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SITE ASSESSMENT REPORT FOR SITE G365 NS MAYPORT FL  
3/1/2003  
TETRA TECH NUS

**Site Assessment Report**  
for  
**Site G365**

**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 G365**

**NAVAL STATION MAYPORT  
MAYPORT, FLORIDA**

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

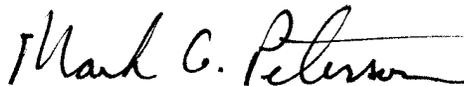
**Submitted to:  
Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Drive  
North Charleston, South Carolina 29406**

**Submitted by:  
TETRA TECH NUS, Inc.  
661 Andersen Drive  
Foster Plaza 7  
Pittsburgh, Pennsylvania 15220**

**CONTRACT NUMBER N62467-94-D-0888  
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**MARCH 2003**

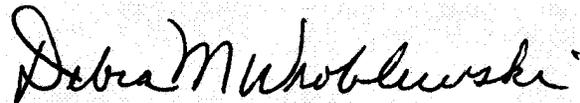
**PREPARED UNDER THE SUPERVISION OF:**



---

**MARK A. PETERSON, P.G.  
TASK ORDER MANAGER  
TETRA TECH NUS, INC.  
JACKSONVILLE, FLORIDA**

**APPROVED FOR SUBMITTAL BY:**



---

**DEBBIE WROBLEWSKI  
PROGRAM MANAGER  
TETRA TECH NUS, INC.  
PITTSBURGH, PENNSYLVANIA**

**PROFESSIONAL CERTIFICATION**

Site Assessment Report  
Site G365  
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.



*Mark G. Peterson*

Mark Peterson, P.G.  
Florida License Number PG-0001852

*3/21/03*

Date

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## ACRONYMS/ABBREVIATIONS

AES	Aerostar Environmental Services, Inc.
AST	Aboveground Storage Tank
BDL	Below Detection Limit
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
bls	Below Land Surface
CLEAN	Comprehensive Long-term Environmental Action Navy
COCs	Contaminants of Concern
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
DPT	Direct-Push Technology
EDB	1,2-Dibromoethane or Ethylene Dibromide
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame-Ionization Detector
FL-PRO	Florida Petroleum Range Organics
ft	Feet (or Foot)
ft/day	Feet (or Foot) per Day
ft/ft	Feet (or Foot) per Feet (or Foot)
GAG	Gasoline Analytical Group
GCTLs	Groundwater Cleanup Target Levels
HSA	Hollow Stem Auger
ID	Inside Diameter
KAG	Kerosene Analytical Group
µg/L	Micrograms per Liter
Mitkem	Mitkem Corporation
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

## ACRONYMS/ABBREVIATIONS (Continued)

Precision	Precision Sampling
PVC	Polyvinyl Chloride
SA	Site Assessment
SAR	Site Assessment Report
SCTLs	Soil Cleanup Target Levels
SOPs	Standard Operating Procedures
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
STL	Severn Trent Laboratories
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 G365, Naval Station (NS) Mayport, Mayport, Florida in accordance with the requirements of Chapter 62-770, Florida Administrative Code (FAC). This Site Assessment Report (SAR) is being submitted to the Florida Department of Environmental Protection (FDEP) for approval. A SAR summary sheet is included as Appendix A.

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.
  - Locate nearby surface water bodies.
  - Evaluate surface hydrology and drainage.
- Conducted a site survey.
- Performed a soil vapor survey 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 four shallow monitoring wells and collected groundwater samples from these wells and from one existing monitoring well 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 calculate 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).

The mobile laboratory reported a benzene concentration exceeding its FDEP Groundwater Cleanup Target Level (GCTL) in one groundwater grab sample, but the result was non-reproducible in a monitoring

well installed in the same location. No confirmed concentrations exceeding FDEP GCTLs were reported by the fixed-base laboratory.

Based on the results of this SA, TtNUS recommends No Further Action for Site G365.

## **1.0 INTRODUCTION**

### **1.1 PURPOSE AND SCOPE**

A SA was conducted at Site G365, 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 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. A SAR Summary Sheet is included as Appendix A.

The purpose of this SA was to evaluate the extent of petroleum hydrocarbons in subsurface soils and groundwater at Site G365 in accordance with the requirements of Chapter 62-770, FAC. Site G365 was previously investigated in March 2000 during removal and closure of an aboveground storage tank (AST). Petroleum-impacted groundwater was documented in the Tank Closure Report prepared by Aerostar Environmental Services (AES) (AES, 2000). A copy of the Tank Closure Report is presented as Appendix B

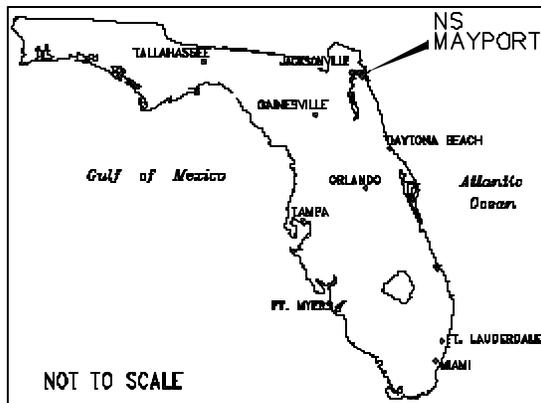
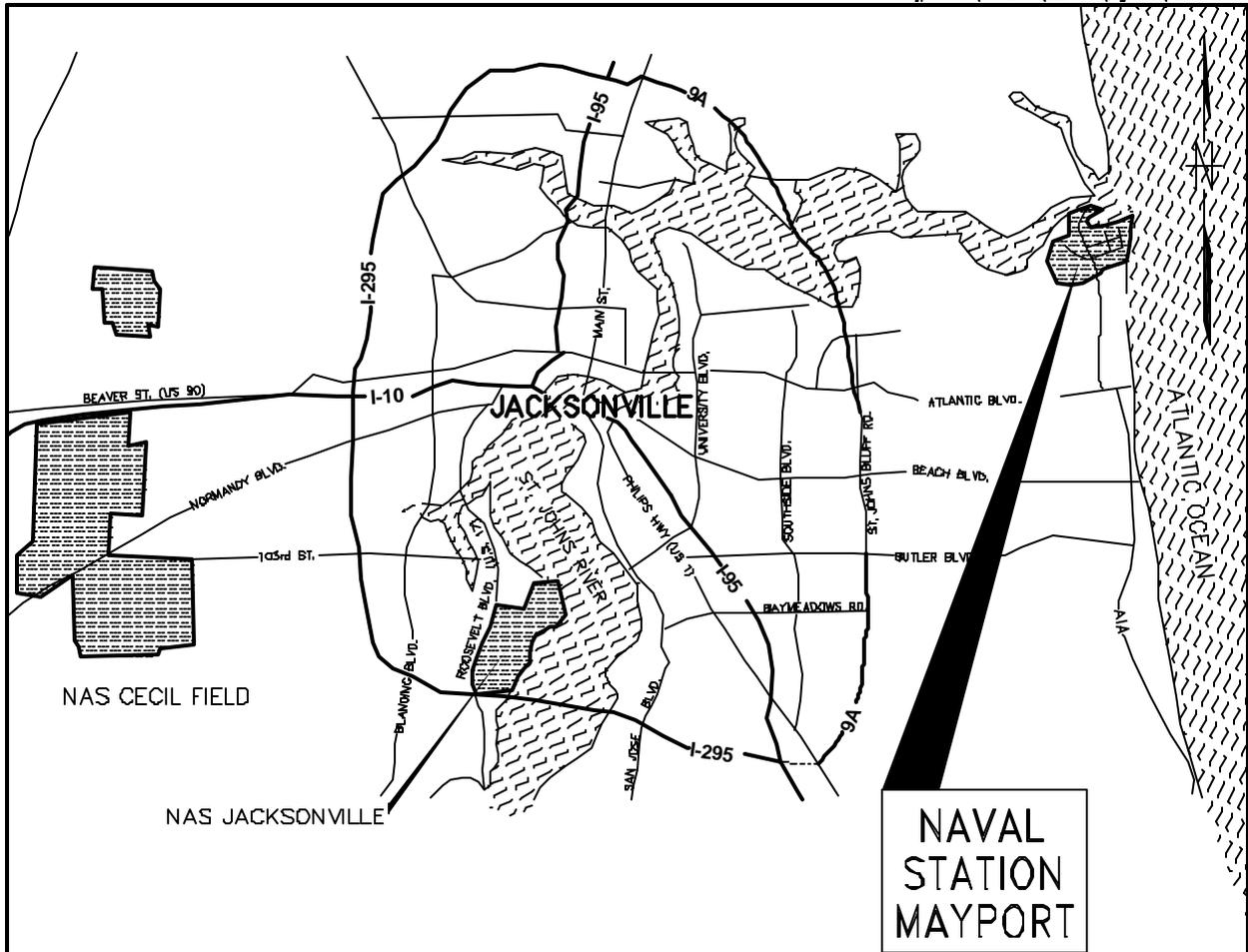
### **1.2 FACILITY AND SITE LOCATION**

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 presented 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.

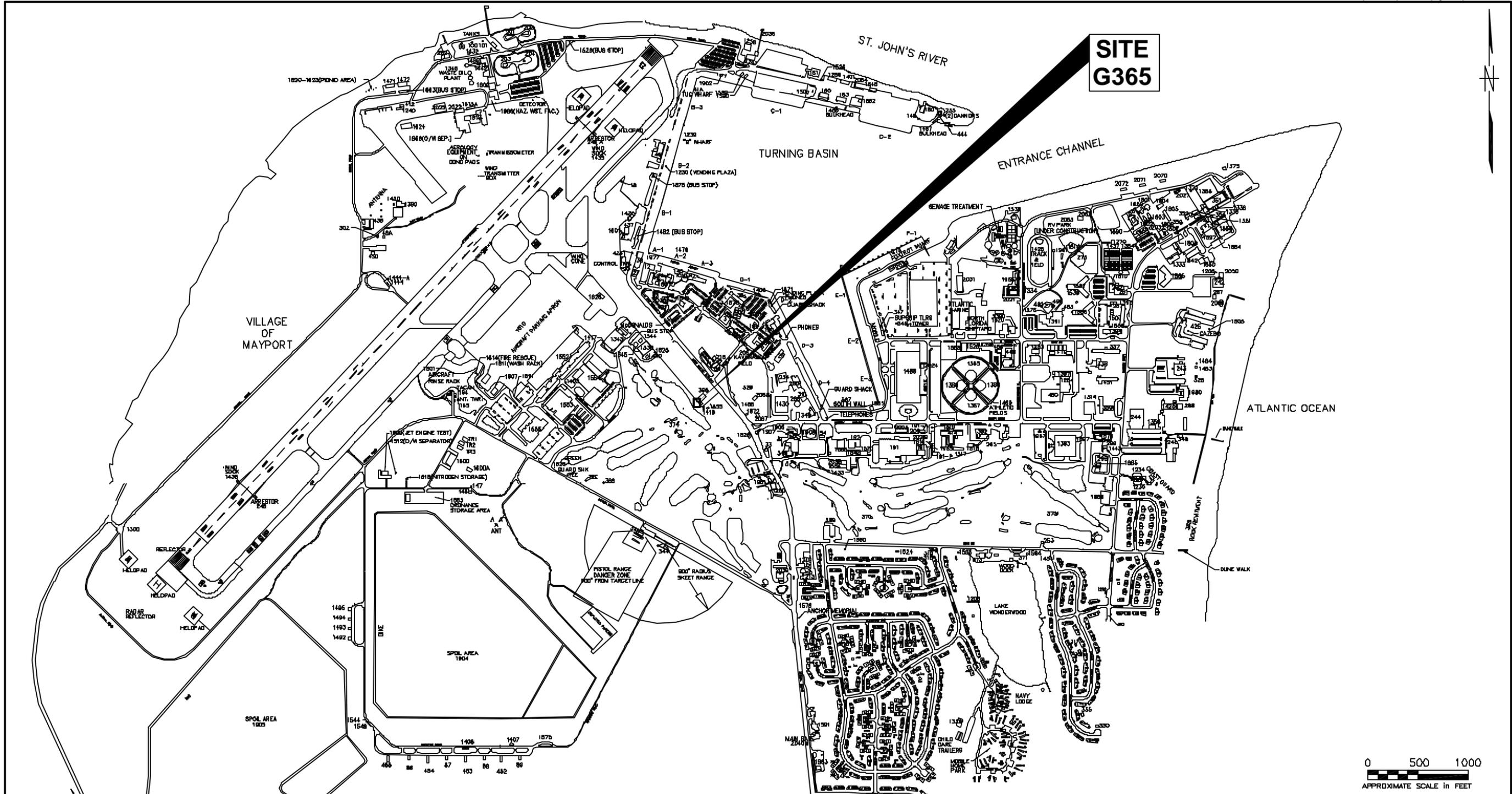
Building 365, the fire station, is located near the center of the base as shown on the Site Location Map presented as Figure 1-2. The area of investigation is situated on the west side of the building where a steel AST containing diesel fuel is mounted on a concrete slab. A large grassy area, part of the NS Mayport golf course, and an overhead utility easement adjoin the site to the west.

### **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



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							COST/SCHED-AREA						
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Hawthorn Group, upper Miocene and Pliocene deposits, and Pleistocene and Holocene 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, 1992).

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).

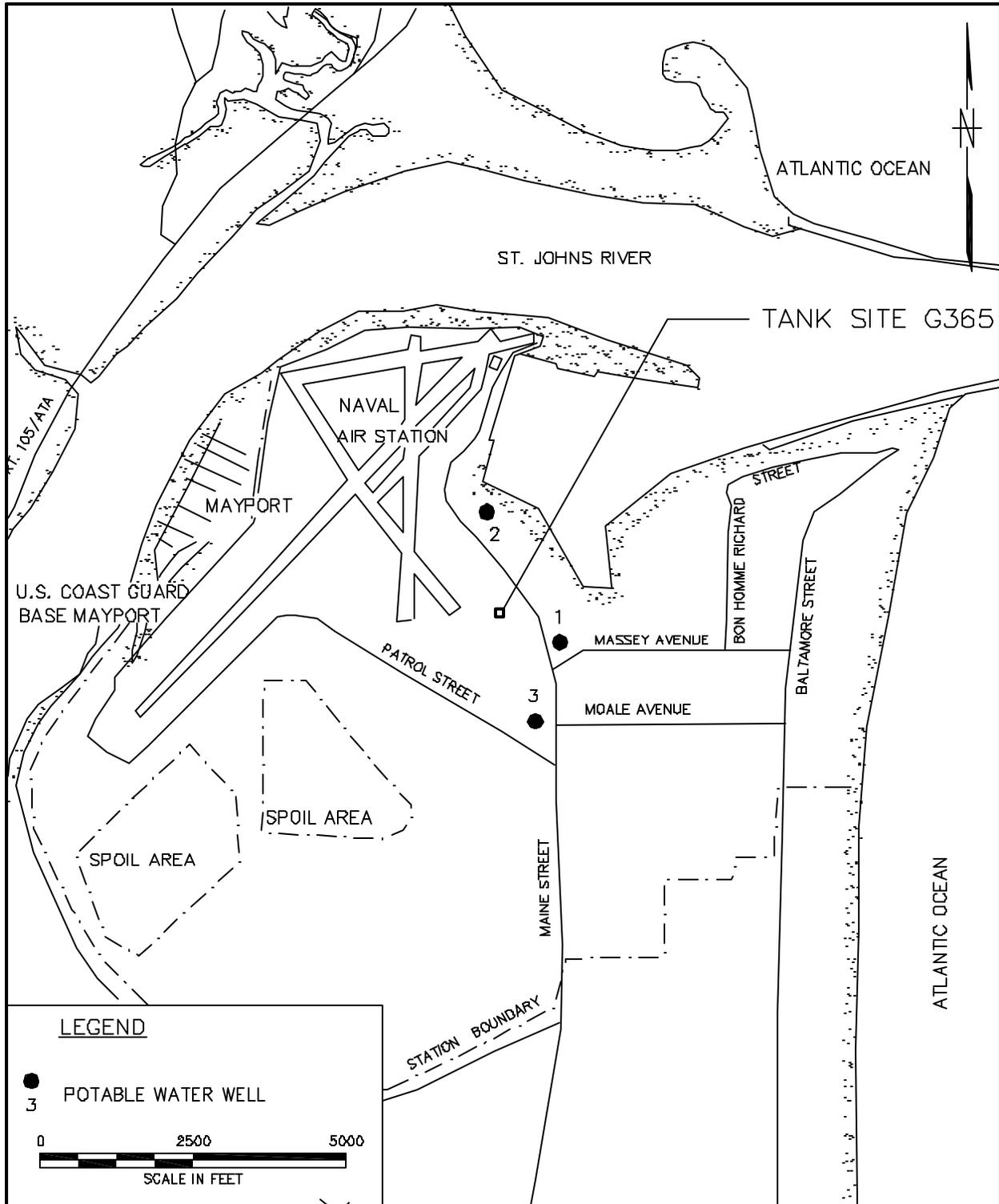
The Floridan aquifer system is the principal source of groundwater for public drinking water in most of northern Florida. In the area of investigation, the system is comprised of (from youngest to oldest) the Ocala Formation, the Avon Park Formation, and the Oldsmar Limestone. The Hawthorn Group, a confining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

Potable water is supplied to NS Mayport by four on-base supply wells. One of the three active wells is 12 inches in diameter, and the other two are 18-inch diameter wells. All three wells draw water from the Floridan aquifer at depths from approximately 1,000 ft. Well capacities range between 2.1 and 2.9 million gallons per day (mgd) with a combined total pumping capacity of 10.0 mgd. Currently, three of the active wells are within one-half mile of the site. The water is treated by the base water treatment plant prior to distribution.

Potable well information is summarized on Table 1-1. The locations of the potable wells are depicted on Figure 1-3.



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<p align="center"><b>Table 1-1</b> <b>Potable Water Well Survey Results</b></p> <p align="center">Site Assessment Report, Site G365 Naval Station Mayport Mayport, Florida</p>				
<b>Well ID</b>	<b>Distance from Site (miles)</b>	<b>Diameter (inches)</b>	<b>Depth of Well (ft bls)</b>	<b>Use</b>
1	0.3	12	1,000	In use
2	0.4	16	1,000	In use
3	0.4	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).

Site G365 is a relatively flat parcel located on the west side of the fire station, which was built higher than the natural landscape. During rain events, surface water at the site drains slowly to the northwest toward the golf course.

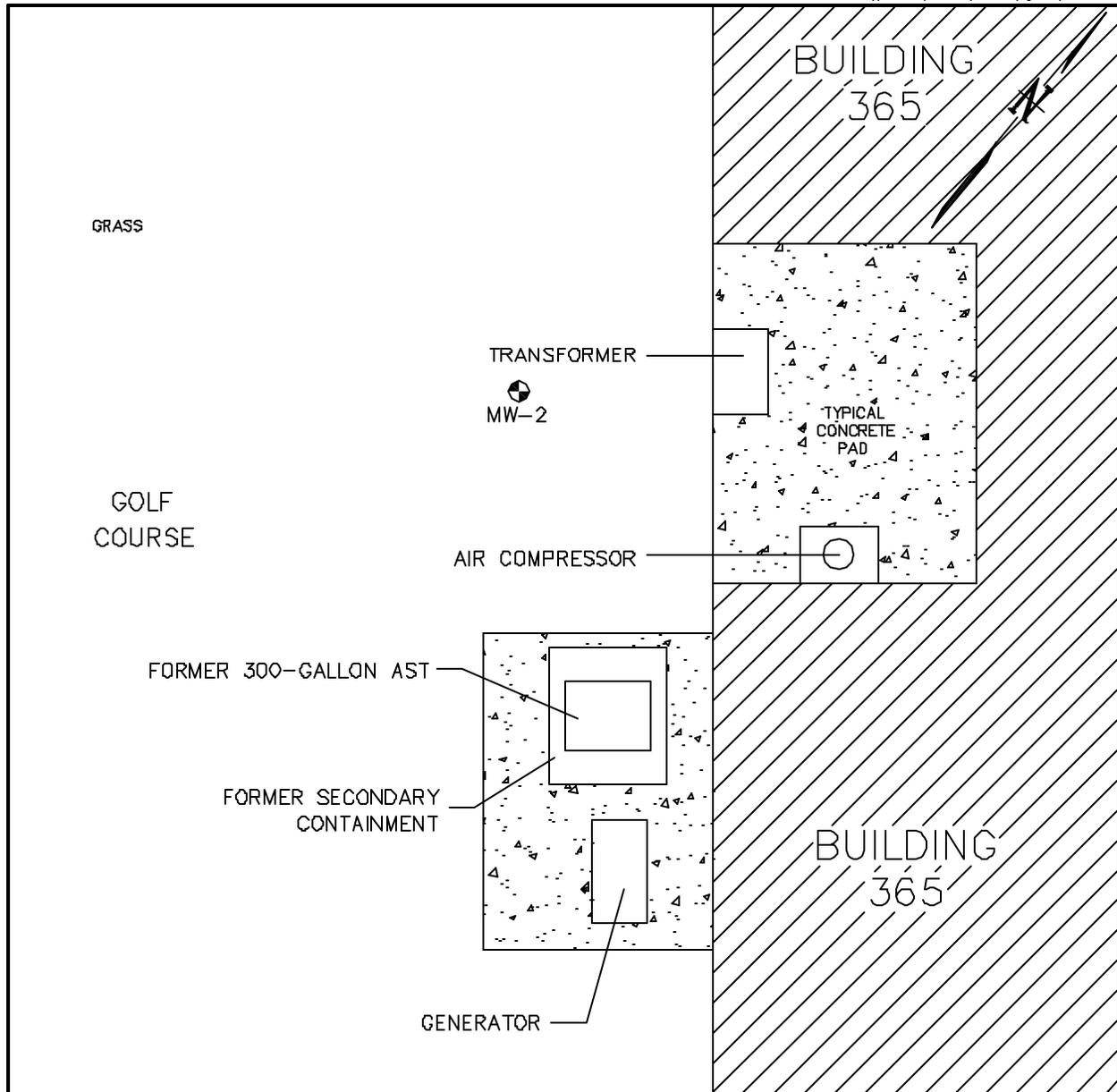
**1.6 LAND USE IN SITE VICINITY**

The site is bounded by the golf course and a parking lot to the north, the golf course to the west, the fire station to the east, and a small storage shed and undeveloped property to the south.

**1.7 SITE DESCRIPTION**

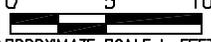
A site plan showing surface features in the area of investigation is provided as Figure 1-4. Building 365 is constructed of cement block and used as offices for the fire station. Grounds surrounding the building are partially paved and partially unpaved. An emergency generator and a 500-gallon, steel AST are located on a concrete slab abutting the west side of the building.

Mayport NS\CT0247\BLD365\Figures\4240BP385



**LEGEND**


 EXISTING SHALLOW MONITORING WELL

0      5      10  
  
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## **1.8 SITE HISTORY AND OPERATIONS**

In March 2002, Omega Environmental Services, Inc. of Atlanta, Georgia removed a 300-gallon steel AST containing diesel fuel from the site. The former tank was located in the same place as the new tank, and like the new tank, was mounted on a concrete slab with secondary containment. AES of Jacksonville, Florida supervised removal operations of the old AST and prepared a Tank Closure Report describing closure activities (AES, 2000). A new 500-gallon steel AST replaced the old AST.

Upon removal, the AST was inspected and no cracks or pinholes were observed. During closure, 12 soil samples were collected from the excavation and screened for organic vapors using an Organic Vapor Analyzer (OVA) equipped with a Flame-Ionization Detector (FID). None of the 12 soil samples had organic vapor readings exceeding the action level [i.e., 50 parts per million (ppm)] for "excessively contaminated" soil per Chapter 62-777.200, FAC. Additional soil samples were collected from the excavation and submitted to a certified laboratory for analysis of volatile organic aromatics (VOAs) using United States Environmental Protection Agency (USEPA) Method 8021/5035, polynuclear aromatic hydrocarbons (PAHs) using USEPA Method 8310, and total recoverable petroleum hydrocarbons (TRPH) using the Florida Petroleum Range Organics (FL-PRO) method. One soil sample was collected from a depth of 1 ft bls near the discharge point of the secondary containment structure. The laboratory detected no targeted constituents in the soil samples.

One temporary monitoring well was installed by AES near the former secondary containment drainpipe. Groundwater from this well was analyzed for VOAs, including methyl-tertiary butyl ether (MTBE), using USEPA Method 602 and for PAHs using USEPA Method 610. Toluene was detected exceeding its GCTLs per Chapter 62-770, FAC. As a result of the toluene detection a SA was required by the FDEP. No documented discharge was reported. A copy of the tank closure report is provided in Appendix B.

## **1.9 PURPOSE OF CURRENT INVESTIGATION**

The objective of the field investigation just completed was to assess if soil and/or groundwater have been adversely impacted by previous or current 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 A.

## **2.0 SUBSURFACE INVESTIGATION METHODS**

### **2.1 QUALITY ASSURANCE**

The site investigation was conducted in general accordance with the FDEP-approved TtNUS Comprehensive Quality Assurance Plan (Comp QAP).

### **2.2 DETERMINATION OF GROUNDWATER GRADIENT**

On August 1, 2002, TtNUS personnel installed three piezometers (PZ-01, PZ-02, and PZ-03) in a triangular array at the site for the purpose of estimating groundwater flow direction (Figure 2-1). The top-of-casing elevations of the three piezometers and one existing monitoring well (MW-02) were surveyed relative to a selected temporary benchmark (TBM) on site. The TBM was assigned an arbitrary elevation of 25 ft msl. 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.

### **2.3 SOIL QUALITY ASSESSMENT**

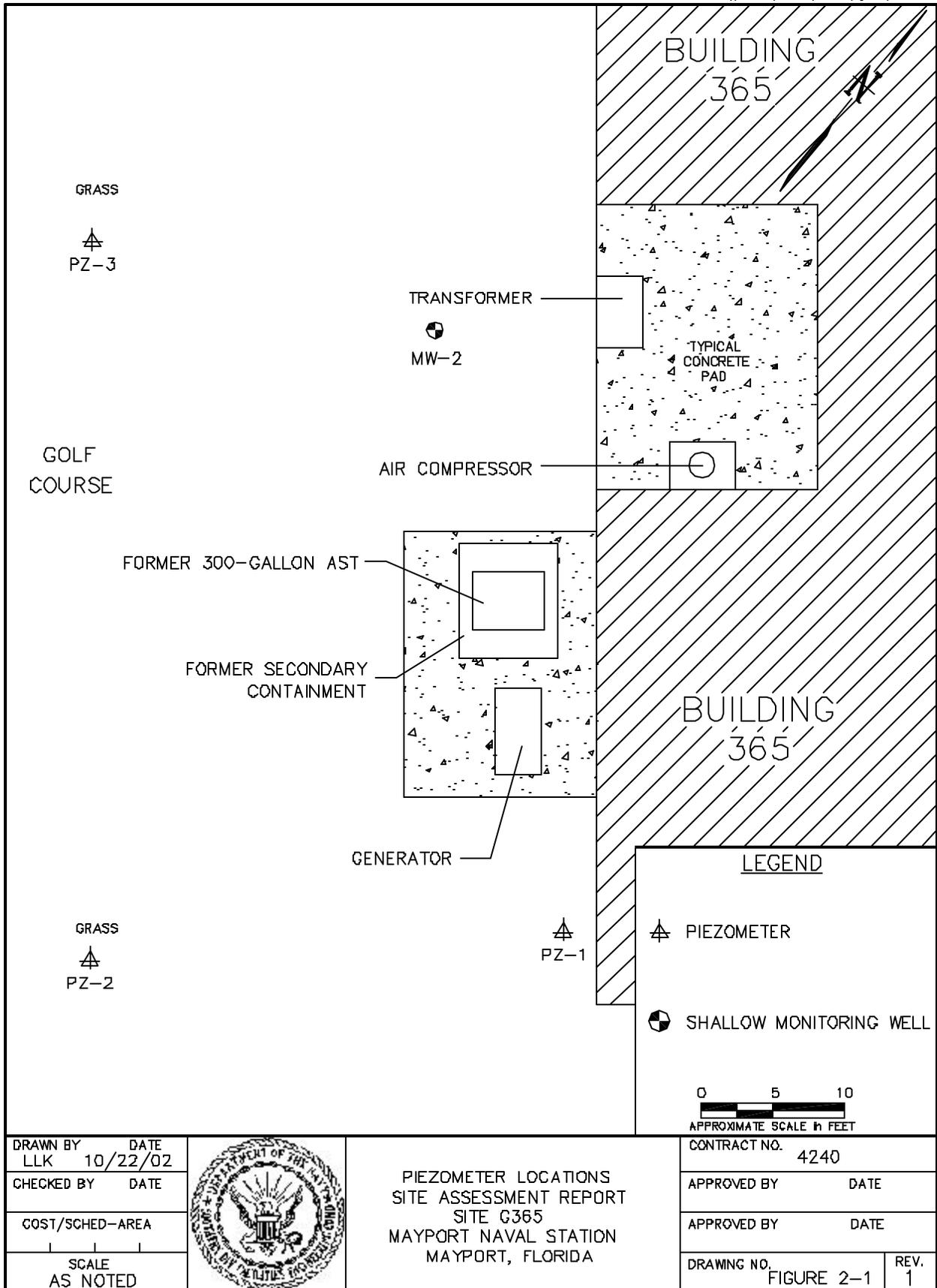
#### **2.3.1 Soil Borings**

A total of eight shallow soil borings (SB-01 through SB-08) and one deep boring (at the location of SB-03) were advanced around the area of the former and current AST on August 1, 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 2-2.

Shallow borings were advanced to an approximate depth of 5 ft bls. A TtNUS scientist described the material encountered during advancement of the borings. Soil boring logs compiled from these descriptions are provided in Appendix C.

Boring SB-03 was advanced to a depth of 40 ft bls to establish a site lithologic profile. The boring was advanced from 5 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 samples were collected with the macrocore tool from 5 to 40 ft bls. A Lithologic description of materials retrieved in the macrocores is also included in Appendix C.

Mayport NS\CT0247\BLD365\Figures\4240PZ385

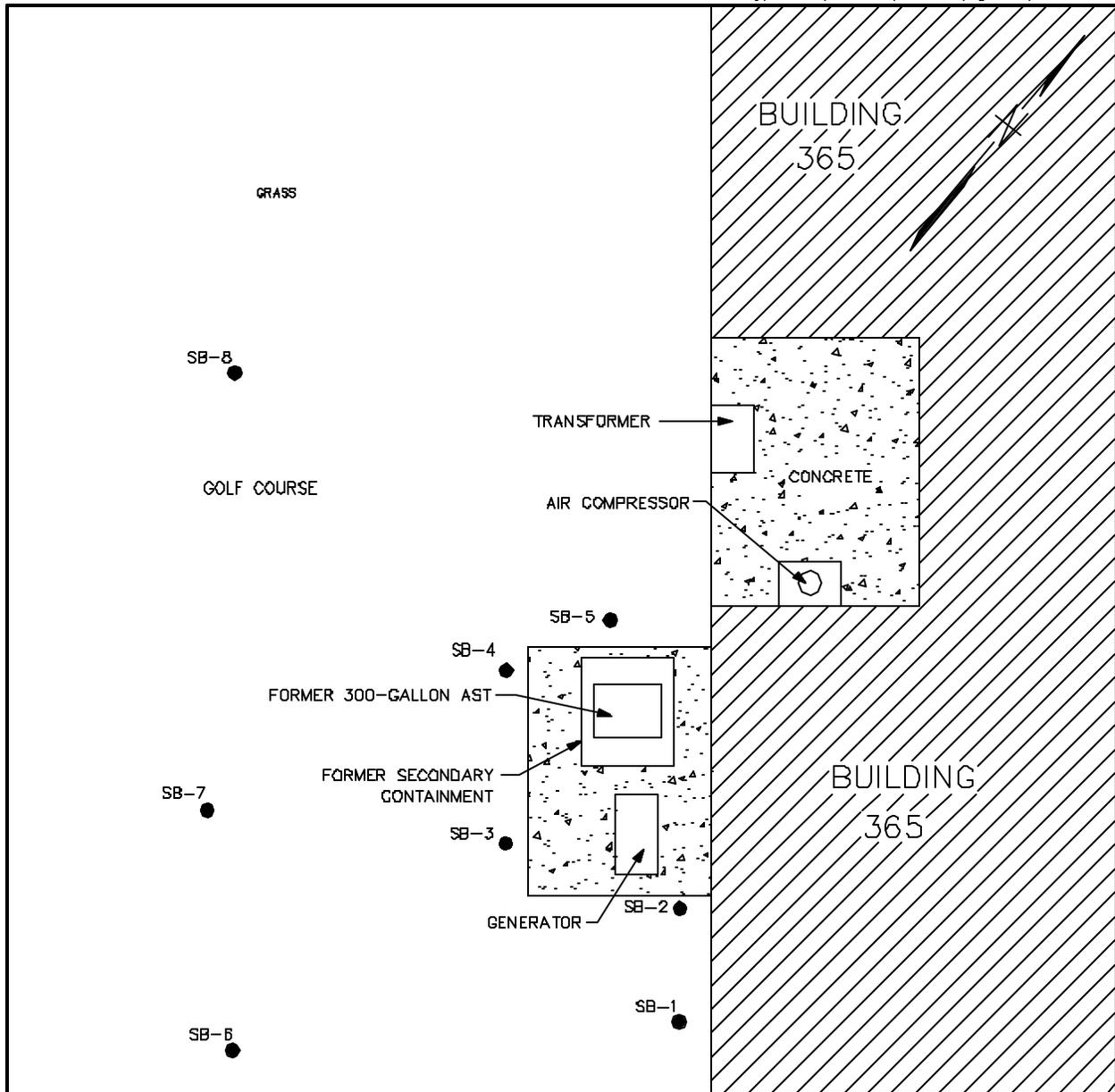


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PIEZOMETER LOCATIONS  
SITE ASSESSMENT REPORT  
SITE G365  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
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APPROVED BY	DATE
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LEGEND

● SOIL BORING LOCATION

0      5      10  
  
 APPROXIMATE SCALE In FEET

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### **2.3.2 Field Screening Procedures**

At the eight boring locations, soil samples were collected from the unsaturated zone at depths of 1 ft bls, 3 ft bls, and 5 ft bls. Soil 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. A portion of Chapter 62-770, FAC describing the headspace screening method has been copied and is provided as Appendix D. Results of the soil vapor screening survey conducted at Site G365 are discussed below 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 organic vapor concentrations was collected for fixed-base laboratory analysis, assuming the mobile laboratory identified contaminants. No petroleum organics were identified in the soil above the water table during the soil screening with the mobile laboratory and OVA-FID, therefore only one soil sample was submitted to the laboratory per Chapter 62-770 of the FAC. 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 7, 2002, four permanent shallow monitoring wells [MPT-365-MW-01 (MW-01), MW-03, MW-04, and MW-05] were installed by Precision Sampling (Precision) under TtNUS supervision. Base personnel cleared underground utilities prior to well installation. Locations of the four wells installed by Precision and the existing on-site monitoring well (MW-02) are shown on Figure 2-2.

#### **2.4.1.1 Borehole Advancement**

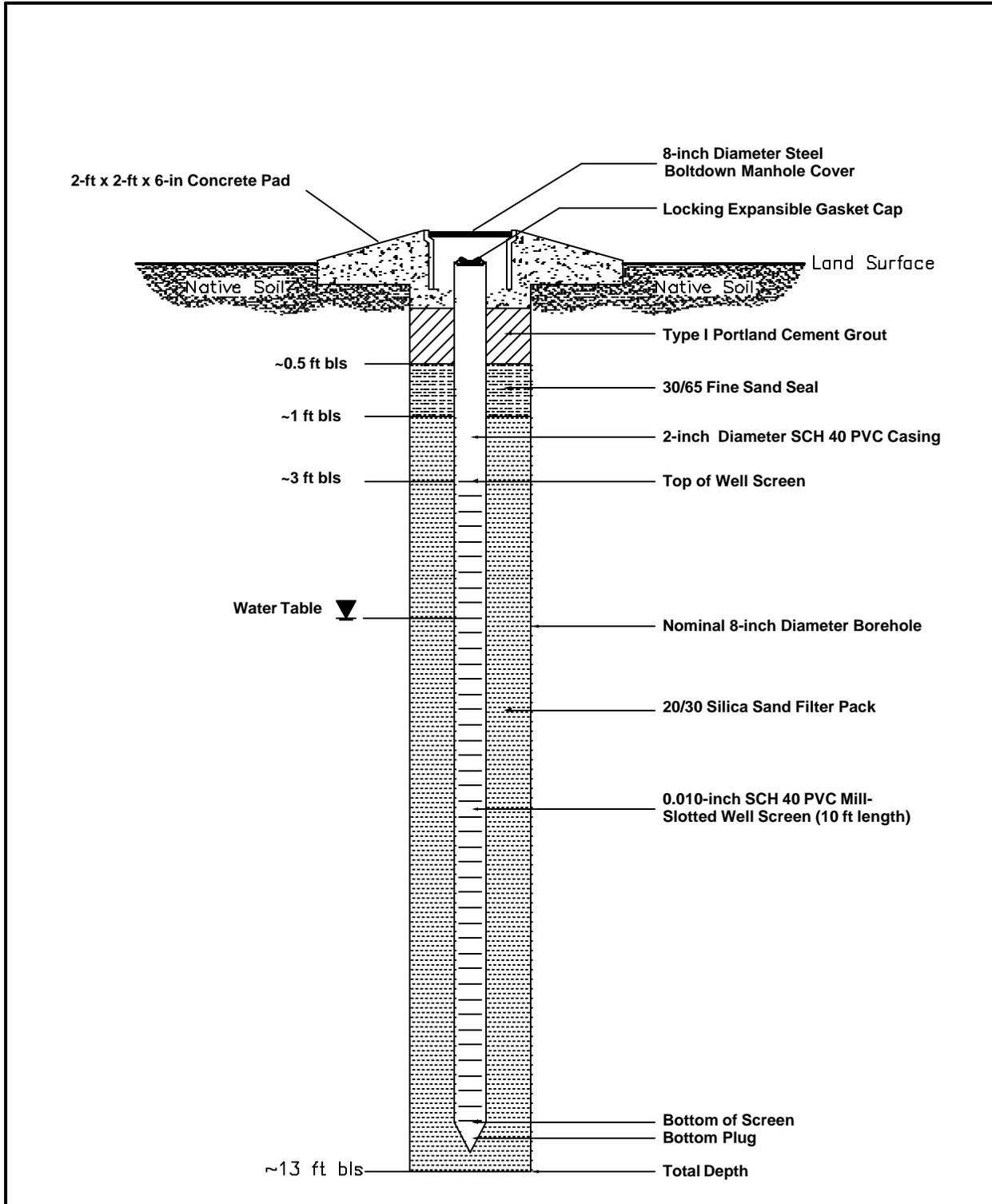
A posthole digger was used at the four selected monitoring well locations to excavate boreholes from ground surface to a depth of 5 ft bls to verify absence of subsurface utilities. From that point (5 ft bls) to total depth, the borehole was advanced using 4 ¼-inch ID hollow-stem augers (HSAs) attached to a truck-mounted drill rig. Soil cuttings were described during borehole advancement to further characterize site lithology. Soil boring logs are included in Appendix C.

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

Monitor well locations were selected based on groundwater flow interpretation and from mobile laboratory data. Monitor well MW-3 (down gradient), MW-4 (potential source) and were located in soil borings SB-2 and SB-3 respectively. Monitoring well MW-1 was installed cross gradient and MW-5 installed up gradient.

Boreholes for the four monitoring wells were advanced to total depths of approximately 13 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 from the surface between the PVC well and hollow stem augers 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., 1 ft bls), and was capped by six inches 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 diagram showing a typical monitoring well design is provided as Figure 2-3 and well construction details for the four wells installed by Precision are listed in Table 2-1. Well completion logs are provided in Appendix E.

The day after completion, the wells were developed using a submersible pump. Field measurements of pH, temperature, and specific conductance were recorded during development. Wells were developed until field measurements became stable and purge water 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. Monitoring well development records are provided in Appendix F. 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		TYPICAL MONITORING WELL DESIGN		CONTRACT NO. 4240	
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COST/SCHED-AREA			SITE G365		APPROVED BY	DATE
SCALE NOT TO SCALE			MAYPORT NAVAL STATION MAYPORT, FLORIDA		DRAWING NO. FIGURE 2-3	REV. 1

<p align="center"><b>Table 2-1</b>  <b>Well Construction Details</b>            Site Assessment Report, Site G365            Naval Station Mayport            Mayport, Florida</p>							
Well ID Number	Date Installed	Installation Method	Top of Casing Elevation (ft msl)	Total Well Depth (ft)	Screened Interval (ft bls)	Well Diameter (inches)	Lithology of Screened Interval
MPT-363-MW01	07-Aug-02	HSA	7.50	13.00	3 to 13	2.00	Medium to fine sand
MPT-365-MW02	existing	HSA	7.11	13.00	3 to 13	2.00	Medium to fine sand
MPT-365-MW03	07-Aug-02	HSA	7.62	13.00	3 to 13	2.00	Medium to fine sand
MPT-365-MW04	07-Aug-02	HSA	7.52	13.00	3 to 13	2.00	Medium to fine sand
MPT-365-MW05	07-Aug-02	HSA	7.99	13.00	3 to 13	2.00	Medium to fine sand
<b>Notes:</b>		N/A = not applicable					

## **2.4.2 Groundwater Sampling**

### **2.4.2.1 DPT Grab Samples**

On the day of soil screening activities (August 1, 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 22, 2002, TtNUS personnel collected groundwater samples from the four newly installed wells and from the existing well samples were collected in accordance with the procedures described in the FDEP-approved CompQAP in effect at the time of sampling. Sampling activities were documented in a site-specific field logbook.

Prior to sampling, a minimum three well volumes of groundwater were removed from each well using a peristaltic pump and 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. Groundwater sampling logs and low flow purge sheets compiled during purging and sampling of the five wells are provided in Appendix F.

After collection, samples were immediately placed on ice and shipped under proper chain-of-custody protocol to Mitkem Corporation (Mitkem) in Warwick, Rhode Island for analysis of volatile organic compounds (VOCs) using USEPA Method 8021B, PAHs using USEPA Method 8310, ethylene dibromide (EDB) using USEPA Method 504.1, lead using USEPA Method 239.2, and TRPH using FL-PRO.

Mitkem reported questionable positive responses for EDB in groundwater samples; therefore, the four wells were resampled on October 30, 2002 and submitted to Severn Trent Laboratories (STL) in Pittsburgh, Pennsylvania. On January 17, 2003 three wells were resampled for chloromethane with analysis conducted by ENCO laboratories located in Jacksonville, Florida.

## 3.0 RESULTS OF INVESTIGATION

### 3.1 SITE GEOLOGY AND HYDROGEOLOGY

#### 3.1.1 Lithology

The upper 37 ft of material underlying the site consists of mottled gray to brown fine to medium sand with varying percentages of shell hash. A dense green clay is encountered at a depth of 37 ft bls and continues to 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 surficial aquifer underlying the site was estimated to the east. 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.

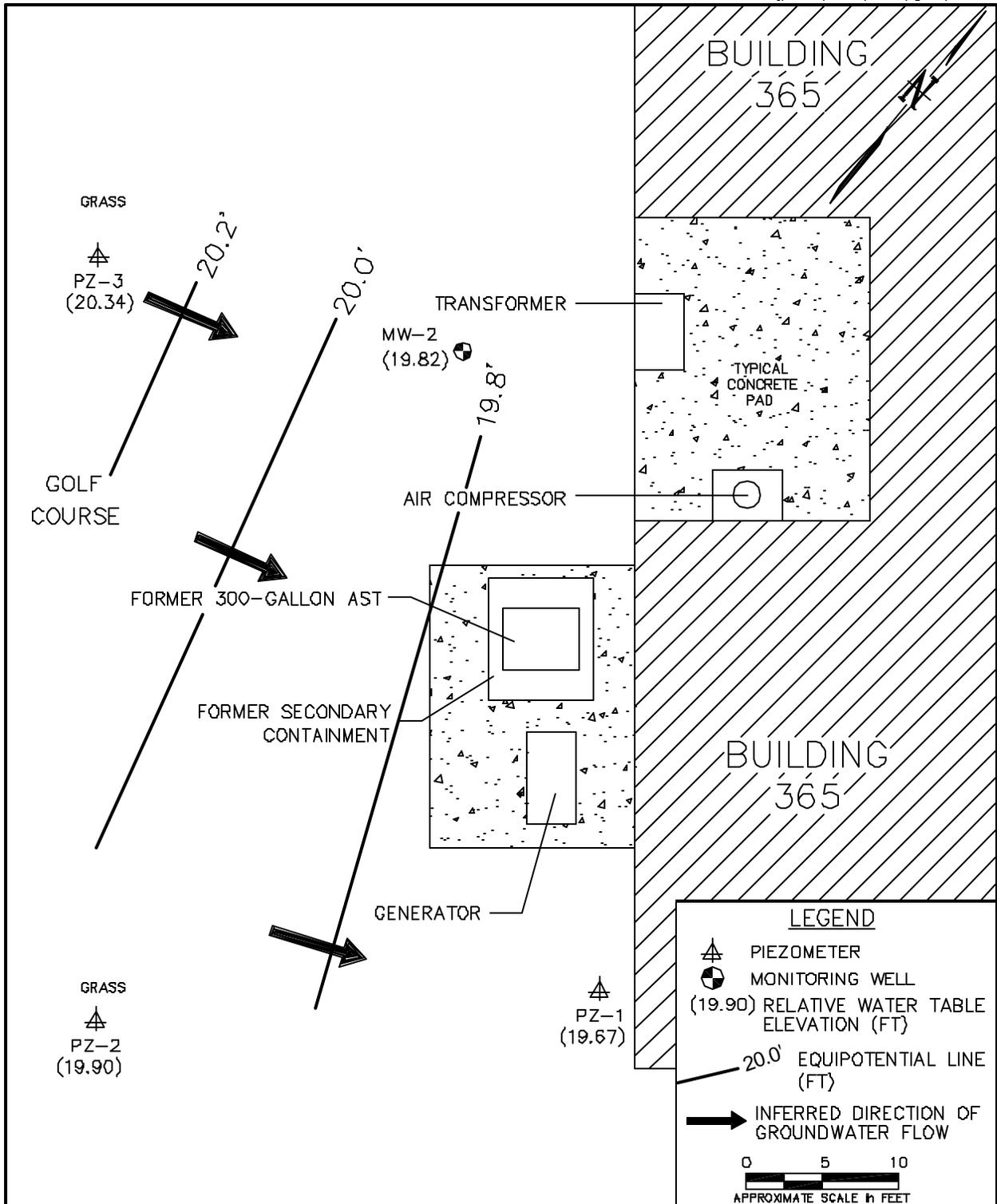
#### 3.1.3 Aquifer Classification and Characteristics

The State of Florida classifies the surficial aquifer underlying the site as G-II. Previous USGS aquifer test data indicate that the average hydraulic conductivity of the surficial aquifer is approximately 4.34 ft per day (ft/day) (TtNUS 2001).

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 determined to be 0.0116 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.

<p align="center"><b>Table 3-1</b> <b>Water Table Elevations</b></p> <p align="center">Site Assessment Report, Site G365 Naval Station Mayport Mayport, Florida</p>				
<b>Monitoring Well ID</b>	<b>Screened Interval/ Depth (ft bls)</b>	<b>Field Surveyed Top-of-Casing Elevation (ft)</b>	<b>Depth to Water Measurement (ft)</b>	<b>Relative Water Table Elevation (ft)</b>
PZ-1	3 to 6	24.64	4.97	19.67
PZ-2	3 to 6	25.00	5.10	19.9
PZ-3	3 to 6	23.95	3.61	20.34
MW-2	3 to 13	24.07	4.25	19.82
<p><b>Notes:</b> MW-2 was an existing monitoring well. Piezometers were installed and measured on August 1, 2002. Monitoring well MW-02 was the monitor well number of an existing well.</p>				



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POTENTIOMETRIC CONTOUR MAP  
AUGUST 1, 2002  
SITE ASSESSMENT REPORT  
SITE G365  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

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DRAWING NO. FIGURE 3-1	REV. 1

Using Darcy's Law the groundwater velocity at the site was calculated.

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 0.01 ft/ft, an inferred effective porosity value of 0.30, and Darcy's law, the groundwater seepage velocity across the site was calculated at 0.1447 ft/day or 52.80 ft per year in a general easterly direction.

### **3.2 SOIL SCREENING RESULTS**

Soil vapor screening methods and sampling locations for headspace analyses are discussed previously in Section 2.3.2. Results of the soil vapor survey are listed on Table 3-2 and illustrated on Figure 3-2. With the exception of a minimal organic vapor reading of 1 ppm on a sample collected from SB-03 (3 ft bls), the soil samples produced no instrument response.

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

#### **3.3.1 Mobile Laboratory**

At each of the eight boring locations, soil samples collected from a depth of 3 ft bls were submitted to the mobile laboratory for analysis. Samples collected from 5 ft bls generally contained too much moisture to be considered vadose zone samples.

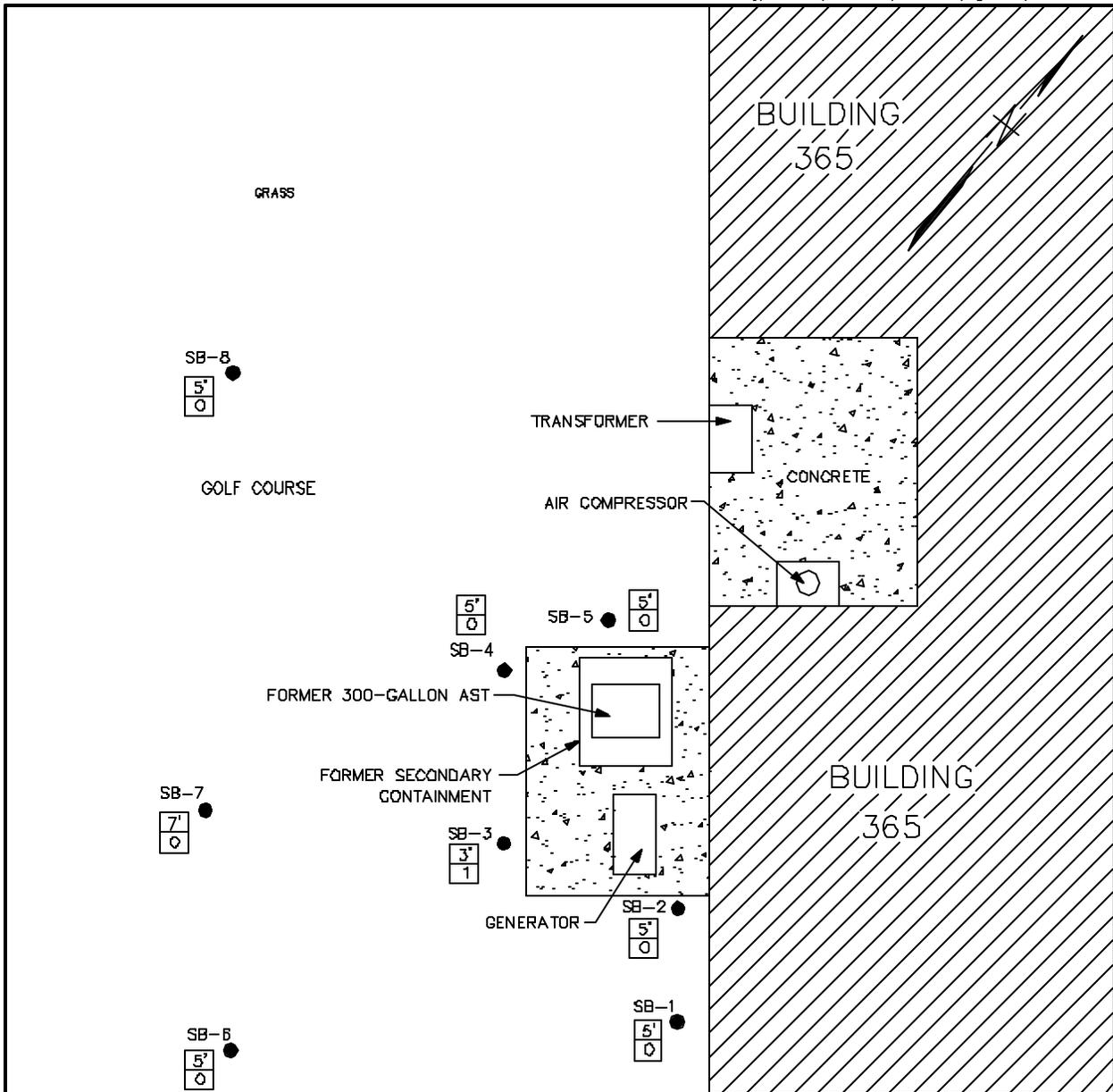
The mobile laboratory detected no analyzed constituents in the soil samples. Analytical results are summarized on Table 3-3 and illustrated in Figure 3-3. A complete report provided by KB Laboratories is included in Appendix G.

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

The soil sample collected from SB-03 was submitted to Mitkem for analysis. No analyzed parameters were detected. A complete laboratory report is provided as Appendix H. Analytical results are summarized in Table 3-4 and illustrated on Figure 3-4.

<b>Table 3-2</b> <b>Soil Vapor Measurements</b> Site Assessment Report, Site G365 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	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0
SB-02	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0
SB-03	08/01/02	1	0	0	0
		3	1	0	1
		5	0	0	0
SB-04	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0
SB-05	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0
SB-06	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0
SB-07	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0
		7	0	0	0
SB-08	08/01/02	1	0	0	0
		3	0	0	0
		5	0	0	0

**Notes:**  
Moist or wet soils were encountered at depths ranging from approximately 4 to 5 ft bls.



NOTES:

- 1). Soil samples were collected for head-space measurements above water table at 2-ft vertical intervals beginning at 1 ft bls.
- 2). Values shown are highest net FID measurement at each "SB" location

LEGEND

- SOIL BORING LOCATION
- |    |
|----|
| 5' |
| 0  |

 SAMPLE DEPTH
- |   |
|---|
| 0 |
|---|

 FID MEASUREMENT (PARTS PER MILLION)



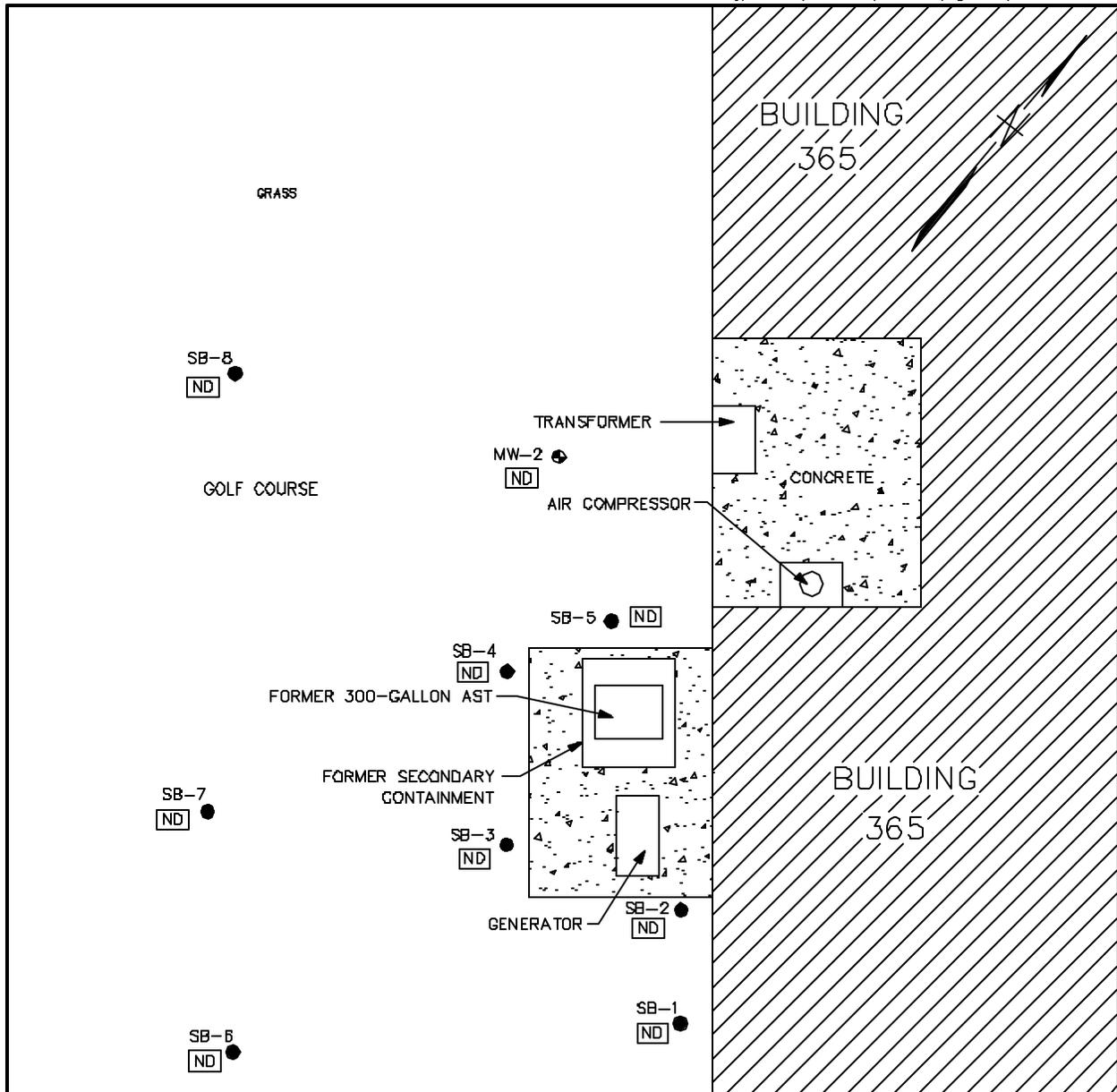
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SOIL VAPOR MEASUREMENTS  
SITE ASSESSMENT REPORT  
SITE G365  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

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<b>Table 3-3 Mobile Laboratory Soil Analytical Results</b>										
Site Assessment Report, Site G365 Naval Station Mayport Mayport, Florida										
Compound	FDEP Target Level <sup>1</sup> (mg/kg)		Sample ID, Sample Date, and Sample Interval							
			SB-01	SB-02	SB-03	SB-04	SB-05	SB-06	SB-07	SB-08
	Residential	Leachability	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02
			3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 ft	3 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	<0.005	<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	5900	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Napthalene	40	1.7	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
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)										
mg/kg = milligrams per kilogram										
mg/L = milligrams per liter										



**NOTES:**

1). Soil samples analyzed for BTEX plus MTBE, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

**LEGEND**

- SOIL BORING LOCATION
- ⊕ MONITORING WELL AND SOIL BORING LOCATION

ND NO ANALYTES DETECTED



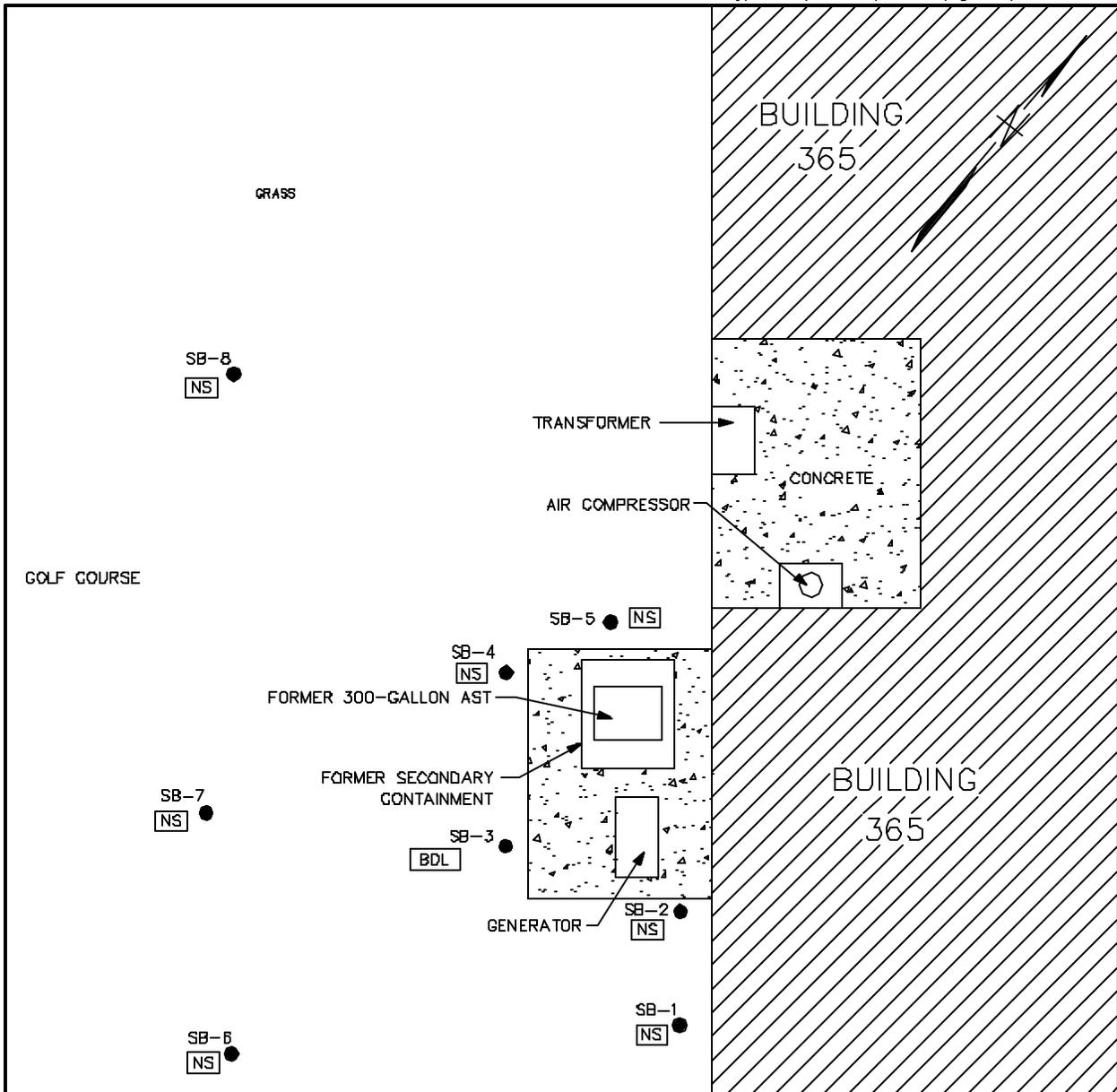
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MOBILE LABORATORY SOIL  
ANALYTICAL RESULTS  
SITE ASSESSMENT REPORT  
SITE G365  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

CONTRACT NO. 4240	
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<b>Table 3-4</b> <b>Fixed-Base Laboratory Soil Analytical Results</b> Site Assessment Report, Site G365 Naval Station Mayport Mayport, Florida			
Compound	Direct Exposure Residential <sup>1</sup>	Leachability Based on Groundwater Criteria <sup>1</sup>	Sample ID and Sample Date
			SB-3 08/05/02
<b><u>VOCs (USEPA Method 8021B) (mg/kg)</u></b>			
Benzene	1.1	0.007	<0.004
Toluene	380	0.5	<0.004
Ethylbenzene	1100	0.6	<0.004
Total Xylenes	5900	0.2	<0.004
MTBE	3200	0.02	<0.004
<b><u>PAHs (USEPA Method 8310) (mg/kg)</u></b>			
			BDL
<b><u>FL-PRO (USEPA Method 8270) (mg/kg)</u></b>			
TRPH	340	340	< 2.5
<b>Notes:</b> <sup>1</sup> Chapter 62-770, FAC (April 30, 1999) The quality control for this data has only been checked by the laboratory. <b>Bold</b> = values in excess of SCTLs, Chapter 62-770, FAC (April 30, 1999) BDL = below detection limit			



GOLF COURSE

BUILDING  
365

BUILDING  
365

NOTES:

1). Soil sample collected from 3 ft bls at SB-3 analyzed for Gasoline Analytical Group/Kerosene Analytical Group (GAG/KAG) Constituents

LEGEND

- SOIL BORING LOCATION
- BDL BELOW LABORATORY DETECTION LIMIT FOR ALL GAG/KAG CONSTITUENTS
- NS NO SAMPLE COLLECTED



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FIXED-BASE LABORATORY SOIL  
ANALYTICAL RESULTS  
SITE ASSESSMENT REPORT  
SITE G365  
MAYPORT NAVAL STATION  
MAYPORT, FLORIDA

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DRAWING NO. FIGURE 3-4	REV. 1

### 3.4 GROUNDWATER ANALYTICAL RESULTS

#### 3.4.1 Mobile Laboratory

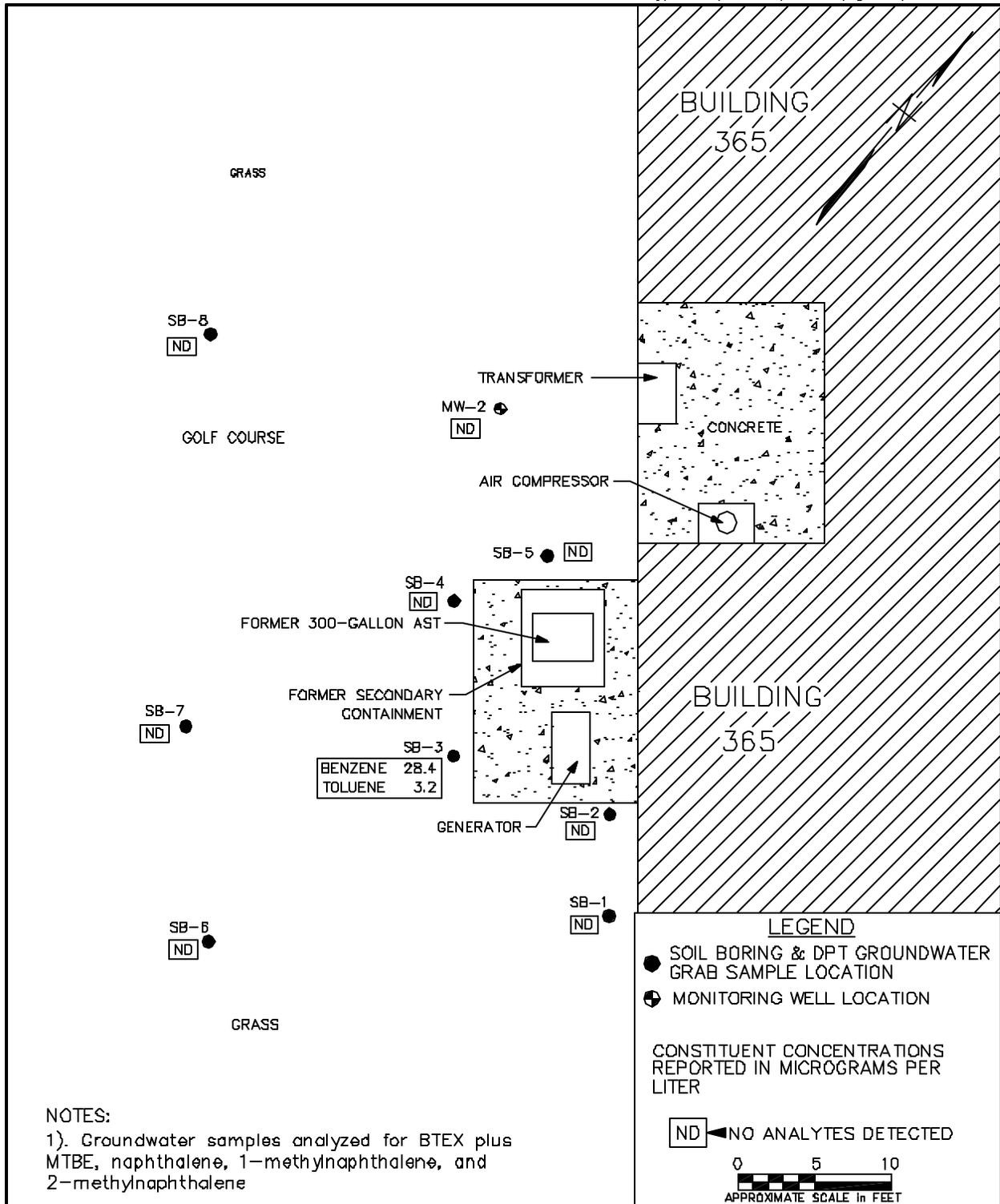
Benzene was reported at a concentration of 28.4 microgram per liter ( $\mu\text{g/L}$ ) in a groundwater sample collected from SB-03, exceeding its GCTL of 1  $\mu\text{g/L}$ . Toluene was also identified in this sample at a concentration of 3.2  $\mu\text{g/L}$ , below its GCTL of 40  $\mu\text{g/L}$ . Groundwater analytical results reported by the mobile laboratory on grab samples collected using DPT are summarized in Table 3-5 and illustrated on Figure 3-5. A complete report submitted by KB Laboratories is included in Appendix G along with soil analytical data.

#### 3.4.2 Fixed-Base Laboratory

Mitkem laboratory reported questionable results for EDB and chloromethane. Initially, Mitkem reported EDB concentrations exceeding the GCTL of 0.02  $\mu\text{g/L}$  in samples collected from MW-01s, MW-03s, MW-04s, and MW-05s. Since EDB exceedances were also reported in several quality assurance/quality control samples, verification samples were collected from the four wells on October 30, 2002 and submitted to STL for EDB analysis. STL reported no EDB concentrations above laboratory detection limits. As a result, the EDB detections were judged to be false positives.

Mitkem also reported chloromethane to be present in monitoring wells MW-01s, MW-02s and MW-04s exceeding the GCTL for chloromethane of 2.7 $\mu\text{g/L}$ . Chloromethane is a by-product for the degradation process of chlorinated solvents and is highly volatile. Since other false positives had been reported by Mitkem and since the site had no previous history of chlorinated solvent contamination, groundwater samples were collected a second time from the three wells with chloromethane detections. These samples were submitted to ENCO for analysis by the same method used by Mitkem (8260B) and no chloromethane was detected in the three samples. As a result, the chloromethane detections were judged to be false positives results. Fixed-based laboratory analytical results are summarized in Table 3-6 and illustrated in Figure 3-6. Complete validated laboratory reports are presented in Appendix H. Total recoverable petroleum hydrocarbons were identified in monitoring well MW-02s at a concentration 2.5 mg/L below the 5.0 mg/L GCTL.

<p align="center"><b>Table 3-5</b>  <b>Mobile Laboratory Groundwater Analytical Results</b>            Site Assessment Report, Site G365            Naval Station Mayport            Mayport, Florida</p>												
Compound	FDEP Target Level <sup>1</sup> (µg/L)	Sample ID, Sample Date, and Sample Interval										
		GW-01	GW-02	GW-03	GW-03	GW-03	GW-04	GW-05	GW-06	GW-07	GW-08	MW-2S
		08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02	08/01/02
		4-8 ft	4-8 ft	4-8 ft	20 ft	40 ft	4-8 ft	4-8 ft	4-8 ft	4-8 ft	4-8 ft	5 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	<b>28.4</b>	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	40	<1	<1	3.2	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Napthalene	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1-Methylnapthalene	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylnapthalene	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<b>Notes:</b>												
<sup>1</sup> Chapter 62-770, FAC (April 30, 1999)												

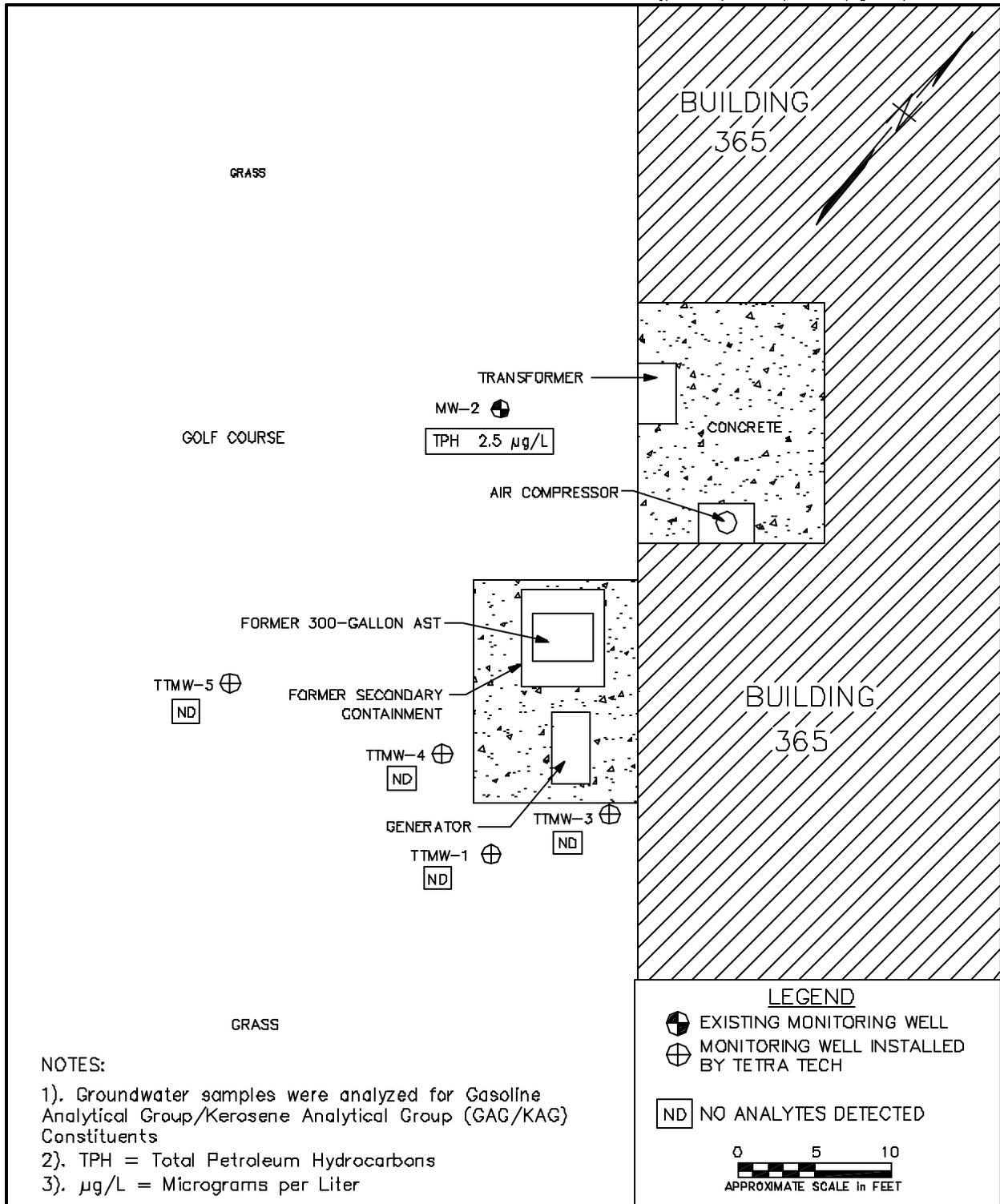


NOTES:

1). Groundwater samples analyzed for BTEX plus MTBE, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

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<p align="center"><b>Table 3-6</b>  <b>Fixed-Base Laboratory Groundwater Analytical Results</b></p> <p align="center">Site Assessment Report, Site G365                      Naval Station Mayport                      Mayport, Florida</p>						
Compound	FDEP Target Level <sup>1</sup>	MW-1	MW-2	MW-3	MW-4	MW-5
<b><u>VOCs (USEPA Method 8021B) (µg/L)</u></b>		8/22/02	8/22/02	8/22/02	8/22/02	8/22/02
Benzene	1	<1	<1	<1	<1	<1
Toluene	40	<1	<1	<1	<1	<1
Ethylbenzene	30	<1	<1	<1	<1	<1
Total Xylenes	20	<1	<1	<1	<1	<1
Chloromethane	2.7	<1	<1	<1	<1	<1
Trichloroethene	3	1	<1	<1	<1	<1
MTBE	50	<1	<1	<1	<1	<1
<b><u>USEPA 504.1 (µg/L)</u></b>						
EDB	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
<b><u>PAHs (USEPA Method 8310) (µg/L)</u></b>						
		BDL	BDL	BDL	BDL	BDL
<b><u>FL-PRO (USEPA Method 8270) (mg/L)</u></b>						
TRPH	5	<1	2.5	<1	<1	<1
Total Lead	15	<1	<1	<1	<1	<1
<b>Notes:</b>						
<sup>1</sup> Chapter 62-770, FAC (April 30, 1999)						
Wells were installed on August 7, 2001.						



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CHECKED BY	DATE				APPROVED BY	DATE
COST/SCHED-AREA					APPROVED BY	DATE
SCALE AS NOTED					DRAWING NO. FIGURE 3-6	REV. 1

## 4.0 CONCLUSION AND RECOMMENDATIONS

Results of the SA at Site G365 indicate the following:

- No “excessively contaminated soil”, as defined by Chapter 62-777.200, FAC, is present at the site as measured by OVA-FID headspace analyses. No contaminants of concern (COCs) 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.
- Mobile laboratory groundwater results for SB-03 indicated the presence of benzene and toluene however, these results were not confirmed by a groundwater sample collected from monitoring well MW-04, which was installed in the same bore hole location as SB-03.
- Initial detections of EDB and chloromethane in groundwater samples were proved to be false positives through additional groundwater analyses.
- TRPH was the only COC detected and confirmed above its laboratory detection limit by the fixed-base laboratory. The reported concentration of 2.5 µg/L for TRPH in well MW-2 is below the GCTL of 5 µg/L.

Based on results obtained during this SA, neither past nor present activities at Site G365 have resulted in a continuing impact to environmental media exceeding FDEP SCTLs and GCTLs. Therefore, it is recommended that No Further Action status be granted to this site.

## REFERENCES

AES (Aerostar Environmental Services), 2000. Tank Closure Report, Naval Station Mayport Building G365 Jacksonville, Florida. Prepared for the United States Navy, Naval Station Mayport, May.

Driscoll, Fletcher G., 1986. "Groundwater and Wells", St. Paul, Minnesota.

FDEP (Florida Department of Environmental Protection), Standard Operating Procedure DEP-001/92.

FDEP, 1999. Chapter 62-770 F.A.C. Petroleum Contamination Cleanup Criteria

FDEP, 1999. Chapter 62-777 F.A.C. Contaminant Cleanup Target Levels.

Spechler, R.M., 1994. "Saltwater Intrusion and Quality of Water in the Floridan Aquifer System, Northeastern Florida": U.S. Geological Survey Water-Resources Investigations Report 92-4174, p 76.

TtNUS (Tetra Tech NUS, Inc.), 2001 Site Assessment Report for Building 351. January. p 3-1.

USACE (United States Army Corp of Engineers), 1992. Contamination Assessment Report for Site 1330, NS Mayport. May.

USDA (United States Department of Agriculture Soil Conservation Services), 1978. Soil Survey of City of Jacksonville Duval, County Florida. 113.

USEPA (United States Environmental Protection Agency), 1997. Standard Operating Procedures.

USGS (United States Geologic Survey), 1992. USGS Mayport, Florida Quadrangle 7.5 Minute Series, Topographic Quadrangle Maps of Florida: scale 1:24,000.

**APPENDIX A**  
**SAR SUMMARY SHEET**

## CONTAMINATION ASSESSMENT REPORT SUMMARY SHEET

Facility Name: Tank Site G365, 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: \_\_\_\_\_
 

<input type="checkbox"/> Free product Removal:	_____	(gals)
<input type="checkbox"/> Soil Removal:	_____	(cubic yds)
<input type="checkbox"/> 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: <u>&lt;1</u>	benzene: <u>&lt;1</u>	EDB: <u>&lt;0.020</u>
lead: <u>&lt;15</u>	MTBE: <u>&lt;5.0</u>	other: <u>TRPH &amp; PAHs</u>

(6) Brief lithologic description: Medium to fine grained sand with shell hash to 37 ft 37-40 was dense green clay. 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: 10/30/00 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: southeast (Fig. 3-1 on page 3-3)

(12) Average depth to groundwater: 5.0 (ft)

(13) Observed range of seasonal groundwater fluctuations: \_\_\_\_\_

(14) Estimated rate of groundwater flow: 0.0126 (ft/day)

(15) Hydraulic gradient across site: 0.0009 (ft/ft)

(16) Aquifer characteristics:
 

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

(17) Other remarks: None

**APPENDIX B**  
**AEROSTAR TANK CLOSURE REPORT**

NOVA JAIL AREA  
00 JUN -5 04 7: 14

**TANK CLOSURE REPORT  
NAVAL AIR STATION MAYPORT  
BUILDING 365  
JACKSONVILLE, FLORIDA  
FDEP ID No. 16-8626008**

**PREPARED FOR:**

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

**PREPARED THROUGH:**

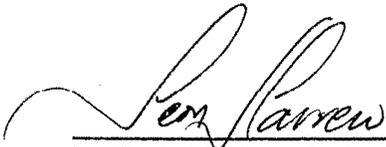
The NTC Group  
300 Chastain Center Boulevard, Suite 395  
Kennesaw, Georgia 30144

**FOR SUBMITTAL TO:**

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

**PREPARED BY:**

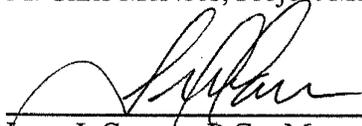
Aerostar Environmental Services, Inc.  
11200 St. Johns Industrial Parkway, Suite 1  
Jacksonville, Florida 32246  
(904) 565-2820



M. Chris McNees; Project Manager

5/25/00

Date



Leon J. Carrero, P.G.; Manager, Environmental Services

5/25/00

Date

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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 365 (fire station), 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 and replaced with another AST. A copy of the UST Installation and Removal Form for Certified Contractors is included in Appendix A. The AST stored diesel to fuel an emergency generator. 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 western wall of the fire station; and consisted of one 300-gallon steel tank containing diesel positioned within a raised, concrete block, secondary containment; and approximately ten feet of aboveground, one-inch diameter steel distribution piping. A new double-walled, compartmented, 350-gallon AST and one-inch diameter piping was installed in the exact location of the former tank. The location of the AST system is shown in Figure 2. According to information obtained from the FDEP, the AST system was installed in January 1965.

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. No evidence of staining was observed within the secondary containment. 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. Following removal of the tank, the new 350-gallon AST system was installed.

Photographic documentation of the tank replacement is included in Appendix D.

### **3.0 ENVIRONMENTAL MONITORING ACTIVITIES**

On March 8, 2000, AEROSTAR personnel advanced four soil borings (SB-1 through SB-4) around the former AST's concrete pad. Borings could not be advanced in the center or on the east side of the concrete pad due to the presence of the new AST and Building 365. 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. No hydrocarbon vapors were detected during soil screening above 10 parts per million (ppm), the level established by FDEP as a "positive field screening result." Soil screening results are presented in Table 1. The soil sample locations are shown in Figure 2.

One soil sample (SB-1-1) was collected for laboratory analyses on March 8, 2000, along the northern side of the secondary containment in the proximity of the secondary containment's drain pipe. The soil sample was collected at one foot below land surface (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 no hydrocarbon concentrations above the laboratory method reporting limits (MRLs). 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 SB-1 to

evaluate groundwater quality in the area of the former AST system. The groundwater was encountered at approximately five feet BLS. TW-1 was installed using a three-inch diameter steel hand auger to a completion depth of approximately nine feet BLS. The well was constructed with ten feet of two-inch diameter, Schedule 40, 0.010-inch, machine slotted, PVC well screen. 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 of the parameters listed in EPA Method 602 for VOAs, including methyl tert butyl ether (MTBE), and EPA Method 610 for PAHs. Results of the groundwater laboratory analyses showed a toluene concentration of 818 micrograms per Liter ( $\mu\text{g/L}$ ), above State of Florida Groundwater Cleanup Target Level of 40  $\mu\text{g/L}$ . No other tested parameters were detected above laboratory MRLs. A summary of the groundwater laboratory results is present in Table 2. 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 RECOMMENDATION**

Results of the soil analyses showed no hydrocarbon concentrations above laboratory MRLs. Results of the groundwater analyses indicated toluene concentrations above State Groundwater Cleanup Target Levels. Based on the results of this closure assessment, further assessment is recommended for the area of the former 300-gallon AST.

**TABLES**

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

NAS Mayport  
Building 365  
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	3-8-00	1	ND	NA	ND
		3	ND	NA	ND
		5	ND	NA	ND
SB-2	3-8-00	1	ND	NA	ND
		3	ND	NA	ND
		5	ND	NA	ND
SB-3	3-8-00	1	ND	NA	ND
		3	ND	NA	ND
		5	ND	NA	ND
SB-4	3-8-00	1	ND	NA	ND
		3	ND	NA	ND
		5	ND	NA	ND

ppm    parts per million  
 ND    Not Detected  
 NA    Not Analyzed

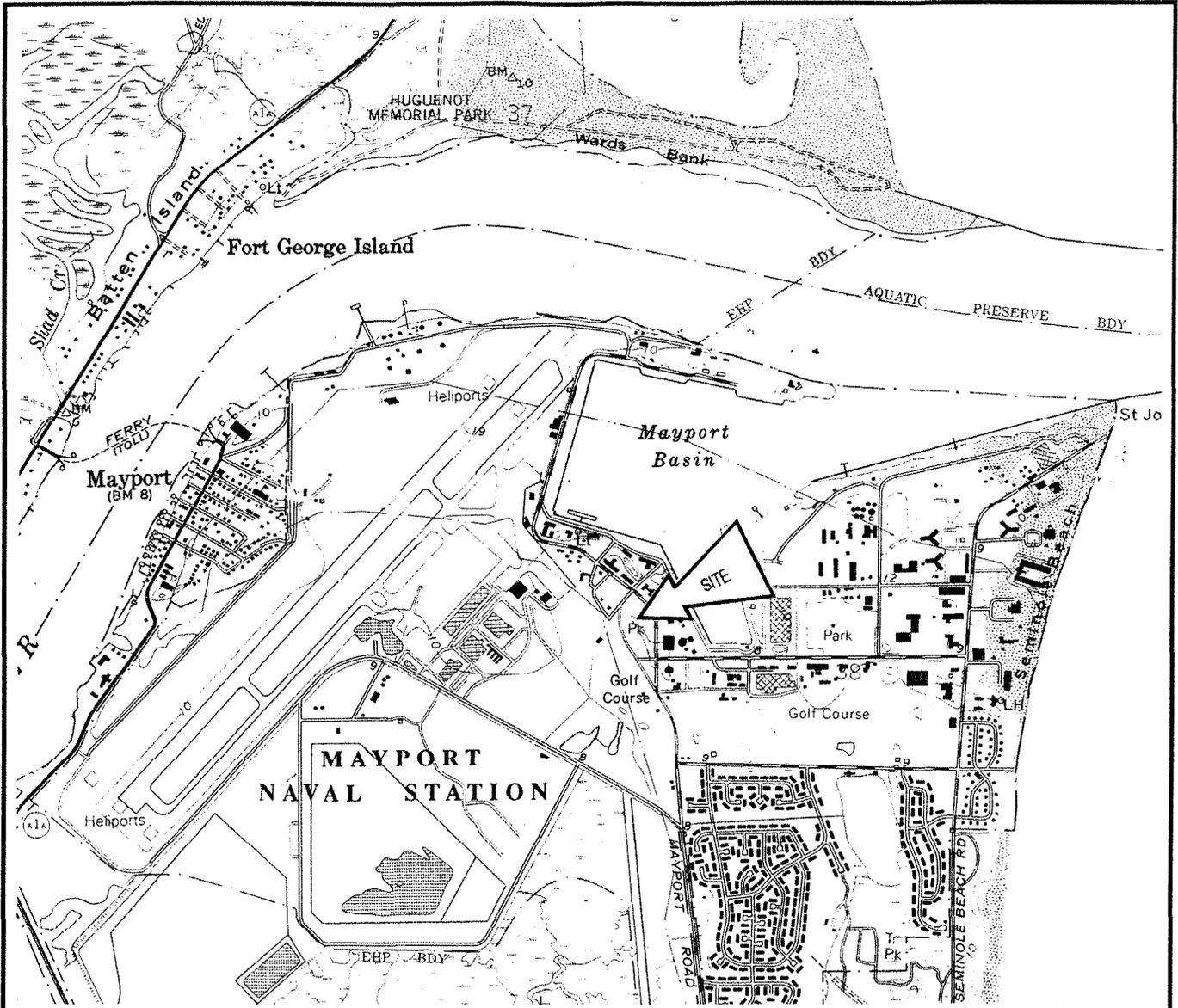
**TABLE 2**  
**SUMMARY OF GROUNDWATER ANALYSES**

NAS Mayport  
Building 365  
Jacksonville, FL

Parameter	Date	TW-1	SGCTL
Toluene ( $\mu\text{g/L}$ )	3-29-00	818	40.0
EPA Method 610 ( $\mu\text{g/L}$ )	3-29-00	BMRL	Varies

$\mu\text{g/L}$             Micrograms per Liter  
SGCTL           State Groundwater Cleanup Target Levels as Established in Chapter 62-777, FAC.  
BMRL            Below Method Reporting Limit

**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 GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION



SCALE:  
1:24000

FIGURE 1 - TOPOGRAPHIC SITE LOCATION MAP



NAVAL AIR STATION MAYPORT  
BUILDING 365  
JACKSONVILLE, FLORIDA

DRAWN BY: JJR

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

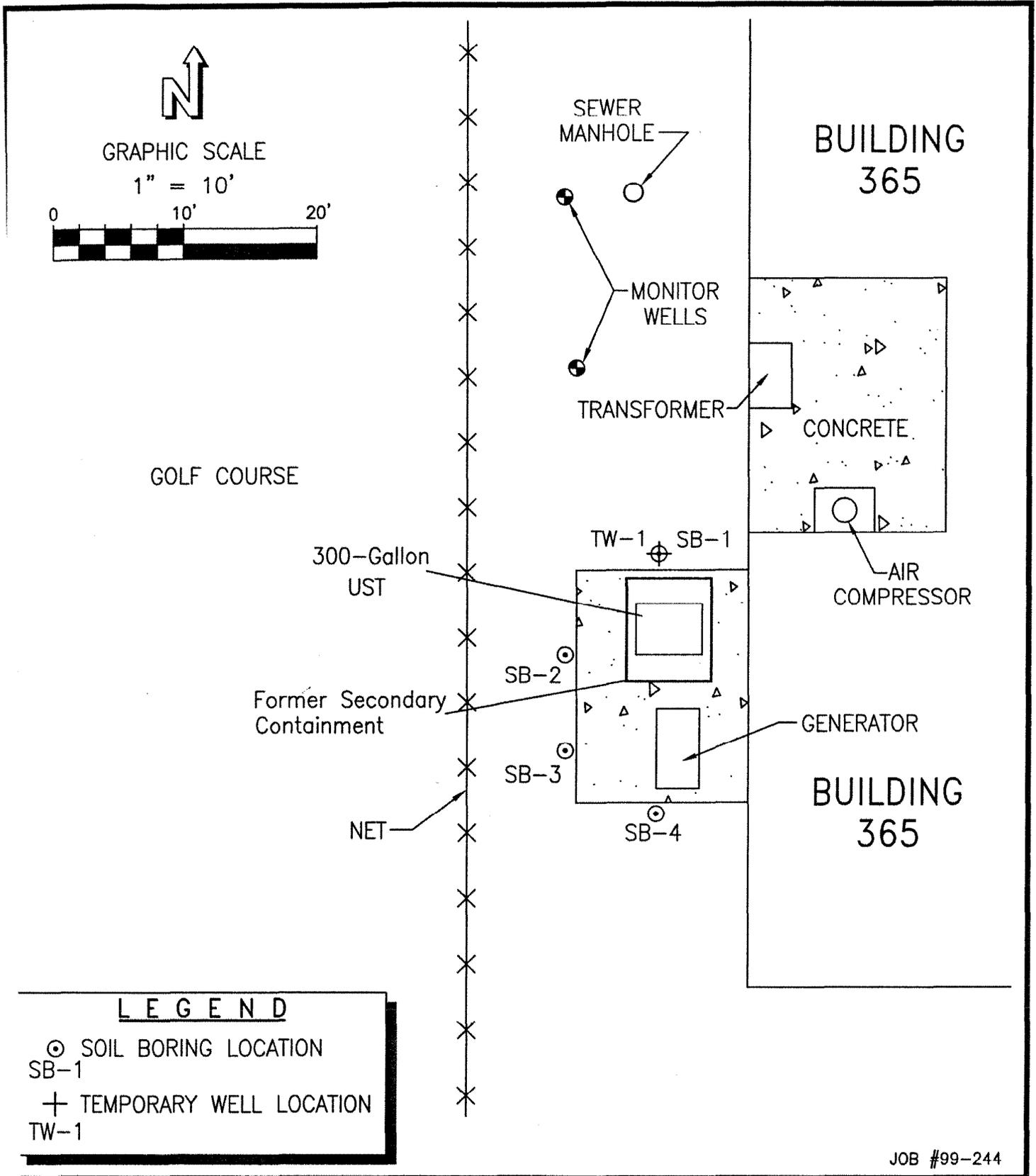


FIGURE 2. SITE PLAN



NAS MAYPORT  
 BUILDING 365  
 JACKSONVILLE, FLORIDA

DRAWN BY: KJS

DATE: 05/21/00

**APPENDICES**

**APPENDIX A**

UST INSTALLATION AND REMOVAL FORM FOR CERTIFIED  
CONTRACTORS



## 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: US Navy-Mayport Naval Station-Building 365	DEP Facility Identification No. : 16-8626008
Street Address (physical location): Mayport Naval Air Station, Mayport, Florida 32228	
County: Duval	Telephone #: ( 904 ) 270-6730
Owner Name: US Navy	Telephone #: ( )
Owner Address: Mayport Naval Air Station, Mayport, FL 32228	

### Storage Tank System Information

Number of Tanks Installed: 1	Number of Tanks Removed: 1
Date Work Initiated: March 2000	Date Work Completed: March 2000
Tank(s) Manufactured by:	
Description of work Completed: Removal of one 300-gallon AST containing diesel and replaced with one 350-gallon AST containing diesel.	

### 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

Certified Tank Contractor Signature

PCC056792  
PSSC Number  
Pollutant Storage Systems  
Contractor License Number

6-19-00  
Date

M. Chris McNees  
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 365</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, FL 32228</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>Diesel-Generator</u>	Number of Tanks Closed <u>1</u>	Age(s) of Tanks <u>35 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	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1. A Discharge Report Form submitted to the County?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
2. An investigation performed in accordance with Rule 62-761.820, F.A.C.?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
b. Is the depth to groundwater less than 20 feet?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
c. Are there monitoring wells on site? If yes, were they	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1. Groundwater monitoring wells?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
2. Vapor monitoring wells?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
3. Used for closure assessment sampling?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
4. Properly closed?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
5. Retained for site assessment purposes?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
d. If tanks were replaced, were contaminated soils returned to the tank excavation?	<input type="checkbox"/> 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) 5-17-00  
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

DEP Form # <u>62-761.900(2)</u>
Form Title <u>Storage Tank Registration Form</u>
Effective Date: <u>July 13, 1998</u>
DEP Application No. _____ (Filled in by DEP)

## Storage Tank Facility Registration Form

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**

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

Facility Name: US Navy-Mayport Naval Station-Building 365

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: <u>US Navy-Mayport Naval Station</u>	Facility - Responsible Person Relation Type:	Effective Date
Mail address: <u>Mayport Naval Air Station</u>	<input checked="" type="checkbox"/> <b>Facility Account Owner (pays fees)</b>	
City, ST, Zip: <u>Mayport, FL 32228</u>	Facility Account Owner information must be provided when the facility contains active (in-use) storage tanks on site.	
Contact: <u>Jan Bovier</u>		
Telephone: <u>270-6730</u>	STCM Account Number (if known)	
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
G-365	T	A	300	1-1-65	G	B 3-2000	CK	ABI	

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.**

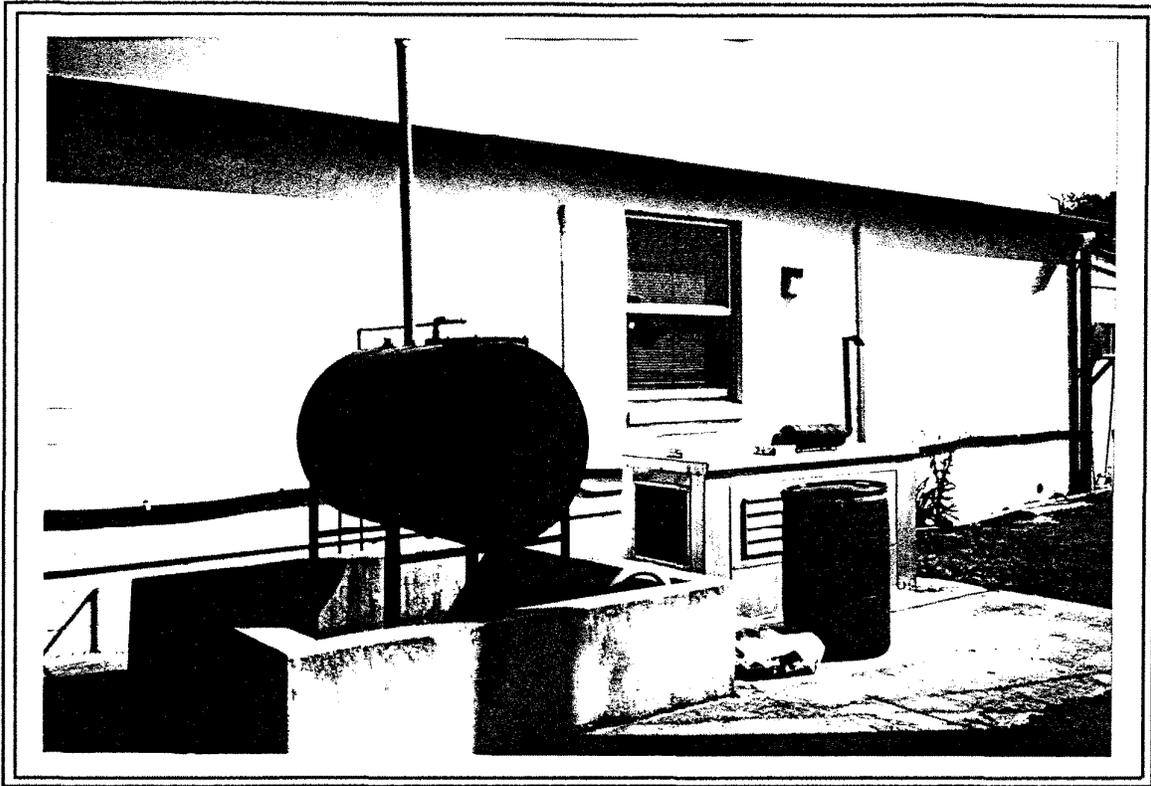
Michael Edward Wells Jan Bovier 5-19-00  
 Printed Name & Title Signature Date

DEP 62-761.900(2)

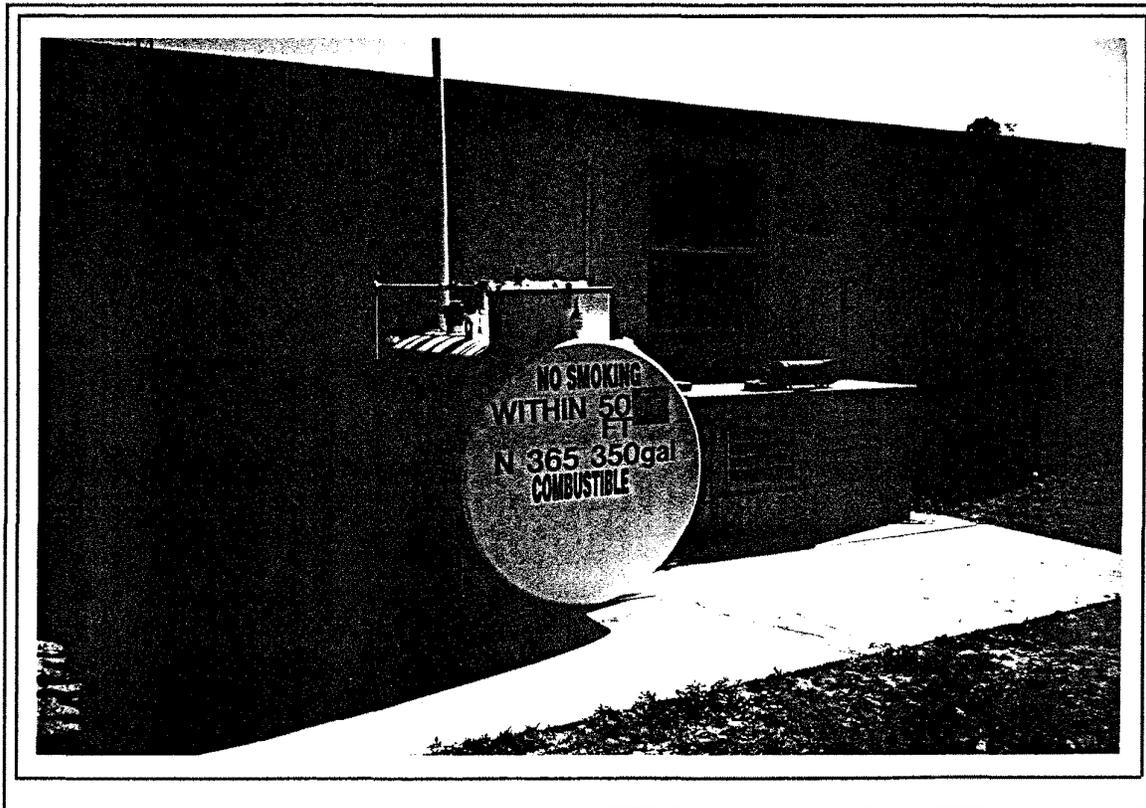
- |  |  |   |  |  |  |  |
|--|--|---|--|--|--|--|
| Northwest District<br>160 Governmental Center Blvd.<br>Pensacola, FL 32501<br>850-595-8360 | Northeast District<br>7825 Baymeadows Way,<br>Suite B200<br>Jacksonville, FL 32256<br>904-448-4300 | Central District<br>3319 Maguire Blvd.,<br>Suite 232<br>Orlando, FL 32803<br>407-894-7555 | Southwest District<br>3804 Coconut Palm Drive<br>Tampa, FL 33619<br>813-744-6100 | Southeast District<br>400 North Congress Ave.,<br>W Palm Beach, FL 33416<br>561-681-6600 | South District<br>2295 Victoria Ave.,<br>Suite 364<br>Fort Myers, FL 33901<br>941-332-6975 | Marathon Branch Office<br>2796 Overseas Hwy.,<br>Suite 221<br>Marathon, FL 33050<br>305-289-2310 |
|--|--|---|--|--|--|--|

**APPENDIX D**

**PHOTOGRAPHIC DOCUMENTATION**



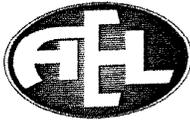
1) Looking at the former 300-gallon AST.



2) Looking at the new 350-gallon AST.

**APPENDIX E**

LABORATORY ANALYTICAL RESULTS



**Client:** Aerostar Environmental Services  
**Project Name:** Mayport - Building 365  
**Project No.:** 99-244

**Report No.:** J200511  
**Date Sampled:** 3/8/00  
**Date Submitted:** 3/8/00  
**Date Reported:** 3/15/00

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

**Project Chemist:** Various

**Attention:** Chris McNees

**Page No.:** 1 of 4

**Sample Description**

The following soil sample was submitted by Aerostar Environmental Services on 3/8/00 for analysis outlined on the attached Chain of Custody:

Project Name: Mayport – Building 365

1. SB-1-1 @ 11:10

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

  
Charles Ged, Lab Director

Advanced Environmental Laboratories, Inc.

Analytical Report

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

Report No.: J200511  
 Date Sampled: 3/8/00  
 Date Submitted: 3/8/00  
 Date Reported: 3/15/00

Page No.: 2 of 4

**Volatile Aromatic Hydrocarbons**

EPA Method 5035/8260

Units: ug/Kg

Lab Code: 200511-1      200504-mb  
 Dilution Factor: 1      1  
 Date Analyzed: 3/10/00      3/10/00

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

Surrogate	Acceptance Limits	Percent Recovery	Percent Recovery
1,2-Dichloroethane-d4	80-120	97	91
Toluene-d8	81-117	100	109
4-Bromofluorobenzene	74-121	95	108

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.:** J200511  
**Date Sampled:** 3/8/00  
**Date Submitted:** 3/8/00  
**Date Reported:** 3/15/00

**Page No.:** 3 of 4

**Polynuclear Aromatic Hydrocarbons**

EPA Methods 3550B/8270C

Units: µg/Kg

**Lab Code:** 200511-1      200505-mb  
**Dilution Factor:** 1                      1  
**Date Extracted:** 3/10/00              3/10/00  
**Date Analyzed:** 3/10/00              3/10/00  
**Sample Name:** SB-1-1              Method Blank

Analytes	MRL	Sample Name:	SB-1-1	Method Blank
Naphthalene	200		U	U
2-Methylnaphthalene	200		U	U
1-Methylnaphthalene	200		U	U
Acenaphthylene	200		U	U
Acenaphthene	200		U	U
Fluorene	200		U	U
Phenanthrene	200		U	U
Anthracene	200		U	U
Fluoranthene	200		U	U
Pyrene	200		U	U
Benzo(a)anthracene	200		U	U
Chrysene	200		U	U
Benzo(b)fluoranthene	200		U	U
Benzo(k)Fluoranthene	200		U	U
Benzo(a)pyrene	200		U	U
Indeno-1,2,3(cd)pyrene	200		U	U
Dibenzo(ah)anthracene	200		U	U
Benzo(ghi)perylene	200		U	U

Surrogate	Acceptance Limit	Percent Recovery	Percent Recovery
2-Fluorobiphenyl	43-130	60	53

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.:** J200511  
**Date Sampled:** 3/8/00  
**Date Submitted:** 3/8/00  
**Date Reported:** 3/15/00

**Page No.:** 4 of 4

**Florida Petroleum Residual Organics**  
**EPA Method 3550B/FL-PRO**  
**Units: µg/Kg**

**Lab Code:** 200511-1    200505-MB  
**Dilution Factor:** 1                    1  
**Date Extracted:** 3/10/00            3/10/00  
**Date Analyzed:** 3/10/00            3/10/00

<b>Analytes</b>	<b>MRL</b>	<b>Sample Name:</b>	<b>SB-1-1</b>	<b>Method Blank</b>
Octane (C8)	250		U	U
Decane (C10)	250		U	U
Dodecane (C12)	250		U	U
Tetradecane (C14)	250		U	U
Hexadecane (C16)	250		U	U
Octadecane (C18)	250		U	U
Eicosane (C20)	250		U	U
Docosane (C22)	250		U	U
Tetracosane (C24)	250		U	U
Hexacosane (C26)	250		U	U
Octacosane (C28)	250		U	U
Triacosane (C30)	250		U	U
Dotriacotane (C32)	250		U	U
Tetratriacontane (C34)	250		U	U
Hexatriacontane (C36)	250		U	U
Octatriacontane (C38)	250		U	U
Tetracotane (C40)	250		U	U
<b>TOTAL PHS</b>	<b>4000</b>		<b>U</b>	<b>U</b>

<b>Surrogate</b>	<b>Acceptance Limit</b>	<b>Percent Recovery</b>	<b>Percent Recovery</b>
Ortho-terphenyl (OTP)	42-142	105	101

U    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 200511

CLIENT NAME: <b>AEROSTAR</b>		PROJECT NAME: <b>MAYPORT-BUILDING 365</b>		PRESERVATIVE	CONTAINER SIZE AND TYPE	ANALYSIS REQUIRED <b>8021(A) 5035 8310 FL-PRO</b>	LAB USE
ADDRESS:		P.O. NUMBER / PROJECT NUMBER: <b>99-244</b>					
PHONE: FAX:		PROJECT LOCATION: <b>NAS MAYPORT JAX, FL</b>					
CONTACT: <b>CHRIS MCNEES</b>		SAMPLED BY: <b>MCN</b>					
TURN AROUND TIME or RESULTS DUE BY: <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		SPECIAL INSTRUCTIONS: <b>MAYPORT PROJECT</b>					

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLING		MATRIX	NO. OF CONTAIN.										
		DATE	TIME												
	<b>SB-1-1</b>	<b>3-8-00</b>	<b>1110</b>	<b>SO</b>	<b>1</b>	<b>X</b>	<b>X</b>	<b>X</b>							<b>-1</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	<b>MCN</b>	<b>S. O'Connell</b>	<b>3-8-00</b>	<b>1500</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	SHIPPED VIA: <b>AEL</b>	4		

DISTRIBUTION: White—Client Copy    Yellow—Lab Copy    Pink—Sample Copy



**Client:** Aerostar Environmental Services  
**Project Name:** NAS Mayport - Bldg. 365  
**Project No.:** 99-244

**Report No.:** J200711  
**Date Sampled:** 3/29/00  
**Date Submitted:** 3/30/00  
**Date Reported:** 4/5/00

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

**Project Chemist:** KB/PW

**Attention:** Chris McNeas

**Page No.:** 1 of 3

Sample Description

The following water sample was submitted by Aerostar Environmental Services on 3/30/00 for analysis outlined on the attached Chain of Custody:

Project Name: NAS Mayport - Bldg. 365

1. TW-1 @ 15:40

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

  
Jolene C. Warnke-Roszel, Project Manager

**Advanced Environmental Laboratories, Inc.**  
*Analytical Report*

**Client:** Aerostar Environmental Services  
**Project No.:** NAS Mayport - Bldg. 365  
**Matrix:** Water

**Report No.:** J200711  
**Date Sampled:** 3/29/00  
**Date Submitted:** 3/30/00  
**Date Reported:** 4/5/00  
**Page No.:** 2 of 3

**Volatile Aromatic Hydrocarbons**  
**EPA Method 5030/624**  
**Units: ug/L**

**Lab Code:** 200711-1    200692-mb  
**Dilution Factor:** 10    1  
**Date Analyzed:** 4/1/00    4/1/00

Analytes	MRL	Sample Name:	TW-1	Method Blank
Methyl- <i>tert</i> -butyl Ether	1		U	U
Benzene	1		U	U
Toluene	1		<b>818</b>	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	93	92
Toluene-d8	88-110	95	93
4-Bromofluorobenzene	86-115	103	102

U Not detected above the MRL  
MRL Method Reporting Limit

**Advanced Environmental Laboratories, Inc.**  
*Analytical Report*

**Client:** Aerostar Environmental Services  
**Project No.:** NAS Mayport - Bldg. 365  
**Matrix:** Water

**Report No.:** J200711  
**Date Sampled:** 3/29/00  
**Date Submitted:** 3/30/00  
**Date Reported:** 4/5/00  
**Page No.:** 3 of 3

**Polynuclear Aromatic Hydrocarbons**  
**EPA Methods 3510C/8310**  
Units: µg/L

**Lab Code:** 200711-1      200691-mb  
**Dilution Factor:** 1                      1  
**Date Extracted:** 4/3/00              4/3/00  
**Date Analyzed:** 4/3/00              4/3/00  
**Sample Name:** TW-1      Method Blank

Analytes	MRL	Sample Name:	TW-1	Method Blank
Naphthalene	1		U	U
2-Methylnaphthalene	1		U	U
1-Methylnaphthalene	1		U	U
Acenaphthylene	1		U	U
Acenaphthene	1		U	U
Fluorene	1		U	U
Phenanthrene	1		U	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

Surrogate	Acceptance Limit	Percent Recovery	Percent Recovery
Decafluorobiphenyl	43-130	48	100

U Not detected above the MRL  
MRL Method Reporting Limit



**Advanced Environmental Laboratories, Inc.**

□ Jacksonville: 8936 Western Way, Suite 7, Jacksonville, FL 32256 • (904) 363-9350 • Fax (904) 363-9354  
 □ Tampa: 5810-D Breckenridge Parkway, Tampa, FL 33610 • (813) 630-9616 • Fax (813) 630-4327

**CHAIN OF CUSTODY RECORD**

JOB NUMBER  
200711

CLIENT NAME: <b>AEROSTAR</b>	PROJECT NAME: <b>NAS MAYPORT - BLDG 365</b>	PRESERVATIVE	CONTAINER SIZE AND TYPE	LAB USE
ADDRESS:	P.O. NUMBER / PROJECT NUMBER: <b>99-244</b>			
PHONE: <b>565-2920</b> FAX:	PROJECT LOCATION: <b>JAX, FL</b>			
CONTACT: <b>CARLO MCNEES</b>	SAMPLED BY: <b>MCN</b>			
TURN AROUND TIME or RESULTS DUE BY: <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	SPECIAL INSTRUCTIONS:	602 610		

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLING		MATRIX	NO. OF CONTAIN.							
		DATE	TIME									
	TW-1	3-29-00	1540	GW	3	X	X					

\* 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	MCN	J. O'Connell	3-30-00	1700
	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	SHIPPED VIA: <b>AEL</b>	4		

**APPENDIX C**  
**SOIL BORING LOGS AND LITHOLOGIC DESCRIPTIONS**



















**APPENDIX D**  
**HEADSPACE SCREENING INFORMATION**

instrument with a flame ionization detector in the survey mode upon sampling the headspace in half-filled, eight-ounce or 16-ounce jars. Each soil sample shall be split into two jars, the two samples shall be brought to a temperature of between 20°C. (68°F.) and 32°C. (90°F.) and the readings shall be obtained five minutes thereafter. One of the readings shall be obtained with the use of an activated charcoal filter unless the unfiltered reading is non-detect. The total corrected hydrocarbon measurement shall be determined by subtracting the filtered reading from the unfiltered reading. Instruments with a photo ionization detector may be used after a determination is made of that instrument's equivalent response to an instrument with a flame ionization detector. Photo ionization detectors shall not be used in situations where humidity will interfere with the instruments' sensitivity (including periods of rain, measuring wet or moist soil). Analytical instruments shall be calibrated in accordance with the manufacturer's instructions.

(13) "Free product" means petroleum or petroleum product in excess of 0.01 foot in thickness, measured at its thickest point, floating on surface water or groundwater.

(14) "Gasoline Analytical Group" means aviation gasoline, gasohol, and motor gasoline or equivalent petroleum products.

(15) "Groundwater" means water beneath the surface of the ground within a zone of saturation, whether or not flowing through known or definite channels.

(16) "Innovative technology" means a process that has been tested and used as a treatment for contamination, but lacks an established history of full-scale use and information about its cost and how well it works sufficient to support prediction of its performance under a variety of operating conditions. An innovative technology is one that is undergoing pilot-scale treatability studies, which usually are performed in the field or the laboratory and require installation of the technology, and which provide performance, cost, and design objectives for the technology prior to full scale use.

(17) "Institutional control" means a restriction on use of, or access to, a site to eliminate or minimize exposure to petroleum products' contaminants of concern. Examples of institutional controls include deed restrictions, use restrictions, or restrictive zoning.

(18) "Kerosene Analytical Group" means diesel, Jet-A, Jet-B, JP-4, JP-5, and kerosene or equivalent petroleum products.

(19) "Local program" means a county or local program established pursuant to a contract in accordance with Section 376.3073, F.S., to assist the Department in the administration of the petroleum contamination site cleanup.

(20) "Monitoring well" means a well constructed with a surface seal and a sand filter pack in accordance with accepted design practices in order to provide for the collection of representative groundwater samples for laboratory analyses. Such wells may also be used to detect the presence of free product or collect water-level elevation data to aid in determining the direction of groundwater flow.

(6) "Contaminated sediment" means sediment that is contaminated with petroleum or petroleum products or their chemical constituents to the extent that contamination may be harmful to human health or the environment as determined by the concentrations of the petroleum or petroleum products' contaminants of concern, actual circumstances of exposure, diversity studies, toxicity testing or other evidence of harmful effects, as applicable. (Refer to the Development and Evaluation of Sediment Quality Assessment Guidelines, Volumes 1-4, dated November 1994, for guidance on the evaluation of concentrations of petroleum products' contaminants of concern and sediment quality conditions.)

(7) "Contaminated soil" means soil that is contaminated with petroleum or petroleum products or their chemical constituents to the extent that applicable soil cleanup target levels specified in Chapter 62-777, F.A.C., are exceeded.

(8) "Contamination" refer to the definition for "contaminated."

(9) "Discharger" means the person who has dominion or control over the petroleum or petroleum products at the time of the discharge into the environment.

(10) "Discovery" means:

(a) Observance or detection of free product in boreholes, wells, open drainage ditches, open excavations or trenches or on nearby surface water, or petroleum or petroleum products in excess of 0.01 foot in thickness in sewer lines, subsurface utility conduits or vaults, unless the product has been removed and it was confirmed that a release into the environment did not occur;

(b) Observance of visually stained soil or odor of petroleum products resulting from a discharge of used oil equal to or exceeding 25 gallons on a pervious surface;

(c) Discharges of petroleum or petroleum products equal to or exceeding 25 gallons on a pervious surface;

(d) Results of analytical test on a groundwater sample that exceed the cleanup target levels referenced in Chapter 62-777, F.A.C., Table I, groundwater criteria column; or

(e) Results of analytical test on a soil sample that exceed the lower of the direct exposure residential cleanup target levels and leachability based on groundwater criteria cleanup target levels specified in Chapter 62-777, F.A.C., Table II.

(11) "Engineering control" means a modification to a site to reduce or eliminate the potential for migration of, and exposure to, petroleum products' contaminants of concern. Examples of modifications include physical or hydraulic control measures, capping, point-of-use treatments, or slurry walls.

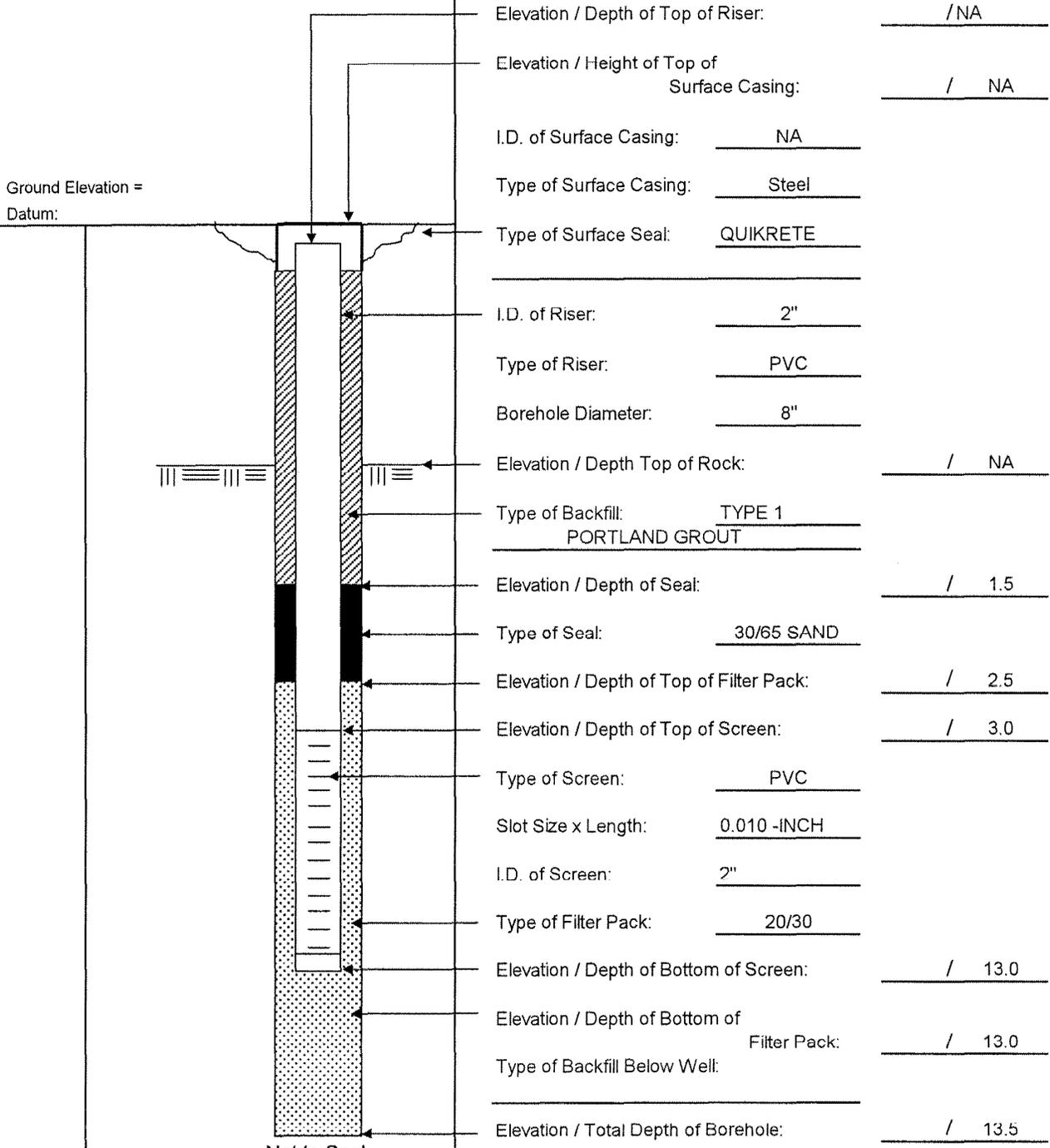
(12) "Excessively contaminated soil" for the purposes of Section 376.3071(11)(b)2., F.S. (unless laboratory results verify that the organic vapor analysis data are not relevant), means soil saturated with petroleum or petroleum products or soil that causes a total corrected hydrocarbon measurement of 500 parts per million (ppm) or higher for Gasoline Analytical Group or 50 ppm or higher for Kerosene Analytical Group. Readings shall be obtained at the site on an organic vapor analysis

**APPENDIX E**  
**WELL COMPLETION LOGS**



**SHALLOW MONITORING WELL SHEET**

PROJECT:	<u>CTO 247/ Bld 365</u>	DRILLING Co.:	<u>Precision Sampling</u>	BORING No.:	<u>MW-1</u>
PROJECT No.:	<u>N4240</u>	DRILLER:	<u>Shane</u>	DATE COMPLETED:	<u>08/07/02</u>
SITE:	<u>Bld 365</u>	DRILLING METHOD:	<u>H.S.A</u>	NORTHING:	<u>                    </u>
GEOLOGIST:	<u>DS</u>	DEV. METHOD:	<u>Submersible</u>	EASTING:	<u>                    </u>





Tetra Tech NUS, Inc.

WELL No.: MPT-365-MW03

### SHALLOW MONITORING WELL SHEET

PROJECT:	<u>CTO 247/ Bld 365</u>	DRILLING Co.:	<u>Precision Sampling</u>	BORING No.:	<u>MW-3</u>
PROJECT No.:	<u>N4240</u>	DRILLER:	<u>Shane</u>	DATE COMPLETED:	<u>08/07/02</u>
SITE:	<u>Bld 365</u>	DRILLING METHOD:	<u>H.S.A</u>	NORTHING:	<u>                    </u>
GEOLOGIST:	<u>DS</u>	DEV. METHOD:	<u>Submersible</u>	EASTING:	<u>                    </u>

	Elevation / Depth of Top of Riser:	<u>                    </u> / <u>NA</u>
	Elevation / Height of Top of Surface Casing:	<u>                    </u> / <u>NA</u>
	I.D. of Surface Casing:	<u>                    </u> NA
	Type of Surface Casing:	<u>                    </u> Steel
	Type of Surface Seal:	<u>                    </u> QUIKRETE
	I.D. of Riser:	<u>                    </u> 2"
	Type of Riser:	<u>                    </u> PVC
	Borehole Diameter:	<u>                    </u> 8"
	Elevation / Depth Top of Rock:	<u>                    </u> / <u>NA</u>
	Type of Backfill:	<u>                    </u> TYPE 1 PORTLAND GROUT
	Elevation / Depth of Seal:	<u>                    </u> / <u>1.5</u>
	Type of Seal:	<u>                    </u> 30/65 SAND
	Elevation / Depth of Top of Filter Pack:	<u>                    </u> / <u>2.5</u>
	Elevation / Depth of Top of Screen:	<u>                    </u> / <u>3.0</u>
	Type of Screen:	<u>                    </u> PVC
Slot Size x Length:	<u>                    </u> 0.010 -INCH	
I.D. of Screen:	<u>                    </u> 2"	
Type of Filter Pack:	<u>                    </u> 20/30	
Elevation / Depth of Bottom of Screen:	<u>                    </u> / <u>13.0</u>	
Elevation / Depth of Bottom of Filter Pack:	<u>                    </u> / <u>13.0</u>	
Type of Backfill Below Well:	<u>                    </u>	
Elevation / Total Depth of Borehole:	<u>                    </u> / <u>13.5</u>	

Not to Scale



**SHALLOW MONITORING WELL SHEET**

PROJECT: CTO 247/ Bld 365 DRILLING Co.: Precision Sampling BORING No.: MW-4  
 PROJECT No.: N4240 DRILLER: Shane DATE COMPLETED: 08/07/02  
 SITE: Bld 365 DRILLING METHOD: H.S.A NORTHING: \_\_\_\_\_  
 GEOLOGIST: DS DEV. METHOD: Submersible EASTING: \_\_\_\_\_

	Elevation / Depth of Top of Riser:	<u>/ NA</u>
	Elevation / Height of Top of Surface Casing:	<u>/ NA</u>
	I.D. of Surface Casing:	<u>NA</u>
	Type of Surface Casing:	<u>Steel</u>
	Type of Surface Seal:	<u>QUIKRETE</u>
	I.D. of Riser:	<u>2"</u>
	Type of Riser:	<u>PVC</u>
	Borehole Diameter:	<u>8"</u>
	Elevation / Depth Top of Rock:	<u>/ NA</u>
	Type of Backfill:	<u>TYPE 1 PORTLAND GROUT</u>
	Elevation / Depth of Seal:	<u>/ 1.5</u>
	Type of Seal:	<u>30/65 SAND</u>
	Elevation / Depth of Top of Filter Pack:	<u>/ 2.5</u>
	Elevation / Depth of Top of Screen:	<u>/ 3.0</u>
	Type of Screen:	<u>PVC</u>
Slot Size x Length:	<u>0.010 -INCH</u>	
I.D. of Screen:	<u>2"</u>	
Type of Filter Pack:	<u>20/30</u>	
Elevation / Depth of Bottom of Screen:	<u>/ 13.0</u>	
Elevation / Depth of Bottom of Filter Pack:	<u>/ 13.0</u>	
Type of Backfill Below Well:	_____	
Elevation / Total Depth of Borehole:	<u>/ 13.5</u>	

Not to Scale

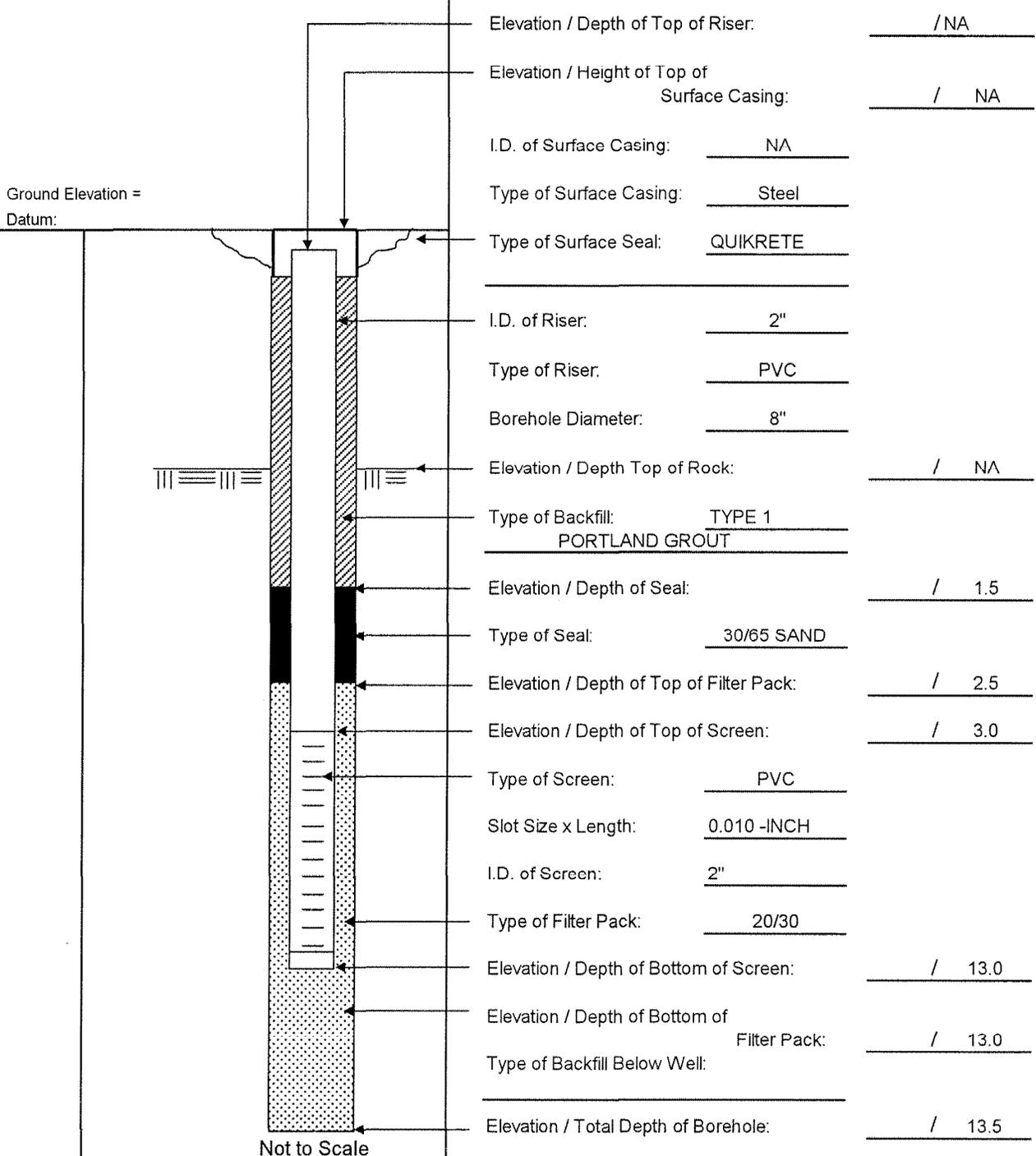


Tetra Tech NUS, Inc.

WELL No.: MPT-365-MW05

### SHALLOW MONITORING WELL SHEET

PROJECT: CTO 247/ Bld 365 DRILLING Co.: Precision Sampling BORING No.: MW-5  
 PROJECT No.: N4240 DRILLER: Shane DATE COMPLETED: 08/07/02  
 SITE: Bld 365 DRILLING METHOD: H.S.A NORTHING: \_\_\_\_\_  
 GEOLOGIST: DS DEV. METHOD: Submersible EASTING: \_\_\_\_\_



**APPENDIX F**  
**GROUNDWATER FIELD SAMPLING DATA SHEETS**



Project Site Name: NS Mayport Tank Sites 365, Sample ID No.: MPT-365-MW5s-01  
 Project No.: N4240 Sample Location: MW5s  
 [ ] Domestic Well Data Sampled By: \_\_\_\_\_  
 [X] Monitoring Well Data C.O.C. No.: \_\_\_\_\_  
 [ ] Other Well Type: \_\_\_\_\_ Type of Sample:  
 [ ] QA Sample Type: \_\_\_\_\_ [X] Low Concentration  
 [ ] High Concentration

SAMPLING DATA								
Date:	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity	Other
8-22-02		7.29	2.0	27.3	0	1.3	292	
Time: 1130								
Method: Low Flow Peristaltic								

PURGE DATA	
Date: 8-22-02	SEE LOW FLOW PURGE DATA SHEET
Method: Low Flow Peristaltic	
Monitor Reading (ppm): 0	
Well Casing Diameter: 2	
Well Casing Material: PVC	
Total Well Depth (TD): 13.3	
Static Water Level (WL): 5.60	
One Casing Volume(gal/L): 5.0	
Start Purge (hrs): 5.60 1040	
End Purge (hrs): 1125	
Total Purge Time (min): 45	
Total Vol. Purged (gal): 225 18	

SAMPLE COLLECTION INFORMATION				
Analysis	Preservative	Container Requirements	Laboratory	Collected
PAH	8310	None	1 L	Mitkem
TRPH	FL-Pro	H2SO4	1 L	Mitkem
VOC+MTBE	8280B	HCL	3 - 40 ml	Mitkem
Total Pb	200.7	HNO3	250 ml Plastic	Mitkem
EDB	601	none	3- 40 ml	Mitkem

**OBSERVATIONS / NOTES**

Ben Dodge  
 Mitkem Corp  
 175 Metro Center Blvd  
 Warwick, RI 02886

**Laboratory:**  
 phone: 401/732-3400  
 fax:

Circle if Applicable:		Signature(s): 
MS/MSD	Duplicate ID No.:	





Tetra Tech NUS, Inc.

## GROUNDWATER SAMPLE LOG SHEET

Page \_\_\_ of \_\_\_

Project Site Name:	<u>NS Mayport Tank Sites 365,</u>	Sample ID No.:	<u>MPT-365-MW4s-01</u>
Project No.:	<u>N4240</u>	Sample Location:	<u>MW4s</u>
<input type="checkbox"/> Domestic Well Data		Sampled By:	<u>DS</u>
<input checked="" type="checkbox"/> Monitoring Well Data		C.O.C. No.:	
<input type="checkbox"/> Other Well Type:		Type of Sample:	
<input type="checkbox"/> QA Sample Type:		<input checked="" type="checkbox"/> Low Concentration	
		<input type="checkbox"/> High Concentration	

## SAMPLING DATA

Date:	<u>8-22-02</u>	Color Visual	<u>LL</u>	pH Standard	<u>7.67</u>	S.C. mS/cm	<u>0.473</u>	Temp. °C	<u>25.8</u>	Turbidity NTU	<u>4.0</u>	DO mg/l	<u>0.6</u>	Salinity %P	<u>-213</u>	Other	
Time:	<u>1005</u>																
Method:	<u>Low Flow Peristaltic</u>																

## PURGE DATA

Date:	<u>8-22-02</u>	SEE LOW FLOW PURGE DATA SHEET
Method:	<u>Low Flow Peristaltic</u>	
Monitor Reading (ppm):	<u>0</u>	
Well Casing Diameter:	<u>2</u>	
Well Casing Material:	<u>PVC</u>	
Total Well Depth (TD):	<u>13.3</u>	
Static Water Level (WL):	<u>5.60</u>	
One Casing Volume (gal):	<u>8.0</u>	
Start Purge (hrs):	<u>0910</u>	
End Purge (hrs):	<u>0955</u>	
Total Purge Time (min):	<u>45</u>	
Total Vol. Purged (gal):	<u>22.8</u>	

## SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Laboratory	Collected
<b>PAH</b>	8310	None	1 L	DS ↓
<b>TRPH</b>	FL-Pro	H2SO4	1 L	
<b>VOC+MTBE</b>	8260B	HCL	3-40 ml	
<b>Total Pb</b>	200.7	HNO3	250 ml Plastic	
<b>EDB</b>	601	none	3-40 ml	

## OBSERVATIONS / NOTES

Ben Dodge  
Mitekem Corp  
175 Metro Center Blvd  
Warwick, RI 02886

## Laboratory:

phone: 401/732-3400  
fax:

Circle if Applicable:		Signature(s): 
MS/MSD	Duplicate ID No.: <u>DUP01</u>	







Project Site Name: NS Mayport Tank Sites 365, Sample ID No.: MPT-365-MW3s-01  
 Project No.: N4240 Sample Location: MW3s  
 Domestic Well Data Sampled By: \_\_\_\_\_  
 Monitoring Well Data C.O.C. No.: \_\_\_\_\_  
 Other Well Type: \_\_\_\_\_ Type of Sample:  
 QA Sample Type: \_\_\_\_\_ [X] Low Concentration  
 [ ] High Concentration

SAMPLING DATA								
Date:	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity	Other
8-22-02								
Time: 0950							CRP	
Method: Low Flow Peristaltic	CL	7.00	0.833	27.4	0	0.06	~284	

PURGE DATA	
Date: 8-22-02	SEE LOW FLOW PURGE DATA SHEET
Method: Low Flow Peristaltic	
Monitor Reading (ppm): 0	
Well Casing Diameter: 2	
Well Casing Material: PVC	
Total Well Depth (TD): 13.3	
Static Water Level (WL): 5.64	
One Casing Volume(gal): 5.0	
Start Purge (hrs): 0905	
End Purge (hrs): 0945	
Total Purge Time (min): 40	
Total Vol. Purged (gal): 20	

SAMPLE COLLECTION INFORMATION					
Analysis	Preservative	Container Requirements	Laboratory	Collected	
PAH	8310	None	1 L	Mitkem	DS ↓
TRPH	FL-Pro	H2SO4	1 L	Mitkem	
VOC+MTBE	8260B	HCL	3 - 40 ml	Mitkem	
Total Pb	200.7	HNO3	250 ml Plastic	Mitkem	
EDB	601	none	3- 40 ml	Mitkem	

**OBSERVATIONS / NOTES**

Ben Dodge  
 Mitkem Corp  
 175 Metro Center Blvd  
 Warwick, RI 02886

**Laboratory:**  
 phone: 401/732-3400  
 fax:

<b>Circle if Applicable:</b>		Signature(s): 
MS/MSD	Duplicate ID No.:	





Project Site Name: NS Mayport Tank Sites 365, Sample ID No.: MPT-365-MW2s-01  
 Project No.: N4240 Sample Location: MW2s  
 [ ] Domestic Well Data Sampled By: DC  
 [X] Monitoring Well Data C.O.C. No.: \_\_\_\_\_  
 [ ] Other Well Type: \_\_\_\_\_ Type of Sample:  
 [ ] QA Sample Type: \_\_\_\_\_ [X] Low Concentration  
 [ ] High Concentration

SAMPLING DATA									
Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other	
Time:	Visual	Standard	mS/cm	°C	NTU	mg/l	% sat		
8-27	TBW	7.06	1.57	24.5	30	0.31	-332		

PURGE DATA	
Date:	8-27
Method:	Low Flow Peristaltic
Monitor Reading (ppm):	0
Well Casing Diameter:	2
Well Casing Material:	PVC
Total Well Depth (TD):	13.3
Static Water Level (WL):	4.44
One Casing Volume (gal/L):	5.6
Start Purge (hrs):	4:44 1200
End Purge (hrs):	1:40
Total Purge Time (min):	120
Total Vol. Purged (gal/L):	30.1

SEE LOW FLOW PURGE DATA SHEET

SAMPLE COLLECTION INFORMATION				
Analysis	Preservative	Container Requirements	Laboratory	Collected
PAH	8310 None	1 L	Mitkem	
TRPH	FL-Pro H2SO4	1 L	Mitkem	
VOC+MTBE	8260B HCL	3 - 40 ml	Mitkem	
Total Pb	200.7 HNO3	250 ml Plastic	Mitkem	
EDB	601 none	3 - 40 ml	Mitkem	

OBSERVATIONS / NOTES

Ben Dodge  
 Mitkem Corp  
 175 Metro Center Blvd  
 Warwick, RI 02886

Laboratory:  
 phone: 401/732-3400  
 fax:

Circle if Applicable:		Signature(s): 
MS/MSD	Duplicate ID No.:	

25



Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Bid 365  
 PROJECT NUMBER: 4240

WELL ID.: MPT-365-MW2s-01  
 DATE: 8-27-07

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1200	4.44								
1210	4.68	300	7.10	1.26	26.3	1.94	29.1	-283	Clear
1220	4.71	300	7.09	1.37	10	0.82	29.1	-307	Turn TAN w/ Debris
1230	4.72	300	7.08	1.43	10	0.23	29.2	-332	roots & Algae
1240	4.71	300	7.01	1.47	25	0.45	29.2	-330	
1250	4.71	300	7.03	1.51	28	0.72	29.2	-327	
1300	4.70	300	7.04	1.53	25	0.81	29.3	-338	
1310	4.71	300	7.03	1.54	27	0.70	29.2	-328	
1320	4.71	300	7.04	1.55	26	0.68	29.3	-331	
1330	4.71	300	7.04	1.56	25	0.81	29.3	-321	
1340	4.61	100	7.05	1.56	23	0.94	29.3	-323	
1350	4.58	100	7.06	1.58	28	0.25	29.3	-330	and roots
1400	4.56	100	7.06	1.57	30	0.31	29.3	-332	Algae still coming into sampler - Turb color NO SAND
1405	Sample								

SIGNATURE(S): DSC

PAGE    OF



Project Site Name: NS Mayport Tank Sites 365, Sample ID No.: MPT-365-MW1s-01  
 Project No.: N4240 Sample Location: MW1s  
 [ ] Domestic Well Data Sampled By: DS  
 [ X ] Monitoring Well Data C.O.C. No.: \_\_\_\_\_  
 [ ] Other Well Type: \_\_\_\_\_ Type of Sample:  
 [ ] QA Sample Type: \_\_\_\_\_ [X] Low Concentration  
 [ ] High Concentration

SAMPLING DATA								
Date:	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	Salinity	Other
<u>8-22-02</u>							<u>CRP</u>	
Time: <u>1120</u>								
Method: Low Flow Peristaltic	<u>CL</u>	<u>6.83</u>	<u>1.68</u>	<u>26.5</u>	<u>0</u>	<u>0.01</u>	<u>-332</u>	

PURGE DATA	
Date: <u>8-22-02</u>	SEE LOW FLOW PURGE DATA SHEET
Method: Low Flow Peristaltic	
Monitor Reading (ppm): <u>0</u>	
Well Casing Diameter: <u>2</u>	
Well Casing Material: <u>PVC</u>	
Total Well Depth (TD): <u>13.3</u>	
Static Water Level (WL): <u>5.78</u>	
One Casing Volume(gal/L): <u>4.9</u>	
Start Purge (hrs): <u>1030</u>	
End Purge (hrs): <u>1110</u>	
Total Purge Time (min): <u>40</u>	
Total Vol. Purged (gal/L): <u>0.20</u>	

SAMPLE COLLECTION INFORMATION					
Analysis	Preservative	Container Requirements	Laboratory	Collected	
<b>PAH</b>	8310	None	1 L	Mitkem	DS
<b>TRPH</b>	FL-Pro	H2SO4	1 L	Mitkem	
<b>VOC+MTBE</b>	8260B	HCL	3 - 40 ml	Mitkem	
<b>Total Pb</b>	200.7	HNO3	250 ml Plastic	Mitkem	
<b>EDB</b>	601	none	3- 40 ml	Mitkem	

**OBSERVATIONS / NOTES**

Ben Dodge  
 Mitkem Corp  
 175 Metro Center Blvd  
 Warwick, RI 02886

**Laboratory:**  
 phone: 401/732-3400  
 fax:

<b>Circle if Applicable:</b>		Signature(s): 
MS/MSD	Duplicate ID No.:	















Project Site Name: NS Mayport  
 Project No.: 4240

Domestic Well Data  
 Monitoring Well Data  
 Other Well Type: \_\_\_\_\_  
 QA Sample Type: \_\_\_\_\_

Sample ID No.: MPT-365-MW-2  
 Sample Location: MW-2  
 Sampled By: DS  
 C.O.C. No.: 11703  
 Type of Sample:  
 Low Concentration  
 High Concentration

SAMPLING DATA

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time:	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	
1/18/2003	CL	7.03	1.61	18.60	20	0.87	-287	

PURGE DATA

Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
1/18/2003								
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2"								
Well Casing Material: PVC								
Total Well Depth (TD): 13								
Static Water Level (WL): 4.22								
One Casing Volume(gal/L): 5.6								
Start Purge (hrs): 1105								
End Purge (hrs): 1205								
Total Purge Time (min): 60								
Total Vol. Purged (gal): 18								
See Attached Low Flow Purge Data Sheet								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
8260B Select VOCs	HCl	3-40ml vials (chloromethane only)	DS

OBSERVATIONS / NOTES

**Laboratory:** ENCO Laboratory  
 4810 Executive Park Ct  
 Jacksonville, FL

Chris  
 phone: 904.296.3007  
 fax:

Circle if Applicable:

MS/MSD Duplicate ID No.:

Signature(s):





Project Site Name: NS Mayport Sample ID No.: MPT-365-MW-43  
 Project No.: 4240 Sample Location: MW-41  
 Sampled By: DS  
 C.O.C. No.: 11703  
 Type of Sample:  
 Domestic Well Data  
 Monitoring Well Data  
 Other Well Type: \_\_\_\_\_  
 QA Sample Type: \_\_\_\_\_  
 Low Concentration  
 High Concentration

SAMPLING DATA								
Date:	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
1/18/2003	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	
Time: <u>1210</u>	<u>CL</u>	<u>8.25</u>	<u>0.428</u>	<u>18.55</u>	<u>0</u>	<u>2.02</u>	<u>88</u>	
Method: Low Flow Peristaltic								

PURGE DATA								
Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other
1/18/2003								
Method: Low Flow Peristaltic								
Monitor Reading (ppm): <u>0</u>								
Well Casing Diameter: <u>2"</u>								
Well Casing Material: <u>PVC</u>								
Total Well Depth (TD): <u>13</u>								
Static Water Level (WL): <u>5.38</u>								
One Casing Volume(gal/L): <u>4.9</u>								
Start Purge (hrs): <u>1100</u>								
End Purge (hrs): <u>1205</u>								
Total Purge Time (min): <u>65</u>								
Total Vol. Purged (gal/L): <u>18</u>								
See Attached Low Flow Purge Data Sheet								

SAMPLE COLLECTION INFORMATION			
Analysis	Preservative	Container Requirements	Collected
<b>8260B Select VOCs</b>	<b>HCl</b>	<b>3-40ml vials</b> (chloromethane only)	<b>DS</b>

**OBSERVATIONS / NOTES**

**Laboratory:** ENCO Laboratory  
 4810 Executive Park Ct  
 Jacksonville, FL

Chris  
 phone: 904.296.3007  
 fax:

Circle if Applicable: MS/MSD  Duplicate ID No.: \_\_\_\_\_ Signature(s): 

476-6227  
 234 1328





Project Site Name: NS Mayport Sample ID No.: MPT -365-MW- 1  
 Project No.: 4240 Sample Location: MW- 1  
 [ ] Domestic Well Data Sampled By: DS  
 [ X ] Monitoring Well Data C.O.C. No.: 11703  
 [ ] Other Well Type: \_\_\_\_\_ Type of Sample:  
 [ ] QA Sample Type: \_\_\_\_\_ [X] Low Concentration  
 [ ] High Concentration

SAMPLING DATA									
Date:	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other	
1/18/2003	Visual	Standard	mS/cm	°C	NTU	mg/l	mV		
Method: Low Flow Peristaltic									

PURGE DATA									
Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	ORP	Other	
1/18/2003									
Method: Low Flow Peristaltic									
Monitor Reading (ppm):									
Well Casing Diameter: <b>2"</b>									
Well Casing Material: <b>PVC</b>									
Total Well Depth (TD):									
Static Water Level (WL):									
One Casing Volume(gal/L):									
Start Purge (hrs):									
End Purge (hrs):									
Total Purge Time (min):									
Total Vol. Purged (gal/L):									
See Attached Low Flow Purge Data Sheet									

SAMPLE COLLECTION INFORMATION			
Analysis	Preservative	Container Requirements	Collected
<b>8260B Select VOCs</b>	<b>HCl</b>	<b>3-40ml vials</b> (chloromethane only)	

**OBSERVATIONS / NOTES**

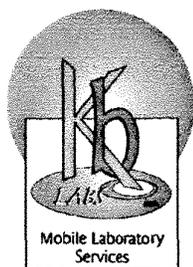
**Laboratory:** ENCO Laboratory  
 4810 Executive Park Ct  
 Jacksonville, FL

Chris  
 phone: 904.296.3007  
 fax:

<b>Circle if Applicable:</b>		Signature(s): 
MS/MSD	Duplicate ID No.:	



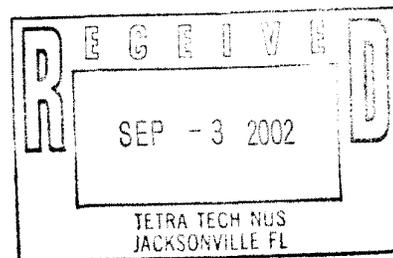
**APPENDIX G**  
**MOBILE LABORATORY ANALYTICAL RESULTS**



**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 is a small, woman-owned business enterprise."*

cto 247. 4.4

# 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 (QC) 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: 8/28/04

# 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>
MPT-1586 TW-1	Ethylbenzene	<1 ug/L	3.1 ug/L
MPT-1586 SB1-05	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:

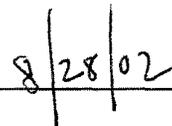
<u>Compounds</u>	<u>From</u>	<u>To</u>
Ethylbenzene	1.3 mg/kg	<0.005 mg/kg
m,p-Xylene	0.0 mg/kg	1.3 mg/kg

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**

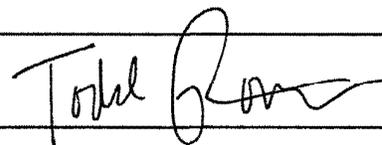
<b>Client:</b> TiNUS	<b>Driller/Sampler:</b> TiNUS	<b>Analyst:</b> Mark Mathews
<b>Site:</b> NS Mayport CTO247	<b>KB Labs Project Manager:</b> Kelly Bergdoll	<b>KB Labs Project No:</b> 02-065-1
<b>On-site Dates:</b> 8/1/02-8/5/02	<b>Client Project Manager:</b> Mark Peterson	<b>Matrix:</b> Water/Soil

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-Methylnaphthalene	70	130	20	110	NA	NA	Pass	NA	NA
1-Methylnaphthalene	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-Methylnaphthalene	70	130	20	78	76	3	Pass	Pass	Pass
1-Methylnaphthalene	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-Methylnaphthalene	70	130	20	79	96	20	Pass	Pass	Pass
1-Methylnaphthalene	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	<b>Date of Analysis:</b>	8/5/2002						
	MPT-1586 SB13-05 MSD								
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

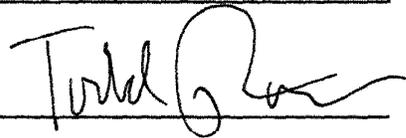
**Laboratory Control Spikes (LCS):**

<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.

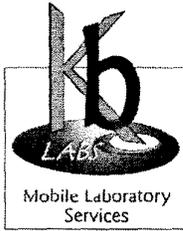
<b>Samples:</b>	LCS#4	<b>Date of Analysis:</b>	8/3/2002					
	LCS#5		8/5/2002					
	LCS#6		8/5/2002					
Spike Compounds	Control Limits		Percent Recoveries			Control Limit Checks		
	Lower	Upper	LCS#4	LCS#5	LCS#6	LCS#4	LCS#5	LCS#6
MTBE	70	to 130	78	81	116	Pass	Pass	Pass
Benzene	70	to 130	65	78	96	< LCL	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

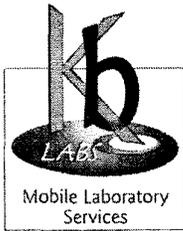
Project Number 02-065-1

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	8.2	<1	<1	15.1	<1	40.0	100	84.4
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	1.6	<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	28.4	3.2	<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

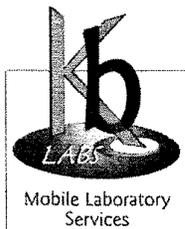


# KB LABS, INC.

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



# KB LABS, INC.

## Final Data Report

Project Number 02-065-1

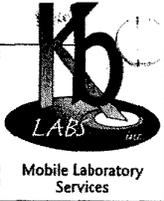
NS Mayport CTO247

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-1586 SB6-05	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 SB7-05	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 SB8-05	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 SB9-05	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 SB10-05	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 SB11-05	8/3/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<b>0.042</b>	<0.005	<b>0.32</b>	<b>0.24</b>	<b>0.15</b>
MPT-1586 SB12-05	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 TW-10 20'	8/5/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-10 40'	8/5/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 TW-13	8/5/02	Water	1	<5	<1	<1	<1	<1	<1	<5	<5	<5
MPT-1586 SB13-05	8/5/02	Soil	1	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.025	<0.025

22514



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

# CHAIN-OF-CUSTODY RECORD

08-01-02

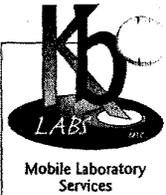
KB Project 02-065-1

MOBILE UNIT #  
**KB3**

CLIENT NAME		PROJECT NAME & ADDRESS						SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION	
Tetra Tech (Tetra)		NS May Port CTD 247										
SAMPLERS		CONTACT PERSON				BATCH # (Lab Use Only)		NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION		
		David Siefken										
SAMPLE FIELD ID. \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	COMMENT	
MPT-BE----							MPT 365-940					
MW055	7-31-02	1353			8-1-02	9:00	MPT-BE	GW	2			
BLD 1586-mw105		1410										
MW025		1450					MPT-BE					
MW 015		1525					MPT-BE					
MW 075		1545					MPT-BE					
TW 3	8-1-02	13:00			8-1-02	13:30			2			
TW 2		1305										
TW 4		13:15										
TW 5		13:30										
TW 1		13:35										
SB-1		11:50			8-1-02	13:30	MPT-365-SB1-03	S	1			
SB 2		12:10					MPT-365-SB2-03	S	1			
SB 3		12:20					MPT-365-SB3-03	S	1			
SB 5		12:50					MPT-365-SB5-03	S	1			
SB 4		12:57					MPT-365-SB4-03	S	1			
Pre-cleaned Containers Relinquished by: (Signature)		Date / Time	Received by: (Signature)				Date / Time	Remarks and Observations				
<i>[Signature]</i>		8-1-02	<i>[Signature]</i>				8/1					
Relinquished by: (Signature)		Date / Time	Received by: (Signature)				Date / Time	Remarks and Observations				
<i>[Signature]</i>		8/1	<i>[Signature]</i>				8-1-02					

VOLATILES  
MPT-365-940  
MPT-365-940  
MPT-365-940

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



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TEL (352) 367-0073  
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# CHAIN-OF-CUSTODY RECORD

8-03-02

MOBILE UNIT #  
**KB 3**

KB# 02-065-1

CLIENT NAME		PROJECT NAME & ADDRESS						SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION
Tetra Tech (Tennus)		NS Mayport									
SAMPLERS		CONTACT PERSON				BATCH # (Lab Use Only)		VOLATILES METHYLENE	BTBY	Naphthalene	COMMENT
Precision		David Siefken									
SAMPLE FIELD ID. \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.				
SB 1-03	8-3-02	08:25			8-3-02	10:35	MPT-463 1586	S	1		
SB 2-03	8:35	08:35						S	1		
SB 3-07		09:50						S	1		
MW 9		10:43				10:45	MPT-BE	W	2		
SB 04-03		10:25				11:10	MPT-1586	S	1		
SB 5-05 (SB 5-03)		10:55				11:24	L	S	1		
TW-5		12:25				11:23	MPT 1586	W	2		
SB 2-05		9:40				11:27	MPT 1586	S	1		
TW 4		12:50				12:50	MPT 1586	W	2		
SB 6-05		12:30				12:52	MPT 1586	S	1		
SB 7-05		13:00				13:05	MPT 1586	S	1		
TW-7		13:05				13:05	MPT 1586	W	2		
SB 1-05.0		08:30				13:15	MPT 1586	S	1		
TW-1		13:15				13:15	MPT 1586	W	2		
TW-9		13:50				13:50	MPT 13:50	W	2		

Precleaned Containers Relinquished by: (Signature) 	Date / Time 8-3-02	Received by: (Signature) 	Date / Time 8/3	Remarks and Observations
Relinquished by: (Signature) 	Date / Time 8/3	Received by: (Signature) 	Date / Time 8-3-02	

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



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

# CHAIN-OF-CUSTODY RECORD

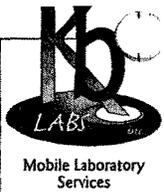
8-3-02

MOBILE UNIT #  
**KB 3**

KB # 02-065-1

CLIENT NAME		PROJECT NAME & ADDRESS						SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION		
Tetra Tech (Towns)		NS Mayport											C Chilled
SAMPLERS		CONTACT PERSON				BATCH # (Lab Use Only)				VOLATILES MTD BTEX Nap/Hex/2			
Precession		David Stiefken											
SAMPLE FIELD ID. \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.			COMMENT			
SB 9-05	8-3-02	13:50			8-3-02	14:00	MPT-1586	S	1	VOLATILES MTD BTEX Nap/Hex/2			
TW 10		14:05				14:05	MPT-1586	W	2				
SB 10-05		14:00				14:07	MPT 1586	S	1				
SB 9-05		14:25				14:28	MPT 1586	S	1				
TW 8		14:35				14:35	MPT 1586	W	2				
SB 11-05		15:15				15:16	MPT 1586	S	1				
TW-11		15:30				15:30	"	W	2				
SB 12-05		15:35				15:35	"	S	1				
TM 12		15:40				15:40							
Prelabeled Containers Relinquished by: (Signature) <i>Mark Watts</i>		Date / Time	Received by: (Signature) <i>[Signature]</i>				Date / Time	Remarks and Observations					
		8-3-02					8/3						
Relinquished by: (Signature) <i>[Signature]</i>		Date / Time	Received by: (Signature) <i>Mark Watts</i>				Date / Time						
							8-3-02						

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



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 Gainesville, FL 32608  
 TEL (352) 367-0073  
 FAX (352) 367-0074

# CHAIN-OF-CUSTODY RECORD

8-5-02

MOBILE UNIT #  
**KB 3**

KB# 02-065-1

CLIENT NAME		PROJECT NAME & ADDRESS						SAMPLE MATRIX	NUMBER OF CONTAINERS	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS	PRESERVATION
Tetra Tech (Ttus)		NS Mayport									
SAMPLERS		CONTACT PERSON				BATCH # (Lab Use Only)		VOLATILES	OTHER	COMMENT	
Precision		David Sretfen									
SAMPLE FIELD ID. \ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.				
TW-10 20'	8-5-02	10:28			8-5-02	10:25	MPT-1586	W	2		
TW-10 40'		12:00				12:00	MPT 1586	W	2		
SB 13 05		13:15				13:15	MPT 1584	S	1		
TW 13		13:30				13:30	MPT 1584	W	2		
(The rest of the table is crossed out with a diagonal line.)											
Prelabeled Containers Relinquished by: (Signature)		Date / Time	Received by: (Signature)				Date / Time	Remarks and Observations			
[Signature]		8-5-02	[Signature]				8/5				
Relinquished by: (Signature)		Date / Time	Received by: (Signature)				Date / Time				
[Signature]		8/5	[Signature]				8-5-02				

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

**APPENDIX H**  
**FIXED-BASE LABORATORY ANALYTICAL RESULTS**

**NOTE:** Given the current format of the data packages provided, analytical data in this attachment also includes data from other sites. Data with the prefix of MPT-365 denotes the data for Tank Site G365.



Trichloroethene

2 ug/L

10 ug/L

- Value < Reporting Limit (RL); report RL followed by a U.
- Value > RL and < Action level; report value followed by a U.

Sample aliquot and dilution factors were taken into consideration when applying the blank action levels. Trichloroethene and 1,2-dichloroethane were not detected in the associated samples and qualification of the data was not necessary.

Methylene chloride was detected in the trip blank and dibromochloromethane and bromoform were detected in the equipment blank. The aforementioned compounds were not detected in the associated samples and qualification of the data was not necessary.

Field duplicate imprecision (RPD >30%) was noted for chloromethane for the MPT-365-DUP01 / MPT-365-MW4S-01 duplicate pair. Positive results for chloromethane were qualified as estimated, J in the field duplicate pair.

#### EDB

The laboratory did not include the results for ethylene dibromide in the initial EDD. The data was sent upon request.

EDB was reported as a positive result in all samples except MW2S-01 by the method 504 analyses. However, using SW-846 Method 8260B analyses to confirm the presence of EDB yielded only non-detected results despite sufficiently high concentration reported in some Method 504 analyses. Therefore, due to the absence of GC/MS confirmation all EDB results except MW2S-01 were reported using the 8260B analyses. The laboratory provided correspondence regarding this issue and a copy is included within the support documentation appendix (C).

#### 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, EDB, 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

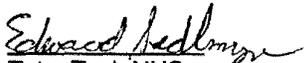
**Laboratory Performance Issues:** The laboratory did not initially provide a complete compound list as detailed in the lab specifications.

**Other Factors Affecting Data Quality:** Field duplicate imprecision was noted for chloromethane.

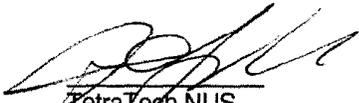
The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data

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

  
Tetra Tech 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**

**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: A1267 MEDIA: WATER DATA FRACTION: OV

nsample MPT-365-DUP01  
 samp\_date 8/22/2002  
 lab\_id A1267-01B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF: MPT-365-MW4S-01

nsample MPT-365-DUP01  
 samp\_date 8/22/2002  
 lab\_id A1267-01B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF: MPT-365-MW4S-01

nsample MPT-365-EQUIP-01  
 samp\_date 8/22/2002  
 lab\_id A1267-07B  
 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	0.3	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	6	J	G
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	A

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	0.3	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	4		
BROMOMETHANE	1	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	2		
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: A1267 MEDIA: WATER DATA FRACTION: OV

nsample MPT-365-EQUIP-01  
 samp\_date 8/22/2002  
 lab\_id A1267-07B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

nsample MPT-365-MW1S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-02B  
 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-DIBROMCETHANE	0.3	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	8		
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	

nsample MPT-365-MW1S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-02B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

**PROJ\_NO: 4240**

SDG: A1267 MEDIA: WATER DATA FRACTION: OV

nsample MPT-365-MW2S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-03B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-365-MW2S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-03B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-365-MW3S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-04B  
 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	3		
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	

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	0.3	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: A1267 MEDIA: WATER DATA FRACTION: OV

nsample MPT-365-MW3S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-04B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

nsample MPT-365-MW4S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-05B  
 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-DIBROMOETHANE	0.3	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	3	J	G
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	

nsample MPT-365-MW4S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-05B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1	U	

PROJ\_NO: 4240

SDG: A1267 MEDIA: WATER DATA FRACTION: OV

nsample MPT-365-MW5S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-06B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-365-MW5S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-06B  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-365-TRIP BLANK-01  
 samp\_date 8/31/2002  
 lab\_id A1267-08B  
 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	0.3	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	

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	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	
VINYL CHLORIDE	1	U	

PROJ\_NO: 4240

SDG: A1267 MEDIA: WATER DATA FRACTION: PAH

nsample MPT-365-DUP01  
samp\_date 8/22/2002  
lab\_id A1267-01D  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF: MPT-365-MW4S-01

nsample MPT-365-EQUIP-01  
samp\_date 8/22/2002  
lab\_id A1267-07D  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-365-MW1S 01  
samp\_date 8/22/2002  
lab\_id A1267-02D  
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	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	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	

**PROJ\_NO: 4240**

SDG: A1267 MEDIA; WATER DATA FRACTION: PAH

nsample MPT-365-MW2S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-03D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-365-MW3S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-04D  
 qc\_type NM  
 units UG/L  
 Pct\_Solids 0  
 DUP\_OF:

nsample MPT-365-MW4S-01  
 samp\_date 8/22/2002  
 lab\_id A1267-05D  
 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	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	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	

PROJ\_NO: 4240

SDG: A1267 MEDIA: WATER DATA FRACTION: PAH

nsample MPT-365-MW5S-01  
samp\_date 8/22/2002  
lab\_id A1267-06D  
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	

**PROJ\_NO: 4240**

**SDG: A1267 MEDIA: WATER DATA FRACTION: PET**

nsample MPT-365-DUP01  
samp\_date 8/22/2002  
lab\_id C208588\*1  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF: MPT-365-MW4S-01

nsample MPT-365-EQUIP-01  
samp\_date 8/22/2002  
lab\_id C208588\*7  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-365-MW1S-01  
samp\_date 8/22/2002  
lab\_id C208588\*2  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

**PROJ\_NO: 4240**

**SDG: A1267 MEDIA: WATER DATA FRACTION: PET**

nsample MPT-365-MW2S-01  
samp\_date 8/22/2002  
lab\_id C208588\*3  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	250		

nsample MPT-365-MW3S-01  
samp\_date 8/22/2002  
lab\_id C208588\*4  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

nsample MPT-365-MW4S-01  
samp\_date 8/22/2002  
lab\_id C208588\*5  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100	U	

**PROJ\_NO: 4240**

SDG: A1267 MEDIA: WATER DATA FRACTION: PET

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nsample MPT-365-MW5S-01  
samp\_date 8/22/2002  
lab\_id C208588\*6  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	100		U



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.

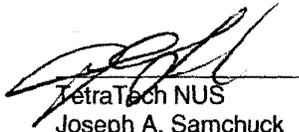
**Other Factors Affecting Data Quality:** None.

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



Tetra Tech 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: 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	2.6		

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	2.5	U	

**PROJ\_NO: 4240**

SDG:A1164 MEDIA: SOIL DATA FRACTION: OV

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
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: OV

---

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:

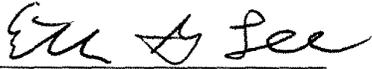
Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	4.00	U	



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

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
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- G = Field Duplicate Imprecision
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- 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
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- U = Pest/PCD% between columns for positive results
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- X = Signal to noise response drop
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PROJ\_NO: 4240

SDG: A1267 MEDIA: WATER DATA FRACTION: M

nsample MPT 365 MW4S 01  
samp\_date 8/22/2002  
lab\_id A1267-05C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-365 MW5S-01  
samp\_date 8/22/2002  
lab\_id A1267-06C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-365-DUP01  
samp\_date 8/22/2002  
lab\_id A1267-01C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF: MPT-365-MW4S-01

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

**PROJ\_NO: 4240**

SDG: A1267 MEDIA: WATER DATA FRACTION: M

nsample MPT-365-EQUIP-01  
samp\_date 8/22/2002  
lab\_id A1267-07C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-365-MW1S 01  
samp\_date 8/22/2002  
lab\_id A1267-02C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MPT-365-MW2S-01  
samp\_date 8/22/2002  
lab\_id A1267-03C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

**PROJ\_NO: 4240**

SDG: A1267 MEDIA: WATER DATA FRACTION: M

---

nsample MPT-365-MW3S-01  
samp\_date 8/22/2002  
lab\_id A1267-04C  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
LEAD	1.0	U	

Environmental Conservation Laboratories, Inc.  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216-6069  
904 / 296-3007  
Fax 904 / 296-6210  
www.encolabs.com



DHRS Certification No. E82277

**CLIENT :** Tetra Tech NUS  
**ADDRESS:** 8640 Philips Highway  
Suite 16  
Jacksonville, FL 32256

**REPORT # :** JAX29311  
**DATE SUBMITTED:** January 21, 2003  
**DATE REPORTED :** January 28, 2003

**PAGE 1 OF 4**

**ATTENTION:** Mr. Greg Roof

**PO #:** N4240P3016 (SS)

**SAMPLE IDENTIFICATION**

Samples submitted and  
identified by client as:

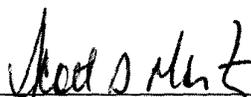
**REFERENCE:** MAYPORT SITE 365

01/17/03

#1 - MPT-365-MW2 @ 12:07  
#2 - MPT-365-MW4 @ 12:10  
#3 - MPT-365-MW1 @ 13:20

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. This data has been produced in accordance with NELAC Standards (July, 1999). This report shall not be reproduced except in full, without the written approval of the laboratory. Results for these procedures apply only to the samples as submitted.

**PROJECT MANAGER**

  
\_\_\_\_\_  
Scott D. Martin

ENCO LABORATORIES  
 REPORT # : JAX29311  
 DATE REPORTED: January 28, 2003  
 REFERENCE : MAYPORT SITE 365

PAGE 2 OF 4

RESULTS OF ANALYSIS

<u>EPA METHOD 8260 - VOLATILE ORGANICS</u>	<u>MPT-365-MW2</u>	<u>MPT-365-MW4</u>	<u>Units</u>
Chloromethane	1.0 U	1.0 U	ug/L
<b>Surrogate:</b>	<b>% RECOV</b>	<b>% RECOV</b>	<b>LIMITS</b>
Dibromofluoromethane	119	120	71-136
D8-Toluene	107	102	75-126
Bromofluorobenzene	106	109	76-120
Date Analyzed	01/27/03 14:42	01/27/03 15:17	

<u>EPA METHOD 8260 - VOLATILE ORGANICS</u>	<u>MPT-365-MW1</u>	<u>LAB BLANK</u>	<u>Units</u>
Chloromethane	1.0 U	1.0 U	ug/L
<b>Surrogate:</b>	<b>% RECOV</b>	<b>% RECOV</b>	<b>LIMITS</b>
Dibromofluoromethane	124	117	71-136
D8-Toluene	107	108	75-126
Bromofluorobenzene	102	109	76-120
Date Analyzed	01/27/03 15:53	01/27/03 14:06	

U = Compound was analyzed for but not detected to the level shown.

ENCO LABORATORIES  
REPORT # : JAX29311  
DATE REPORTED: January 28, 2003  
REFERENCE : MAYPORT SITE 365

PAGE 3 OF 4

**LABORATORY CERTIFICATIONS**

Laboratory Certification: FDEP:910190 NELAC:E82277

All analyses reported with this project were analyzed by the facility indicated unless identified below.

ENCO LABORATORIES  
REPORT # : JAX29311  
DATE REPORTED: January 28, 2003  
REFERENCE : MAYPORT SITE 365

PAGE 4 OF 4

QUALITY CONTROL DATA

<u>Parameter</u>	<u>% RECOVERY</u> <u>MS/MSD/LCS</u>	<u>ACCEPT</u> <u>LIMITS</u>	<u>% RPD</u> <u>MS/MSD</u>	<u>ACCEPT</u> <u>LIMITS</u>
EPA Method 8260				
1,1-Dichloroethene	104/ 98/ 93	57-175	6	30
Benzene	86/ 86/ 85	67-131	<1	23
Trichloroethene	108/109/106	81-116	<1	10
Toluene	98/ 96/ 95	73-132	2	12
Chlorobenzene	112/109/106	75-127	3	11

< = Less Than  
MS = Matrix Spike  
MSD = Matrix Spike Duplicate  
LCS = Laboratory Control Standard  
RPD = Relative Percent Difference



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER 11703

PAGE \_\_\_ OF \_\_\_

PROJECT NO: 4240		SITE NAME: 365, MPT		PROJECT MANAGER AND PHONE NUMBER MARK REHMAN			LABORATORY NAME AND CONTACT: ENLLO			
SAMPLERS (SIGNATURE) DRL		FIELD OPERATIONS LEADER AND PHONE NUMBER DAVID STEPHEN			ADDRESS EXECUTIVE CT					
		CARRIER/WAYBILL NUMBER DELIVER			CITY, STATE JAX, FL					
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day		CONTAINER TYPE PLASTIC (P) or GLASS (G)			TYPE OF ANALYSIS G260 Select <input checked="" type="checkbox"/>					
		PRESERVATIVE USED								
DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	NO. OF CONTAINERS				COMMENTS	
1/17	1207	MPT-365-MW2	GW		2	2				<input checked="" type="checkbox"/> Chlorine Res ONLY
1/17	1210	MPT-365-MW4	GW		2	2				
1/17	1320	MPT 365 MW1	GW		2	2				
1. RELINQUISHED BY DRL		DATE 1-17-03	TIME 1005	1. RECEIVED BY C. G. G. JAX29311		DATE 1-17-03	TIME 1005			
2. RELINQUISHED BY		DATE	TIME	2. RECEIVED BY		DATE	TIME			
3. RELINQUISHED BY		DATE	TIME	3. RECEIVED BY		DATE	TIME			
COMMENTS										



**MEMO TO: M. PETERSON**  
**DATE: 12/3/02 - PAGE 2**

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the NFESC guidelines "Navy IRCDQM" (September 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

  
Seth C. Staffen

Environmental Scientist/Data Validator  
Tetra Tech NUS

  
Joseph A. Samchuck

Data Validation Quality Assurance Officer  
TetraTech NUS

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- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's  $r < 0.995$
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- N = Internal Standard Noncompliance
- N01 = Internal Standard Noncompliance Dioxins
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- N03 = Clean-up Standard Noncompliance Dioxins
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- P = Uncertainty near detection limit ( $< 2 \times$  IDL for inorganics and  $<$ CRQL for organics)
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- 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: 10114 MEDIA: WATER DATA FRACTION: OV

nsample MTP-365-MW01-01A  
samp\_date 10/30/2002  
lab\_id C2K010114005  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MTP-365-MW03-01A  
samp\_date 10/30/2002  
lab\_id C2K010114004  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample MTP-365-MW04-01A  
samp\_date 10/30/2002  
lab\_id C2K010114003  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.02	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.02	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.02	U	

**PROJ\_NO: 4240**

SDG: 10114 MEDIA: WATER DATA FRACTION: OV

nsample MTP-365-MW05-01A  
samp\_date 10/30/2002  
lab\_id C2K010114002  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

nsample TRIP BLANK  
samp\_date 10/30/2002  
lab\_id C2K010114001  
qc\_type NM  
units UG/L  
Pct\_Solids 0  
DUP\_OF:

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.02	U	

Parameter	Result	Val Qual	Qual Code
1,2-DIBROMOETHANE	0.02	U	