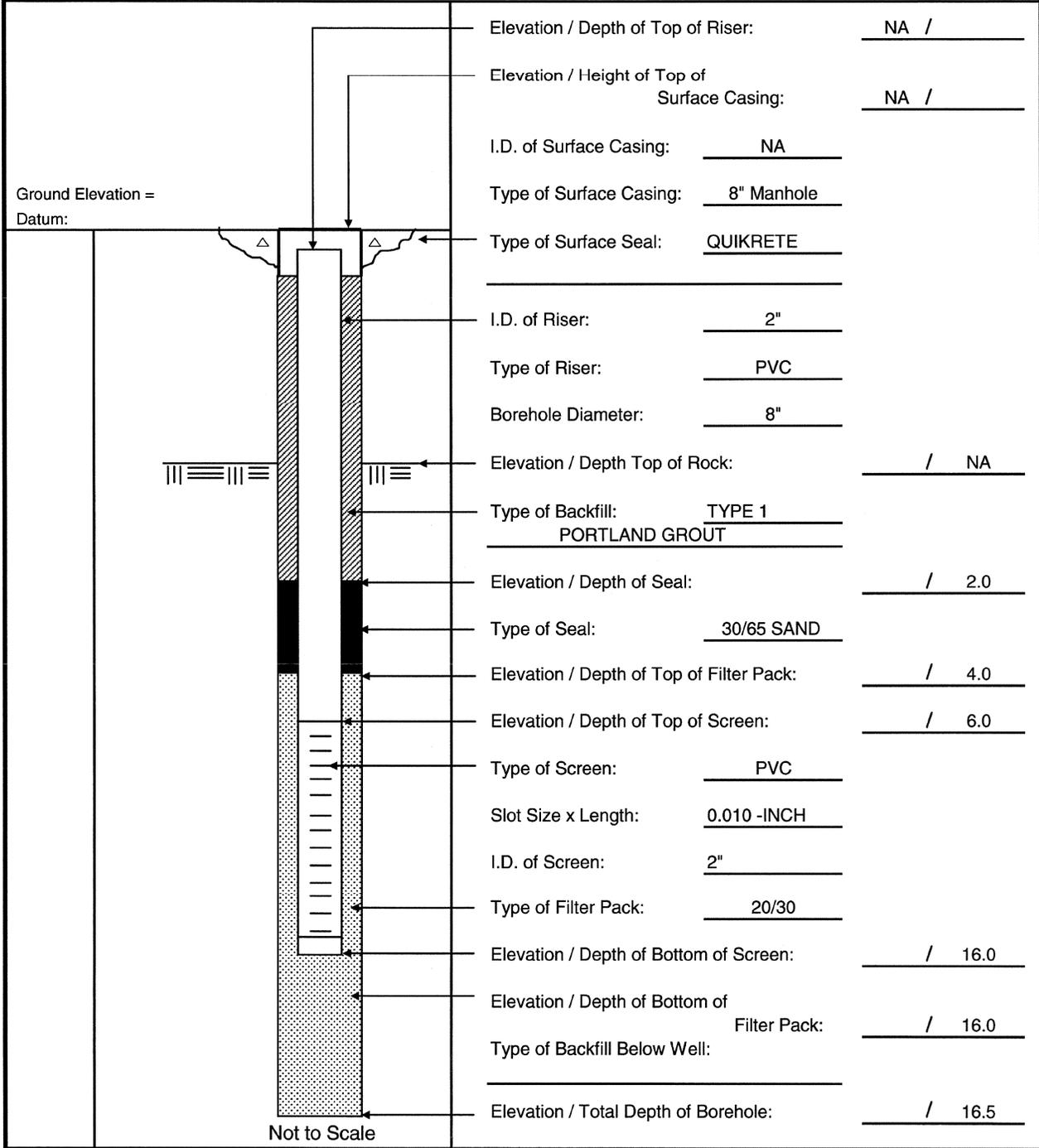
**APPENDIX D**

**WELL COMPLETION LOGS**



**SHALLOW MONITORING WELL SHEET**

PROJECT: CTO 247/ Bld 163 DRILLING Co.: Precision Sampling, Inc. BORING No.: MW-1  
 PROJECT No.: N4240 DRILLER: Shane Nowlane DATE COMPLETED: 08/08/02  
 SITE: Bld 163B DRILLING METHOD: H.S.A. NORTHING: \_\_\_\_\_  
 GEOLOGIST: DS DEV. METHOD: Submersible EASTING: \_\_\_\_\_



**APPENDIX E**

**GROUNDWATER FIELD SAMPLING DATA SHEETS**





Tetra Tech NUS, Inc.

### LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NS Mayport Tank Sites 163B  
 PROJECT NUMBER: N4240

WELL ID.: MPT-163B-MW1s-01  
 DATE: 8-23-02

Cum. Vol.	Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Sat. OPP (%)	Comments
0	0805	09.14	500							Start Purge
2.5	0810	09.18	500	5.87	0.980	52.1	1.79	27.5	-45	
5.0	0815	09.18	500	6.54	0.960	145.0	0.20	27.6	-115	
7.5	<del>0820</del> 0820	09.18	500	6.64	0.927	18.5	2.61	27.4	-104	
10	0825	09.18	500	6.66	0.948	12.5	0.83	27.6	-114	
12.5	0830	09.18	500	6.73	0.959	10.3	0.52	27.6	-113	
13.5	0832	09.18	500	6.75	0.963	10.3	0.42	27.6	-119	
14.5	0835	09.18	<del>500</del> 300	6.80	0.981	9.0	0.58	27.9	-123	
15.7	0840	09.18	<del>400</del> 250	6.80	0.980	6.9	0.46	27.9	-118	pump won't go any lower
17.1	0845	09.17	<del>400</del> 230	6.79	0.981	3.9	0.32	27.9	-120	
18.2	0850	09.17	<del>400</del> 250	6.78	0.982	2.8	0.20	27.9	-122	
19.5	0855	09.17	<del>400</del> 250	6.86	0.938	4.2	2.06	28.2	-118	5 vols CM
	Sample Time = 08			6.85	0.942	3.9	0.92	28.2	-123	CM
20.75	0900		250	6.85	0.942	3.9	0.92	28.2	-123	
22	0905		250	6.84	0.944	2.1	0.81	28.2	-125	5 volumes
	0910	= Sample Time								

SIGNATURE(S): Charles Mat





**APPENDIX F**

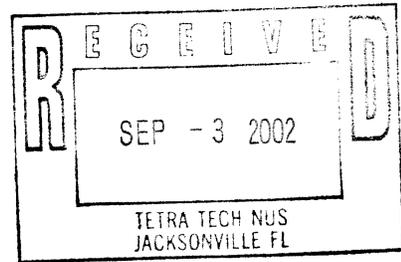
**MOBILE LABORATORY ANALYTICAL RESULTS**



**KB LABS, INC.**  
6821 Southwest Archer Road  
Gainesville, Florida 32608  
Telephone (352) 367-0073  
Fax (352) 367-0074  
Email: [kblabs@gator.net](mailto:kblabs@gator.net)

August 28, 2002

Mark Peterson  
Project Manager  
Tetra Tech NUS, Inc.  
8640 Philips Highway, Suite 16  
Jacksonville, Florida 32256



**RE: NS Mayport CTO247 - Final Data Report  
Mayport, Florida  
KB Labs Project # 02-065-1**

Dear Mr. Peterson:

Enclosed is the final report of the on-site analysis performed by KB Labs, Inc. at the above referenced site. Samples were collected and analyzed on August 1 through 5, 2002. Included are a brief project narrative, data report narrative, tables listing quality control results, final analytical results, and sample chain-of-custody form. This information will also be sent electronically.

If you have any questions, please do not hesitate to call me or Kelly Bergdoll, President of KB Labs, at (352) 367-0073.

Sincerely,

KB Labs, Inc.

Todd Romero  
Director of Operations

## KB LABS, INC.

### PROJECT NARRATIVE

<b>Client:</b>	TtNUS	<b>Driller/Sampler:</b>	TtNUS	<b>Analyst:</b>	Mark Mathews
<b>Site:</b>	NS Mayport CTO247	<b>KB Labs Project Manager:</b>	Kelly Bergdoll	<b>KB Labs Project #:</b>	02-065-1
<b>Onsite Dates:</b>	8/1/02-8/5/02	<b>Client Project Manager:</b>	Mark Peterson	<b>Matrix:</b>	Water/Soil

#### **Project Scope**

On August 1 through 5, 2002, a total of 71 samples (40 groundwaters and 31 soils) were collected at Naval Station Mayport in Mayport, Florida, by Tetra Tech NUS and relinquished to KB Labs' Mobile Laboratory. The samples were analyzed on-site for MTBE, Benzene, Ethylbenzene, Toluene, Xylenes, Naphthalene, and 1- & 2-Methylnaphthalene.

#### **Analytical Procedure**

**Waters:** The samples were analyzed for volatile organic compounds (VOCs) using SW846 Method 5030/8021 for waters. Five (5) ml of sample were purged with nitrogen and the VOCs were collected on a solid-phase adsorption trap. The adsorption trap was heated and back-purged with nitrogen and the components were separated by capillary column gas chromatography and measured with a photoionization detector (PID). The individual VOCs in the samples were measured against corresponding VOC standards.

**Soils:** The soil samples were analyzed using SW846 Method 5030/8021. One (1) gram (g) of soil sample was added to 5 mL of laboratory reagent water, heated and analyzed like a water sample as described above.

Unless otherwise indicated, soil data is calculated based on the matrix received (i.e. wet weight basis).

#### **Analytical Results**

Laboratory results were provided to the client on an as-completed or next-day basis. Final results of the on-site analyses are provided in a hardcopy report. The data produced and reported in the field has been reviewed and approved for this final report by the Director of Operations for KB Labs.

**Quality Control (OC) Data**

Surrogate Recoveries – Table 1 lists the daily analytical sequence and percent recovery results for the surrogate compound which was added to each analysis. The surrogate compounds 4-Bromofluorobenzene and Bromochlorobenzene was added to each analysis in order to continually monitor general method performance.

Matrix Spike Recoveries – Table 2 lists the percent recovery results for matrix spike samples and laboratory control spikes. A known amount of each target compound was added to selected field samples and to laboratory reagent water in order to monitor the performance of each of the target compounds in the actual matrix and in laboratory reagent water.

Method Blanks – Daily analysis of laboratory reagent water samples was performed in order to monitor the cleanliness of the analytical system.

Signature: 

Title: Director of Operations

Date: 8/28/02

**KB LABS, INC.**

**DATA REPORT NARRATIVE**

<b>Client:</b>	TtNUS	<b>Driller/Sampler:</b>	TtNUS	<b>Analyst:</b>	Mark Mathews
<b>Site:</b>	NS Mayport CTO247	<b>KB Labs Project Manager:</b>	Kelly Bergdoll	<b>KB Labs Project #:</b>	02-065-1
<b>Onsite Dates:</b>	8/1/02-8/5/02	<b>Client Project Manager:</b>	Mark Peterson	<b>Matrix:</b>	Water/Soil

1. All samples have been reviewed and, if required, updated in the Final Data Report for rounding and significant figures.
2. Upon review of the field data, the following samples have results updated in the Final Data Report:

<u>Sample</u>	<u>Compounds</u>	<u>From</u>	<u>To</u>
<b>MPT-1586 TW-1</b>	Ethylbenzene	<1 ug/L	3.1 ug/L
<b>MPT-1586 SB1-05</b>	o-Xylene	<0.005 mg/kg	0.46 mg/kg

3. Results for samples **MPT-163 SB3-07** and **MPT-163 SB4-07** were switched in the Preliminary Data Report.
4. Because of the ethylbenzene and m,p-xylene peaks co-eluting for sample **MPT-1586 SB1-05**, the results for the following compounds have been updated:

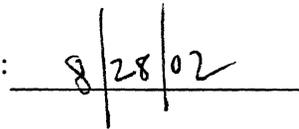
<u>Compounds</u>	<u>From</u>	<u>To</u>
Ethylbenzene	1.3 mg/kg	<0.005 mg/kg
m,p-Xylene	0.0 mg/kg	1.3 mg/kg

Signature: \_\_\_\_\_



Title: Director of Operations

Date: \_\_\_\_\_



**KB LABS, INC.**

**Table 1: Analytical Run Sequence/Surrogate Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery		Surrogate Control Limits: 80%(LCL) to 120%(UCL)		Comment
		S1*	S2*	S1*	S2*	
STD 20	08/01/02	99	92	Pass	Pass	
BLANK	08/01/02	87	82	Pass	Pass	
MPT-BE MW05S	08/01/02	83	81	Pass	Pass	
MPT-BE MW10S	08/01/02	91	86	Pass	Pass	
MPT-BE MW02S	08/01/02	78	77	< LCL	< LCL	
MPT-BE MW01S	08/01/02	86	115	Pass	Pass	
MPT-BE MW07S	08/01/02	76	76	< LCL	< LCL	
MPT-365 TW2 water	08/01/02	119	106	Pass	Pass	
MPT-365 TW 3 water	08/01/02	86	82	Pass	Pass	
MPT-365 TW 4 water	08/01/02	88	88	Pass	Pass	
MPT-365 TW-5 water	08/01/02	87	86	Pass	Pass	
MPT-365 TW-1 water	08/01/02	87	87	Pass	Pass	
MPT-365 TW-6 water	08/01/02	85	82	Pass	Pass	
MPT-365 TW -8 water	08/01/02	84	78	Pass	< LCL	
MPT-365 MW-2 water	08/01/02	83	82	Pass	Pass	
MPT-365 TW-7 water	08/01/02	91	85	Pass	Pass	
MPT-365 TW-3 20' water	08/01/02	93	88	Pass	Pass	
MPT-365 TW-3 40' water	08/01/02	91	90	Pass	Pass	
MPT-365 SB-1 03 1.0g soil	08/01/02	81	91	Pass	Pass	
SB2 -03 MPT-365-SB2-03 1.0g soil	08/01/02	81	72	Pass	< LCL	
SB-3 MPT-365-SB3-03 1.0g soil	08/01/02	94	91	Pass	Pass	
SB-5 MPT-365-SB5-03 soil 1.0g	08/01/02	100	97	Pass	Pass	
SB-4 MPT-365-SB4-03 1.0g soil	08/01/02	194	182	> UCL	> UCL	Possible double spike
SB-7 MPT-365 1.0g soil	08/01/02	88	86	Pass	Pass	
SB-8 MPT-365 1.0g soil	08/01/02	87	85	Pass	Pass	
SB-6 MPT-365 1.0g soil	08/01/02	83	80	Pass	< LCL	
LCS/ ICV	08/01/02	79	82	< LCL	Pass	
MS TW-2	08/01/02	82	99	Pass	Pass	
MSD TW-2	08/01/02	0	0	< LCL	< LCL	Not spiked
STD 20	08/01/02	0	0	< LCL	< LCL	Not spiked
BLANK	08/02/02	88	86	Pass	Pass	
STD 20	08/02/02	107	124	Pass	> UCL	

**\*Surrogate Compounds:**

S1 = 4-Bromofluorobenzene

S2 = Bromochlorobenzene

**KB LABS, INC.**

**Table 1: Analytical Run Sequence/Surrogate Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery		Surrogate Control Limits: 80%(LCL) to 120%(UCL)		Comment
		S1*	S2*	S1*	S2*	
MPT-163 TW-2 water	08/02/02	100	107	Pass	Pass	
MPT-163 MW-1 water	08/02/02	90	92	Pass	Pass	
MPT-163 SB1-07 soil 1.0g	08/02/02	98	97	Pass	Pass	
MPT-163 SB-2 soil 1.0g	08/02/02	86	90	Pass	Pass	
MPT-163 TW1 water	08/02/02	106	107	Pass	Pass	
MPT-163 TW-3 water	08/02/02	85	84	Pass	Pass	
MPT-163 TW-4 water	08/02/02	86	83	Pass	Pass	
MPT-163 TW-5 water	08/02/02	98	98	Pass	Pass	
MPT-163 TW-6 water	08/02/02	98	98	Pass	Pass	
MPT-163 TW-8 water	08/02/02	89	92	Pass	Pass	
MPT-163 TW-2 20' water	08/02/02	77	71	< LCL	< LCL	
MPT-163 TW-2 40' water	08/02/02	81	80	Pass	< LCL	
MPT-163 TW-7 water	08/02/02	71	78	< LCL	< LCL	
STD 20	08/02/02	89	94	Pass	Pass	
MPT-163 SB4-07 soil 1.0g	08/02/02	79	80	< LCL	Pass	
MPT-163 SB4-07 soil 1.0g	08/02/02	78	83	< LCL	Pass	
MPT-163 SB5 -07 soil 1.0g	08/02/02	83	90	Pass	Pass	
MPT-163 SB6-07 soil 1.0g	08/02/02	79	93	< LCL	Pass	
MPT-163 SB7-07 soil 1.0g	08/02/02	84	99	Pass	Pass	
MPT-163 SB8 -07 soil 1.0g	08/02/02	68	73	< LCL	< LCL	
LCS1	08/02/02	44	46	< LCL	< LCL	
MS MPT-163 TW-2 9:30	08/02/02	44	46	< LCL	< LCL	
MSD MPT-163 TW-2 9:30	08/02/02	81	84	Pass	Pass	
STD 20	08/02/02	76	82	< LCL	Pass	
STD 20	08/03/02	96	86	Pass	Pass	
BLANK	08/03/02	76	92	< LCL	Pass	
LCS /ICV	08/03/02	69	74	< LCL	< LCL	
MPT-1586 SB1 -03 soil 1.0g	08/03/02	78	76	< LCL	< LCL	
MPT-BE MW9 water	08/03/02	82	76	Pass	< LCL	
MPT-1586 SB2 -03	08/03/02	77	66	< LCL	< LCL	
MPT-1586 SB3 -03	08/03/02	74	77	< LCL	< LCL	
MPT-1583 TW-5 water	08/03/02	96	104	Pass	Pass	

**\*Surrogate Compounds:**

S1 = 4-Bromofluorobenzene

S2 = Bromochlorobenzene

**KB LABS, INC.**

**Table 1: Analytical Run Sequence/Surrogate Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery		Surrogate Control Limits: 80%(LCL) to 120%(UCL)		Comment
		S1*	S2*	S1*	S2*	
MPT-1583 TW-6 water	08/03/02	106	120	Pass	Pass	
MPT-1583 TW-7 water	08/03/02	104	116	Pass	Pass	
MPT-1583 TW-1 water	08/03/02	89	111	Pass	Pass	
MPT-1583 TW-9 water	08/03/02	78	68	< LCL	< LCL	
MPT-1583 TW-10 water	08/03/02	91	95	Pass	Pass	
MPT-1583 TW-8 water	08/03/02	89	104	Pass	Pass	
MPT-1583 TW-11 water	08/03/02	84	75	Pass	< LCL	
MPT-1583 TW-12 water	08/03/02	75	78	< LCL	< LCL	
MPT-1586 SB4 -03 5.0g/5.0 m	08/03/02	94	227	Pass	> UCL	Matrix Interference
MPT-1586 SB2 -05 soil 1.0g	08/03/02	75	14	< LCL	< LCL	
MPT-1586 SB5 -03 soil 1.0g	08/03/02	56	45	< LCL	< LCL	
MPT-1586 SB6 -05 soil 1.0g	08/03/02	67	73	< LCL	< LCL	
STD 20 mid run	08/03/02	72	79	< LCL	< LCL	
MPT-1586 SB7 -05 spoil 1.0g	08/03/02	65	61	< LCL	< LCL	
MPT-1586 SB1 -05 soil 1.0g	08/03/02	101	208	Pass	> UCL	Matrix Interference
MPT-1586 SB9 -05 soil 1.0g	08/03/02	74	61	< LCL	< LCL	
MPT-1586 SB10 -05 soil 1.0g	08/03/02	65	56	< LCL	< LCL	
MPT-1586 SB8 -05 soil 1.0g	08/03/02	72	59	< LCL	< LCL	
MPT-1586 SB11 -05 soil 1.0g	08/03/02	75	357	< LCL	> UCL	Matrix Interference
MPT-1586 SB12 -05 soil 1.0g	08/03/02	73	38	< LCL	< LCL	
BLANK	08/03/02	72	72	< LCL	< LCL	
LCS/ICV	08/03/02	52	55	< LCL	< LCL	
MS MPT-BE MW9	08/03/02	70	76	< LCL	< LCL	
MSD MPT-BE MW9	08/03/02	72	80	< LCL	< LCL	
STD 20 end std	08/03/02	67	70	< LCL	< LCL	
STD 20 8-4-02	08/03/02	79	72	< LCL	< LCL	
MPT-1586 SB4 -03 5.0g/5.0 m	08/03/02	65	78	< LCL	< LCL	
blank	08/03/02	68	42	< LCL	< LCL	
STD 20	08/03/02	58	55	< LCL	< LCL	
STD 20	08/05/02	0	0	< LCL	< LCL	Lamp was off
BLANK	08/05/02	74	65	< LCL	< LCL	
LCS/ ICV	08/05/02	72	89	< LCL	Pass	

**\*Surrogate Compounds:**

S1 = 4-Bromofluorobenzene

S2 = Bromochlorobenzene

**KB LABS, INC.**

**Table 1: Analytical Run Sequence/Surrogate Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery		Surrogate Control Limits: 80%(LCL) to 120%(UCL)		Comment
		S1*	S2*	S1*	S2*	
STD 20	08/05/02	79	86	< LCL	Pass	
MPT-1586 TW10- 20'	08/05/02	68	67	< LCL	< LCL	
MPT-1586 TW10- 40'	08/05/02	73	71	< LCL	< LCL	
MPT-1586 SB13 -05 soil 1.0g	08/05/02	78	76	< LCL	< LCL	
MPT-1586 TW 13	08/05/02	85	96	Pass	Pass	
LCS 2 / ICV 2	08/05/02	74	75	< LCL	< LCL	
MS MPT-1586 SB13- 05	08/05/02	79	89	< LCL	Pass	
MSD MPT-1586 SB13- 05	08/05/02	73	68	< LCL	< LCL	
STD 20 END	08/05/02	88	88	Pass	Pass	

**Comments:**

1. Although some surrogates may be out of the control percent recovery range (80% to 120%), other supporting QC, such as matrix spikes, matrix spike duplicates, method blanks, and laboratory control samples, are performed by KB Labs to further validate reported data.

**Signature:** \_\_\_\_\_



**Title:** Director of Operations

**Date:** \_\_\_\_\_

8/29/02

**\*Surrogate Compounds:**

S1 = 4-Bromofluorobenzene

S2 = Bromochlorobenzene

**KB LABS, INC.**

**Table 2: Spike Compound Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No.:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

**Sample Matrix Spikes:**

<b>Samples:</b>	MPT-365 TW-2 MS MPT-365 TW-2 MSD	<b>Date of Analysis:</b>	8/1/2002						
Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
MTBE	70	130	20	127	NA	NA	Pass	NA	NA
Benzene	70	130	20	76	NA	NA	Pass	NA	NA
Toluene	70	130	20	75	NA	NA	Pass	NA	NA
Ethylbenzene	70	130	20	81	NA	NA	Pass	NA	NA
m&p-Xylene	70	130	20	79	NA	NA	Pass	NA	NA
o-Xylene	70	130	20	80	NA	NA	Pass	NA	NA
Naphthalene	70	130	20	125	NA	NA	Pass	NA	NA
2-Methylnaphtalene	70	130	20	110	NA	NA	Pass	NA	NA
1-Methylnaphtalene	70	130	20	118	NA	NA	Pass	NA	NA

**Note:** Control limits are based on method guidance.  
MSD sample was not spiked due to possible equipment failure.

<b>Samples:</b>	MPT-163 TW-2 MS MPT-163 TW-2 MSD	<b>Date of Analysis:</b>	8/2/2002						
Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
MTBE	70	130	20	103	121	16	Pass	Pass	Pass
Benzene	70	130	20	82	93	12	Pass	Pass	Pass
Toluene	70	130	20	80	85	7	Pass	Pass	Pass
Ethylbenzene	70	130	20	90	92	2	Pass	Pass	Pass
m&p-Xylene	70	130	20	83	87	6	Pass	Pass	Pass
o-Xylene	70	130	20	87	89	2	Pass	Pass	Pass
Naphthalene	70	130	20	81	69	16	Pass	< LCL	Pass
2-Methylnaphtalene	70	130	20	78	76	3	Pass	Pass	Pass
1-Methylnaphtalene	70	130	20	75	66	12	Pass	< LCL	Pass

**Note:** Control limits are based on method guidance.

<b>Samples:</b>	MPT-BE MW9 MS MPT-BE MW9 MSD	<b>Date of Analysis:</b>	8/3/2002						
Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
MTBE	70	130	20	93	117	23	Pass	Pass	> RPDL
Benzene	70	130	20	69	69	1	< LCL	< LCL	Pass
Toluene	70	130	20	67	77	13	< LCL	Pass	Pass
Ethylbenzene	70	130	20	71	69	4	Pass	< LCL	Pass
m&p-Xylene	70	130	20	69	70	0	< LCL	< LCL	Pass
o-Xylene	70	130	20	70	71	1	< LCL	Pass	Pass
Naphthalene	70	130	20	82	101	20	Pass	Pass	> RPDL
2-Methylnaphtalene	70	130	20	79	96	20	Pass	Pass	Pass
1-Methylnaphtalene	70	130	20	75	97	26	Pass	Pass	> RPDL

**Note:** Control limits are based on method guidance.

**KB LABS, INC.**

**Table 2: Spike Compound Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No.:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

<b>Samples:</b>	MPT-1586 SB13-05 MS MPT-1586 SB13-05 MSD	<b>Date of Analysis:</b>	8/5/2002						
Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
MTBE	70	130	20	117	98	18	Pass	Pass	Pass
Benzene	70	130	20	83	80	4	Pass	Pass	Pass
Toluene	70	130	20	83	83	0	Pass	Pass	Pass
Ethylbenzene	70	130	20	95	86	10	Pass	Pass	Pass
m&p-Xylene	70	130	20	85	84	1	Pass	Pass	Pass
o-Xylene	70	130	20	86	85	1	Pass	Pass	Pass
Naphthalene	70	130	20	101	66	42	Pass	< LCL	> RPD
2-Methylnaphtalene	70	130	20	72	59	20	Pass	< LCL	Pass
1-Methylnaphtalene	70	130	20	76	62	21	Pass	< LCL	> RPD

**Note:** Control limits are based on method guidance.

**KB LABS, INC.**

**Table 2: Spike Compound Percent Recoveries**

<b>Client:</b> TtNUS	<b>Driller/Sampler:</b> TtNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No.:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

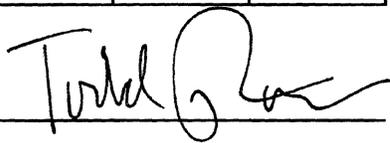
**Laboratory Control Spikes (LCS):**

<b>Samples:</b>	LCS#1	<b>Date of Analysis:</b>	8/1/2002						
	LCS#2		8/2/2002						
	LCS#3		8/3/2002						
Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper		LCS#1	LCS#2	LCS#3	LCS#1	LCS#2	LCS#3
MTBE	70	to 130		118	113	84	Pass	Pass	Pass
Benzene	70	to 130		82	86	81	Pass	Pass	Pass
Toluene	70	to 130		78	80	90	Pass	Pass	Pass
Ethylbenzene	70	to 130		78	84	93	Pass	Pass	Pass
m&p-Xylene	70	to 130		73	82	93	Pass	Pass	Pass
o-Xylene	70	to 130		76	82	90	Pass	Pass	Pass
Naphthalene	70	to 130		89	92	101	Pass	Pass	Pass
2-Methylnaphtalene	70	to 130		85	77	84	Pass	Pass	Pass
1-Methylnaphtalene	70	to 130		107	84	92	Pass	Pass	Pass

**Note:** Control limits are based on method guidance.

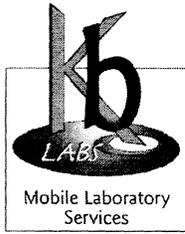
<b>Samples:</b>	LCS#4	<b>Date of Analysis:</b>	8/3/2002						
	LCS#5		8/5/2002						
	LCS#6		8/5/2002						
Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper		LCS#4	LCS#5	LCS#6	LCS#4	LCS#5	LCS#6
MTBE	70	to 130		78	81	116	Pass	Pass	Pass
Benzene	70	to 130		65	78	96	< LCL	Pass	Pass
Toluene	70	to 130		64	80	104	< LCL	Pass	Pass
Ethylbenzene	70	to 130		70	75	113	< LCL	Pass	Pass
m&p-Xylene	70	to 130		71	77	106	Pass	Pass	Pass
o-Xylene	70	to 130		79	85	108	Pass	Pass	Pass
Naphthalene	70	to 130		65	100	107	< LCL	Pass	Pass
2-Methylnaphtalene	70	to 130		86	65	100	Pass	< LCL	Pass
1-Methylnaphtalene	70	to 130		77	105	116	Pass	Pass	Pass

**Note:** Control limits are based on method guidance.

**Signature:** 

**Title:** Director of Operations

**Date:** 8/29/02

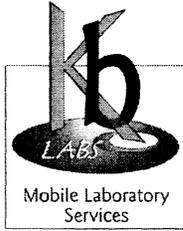


# KB LABS, INC.

Final Data Report  
 Project Number 02-065-1  
 NS Mayport CTO247  
 Mayport, FL

Prepared for: Tetra Tech NUS

Well ID	Analysis Date	Matrix	Dilution Factor	MTBE	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene
MPT-BE MW01S	8/1/02	Water	1	<5	<b>8.2</b>	<1	<1	<b>15.1</b>	<1	<b>40.0</b>	<b>100</b>	<b>84.4</b>
MPT-BE MW02S	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-BE MW05S	8/1/02	Water	1	<5	<1	<b>1.6</b>	<1	<1	<1	<5	<5	<5
MPT-BE MW07S	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-BE MW10S	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 MW-2	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-1	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-2	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-3	8/1/02	Water	1	<5	<b>28.4</b>	<b>3.2</b>	<1	<1	<1	<5	<5	<5
MPT-365 TW-3 20'	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-3 40'	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-4	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-5	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-6	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-7	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 TW-8	8/1/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-365 SB1-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB2-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB3-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB4-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB5-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB6-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB7-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-365 SB8-03	8/1/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 MW-1	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-1	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-2	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-2 20'	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-2 40'	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-3	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5



# KB LABS, INC.

Final Data Report  
 Project Number 02-065-1  
 NS Mayport CTO247  
 Mayport, FL

Prepared for: Tetra Tech NUS

Well ID	Analysis Date	Matrix	Dilution Factor	MTBE	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene
MPT-163 TW-4	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-5	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-6	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-7	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 TW-8	8/2/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-163 SB1-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 SB2-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 SB3-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 SB4-07	8/2/02	Soil	1	<0.025	<0.005	<b>0.008</b>	<0.005	<0.005	<b>0.006</b>	<0.025	<0.025	<0.025
MPT-163 SB5-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 SB6-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 SB7-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-163 SB8-07	8/2/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-BE MW9	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-1	8/3/02	Water	1	<5	<1	<1	<b>3.1</b>	<1	<1	<b>22.6</b>	<b>57.8</b>	<b>29.0</b>
MPT-1586 TW-10	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-11	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<b>5.4</b>	<b>9.7</b>	<b>6.0</b>
MPT-1586 TW-12	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-5	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-6	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-7	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-8	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-9	8/3/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 SB1-03	8/3/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-1586 SB2-03	8/3/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-1586 SB3-03	8/3/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025
MPT-1586 SB4-03	8/3/02	Soil	40/100	<1.0	<0.2	<b>1.4</b>	<0.2	<b>30</b>	<b>4.2</b>	<b>31</b>	<b>89</b>	<b>37</b>
MPT-1586 SB1-05	8/3/02	Soil	1	<0.025	<0.005	<b>0.18</b>	<0.005	<b>1.3</b>	<b>0.46</b>	<b>0.61</b>	<b>0.71</b>	<b>0.39</b>
MPT-1586 SB2-05	8/3/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<b>0.043</b>	<0.025
MPT-1586 SB5-05	8/3/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025



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# CHAIN-OF-CUSTODY RECORD

08-02-02

KB project 02-065-1

MOBILE UNIT #

KB 3

CLIENT NAME		PROJECT NAME & ADDRESS						SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION	
Tetra Tech (Tetra)		NS Mayor										
SAMPLERS		CONTACT PERSON				BATCH # (Lab Use Only)						
Precision		David Siefken										
SAMPLE FIELD ID. \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.					COMMENT
SB1-07	8-2-02	9:10			8-2-02	9:20	MP7-163 SB1-07	S	1			
TW-2		9:30				9:30	TW-2	W	2			
MW-1		9:40				9:40		W	2			
SB-2-7		9:25				9:42		S	1			
TW-1		9:45				9:45	TW1	W	2			
SB 3 -07		10:20				10:20	MP7-163	S	1			
TW 3		10:35				10:35		W	2			
SB 4 07		11:00				11:00		S	1			
TW 4		11:15				11:15		W	2			
SP 5 -07		12:55				12:55		S	1			
TW 5		13:40				13:40		W	2			
SB-6 -07		13:25				13:45		S	1			
TW 6		13:50				13:50		W	2			
SB 7 -07		13:55				13:53		S	1			
SB 8 07		14:00				14:00		S	1			

VOLATILES N/A  
 BTEX + Napthalene S

Pre-cleaned Containers Relinquished by: (Signature) 	Date / Time 8-2-02	Received by: (Signature) 	Date / Time 8/2	Remarks and Observations
Relinquished by: (Signature) 	Date / Time 8/2	Received by: (Signature) 	Date / Time 8-2-02	

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas



6821 SW Archer Road  
Gainesville, FL 32608  
TEL (352) 367-0073  
FAX (352) 367-0074

# CHAIN-OF-CUSTODY RECORD

08-02-02

KB project 02-00507

MOBILE UNIT #  
**KB3**

CLIENT NAME		PROJECT NAME & ADDRESS						SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION
Tetra Tech (Tenn)		US May Port									
SAMPLERS		CONTACT PERSON				BATCH # (Lab Use Only)		VOLATILES MTSF PTX + Methyl			
Precision		David Sietken									
SAMPLE FIELD ID. \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.			COMMENT	
TW8	8-2-02	1420			8-7-02		MPT-163	W	2		
TW2 20'		1500				1500		W	2		
TW2 40'		1605				1605		W	2		
TW7		1405				1405		W	2		
<del>_____</del>											
Prelined Containers Relinquished by: (Signature)		Date / Time	Received by: (Signature)				Date / Time	Remarks and Observations			
Mark Mathis		8-2-02	[Signature]				8/2				
Relinquished by: (Signature)		Date / Time	Received by: (Signature)				Date / Time				
[Signature]		8/2	Mark Mathis				8-2-02				

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

**APPENDIX G**

**FIXED-BASE LABORATORY ANALYTICAL RESULTS**



Re-analysis of sample MPT-1586-SB-11-05 was not used for validation because the original analysis was compliant and the results for both analyses were the same.

The VOC analyses were missing several compounds from the requested analysis list. The laboratory provided the missing parameters upon request.

#### PAH

Samples MPT-1586-SB-1-05 (20X), MPT-1586-SB-11-05 (10X), and MPT-1586-SB-4-05 (20X) were analyzed at dilutions due to matrix interference. High concentrations of hydrocarbon were present in the aforementioned samples as evidenced by the pattern of the chromatograms. This accounts for the elevated reporting limits for all non-detected compounds in the aforementioned samples.

Field duplicate imprecision defined as a relative percent difference (RPD) >50% exists in the field duplicate pair for 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, fluorene, and pyrene. All results for the aforementioned compounds in the field duplicate pair were qualified as estimated (J).

Dibenzofuran was reported as a PAH. This compound is not considered a PAH. It was removed from the database.

Action levels for benzo(a)pyrene and dibenzo(a,h)anthracene were exceeded in the undiluted samples.

#### TPH

The surrogate (o-terphenyl) was diluted out of samples MPT-1586-SB-1-05, MPT-1586-SB-11-05, and MPT-1586-SB-4-05 due to the presence of petroleum hydrocarbons at significant concentrations (>100ppm). No action was taken on this basis.

The concentration of TPH in sample MPT-1586-SB-11-05 exceeded the linear calibration range of the instrument. The result for TPH was qualified as estimated (J).

The laboratory did not include the calibration reports with the data package. The laboratory faxed the data upon request.

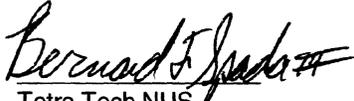
#### EXECUTIVE SUMMARY

**Laboratory Performance Issues:** Incomplete data package was submitted. The reporting limits for 2 PAHs were exceeded in the undiluted samples.

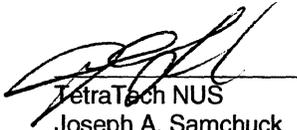
**Other Factors Affecting Data Quality:** None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines. 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  
Bernard F. Spada III  
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
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  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

**PROJ\_NO: 4240**

SDG: A1164 MEDIA: SOIL DATA FRACTION: OV

nsample MPT-163-SB-2-07  
 samp\_date 8/5/2002  
 lab\_id A1164-05A  
 qc\_type NM  
 units UG/KG  
 Pct\_Solids 82.0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	5.00	U	
1,1,2,2-TETRACHLOROETHANE	0.90	U	
1,1,2-TRICHLOROETHANE	5.00	U	
1,1-DICHLOROETHANE	5.00	U	
1,1-DICHLOROETHENE	5.00	U	
1,2-DIBROMOETHANE	5.00	U	
1,2-DICHLOROETHANE	5.00	U	
1,2-DICHLOROPROPANE	5.00	U	
2-CHLOROETHYL VINYL ETHER	5.00	UR	C
BENZENE	5.00	U	
BROMODICHLOROMETHANE	5.00	U	
BROMOFORM	5.00	U	
BROMOMETHANE	5.00	U	
CARBON TETRACHLORIDE	5.00	U	
CHLOROBENZENE	5.00	U	
CHLORODIBROMOMETHANE	3.00	U	
CHLOROETHANE	5.00	U	
CHLOROFORM	5.00	U	
CHLOROMETHANE	5.00	U	
CIS-1,2-DICHLOROETHENE	5.00	U	
CIS-1,3-DICHLOROPROPENE	0.90	U	
ETHYLBENZENE	5.00	U	
METHYL TERT-BUTYL ETHER	5.00	U	
METHYLENE CHLORIDE	2.00	J	P
TETRACHLOROETHENE	5.00	U	
TOLUENE	5.00	U	
TOTAL XYLENES	5.00	U	
TRANS-1,2-DICHLOROETHENE	5.00	U	
TRANS-1,3-DICHLOROPROPENE	0.90	U	
TRICHLOROETHENE	5.00	U	

nsample MPT-163-SB-2-07  
 samp\_date 8/5/2002  
 lab\_id A1164-06A  
 qc\_type NM  
 units UG/KG  
 Pct\_Solids 82.0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	5.00	U	

nsample MPT-365-SB-3-03  
 samp\_date 8/5/2002  
 lab\_id A1164-05A  
 qc\_type NM  
 units UG/KG  
 Pct\_Solids 82.0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	4.00	U	
1,1,2,2-TETRACHLOROETHANE	0.70	U	
1,1,2-TRICHLOROETHANE	4.00	U	
1,1-DICHLOROETHANE	4.00	U	
1,1-DICHLOROETHENE	4.00	U	
1,2-DIBROMOETHANE	4.00	U	
1,2-DICHLOROETHANE	4.00	U	
1,2-DICHLOROPROPANE	4.00	U	
2-CHLOROETHYL VINYL ETHER	4.00	UR	C
BENZENE	4.00	U	
BROMODICHLOROMETHANE	4.00	U	
BROMOFORM	4.00	U	
BROMOMETHANE	4.00	U	
CARBON TETRACHLORIDE	4.00	U	
CHLOROBENZENE	4.00	U	
CHLORODIBROMOMETHANE	2.00	U	
CHLOROETHANE	4.00	U	
CHLOROFORM	4.00	U	
CHLOROMETHANE	4.00	U	
CIS-1,2-DICHLOROETHENE	4.00	U	
CIS-1,3-DICHLOROPROPENE	0.70	U	
ETHYLBENZENE	4.00	U	
METHYL TERT-BUTYL ETHER	4.00	U	
METHYLENE CHLORIDE	1.00	J	P
TETRACHLOROETHENE	4.00	U	
TOLUENE	4.00	U	
TOTAL XYLENES	4.00	U	
TRANS-1,2-DICHLOROETHENE	4.00	U	
TRANS-1,3-DICHLOROPROPENE	0.70	U	
TRICHLOROETHENE	4.00	U	

**PROJ\_NO: 4240**

SDG: A1164 MEDIA: SOIL DATA FRACTION: PAH

nsample MPT-1586-SB-4-05  
 samp\_date 8/5/2002  
 lab\_id A1164-03B  
 qc\_type NM  
 units UG/KG  
 Pct\_Solids 83  
 DUP\_OF:

nsample MPT-163-SB-2-07  
 samp\_date 8/5/2002  
 lab\_id A1164-06B  
 qc\_type NM  
 units UG/KG  
 Pct\_Solids 82  
 DUP\_OF:

nsample MPT-365-SB3-03  
 samp\_date 8/5/2002  
 lab\_id A1164-05B  
 qc\_type NM  
 units UG/KG  
 Pct\_Solids 82  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	26000		
2-METHYLNAPHTHALENE	37000		
ACENAPHTHENE	7900	U	
ACENAPHTHYLENE	7900	U	
ANTHRACENE	7900	U	
BENZO(A)ANTHRACENE	7900	U	
BENZO(A)PYRENE	7900	U	
BENZO(B)FLUORANTHENE	7900	U	
BENZO(G,H,I)PERYLENE	7900	U	
BENZO(K)FLUORANTHENE	7900	U	
CHRYSENE	7900	U	
DIBENZO(A,H)ANTHRACENE	7900	U	
FLUORANTHENE	7900	U	
FLUORENE	1000	J	P
INDENO(1,2,3-CD)PYRENE	7900	U	
NAPHTHALENE	10000		
PHENANTHRENE	9200		
PYRENE	1600	J	P

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	400	U	
2-METHYLNAPHTHALENE	400	U	
ACENAPHTHENE	400	U	
ACENAPHTHYLENE	400	U	
ANTHRACENE	400	U	
BENZO(A)ANTHRACENE	400	U	
BENZO(A)PYRENE	400	U	
BENZO(B)FLUORANTHENE	400	U	
BENZO(G,H,I)PERYLENE	400	U	
BENZO(K)FLUORANTHENE	400	U	
CHRYSENE	400	U	
DIBENZO(A,H)ANTHRACENE	400	U	
FLUORANTHENE	400	U	
FLUORENE	400	U	
INDENO(1,2,3-CD)PYRENE	400	U	
NAPHTHALENE	400	U	
PHENANTHRENE	400	U	
PYRENE	400	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	400	U	
2-METHYLNAPHTHALENE	400	U	
ACENAPHTHENE	400	U	
ACENAPHTHYLENE	400	U	
ANTHRACENE	400	U	
BENZO(A)ANTHRACENE	400	U	
BENZO(A)PYRENE	400	U	
BENZO(B)FLUORANTHENE	400	U	
BENZO(G,H,I)PERYLENE	400	U	
BENZO(K)FLUORANTHENE	400	U	
CHRYSENE	400	U	
DIBENZO(A,H)ANTHRACENE	400	U	
FLUORANTHENE	400	U	
FLUORENE	400	U	
INDENO(1,2,3-CD)PYRENE	400	U	
NAPHTHALENE	400	U	
PHENANTHRENE	400	U	
PYRENE	400	U	

**PROJ\_NO: 4240**

SDG: A1164 MEDIA: SOIL DATA FRACTION: PET

nsample MPT-163-SB-2-07  
samp\_date 8/5/2002  
lab\_id C208201\*5  
qc\_type NM  
units MG/KG  
Pct\_Solids 78  
DUP\_OF:

nsample MPT-365-SB3-03  
samp\_date 8/5/2002  
lab\_id C208201\*4  
qc\_type NM  
units MG/KG  
Pct\_Solids 78  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	26		

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	2.5	U	



were not detected in the associated samples and qualification of the data was not necessary.

#### EDB

No qualification of the data was necessary.

#### PAHs

No qualification of the data was necessary.

#### TPH

No qualification of the data was necessary.

#### Additional Comments:

Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, J.

The reporting limits for 1,1,2,2-tetrachloroethane, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene were greater than the reporting limit requested by Tetra Tech NUS. No action was taken on this basis.

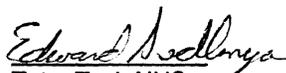
#### EXECUTIVE SUMMARY

**Laboratory Performance Issues:** The laboratory did not initially provide a complete compound list as detailed in the lab specifications.

**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 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

Edward Sedlmyer  
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

**APPENDIX A**

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- 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
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  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

PROJ\_NO: 4240

SDG: A1272 MEDIA: WATER DATA FRACTION: OV

nsample MPT-1586-MW81-01  
 samp\_date 8/23/2002  
 lab\_id A1272-02B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

nsample MPT-1586-TRIPBLANK  
 samp\_date 8/31/2002  
 lab\_id A1272-05B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	0.4	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C
BENZENE	1	U	
BROMODICHLOROMETHANE	0.6	U	
BROMOFORM	2		
BROMOMETHANE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	3		
CHLOROETHANE	1	U	
CHLOROFORM	1	U	
CHLOROMETHANE	1	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	0.2	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	2	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	1	U	

nsample MPT-163-MW1S-01  
 samp\_date 8/23/2002  
 lab\_id A1272-06B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	0.4	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C
BENZENE	1	U	
BROMODICHLOROMETHANE	0.6	U	
BROMOFORM	1	U	
BROMOMETHANE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	0.4	U	
CHLOROETHANE	1	U	
CHLOROFORM	1	U	
CHLOROMETHANE	1	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	0.2	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	2	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	1	U	

**PROJ\_NO: 4240**

SDG: A1272 MEDIA: WATER DATA FRACTION: OV

nsample MPT-163-MW1S-01  
 samp\_date 8/23/2002  
 lab\_id A1272-06B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-163EQUIP-02  
 samp\_date 8/23/2002  
 lab\_id A1272-07B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-163EQUIP-02  
 samp\_date 8/23/2002  
 lab\_id A1272-07B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	0.4	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	UR	C
BENZENE	1	U	
BROMODICHLOROMETHANE	0.6	U	
BROMOFORM	1	U	
BROMOMETHANE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	0.4	U	
CHLOROETHANE	1	U	
CHLOROFORM	1	U	
CHLOROMETHANE	1	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	0.2	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	10	U	
METHYLENE CHLORIDE	2	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	1	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	1	U	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

**PROJ\_NO: 4240**

SDG: A1272 MEDIA: WATER DATA FRACTION: PAH

nsample MPT-1586-EQUIP-03  
 samp\_date 8/23/2002  
 lab\_id A1272-03D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-1586-MW8I-01  
 samp\_date 8/23/2002  
 lab\_id A1272-02D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-163-MW1S-01  
 samp\_date 8/23/2002  
 lab\_id A1272-06D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	U	
BENZO(A)ANTHRACENE	1	U	
BENZO(A)PYRENE	1	U	
BENZO(B)FLUORANTHENE	1	U	
BENZO(G,H,I)PERYLENE	1	U	
BENZO(K)FLUORANTHENE	1	U	
CHRYSENE	1	U	
DIBENZO(A,H)ANTHRACENE	1	U	
FLUORANTHENE	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	1	U	
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	0.49	J	P
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	U	
BENZO(A)ANTHRACENE	1	U	
BENZO(A)PYRENE	1	U	
BENZO(B)FLUORANTHENE	1	U	
BENZO(G,H,I)PERYLENE	1	U	
BENZO(K)FLUORANTHENE	1	U	
CHRYSENE	1	U	
DIBENZO(A,H)ANTHRACENE	1	U	
FLUORANTHENE	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	1	U	
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	U	
BENZO(A)ANTHRACENE	1	U	
BENZO(A)PYRENE	1	U	
BENZO(B)FLUORANTHENE	1	U	
BENZO(G,H,I)PERYLENE	1	U	
BENZO(K)FLUORANTHENE	1	U	
CHRYSENE	1	U	
DIBENZO(A,H)ANTHRACENE	1	J	
FLUORANTHENE	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	1	U	
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

**PROJ\_NO: 4240**

SDG: A1272 MEDIA: WATER DATA FRACTION: PAH

nsample MPT-163EQUIP-02  
 samp\_date 8/23/2002  
 lab\_id A1272-07D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-DUP-02  
 samp\_date 8/23/2002  
 lab\_id A1272-01D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF: MPT-1586-MW81-01

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	1	U	
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	U	
BENZO(A)ANTHRACENE	1	U	
BENZO(A)PYRENE	1	U	
BENZO(B)FLUORANTHENE	1	U	
BENZO(G,H,I)PERYLENE	1	U	
BENZO(K)FLUORANTHENE	1	U	
CHRYSENE	1	U	
DBENZO(A,H)ANTHRACENE	1	U	
FLUORANTHENE	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	1	U	
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1	U	
2-METHYLNAPHTHALENE	1	U	
ACENAPHTHENE	0.53	J	P
ACENAPHTHYLENE	1	U	
ANTHRACENE	1	U	
BENZO(A)ANTHRACENE	1	U	
BENZO(A)PYRENE	1	U	
BENZO(B)FLUORANTHENE	1	U	
BENZO(G,H,I)PERYLENE	1	U	
BENZO(K)FLUORANTHENE	1	U	
CHRYSENE	1	U	
DIBENZO(A,H)ANTHRACENE	1	U	
FLUORANTHENE	1	U	
FLUORENE	1	U	
INDENO(1,2,3-CD)PYRENE	1	U	
NAPHTHALENE	1	U	
PHENANTHRENE	1	U	
PYRENE	1	U	

**PROJ\_NO: 4240**

SDG: A1272 MEDIA: WATER DATA FRACTION: PET

nsample MPT-1586-MW8I-01  
samp\_date 8/23/2002  
lab\_id C208591\*2  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

nsample MPT-163-EQUIP-02  
samp\_date 8/23/2002  
lab\_id C208591\*5  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

nsample MPT-163-MW1S-01  
samp\_date 8/23/2002  
lab\_id C208591\*4  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	



TO: PETERSON, M. – PAGE 2  
DATE: OCTOBER 24, 2002

Laboratory Blank Noncompliance

The following contaminant was present in the laboratory method/preparation blanks at the following maximum concentration:

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Barium <sup>(1)</sup>	0.49 mg/kg	2.45 mg/kg

<sup>(1)</sup> Maximum concentration present in 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, where applicable, were taken into consideration when evaluation for blank contamination. Barium was not qualified for blank contamination because the sample value was greater than the action level.

Notes

Sample MPT-163-MW1S-01 was incorrectly labeled in the database as MPT-163-01. The data reviewer amended the database for this sample.

Executive Summary

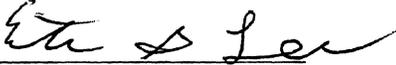
**Laboratory Performance:** Barium was present in the laboratory method/preparation blanks.

**Other Factors Affecting Data Quality:** None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", July 2002 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  
Ethan G. Lee  
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
- N01 = Internal Standard Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ( $< 2 \times$  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

**PROJ\_NO: 4240**

SDG: A1272 MEDIA: WATER DATA FRACTION: M

nsample MPT-1586-EQ01P-03  
samp\_date 8/23/2002  
lab\_id A1272-03C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

nsample MPT-1586-MW81-01  
samp\_date 8/23/2002  
lab\_id A1272-02C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

nsample MPT-163-MW1S-01  
samp\_date 8/23/2002  
lab\_id A1272-06C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	



**PROJ\_NO: 4240**

SDG: A1272 MEDIA: WATER DATA FRACTION: M

nsample MPT-163EQUIP-02  
samp\_date 8/23/2002  
lab\_id A1272-07C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-DUP-02  
samp\_date 8/23/2002  
lab\_id A1272-01C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF: MPT-1586-MW8I-01

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	