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SITE ASSESSMENT REPORT FOR UNDERGROUND STORAGE TANK SITE 19 (UST19)
BUILDING 3241 WITH TRANSITTAL NAS PENSACOLA FL
10/2/2002
TETRA TECH

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Project Number 4176

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Reference: Clean Contract No. N62467-94-D-0888
Contract Task Order No. 0222

Subject: Site Assessment Report for Underground Storage Tank Site 000019, Building 3241, Naval Air Station Pensacola, Pensacola, Florida

Dear Ms. Vaught:

Tetra Tech NUS, Inc. is pleased to submit, for your review, the Final Site Assessment Report (SAR) for Underground Storage Tank Site 000019, Building 3241, Naval Air Station Pensacola (NAS), Pensacola, Florida.

This report has been prepared for for the U.S. Navy Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under Contract Task Order Number 222 for the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888.

If you have any questions, please call me at (850) 385-9899.

Sincerely yours,

Gerald Walker

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Enclosure

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Rev. 1
9/25/02

SITE ASSESSMENT REPORT
FOR
UST 000019
BUILDING 3241

NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

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

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Site Assessment Report
for
UST Site 000019
Building 3241

Naval Air Station Pensacola
Pensacola, Florida

Southern Division
Naval Facilities Engineering Command
Contract No. N62467-94-D-0888
Contract Task Order 0222

September 2002

PROFESSIONAL CERTIFICATION

Site Assessment Report
Underground Storage Tank Site 000019
Building 3241
Naval Air Station Pensacola, Pensacola, Florida

This Site Assessment Report was prepared 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.

Bill Olson, P.G.
Florida License No. PG-0002031

9/25/02
Date

TABLE OF CONTENTS

SECTION **PAGE**

EXECUTIVE SUMMARY ES-1

1.0 SITE DESCRIPTION AND BACKGROUND INFORMATION 1-1

1.1 SITE LOCATION AND CONDITIONS 1-1
1.2 SITE HISTORY 1-1

2.0 SITE ASSESSMENT METHODOLOGY 2-1
2.1 QUALITY ASSURANCE 2-1
2.2 SOIL ASSESSMENT 2-2
2.2.1 Soil Lithologic Descriptions 2-2
2.2.2 Soil Headspace Screening 2-2
2.2.3 Mobile Laboratory Soil Analysis 2-3
2.2.4 Soil Sampling for Laboratory Analysis 2-3
2.3 GROUNDWATER ASSESSMENT 2-3
2.3.1 DPT Groundwater Sampling 2-3
2.3.2 Monitoring Well Locations 2-4
2.3.3 Monitoring Well Installation 2-4
2.3.4 Monitoring Well Development 2-5
2.3.5 Monitoring Well Sampling 2-5
2.4 AQUIFER CHARACTERIZATION 2-5
2.4.1 Well TOC Survey 2-6
2.4.2 Static Water Level Measurements 2-6
2.4.3 Slug Tests 2-6

3.0 GEOLOGY AND HYDROGEOLOGY 3-1
3.1 SITE STRATIGRAPHY 3-1
3.1.1 Local Lithology and Stratigraphy 3-1
3.1.2 Regional Stratigraphy 3-1
3.2 SITE HYDROGEOLOGY 3-2
3.2.1 Static Water Level and Groundwater Elevations 3-2
3.2.2 Groundwater Flow Direction 3-3
3.2.3 Water Table Gradient 3-3
3.2.4 Hydraulic Conductivity 3-4
3.2.5 Aquifer Transmissivity 3-4
3.2.6 Groundwater Velocity 3-5
3.2.7 Potable Water Supply Well Survey 3-5
3.2.8 Surface Water 3-6

4.0 SITE ASSESSMENT RESULTS 4-1
4.1 SOIL ASSESSMENT RESULTS 4-1
4.1.1 DPT Headspace Screening 4-1
4.1.2 DPT Mobile Laboratory Sample Analysis 4-1
4.1.3 Laboratory Soil Sample Analysis 4-2
4.2 GROUNDWATER ASSESSMENT RESULTS 4-3
4.2.1 DPT Groundwater Screening Results 4-3
4.2.2 Monitoring Well Sampling Results 4-4

5.0 DISCUSSION 5-1
5.1 SOURCE OF HYDROCARBONS 5-1
5.2 SITE CONDITIONS 5-1
5.3 SOIL ASSESSMENT 5-2

5.4 GROUNDWATER ASSESSMENT 5-2

6.0 CONCLUSIONS AND RECOMMENDATION 6-1

7.0 ACRONYMS 7-1

REFERENCES R-1

APPENDICES

APPENDIX A – SAR SUMMARY SHEET
APPENDIX B – HISTORICAL SITE DATA
APPENDIX C – SITE ASSESSMENT FIELD DATA
APPENDIX D – MOBILE LABORATORY ANALYTICAL REPORT
APPENDIX E – VALIDATED LABORATORY ANALYTICAL REPORTS
APPENDIX F – SLUG TEST DATA AND ANALYTICAL PLOTS

TABLES

NUMBER

2-1 Monitoring Well Construction Details
3-1 Groundwater Elevation Summary
3-2 Slug Test Results
3-3 Potable Water Supply Well Data
4-1 Soil OVA Screening Results
4-2 Summary of Detected Analytes in Soil - on-site Laboratory
4-3 Off-site Laboratory Sample Collection
4-4 Summary of Detected Analytes in Soil Samples - off-site Laboratory
4-5 Summary of Detected Analytes in DPT Groundwater Samples - on-site Laboratory
4-6 Summary of Detected Analytes in DPT Groundwater Confirmation Samples
4-7 Summary of Detected Analytes in Groundwater

FIGURES

NUMBER

1-1 Site Location Map
1-2 Site Topographic Map
1-3 Site Plan
2-1 Soil Boring Locations
2-2 Monitoring Well Locations
2-3 Typical Shallow and Deep Monitoring Well Installaton Detail
3-1 Stratigraphic Cross Section Line A-A'
3-2 Stratigraphic Cross Section A-A'
3-3 Shallow Well Groundwater Elevations
3-4 Potable Well Locations
4-1 Soil Headspace Screening Results
4-2 Benzene Concentrations - DPT Groundwater
4-3 GCTL Exceedances in Groundwater
5-1 Site Assessment Summary

1.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

TtNUS, under contract to the Department of Navy, SOUTHNAVFACENGCOM, has completed this SAR to document the site assessment performed at UST Site 000019 at NAS Pensacola located in Pensacola, Florida. The SAR Summary Sheet is included in Appendix A.

1.1 SITE LOCATION AND CONDITIONS

NAS Pensacola is located in Northwest Florida on the western edge of Pensacola Bay, two miles south of the city of Pensacola, Florida (Figure 1-1). NAS Pensacola is approximately 5,800 acres located on a peninsula bounded on the east and south by Pensacola Bay and on the north by Bayou Grande.

Building 3241 is located at the eastern end of Forrest Sherman Field and is north of the Naval Aviation Museum and adjacent to the south side of Building 3221, the Aircraft Maintenance and Restoration Facility (Figure 1-2). The site is the former location of a fuel oil UST on the south side of Building 3241 (Figure 1-3). Most of the area in the vicinity of Building 3241 is paved with asphalt or concrete. An area of bare soil, approximately 20 feet by 50 feet, is adjacent to the south side of Building 3221 where the UST was located. Surface drainage generally flows to the south and is collected by storm sewer drains.

1.2 SITE HISTORY

Building 3241 contains four boilers, which are used for heating Building 3221. Prior to its removal in 1994, the UST at the site was used to store fuel oil for the boilers. The boilers have been refitted and are currently fueled by natural gas.

During the removal and closure of the UST five soil samples were collected from the tank excavation. The samples were analyzed for VOCs by United States Environmental Protection Agency (USEPA) method SW-846 8260 and semi-volatile organic compounds (SVOCs) by USEPA method SW-846 8270A. Total xylenes and 1,1,2,2-tetrachlorathane were detected at concentrations exceeding the Florida Department of Environmental Protection (FDEP) SCTLs. The laboratory report for these sample analyses are included in Appendix B.

Following the tank removal a shallow monitoring well was installed at the site and a groundwater sample was collected (Figure 1-3). This monitoring well has been designated MW-1S for this site investigation. The groundwater sample was analyzed for VOCs by USEPA method SW-846 8260 and for SVOCs by USEPA method SW-846 8270A (Appendix B). Benzene was detected at a concentration of 220 μg/L, exceeding the FDEP GCTL of 1 μg/L. The well was resampled and the benzene concentration of 150 μg/l in the second sample was consistent with the first sample result.

2.0 SITE ASSESSMENT METHODOLOGY

Soil and groundwater assessment data were collected in order to determine the nature and extent of petroleum impact due to past operation of the UST at Building 3241. The following activities were conducted as part of the site assessment:

- Quality Assurance
- Soil assessment
- Groundwater Assessment
- Aquifer Characterization

The site assessment methods used during this investigation are discussed below. The results of the investigation are presented in Chapters Three and Four.

2.1 QUALITY ASSURANCE

The site assessment investigation was conducted in accordance with the FDEP Standard Operating Procedures for Field Activities DEP-SOP-001/01.

- Decontamination Procedures
- Instrument Calibration
- Sample Collection Procedures
- Sample Management

Equipment used to advance the soil borings, to install monitoring wells, and to collect soil or groundwater samples was decontaminated prior to and following each use.

Field instruments were used during the site assessment to measure organic vapor concentrations and to monitor groundwater quality during sampling. Organic vapor measurements were made with a Photovac MicroFID (FID). Prior to each day's activities, the FID was field calibrated with 100-ppm methane-in-air span gas, in accordance with the manufacturer's directions. During each day's sampling, periodic instrument response checks were made with the span gas. Groundwater quality measurements were made with a Horiba U-10 multiparameter instrument. Prior to each day's activities, the meter was field calibrated with a standard calibration solution, in accordance with the manufacturer's directions. Equipment calibration documents are included in Appendix C.

Groundwater sampling activities were performed in accordance with the procedures prescribed in DEP-SOP-001/01. Soil and groundwater samples were collected in containers provided by the laboratory. As part of the groundwater sampling event, quality control samples (e.g. field duplicates, matrix spike duplicates, rinsate blanks and trip blanks) were collected and submitted to the laboratory.

Sampling activities were documented in a site-specific field logbook, and samples were transmitted under chain-of-custody protocols to the laboratory.

2.2 SOIL ASSESSMENT

The soil screening investigation was conducted at the Building 3241 to evaluate the extent of petroleum to site soil detected during tank closure activities. During the soil screening investigation, 19 soil borings were advanced using DPT methods (Figure 2-1). Soil samples from the borings were collected for headspace screening and selected samples were submitted for on site laboratory analysis. Additional soil samples were collected for analysis at an off site laboratory. During the DPT field investigation, each soil boring was advanced to the water table, approximately 12 feet BLS.

2.2.1 Soil Lithologic Descriptions

Soil borings for the site assessment were advanced with a DPT rig utilizing soil core samplers. The soil core samplers were four feet long and were lined with disposable plastic sleeves. The soil borings were advanced continuously from ground surface to a depth of approximately 12 feet at each soil boring location. The site geologist recorded the soil properties, including texture, color and soil moisture, for each soil boring and noted staining or odors. Soil boring logs are provided in Appendix C.

2.2.2 Soil Headspace Screening

Soil samples were collected at two-foot intervals for headspace screening in accordance with the procedures outlined in 62-770.200(8) F.A.C. From each two-foot interval, two 16-ounce glass jars were half-filled with soil, sealed with aluminum foil, and labeled. The soil samples were allowed to equilibrate to ambient air temperature. The FID response to total headspace organic vapors was measured by inserting the FID probe through the foil sample cover and recording the highest instrument reading.

2.2.3 Mobile Laboratory Soil Analysis

Selected soil samples were submitted to an on site mobile laboratory for analysis. Most of the soil samples submitted for mobile laboratory analysis were collected at soil boring locations with positive headspace screening responses. The soil samples were collected from the soil boring sample interval with the highest headspace screening response. The soil samples submitted to the mobile laboratory were analyzed for VOCs and naphthalene. The mobile laboratory analytical report is provided in Appendix D.

2.2.4 Soil Sampling for Laboratory Analysis

Three soil samples were collected from the Building 3241 site for off-site laboratory analysis to correlate the results of the headspace screening with laboratory analyses. Off site laboratory analytical samples were collected from intervals identified as having low, medium, and high FID responses.

The soil samples were analyzed for VOCs using SW-846 Method 8260B, PAHs using SW-846 Method 8310, and TRPH using the Florida petroleum range organics (FL-PRO) method. The laboratory analytical report is included in Appendix E.

2.3 GROUNDWATER ASSESSMENT

The groundwater assessment was conducted at Building 3241 to determine the extent of petroleum impact to site groundwater detected during the UST closure. Groundwater samples were collected at each soil boring location during the DPT investigation and analyzed at an on site laboratory. Following the DPT investigation, permanent monitoring wells were installed at the site. The locations for the new monitoring wells were based on the data collected during the DPT investigation.

2.3.1 DPT Groundwater Sampling

Shallow groundwater samples were collected at the 19 soil boring locations advanced with the DPT rig (Figure 2-1). After soil core samples were collected to water table, approximately 12 feet BGS, water samples were collected with a retractable screen groundwater sampler. The groundwater water sampler was pushed approximately two feet below the water table and the retractable screen was deployed. Groundwater samples were collected from the sampler with a

peristaltic pump and submitted to the mobile laboratory and analyzed for VOCs and naphthalene. Additional samples were collected from a deeper interval at two soil boring locations, SB-3 and SB-9. The mobile laboratory analytical report is provided in Appendix D.

Two confirmation samples were collected for analysis at an off site laboratory to verify the results of the mobile laboratory analyses. The confirmation samples were analyzed for VOCs (EPA Method 8260B), PAHs (EPA Method 8270C), TRPH (FL-PRO) and Lead (EPA Method 3010A/6010B). The laboratory analytical reports are presented in Appendix E.

2.3.2 Monitoring Well Locations

Following the DPT investigation, four shallow monitoring wells (MW-2S, MW-3S, MW-4S, and MW-5S) and one deep monitoring well (MW-4D) were installed at the site (Figure 2-2). Screening data obtained during the DPT investigation were evaluated to determine the locations of the new wells. MW-2S was installed upgradient of the former UST location. MW-4S and MW-4D were installed in the area where the highest benzene concentrations were detected during the DPT investigation. MW-3S and MW-5S were installed downgradient of this area (Figure 2-2). The new monitoring wells and the existing MW-1S were used for groundwater sampling and collecting data to evaluate aquifer properties.

2.3.3 Monitoring Well Installation

The monitoring well borings were drilled with a truck-mounted drill rig using 4.25-inch inside diameter (ID) hollow stem augers (HSA) creating a nominal borehole diameter of approximately 8.25-inches. Each well was constructed of 2-inch ID, flush-threaded, schedule 40 polyvinyl chloride (PVC) riser and 0.010-inch slot well screen with a 6-inch point cap. The shallow wells were installed to approximately 18 feet BLS with a 10-foot screen section that bracketed the water table. The deep monitoring well was installed to approximately 30 feet BLS and constructed of 2-inch ID, flush-threaded, schedule 40 PVC riser and 5-feet of 0.010-inch slot well screen with a 6-inch point cap.

The annulus around each well was filled approximately two to three feet above the top of the screen with US Standard Sieve size 20/40 silica sand, followed by a two foot bentonite seal. The remainder of the annulus was grouted to the surface. Each well was secured with a locking, watertight cap within a steel, 8-inch diameter steel manhole. The manhole was set in a 24-inch square concrete apron finished slightly above grade. A typical shallow and intermediate well

installation is illustrated on Figure 2-3. Monitoring well construction details are summarized on Table 2-1 and the monitoring well completion diagrams are provided in Appendix C.

2.3.4 Monitoring Well Development

Each monitoring well was developed using a submersible pump. The well was considered developed once the groundwater extracted from the well was visibly clear. Development water from the site was stored in labeled 55-gallon drums for later disposal of based on the groundwater sampling analytical results. Monitoring well development records are provided in Appendix C.

2.3.5 Monitoring Well Sampling

Groundwater samples were collected from the site monitoring wells to evaluate groundwater quality in the shallow surficial aquifer in the vicinity of the former UST. The groundwater samples were collected using the low-flow quiescent purging and sampling method. New Teflon® tubing was installed in each well for groundwater sampling. Each monitoring well was purged using a peristaltic until the water quality parameters were stable over consecutive readings. Temperature, pH, specific conductance, dissolved oxygen concentration, salinity, and turbidity were monitored while the wells were purged. Groundwater sample log sheets are provided in Appendix C.

The groundwater samples collected from each monitoring well were analyzed for 1,2-Dibromoethane (ethylene dibromide or EDB) using SW-846 EPA Method 504.1, VOCs (EPA Method 8260B), PAHs (EPA Method 8270C), TRPH (FL-PRO) and Lead (EPA Method 3010A/6010B). Groundwater laboratory analytical reports are presented in Appendix E.

2.4 AQUIFER CHARACTERIZATION

Data were collected during the site investigation to evaluate the direction and rate of groundwater movement at the site. Groundwater elevations were determined from static water level measurements and a well top-of-casing (TOC) elevation survey. Hydraulic conductivity values for the shallow surficial aquifer were calculated from recovery measurements made during slug tests in selected monitoring wells at the site.

2.4.1 Well TOC Survey

A reference point was marked on the top of each monitoring well casing on the north side. The TOC of MW-1S was established as an arbitrary datum with an elevation of 30 feet. The elevations of the reference points were surveyed to the nearest 0.01-foot, relative to the TOC of MW-1S. The survey data calculations are included in Appendix C.

2.4.2 Static Water Level Measurements

A round of depth-to-groundwater measurements was made in site monitoring wells on June 18, 2002. Measurements were made from the reference points marked on the tops of the well casings with an electronic water level indicator. Static water level measurements were made to the nearest 0.01-foot. Groundwater elevations were calculated from the TOC survey elevations and the static water-level measurements. The depth to water measurements are included in Appendix C.

2.4.3 Slug Tests

Slug tests were conducted to estimate the aquifer horizontal hydraulic conductivity at two shallow monitoring wells and one deep monitoring well at the site. The shallow well locations, MW-2S and MW-5S, (Figure 2-2) were selected because they were upgradient and downgradient of the source area. MW-4D was the only deep well installed at the site.

Prior to conducting the tests, the monitoring wells were opened and allowed to equilibrate to ambient conditions. Once a well had stabilized, static water level and total well depth were recorded and used to calculate the height of the water column in the well. A pressure transducer was installed in the well and the water level was allowed to re-stabilize. The pressure transducer was connected to a data logger to record water levels during the slug tests.

To begin each test, a solid PVC slug was used to displace water in the well and the data logger was started. The data logger recorded the recovery of water level in the well back to the static level. Hydraulic conductivity values were calculated from the recovery data by the Bouwer and Rice (1976) method for unconfined aquifers using the AQTESOLV™ computer program. Data logger records and test analysis plots are included in Appendix F.

3.0 GEOLOGY AND HYDROGEOLOGY

Data collected during the site assessment were used to evaluate geologic and hydrogeologic conditions at the site that may influence the fate and transport of hydrocarbons released to the environment. Lithology and stratigraphy were described for the vadose zone and shallow surficial aquifer at the site. Aquifer properties evaluated as part of the site assessment included depth to groundwater and groundwater elevation, groundwater flow direction and gradient, hydraulic conductivity of the shallow water bearing zone, and groundwater flow velocity. Potable water supply wells and surface water bodies in the vicinity of the site were investigated as potential groundwater exposure paths.

3.1 SITE STRATIGRAPHY

Interpretation of site lithology and stratigraphy was based on visual examination of soil cores collected from soil borings during the DPT investigation and drill cuttings observed during the monitoring well installation. Data from selected soil boring (Figure 3-1) were used to prepare a stratigraphic cross section of the site (Figure 3-2). Soil boring logs from the DPT investigation are included in Appendix C.

3.1.1 Local Lithology and Stratigraphy

The typical lithology at the site is light gray to tan silty fine to medium grained sand (Figure 3-2). This lithology occurred in borings to the southwest and southeast of Building 3241 from ground surface to depths of approximately nine to ten feet. In four borings in the central part of the site (SB-1, SB-2, SB-3, and SB-6), a light brown to white fine to medium grained sand unit with a trace of silt was present from ground surface to approximately four feet. In boring SB-1, a distinct white fine sand unit occurred from six to nine feet. In two borings to the northeast of Building 3241 (SB-4 and SB-5) a light gray silty fine sand lithology was encountered. Below nine to ten feet, a very dark brown silty sand unit was encountered across the site except at boring SB-4 where it was absent.

3.1.2 Regional Stratigraphy

The lithologies encountered in the soil borings at Building 3241 are consistent with descriptions of the Pleistocene Terrace deposits and Citronelle Formation (Undifferentiated). This stratigraphic unit is described as sand with lenses of clay and gravel (Marsh, 1966). The sand is light-yellowish brown to reddish-brown color, very fine to very coarse and poorly sorted. Logs and carbonaceous

zones are present in places. Fossils are extremely rare except near the coast. These formations together with the underlying Miocene Coarse Clastics comprise the surficial sand and gravel aquifer. The Pensacola Clay Aquiclude, underlying the Miocene Coarse Clastics, is typically the lower-confining unit for the area. The Pensacola Clay is estimated to occur approximately 400 to 600 feet below sea level in the vicinity of NAS Pensacola.

3.2 SITE HYDROGEOLOGY

Hydrogeologic data were collected during the site assessment to evaluate movement of groundwater in the shallow surficial aquifer at the site. Depth to groundwater and groundwater elevation were used to determine the groundwater flow direction and water table gradient at the site. Hydraulic conductivity values for the shallow surficial aquifer were calculated from data collected during the slug tests. Groundwater flow velocity at the site was estimated from the hydraulic conductivity and gradient data.

3.2.1 Static Water Level and Groundwater Elevations

Static water level (SWL) measurement data were recorded from site monitoring wells in June 2002 (Table 3-1). The SWL measurement data and the relative elevations from the well TOC survey were used to determine relative groundwater elevations at each well.

The SWL measurements in the shallow wells ranged from 10.65 feet below top of casing (BTOC) in MW-2S to 12.86 feet BTOC in MW-3S (Table 3-1). The SWL measurement in the deep well MW-4D was 14.82 feet BTOC.

The relative groundwater elevations in the shallow wells ranged from 18.04 feet in MW-3S to 18.67 feet in MW-2S (Table 3-1). The relative groundwater elevation in the deep well MW-4D was 15.98 feet.

The SWL measurement and relative groundwater elevation in the deep well, MW-4D were approximately two feet deeper than in the shallow monitoring wells at the site. The relative groundwater elevation in MW-4D was 2.35 feet deeper than in the adjacent shallow well MW-4S. The vertical distance from the bottom of the screened interval of MW-4S (8 to 18 feet) to the bottom of the screened interval of MW-4D (25 to 30 feet) was 12 feet. The difference in groundwater elevation and screened interval indicate a downward vertical gradient of approximately 0.2 feet/foot.

3.2.2 Groundwater Flow Direction

To evaluate the direction of groundwater flow at the site, the groundwater elevations from the site monitoring wells were plotted on a site map (Figure 3-3). Groundwater elevation isocontours were drawn from the plotted data. Groundwater flow direction is predicted to be perpendicular to the elevation isocontours. Interpretation of data from the site gauging event indicates that groundwater flow in the shallow surficial aquifer is to the southeast from Building 3241 in the direction of Pensacola Bay (Figure 3-3).

3.2.3 Water Table Gradient

The average horizontal groundwater gradient across the site was calculated from the groundwater elevations measured in shallow monitoring wells and the estimated groundwater flow direction.

The groundwater flow gradient was determined using the following equation:

$$I = \frac{h_1 - h_2}{d}$$

Where:

I = the hydraulic gradient
h_1 = the water elevation at point 1, the highest value
h_2 = the water elevation at point 2, the lowest value
d = the horizontal distance between point 1 and point 2 parallel to the direction of groundwater flow

The highest and lowest groundwater elevation values measured in the shallow monitoring wells were used to determine the difference in groundwater elevation across the site. The horizontal distance between the high and low groundwater elevation points was measured parallel to the estimated groundwater flow direction.

In June 2002, the groundwater elevation in MW-2S, 18.67 feet, was the highest value and the groundwater elevation in MW-3S, 18.04 feet, was the lowest value parallel to groundwater flow. The horizontal distance parallel to groundwater flow was 110 feet. These data indicate an average hydraulic gradient of 0.006 feet/foot.

3.2.4 Hydraulic Conductivity

Hydraulic conductivity values for the site were calculated from the slug test data from shallow monitoring wells MW-2S and MW-5S and deep monitoring well MW-4D. The slug test results are summarized in Table 3-2. The slug test data records and analytical plots are included in Appendix F

The slug test results for the two shallow monitoring wells show hydraulic conductivity ranges between 5.3 ft/day (MW-5S) and 90.1 ft/day (MW-2S). The geometric mean of the hydraulic conductivity values for the shallow wells at the site is approximately 22.3 ft/day. The slug test results for the deep well (MW-4D) show hydraulic conductivity ranges between 105.9 ft/day and 110.7 ft/day. The geometric mean of the hydraulic conductivity values for MW-4D location is 108.1 ft/day.

The slug test data indicate an order of magnitude variation in hydraulic conductivity in the shallow wells. This variation may be due to higher silt content in the soil where MW-5S is located.

3.2.5 Aquifer Transmissivity

A site-specific transmissivity was calculated from the slug test hydraulic conductivity values by using the following equation:

$$T=Kb_e$$

Where:

T = transmissivity
K= hydraulic conductivity (ft/day)
b_e = affected aquifer thickness

The shallow surficial aquifer in the vicinity of Building 3241 is estimated to have an overall saturated thickness of 90 feet. The geometric mean of the slug test results for the deep well, 108.1 feet per day was used as a conservative estimate of the hydraulic conductivity of the shallow surficial aquifer. Using the hydraulic conductivity of 108.1 ft/day and 90 feet for the affected aquifer thickness, the transmissivity value for the shallow surficial aquifer is estimated at 9,729 square feet per day.

3.2.6 Groundwater Velocity

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

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

Where:

V = average velocity
K = hydraulic conductivity
n = effective porosity
I = average hydraulic gradient

Data from soil borings advanced during the DPT investigation indicate that silty fine sand and fine sand are the typical lithologies at the site. Review of standard literature suggests that a representative effective porosity for this lithology is approximately 30% (Heath, 1983).

Using an average hydraulic conductivity of 22.3 feet/day, an average hydraulic gradient of 0.006 feet/foot, and an effective porosity value of 30%, the estimated average groundwater velocity for the shallow zone at the site was calculated at 0.45 feet/day.

Because only one deep well was installed at the site, the hydraulic gradient for the shallow zone was used to calculate the groundwater velocity for the deep zone. Using an average hydraulic conductivity of 108.1 feet/day, an average hydraulic gradient of 0.006 feet/foot, and an effective porosity value of 30%, the estimated groundwater velocity for the deep zone was calculated at 2.2 feet/day.

3.2.7 Potable Water Supply Well Survey

Two potable water supply wells, Wells No. 1 and No. 2, are in service at NAS Pensacola to provide an emergency backup potable water supply (Figure 3-4). Well No. 1 is approximately 1.2 miles from Building 3241 and Well No. 2 is approximately 1.7 miles from Building 3241. A third potable water supply well (designated as well No. 3) has been abandoned. According to NAS personnel, these wells are not currently used to provide potable water, but are available as reserve potable water supplies should the need arise. These wells have typically been used as fire fighting water supply sources. Potable water supply well inventory data are presented in Table 3-3. Both wells at NAS Pensacola are screened in the main producing zone of the sand-and-gravel aquifer at depths ranging from 105 to 160 feet bls. The main source of potable water for NAS Pensacola is a well

field located at the Naval Technical Training Center (NTTC) Corry Station, located to the north of Bayou Grande. The water from this well field is pumped from the sand-and-gravel aquifer.

3.2.8 Surface Water

The nearest surface water body in the vicinity of Building 3241 is Pensacola Bay, approximately 3,200 feet south of the site (Figure 3-4).

4.0 SITE ASSESSMENT RESULTS

Soil and groundwater samples were collected during the site assessment to evaluate the extent of petroleum impact resulting from past UST operation at Building 3241. The soil headspace screening results were evaluated following the appropriate 62-770 F.A.C. guidelines. The results of laboratory soil analyses were compared to the SCTLs established in Chapter 62-777 F.A.C. The results of groundwater analyses were compared to the GCTLs established in Chapter 62-777 F.A.C.

4.1 SOIL ASSESSMENT RESULTS

Soil samples were collected from soil borings advanced at Building 3241 for headspace screening. Selected samples were analyzed on site at a mobile laboratory. Soil samples representing low, medium, and high headspace screening responses detected during the site assessment were submitted to an off site laboratory for analysis.

4.1.1 DPT Headspace Screening

Nineteen soil borings were advanced in the vicinity of Building 3241 during the site assessment. Soil samples were collected at two-foot intervals from each soil boring for headspace screening. A summary of the soil OVA screening results is presented in Table 4-1.

Soil samples from five of the soil borings (SB3, SB9, SB12, SB14, and SB17) had uncorrected headspace screening responses greater than 10 ppm (Figure 4-1). Carbon filtered headspace readings were not made at the time of the soil screening investigation, therefore corrected headspace screening data are not available. The soil borings with positive headspace screening responses were located to the southeast of the tank excavation (Figure 4-1). Soil samples from the two soil borings advanced at the former UST location (SB1 and SB2) did not have positive headspace screening results.

4.1.2 DPT Mobile Laboratory Sample Analysis

Soil samples were submitted for mobile laboratory analysis from six of the soil boring locations (Table 4-1). Soil samples from two different intervals were collected at SB9. The soil samples were collected from intervals with headspace screening results ranging from 0 to 1,642 ppm. The soil samples were analyzed for volatiles and naphthalene at the mobile laboratory. The mobile

laboratory soil sample analytical results are summarized in Table 4-2. The mobile laboratory analytical report is included in Appendix D.

Naphthalene was the only analyte detected in the soil samples analyzed by the mobile laboratory. This compound was detected in the soil samples from SB1 and SB9 at concentrations of 0.014 milligrams per kilogram (mg/kg) and 0.011 mg/kg, respectively. The detected concentrations are below the residential SCTL of 40 mg/kg and the leaching SCTL of 1.7 mg/kg.

4.1.3 Laboratory Soil Sample Analysis

Three soil samples were collected for off site laboratory analysis to correlate headspace screening results with contaminant concentrations. The sample intervals were selected to correspond with low, medium, and high OVA responses detected during headspace screening. The soil samples were submitted to an off site laboratory to be analyzed for VOCs, PAHs, and TRPH. The volatile fractions of the three samples were lost by the laboratory before analysis. The two sample locations (SB9 and SB14) selected as having medium and high OVA responses were resampled for VOC analysis. The off site laboratory soil samples collected during the site assessment are summarized in Table 4-3.

The results of the off site soil laboratory analyses are summarized in Table 4-4. The validated laboratory analytical data is included in Appendix E.

PAHs and TRPH were not detected in the soil samples collected during the site assessment. Toluene and 1,1 dichloroethene (DCE) were detected in the two samples (NASP-3241-SB9-10 and NASP-3241-SB14-8) analyzed for volatiles at concentrations below the SCTLs.

Toluene was detected in the soil samples from SB9 and SB14 at concentrations of 2.1 J µg/kg and 2.3 J µg/kg, respectively. The J flag for these analytical results indicates that these reported concentrations are estimates of analyte concentrations that are less than the required reporting limit but greater than the method detection limit. The reported concentrations are below the residential SCTL of 380,000 µg/kg and the leaching SCTL of 500 µg/kg.

The chlorinated hydrocarbon compound 1,1 DCE was detected in the soil samples from SB9 and SB14 at concentrations of 12 µg/kg and 26 µg/kg, respectively. The detected concentrations are below the residential SCTL of 90 µg/kg and the leaching SCTL of 60 µg/kg.

4.2 GROUNDWATER ASSESSMENT RESULTS

Groundwater samples were collected during the DPT investigation for mobile laboratory analysis from soil boring locations and monitoring well MW-1S. Two confirmation samples were submitted to an off site laboratory to verify the results of the on site analyses. Following the DPT investigation, groundwater samples were collected from one existing monitoring well and five new monitoring wells.

4.2.1 DPT Groundwater Screening Results

Groundwater samples were submitted for mobile laboratory analysis from 19 DPT soil boring locations and the existing shallow monitoring well MW-1S. Groundwater samples were collected at the water table in each of the soil boring locations. Two additional groundwater samples were collected from deeper intervals at soil borings SB3 and SB9. The groundwater samples were analyzed for volatiles and naphthalene at the mobile laboratory. The mobile laboratory groundwater sample analytical results are summarized in Table 4-5. The mobile laboratory analytical report is included in Appendix D.

Benzene was detected at concentrations exceeding the GCTL of 1 µg/L in six of the groundwater samples analyzed by the mobile laboratory (Figure 4-2). Benzene was detected at concentrations ranging from 2.0 µg/L to 25.9 µg/L.

Detected concentrations of 1,1,2,2 TCA exceeding the GCTL of 0.2 µg/L were reported in the groundwater samples from MW-1S (0.9 I µg/L), SB7 (0.8 I µg/L), and SB15 (0.7 I µg/L). The I flag for these analytical results indicates that these reported concentrations are estimates of analyte concentrations that are less than the required reporting limit but greater than the method detection limit.

Naphthalene was detected at concentrations below the GCTL of 20 µg/L in ten of the groundwater samples analyzed by the mobile laboratory. Naphthalene was detected at concentrations ranging from 1.0 µg/L to 4.5 µg/L.

Two confirmation samples, NASP-3241-SB4-GW and NASP-3241-SB9-GW, were sent to an off site laboratory for analysis. These two sample locations were chosen to represent the highest benzene concentration detected during the mobile laboratory analysis (Sample G9 from SB9) and a location where VOCs were not detected (Sample GW4 from SB4). The confirmation samples were analyzed for EDB, VOCs, PAHs, TRPH, and Lead. The results of the groundwater

laboratory analyses are summarized in Table 4-6. The validated laboratory analytical data is included in Appendix E.

Three VOCs, including benzene, toluene, and ethylbenzene, were detected in the confirmation sample (NASP-3241-SB9-GW) collected at the SB9 location. The benzene concentration reported for the confirmation sample from SB9, 19 µg/L was similar to the concentration reported by the mobile laboratory 25.9 µg/L. These benzene concentrations exceed the GCTL of 1 µg/L. The toluene concentration reported for the confirmation sample from SB9, 2.2 µg/L was similar to the concentration reported by the mobile laboratory 3.2 µg/L. These toluene concentrations are less than the GCTL of 40 µg/L. Ethylbenzene was detected in the confirmation sample from SB9 at a concentrations of 0.37 J µg/L. The J flag for this analytical result indicates that the reported concentration is an estimate of an analyte concentration that is less than the required reporting limit but greater than the method detection limit. This ethylbenzene concentration is less than the GCTL of 30 µg/L. Ethylbenzene was not detected in the SB9 groundwater sample analyzed by the mobile laboratory.

The concentrations of organic analytes in the confirmation sample from SB4 were below standard laboratory detection limits.

Lead was detected in both of the confirmation samples. The lead concentration of 114 µg/L reported for the confirmation sample from SB9 exceeded the GCTL of 15 µg/L.

4.2.2 Monitoring Well Sampling Results

Groundwater samples were collected from five shallow monitoring wells and one deep monitoring well at the site (Figure 4-3). The groundwater samples were analyzed for EDB, VOCs, PAHs, TRPH, and Lead. The results of the groundwater laboratory analyses are summarized in Table 4-7. The validated laboratory analytical data is included in Appendix E.

Four VOCs, benzene, toluene, ethylbenzene, and chloromethane, were detected in the monitoring well groundwater samples. Benzene was the only VOC detected at a concentration exceeding the GCTL. The detected concentration of 19 µg/L in the groundwater sample from MW-4S exceeded the GCTL of 1 µg/L.

Two PAH compounds, anthracene and pyrene, were detected in the groundwater sample from MW-1S. The detected PAH concentrations were below the GCTLs.

Lead and TRPH were not detected in the groundwater samples collected from the monitoring wells.

5.0 DISCUSSION

Data and documents provided by the Navy and data collected during site assessment were used to evaluate the impact of previous site practices. The significant findings from each phase of site assessment activities are discussed below.

5.1 SOURCE OF HYDROCARBONS

A fuel oil UST of unknown capacity was located along the south wall of Building 3241 and was used to provide fuel for boilers inside the building (Figure 5-1). The fuel oil UST was closed by removal in 1994. Soil samples were collected from the tank closure excavation and a monitoring well was installed and sampled. Total xylenes and 1,1,2,2-tetrachlorathane were detected at concentrations exceeding the FDEP SCTLs. Benzene was detected at a concentration exceeding the FDEP GCTL.

5.2 SITE CONDITIONS

The site is underlain by silty sand and sandy units typical of the shallow sand and gravel aquifer. These units are expected to extend to a depth of approximately 500 feet where the top of the Pensacola Clay has been mapped (Marsh, 1966).

Depth to water in the shallow monitoring wells installed at the site ranged from approximately 10.65 feet to 12.86 feet BTOC. Relative groundwater elevations were calculated from the SWL and TOC elevation survey data. This data was used to calculate the groundwater flow direction and water table gradient at the time of the gauging event. The groundwater flow at the site is to the southeast (Figure 5-1). The average groundwater gradient for the site was calculated to be approximately 0.006 feet/foot.

The groundwater elevation in the deep well, MW-4D was 2.35 feet lower than the groundwater elevation in the adjacent shallow well, MW-4S, which may indicate a downward vertical gradient.

Hydraulic conductivity values for the site were determined from slug tests and averaged approximately 22.3 feet per day for the shallow monitoring wells. The groundwater flow velocity was calculated from gradient and hydraulic conductivity values and is estimated at 0.45 feet/day. The calculated hydraulic conductivity values for the deep well were higher than the hydraulic

conductivity values for the shallow wells. The average hydraulic conductivity for the deep well was 108.1 feet/day. Using the same gradient and effective porosity values as for the shallow wells, the groundwater velocity in the deep well is estimated at 2.2 feet/day.

No active potable water supply wells were identified within a 0.50-mile radius of the site. Pensacola Bay approximately 3,200 feet southeast from the site is the nearest downgradient surface water body.

5.3 SOIL ASSESSMENT

During the site assessment investigation, soil borings were advanced to a depth of approximately 12 feet BGS at 19 locations. The extent of the soil boring investigation is shown in Figure 5-1. The findings of the soil assessment are summarized below:

- OVA responses greater than 10 ppm were detected at five soil boring locations.
- Uncorrected OVA responses at the site ranged from 0 to 1,642 ppm.
- Naphthalene was detected in two samples analyzed by the mobile laboratory at concentrations below the SCTL.
- Toluene and 1,1 DCE were detected in two samples analyzed by the off site laboratory at concentrations below the SCTLs.

The results of the soil assessment indicate that despite the headspace screening results, concentrations of petroleum constituents present in soil in the vicinity of the former UST location are less than the SCTLs.

5.4 GROUNDWATER ASSESSMENT

During the site assessment investigation, groundwater samples were collected at 19 soil boring locations for mobile laboratory analysis. The extent of the soil boring investigation is shown in Figure 5-1. Groundwater samples were collected from six monitoring wells at the site and submitted for offsite analysis. The findings of the groundwater assessment are summarized below:

- Benzene concentrations exceeding the GCTL were reported in six of the DPT groundwater samples submitted to the onsite laboratory.
- Groundwater samples collected at deeper depths at two of the soil boring locations had benzene concentrations below the standard detection limits.
- Benzene concentrations exceeding the GCTL were reported in one shallow monitoring well.

- No GCTL exceedances were reported in the groundwater sample from the deep well.

Based on the results of the groundwater assessment, petroleum impact to site groundwater appears to limited to the area of benzene exceedances to the southeast of the former UST location (Figure 5-1). No exceedances were reported from the groundwater samples collected from deeper intervals (DPT and monitoring well). Benzene concentrations detected at the site are below the natural attenuation default concentrations in 62-770 F.A.C.

1,1,2,2 TCA was reported at estimated concentrations in three of the DPT groundwater samples submitted to the mobile laboratory. This compound was not detected in the DPT confirmation samples submitted to the off site laboratory or monitoring well samples.

The lead concentration reported in one of the DPT confirmation samples exceeded the GCTL. Lead concentrations were below standard laboratory detection limits in the groundwater samples from the monitoring wells.

6.0 CONCLUSIONS AND RECOMMENDATION

The conclusions based on the data collected during the site assessment performed by TtNUS at the Building 3241, UST Site 000019, are summarized as follows:

- Laboratory analysis of soil samples with OVA responses greater than 10 ppm indicates that concentrations of petroleum constituents in site soil are less than the SCTLs.

- Free-product was not detected in soil borings or monitoring wells at the site.

- The benzene concentration detected in the groundwater sample from NASP-3241-MW4S exceeded the FDEP GCTL.

- Exposure pathways to human receptors via surface water or supply wells are not complete.

Based upon the hydrogeological and chemical data presented in this SAR and the requirements of Chapter 62-770, F.A.C., TtNUS recommends that a natural attenuation monitoring plan be implemented for Building 3241. Two source wells, MW-1S and MW-4S, and two downgradient wells MW-3S and MW-5S should be sampled quarterly. The monitoring wells should be sampled for BTEX and naphthalene and analyzed by appropriate methods at a certified laboratory. Water levels should be gauged in each of the site monitoring wells during the quarterly sampling events. The results of the natural attenuation monitoring should be evaluated for compliance with the requirements of 62-770 F.A.C.

7.0 ACRONYMS

BGS	Below Ground Surface
BTOC	Below Top Of Casing
DCE	
DPT	Direct-Push Technology
EDB	Ethylenedibromide
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
FL-PRO	Florida Petroleum Range Organics
GCTLs	Groundwater Cleanup Target Levels
ID	Inside Diameter
mg/kg	milligrams per kilograms
NAS	Naval Air Station
NTTC	Naval Technical Training Center
OVA	Organic Vapor Analyzer
PAH	Polynuclear Aromatic Hydrocarbons
ppm	parts per million
PVC	Poly Vinyl Chloride
SAR	Site Assessment Report
SCTLs	Soil Cleanup Target Levels
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SVOCs	Semi Volatile Organic Compounds
SWL	Static Water Level
TCA	Tetrachlorethane
TOC	Top Of Casing
TRPH	Total Recoverable Petroleum Hydrocarbon
TtNUS	Tetra Tech NUS, Inc.
µg/kg	micrograms per kilograms
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound

REFERENCES

Bouwer, H., and R.C. Rice, 1976, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifer with Completely or Partially Penetrating Wells, Water Resources Research, Volume 12, No. 3, p. 423-428.

Freeze, R. Allan, and Cherry, John A., 1979, Groundwater, Prentice-Hall, Inc., 553 pp.

Heath, R., 1983, Basic Groundwater Hydrology, U.S.G.S. Water Supply Paper 2220, 84 pp.

Marsh, Owen T., 1966, Geology of Escambia and Santa Rosa Counties, Western Florida Panhandle, Florida Geological Survey Bulletin No. 46, pp.1-140.

TABLE 2-1
MONITORING WELL CONSTRUCTION DETAILS
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Well No.	Date Installed	Drilling Method	Top of Casing Elevation	A/G Riser Length, If Applicable	Total Well Depth (FBTOC)	Screened Interval (FBTOC)	Well Diameter (Inches)	Litl Scree
MW-1S*	Unknown	Unknown	30.00	FM	17.19 (measured)	Unknown	2	Unknown
MW-2S	6/10/2002	HSA	29.32	FM	18	8-18	2	Very dark brown
MW-3S	6/11/2002	HSA	30.90	FM	18	8-18	2	Dark brown silty
MW-4S	6/11/2002	HSA	30.72	FM	18	8-18	2	Dark brown silty
MW-4D	6/11/2002	HSA	30.80	FM	30	20-30	2	Dark brown silty
MW-5S	6/10/2002	HSA	30.60	FM	18	8-18	2	Dark brown silty

NOTES:
* Existing well previously installed by Navy
TOC - Top Of Casing
HAS Hollow Stem Auger
Arbitrary datum of 30 feet assigned to MW-1S TOC.
A/G Above Ground
FM Flush mount well completion
NA Not Applicable
FBTOC Feet Below Top of Casing

TABLE 3-1
GROUNDWATER ELEVATION SUMMARY
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Well ID	TOC Elevation (ft)	Depth of Well (ft)	Screened Interval (ft)	Depth to Water (ft)	Depth to Free Product (ft)	Free Product Thickness (ft)	Water Level Elevation (ft)
MW-1S	30.00	17.19	Unknown*	11.56	ND	NA	18.44
MW-2S	29.32	17.94	8-18	10.65	ND	NA	18.67
MW-3S	30.90	18.05	8-18	12.86	ND	NA	18.04
MW-4S	30.72	18.16	8-18	12.39	ND	NA	18.33
MW-4D	30.80	29.95	25-30	14.82	ND	NA	15.98
MW-5S	30.60	17.94	8-18	12.45	ND	NA	18.15

NOTES:
TOC - Top Of Casing
Arbitrary datum of 30 feet assigned to MW-1S TOC.
* Existing well previously installed by Navy
ND - Free Product not detected
NA - Not Applicable

TABLE 3-2
SLUG TEST RESULTS
BUILDING 3241 – UST SITE 19
SITE ASSESSMENT REPORT
NAS PENSACOLA
PENSACOLA, FLORIDA

Well No.	Screen Length	Water Column	Calculated Hydraulic Conductivities		
MW-2S	10 feet	7.29 feet	84.9 ft/day	90.1 ft/day	
MW-4D	5 feet	15.13 feet	105.9 ft/day	110.7 ft/day	107.9 ft/day
MW-5S	10 feet	5.49 feet	5.3 ft/day	5.4 ft/day	6.1 ft/day

NOTES:
ft/day = feet per day

TABLE 3-3
POTABLE WATER SUPPLY WELL DATA
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

WELL ID/LOCAL NAME	LOCATION	TOTAL DEPTH (ft) bls	SCREENED INTERVAL (ft) bls	DIAMETER CASING/SCREEN (inches)
302116087170201/No. 1	Sec. 1, T3S, R30W Duncan and Taylor Roads	174	105-160	24/12
302124087163601/No. 2	Sec. 1, T3S, R30W Murray and Farrar Roads	178	110-160	24/12

NOTE: bls = below land surface

TABLE 4-1
SOIL OVA SCREENING RESULTS
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

SAMPLE				OVA SCREENING RESULTS			
LOCATION NO.	DATE	DEPTH TO WATER (ft)	SAMPLE INTERVAL (ft BGS)	TOTAL READING (ppm)	CARBON FILTERED (ppm)	NET READING (ppm)	COMMENTS
SB-1	8/5/2000	10	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	Mobile Lab Sample SB1-9.5
			10-12	0	NA	0	
SB-2	8/5/2000	11	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-3	8/5/2000	12	0-2	50	NA	NA	
			2-4	32	NA	NA	
			4-6	30	NA	NA	
			6-8	20	NA	NA	
			8-10	19	NA	NA	
			10-12	33	NA	NA	Mobile Lab Sample SB3-12
SB-4	8/5/2000	12	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-5	8/5/2000	9	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-6	8/5/2000	9	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	

TABLE 4-1
SOIL OVA SCREENING RESULTS
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

SAMPLE				OVA SCREENING RESULTS			
LOCATION NO.	DATE	DEPTH TO WATER (ft)	SAMPLE INTERVAL (ft BGS)	TOTAL READING (ppm)	CARBON FILTERED (ppm)	NET READING (ppm)	COMMENTS
SB-7	8/5/2000	9	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-8	8/5/2000	10	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-9	8/5/2000	10	0-2	100	NA	NA	Mobile Lab Sample SB9-2
			2-4	154	NA	NA	
			4-6	86	NA	NA	Mobile Lab/Off Site Lab
			6-8	290	NA	NA	SB9-8/NASP-3241-SB9-8
			8-10	125	NA	NA	
			10-12	156	NA	NA	
SB-10	8/5/2000	11	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-11	8/5/2000	12	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-12	8/5/2000	10	0-2	4	NA	NA	
			2-4	16	NA	NA	
			4-6	35	NA	NA	
			6-8	84	NA	NA	
			8-10	231	NA	NA	Mobile Lab Sample SB12-10
			10-12	90	NA	NA	

TABLE 4-1
SOIL OVA SCREENING RESULTS
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

SAMPLE				OVA SCREENING RESULTS			
LOCATION NO.	DATE	DEPTH TO WATER (ft)	SAMPLE INTERVAL (ft BGS)	TOTAL READING (ppm)	CARBON FILTERED (ppm)	NET READING (ppm)	COMMENTS
SB-13	8/5/2000	10	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-14	8/5/2000	11	0-2	1,762	NA	NA	
			2-4	791	NA	NA	
			4-6	327	NA	NA	
			6-8	791	NA	NA	Mobile Lab/Off Site Lab
			8-10	1,642	NA	NA	SB14-10/NASP-3241-SB14-10
			10-12	512	NA	NA	
SB-15	8/5/2000	11	0-2	0	NA	0	
			2-4	0	NA	0	Off Site Lab Sample
			4-6	0	NA	0	NASP-3241-SB15-6
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-16	8/5/2000	10	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	
SB-17	8/5/2000	10	0-2	78	NA	NA	
			2-4	265	NA	NA	Mobile Lab Sample SB17-4
			4-6	7.8	NA	NA	
			6-8	40	NA	NA	
			8-10	130	NA	NA	
			10-12	225	NA	NA	
SB-18	8/5/2000	NR	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	

TABLE 4-1
SOIL OVA SCREENING RESULTS
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

SAMPLE				OVA SCREENING RESULTS			
LOCATION NO.	**DATE**	**DEPTH TO WATER (ft)**	**SAMPLE INTERVAL (ft BGS)**	**TOTAL READING (ppm)**	**CARBON FILTERED (ppm)**	**NET READING (ppm)**	**COMMENTS**
SB-19	8/5/2000	NR	0-2	0	NA	0	
			2-4	0	NA	0	
			4-6	0	NA	0	
			6-8	0	NA	0	
			8-10	0	NA	0	
			10-12	0	NA	0	

Notes: ft BGS = feet below ground surface
ppm = parts per million
NA = not available

TABLE 4-2
SUMMARY OF DETECTED ANALYTES IN SOIL - ON SITE LABORATORY
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Sample No.	SB1-9.5	SB3-12	SB9-2	SB9-8	SB12-10	SB14/10	SB17/4
Sample Location	SB-1	SB-3	SB-9	SB-9	SB-12	SB-14	SB-17
Sample Depth (Ft)	7.5-9.5	10-12	0-2	6-8	8-10	8-10	2-4
OVA Concentration (PPM)	0	33	100	290	231	1642	265
Off Site Lab Sample ID	NA	NA	NA	NASP-3241-SB9-8	NA	NASP-3241-SB14-10	NA
Collect Date	5/14/2002	5/14/2002	5/15/2002	5/15/2002	5/16/2002	5/16/2002	5/16/2002
Benzene	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	--	--	--
Xylenes	--	--	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	--	--	--	--	--	--	--
1,2 Dichloroethane	--	--	--	--	--	--	--
1,1 Dichloroethene	--	--	--	--	--	--	--
1,1,2,2 Tetrachloroethane	--	--	--	--	--	--	--
Chloromethane	--	--	--	--	--	--	--
Naphthalene	0.014	--	0.011	--	--	--	--

Concentrations are in mg/Kg
PPM - Parts per million
NA - Not Applicable
-- indicates sample results below standard detection limits.

TABLE 4-3
OFF SITE LABORATORY SAMPLE COLLECTION
BUILDING 3241 – UST SITE 19
SITE ASSESSMENT REPORT
NAS PENSACOLA
PENSACOLA, FLORIDA

Sample ID	Sample Depth	OVA Response	OVA Range	Analyses
NASP-3241-SB15-6	4-6 feet	0 ppm	low	PAHs/TRPH
NASP-3241-SB9-8	6-8 feet	290 ppm	medium	PAHs/TRPH
NASP-3241-SB9-10	8-10 feet	125 ppm	medium	Volatiles
NASP-3241-SB14-10	8-10 feet	1,542 ppm	high	PAHs/TRPH
NASP-3241-SB14-8	6-8 feet	791 ppm	high	Volatiles

NOTES:
OVA - Organic Vapor Analyzer
ppm - Parts per million
PAHs - Polynuclear Aromatic Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

TABLE 4-4
SUMMARY OF DETECTED ANALYTES IN SOIL SAMPLES - OFF SITE LABORATORY
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Sample No.			NASP-3241-SB9-8	NASP-3241-SB9-10	NASP-3241-SB14-10	NASP-3241-SB14-8	NASP-3241-SB15-6
Sample Location			SB-9	SB-9	SB-14	SB-14	SB-15
Sample Depth (Ft)			6-8 ft.	8-10 ft.	8-10 ft.	6-8 ft.	4-6 ft.
OVA Concentration (PPM)			290	125	1,642	791	0
Collect Date			5/16/2002	6/12/2002	5/16/2002	6/12/2002	5/16/2002
	Residential SCTL	Leaching SCTL					
Volatile (µg/Kg)							
Benzene	1,100	7	NA	--	NA	--	NA
Toluene	380,000	500	NA	2.1 J	NA	2.3 J	NA
Ethylbenzene	1,100,000	600	NA	--	NA	--	NA
Xylenes	5,900,000	200	NA	--	NA	--	NA
Methyl tert-butyl ether (MTBE)	3,200,000	200	NA	--	NA	--	NA
1,2-Dichloroethane	500	10	NA	--	NA	--	NA
1,1 Dichloroethene	90	60	NA	12	NA	26	NA
1,1,2,2 Tetrachloroethane	700	2	NA	--	NA	--	NA
Chloromethane	1,700	10	NA	--	NA	--	NA
Polycyclic Aromatic Hydrocarbons (µg/Kg)							
Anthracene	18,000,000	2,500,000	--	NA	--	NA	--
Naphthalene	40,000	1,700	--	NA	--	NA	--
Pyrene	2,200,000	880,000	--	NA	--	NA	--
Total Residual Petroleum Hydrocarbons (µg/Kg)	340,000	340,000	--	NA	--	NA	--

SCTL - Soil Cleanup Target Level
-- indicates sample results below standard detection limits
PPM - Parts per million
NA - Not analyzed
J - The reported value is an estimated concentration between the Method Detection Limit and the Reporting Limit

TABLE 4-5
SUMMARY OF DETECTED ANALYTES IN DPT GROUNDWATER SAMPLES - ON SITE LABORATORY
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Sample No.		G1	G2	G3	G3-16	GW4	G5	G6	G7	G8	G9
Sample Location	MW-1S	SB-1	SB-2	SB-3	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9
Sample Depth (ft)	12-14	12-14	12-14	12-14	14-16	12-14	12-14	12-14	12-14	12-14	12-14
Collect Date	5/14/2002	5/14/2002	5/14/2002	5/14/2002	5/14/2002	5/14/2002	5/15/2002	5/15/2002	5/15/2002	5/15/2002	5/15/2002
Volatile (µg/L)											
Benzene	--	--	--	**2.3**	--	--	--	--	--	--	**25.9**
Toluene	--	--	--	--	--	--	--	--	--	--	3.2
Ethylbenzene	--	--	--	--	--	--	--	--	--	--	--
Xylenes	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2 Tetrachloroethane	**0.9 I**	--	--	--	--	--	--	--	**0.8 I**	--	--
Chloromethane	--	--	--	--	--	--	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/L)											
Naphthalene	2.4	1.2	1.0	2.2	--	--	--	--	2.4	4.5	1.3

TABLE 4-5
SUMMARY OF DETECTED ANALYTES IN DPT GROUNDWATER SAMPLES - ON SITE LABORATORY
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Sample No.	G9-17/19	G10	G11	GW12	GW13	G14	G15	G16	G17	G18	G19
Sample Location	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14	SB-15	SB-16	SB-17	SB-18	SB-19
Sample Depth (ft)	17-19	12-14	12-14	12-14	12-14	12-14	12-14	12-14	12-14	12-14	12-14
Collect Date	5/15/2002	5/15/2002	5/15/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002
Volatile (µg/L)											
Benzene	--	--	**5.8**	--	**5.9**	**3.0**	--	--	**2.0**	--	--
Toluene	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	--	--	--	--	--	--	--
Xylenes	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2 Tetrachloroethane	--	--	--	--	--	--	**0.7 I**	--	--	--	--
Chloromethane	--	--	--	--	--	--	--	--	--	--	--
Polycyclic Aromatic Hydrocarbons (µg/L)											
Naphthalene	--	--	--	1.8	--	--	1.7	--	--	--	1.4

NOTES:
Concentrations are in µg/L
-- indicates sample results below standard detection limits.
I flag indicates sample results reported between the Method Detection Limit and the Reporting Limit to meet required Action Levels.
Bold indicates that reported concentration exceeds GCTL.

TABLE 4-6
SUMMARY OF DETECTED ANALYTES IN DPT GROUNDWATER CONFIRMATION SAMPLES
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

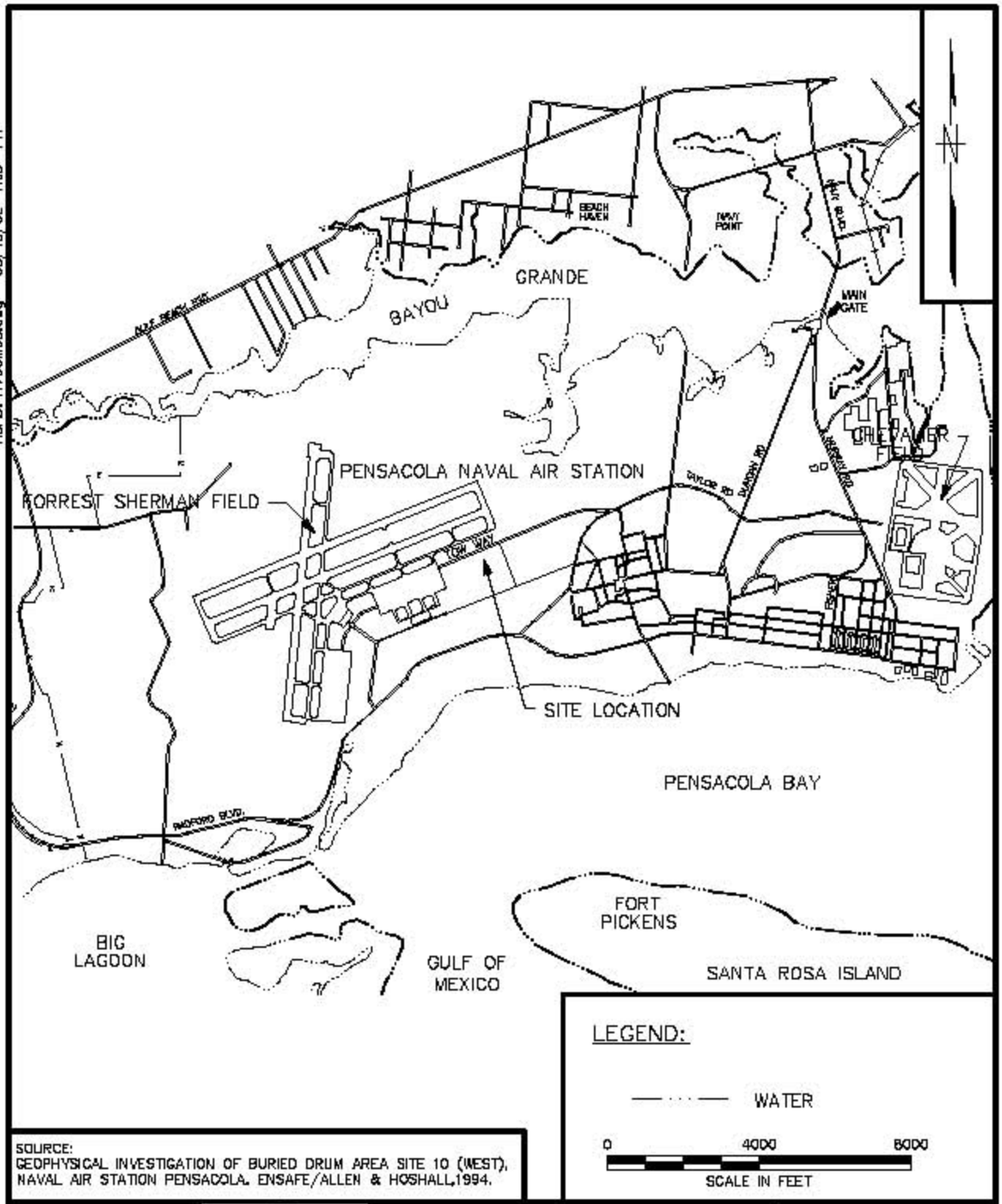
Sample No.		NASP-3241-SB4-GW	NASP-3241-SB9-GW
Sample Location		SB-4	SB-9
Collect Date	GCTL	5/16/2002	5/16/2002
Volatile (µg/L)			
Benzene	1	--	**19**
Toluene	40	--	2.2
Ethylbenzene	30	--	0.37 J
Xylenes	20	--	--
Methyl tert-butyl ether (MTBE)	50	--	--
1,2-Dichloroethane	3	--	--
1,1-Dichloroethene		--	--
1,1,2,2 Tetrachloroethane	0.2	--	--
Chloromethane	2.7	--	--
Polycyclic Aromatic Hydrocarbons (µg/L)			
Anthracene	2,100	--	--
Naphthalene	20	--	--
Pyrene	210	--	--
Total Residual Petroleum Hydrocarbons (µg/L)	5,000	--	--
Metals (µg/L)			
Lead	15	12.5	**114**

GCTL - Groundwater Cleanup Target Level.
-- indicates sample results below standard detection limits.
J - The reported value is an estimated concentration between the Method Detection Limit and the Reporting Limit.
Bold indicates that reported concentration exceeds GCTL.

TABLE 4-7
SUMMARY OF DETECTED ANALYTES IN GROUNDWATER
BUILDING 3241 - UST SITE 19
SITE ASSESSMENT REPORT
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

Sample No.		NASP-3241-MW1S	NASP-3241-MW2S	NASP-3241-MW3S	NASP-3241-MW4S	NASP-3241-MW4D	NASP-3241-MW5S	NASP-3241-DUP
Sample Location		MW-1S	MW-2S	MW-3S	MW-4S	MW-4D	MW-5S	MW-5S
Collect Date	GCTL	6/18/2002	6/18/2002	6/18/2002	6/18/2002	6/18/2002	6/18/2002	6/18/2002
Volatile (µg/L)								
Benzene	1	--	--	--	**19**	--	--	--
Toluene	40	--	--	--	0.34 J	--	--	--
Ethylbenzene	30	--	--	--	0.64 J	--	--	--
Xylenes	20	--	--	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	50	--	--	--	--	--	--	--
1,2 Dibromoethane (EDB)	0.02	--	--	--	--	--	--	--
1,2-Dichloroethane	3	--	--	--	--	--	--	--
1,1-Dichloroethene		--	--	--	--	--	--	--
1,1,2,2 Tetrachloroethane	0.2	--	--	--	--	--	--	--
Chloromethane	2.7	--	--	--	--	--	0.31 J	0.33 J
Polycyclic Aromatic Hydrocarbons (µg/L)								
Anthracene	2,100	0.19 J	--	--	--	--	--	--
Naphthalene	20	--	--	--	--	--	--	--
Pyrene	210	0.12 J	--	--	--	--	--	--
Total Residual Petroleum Hydrocarbons (µg/L)	5,000	--	--	--	--	--	--	--
Metals (µg/L)								
Lead	15	--	--	--	--	--	--	--

GCTL - Groundwater Cleanup Target Level.
-- indicates sample results below standard detection limits.
J - The reported value is an estimated concentration between the Method Detection Limit and the Reporting Limit.
Bold indicates that reported concentration exceeds GCTL.

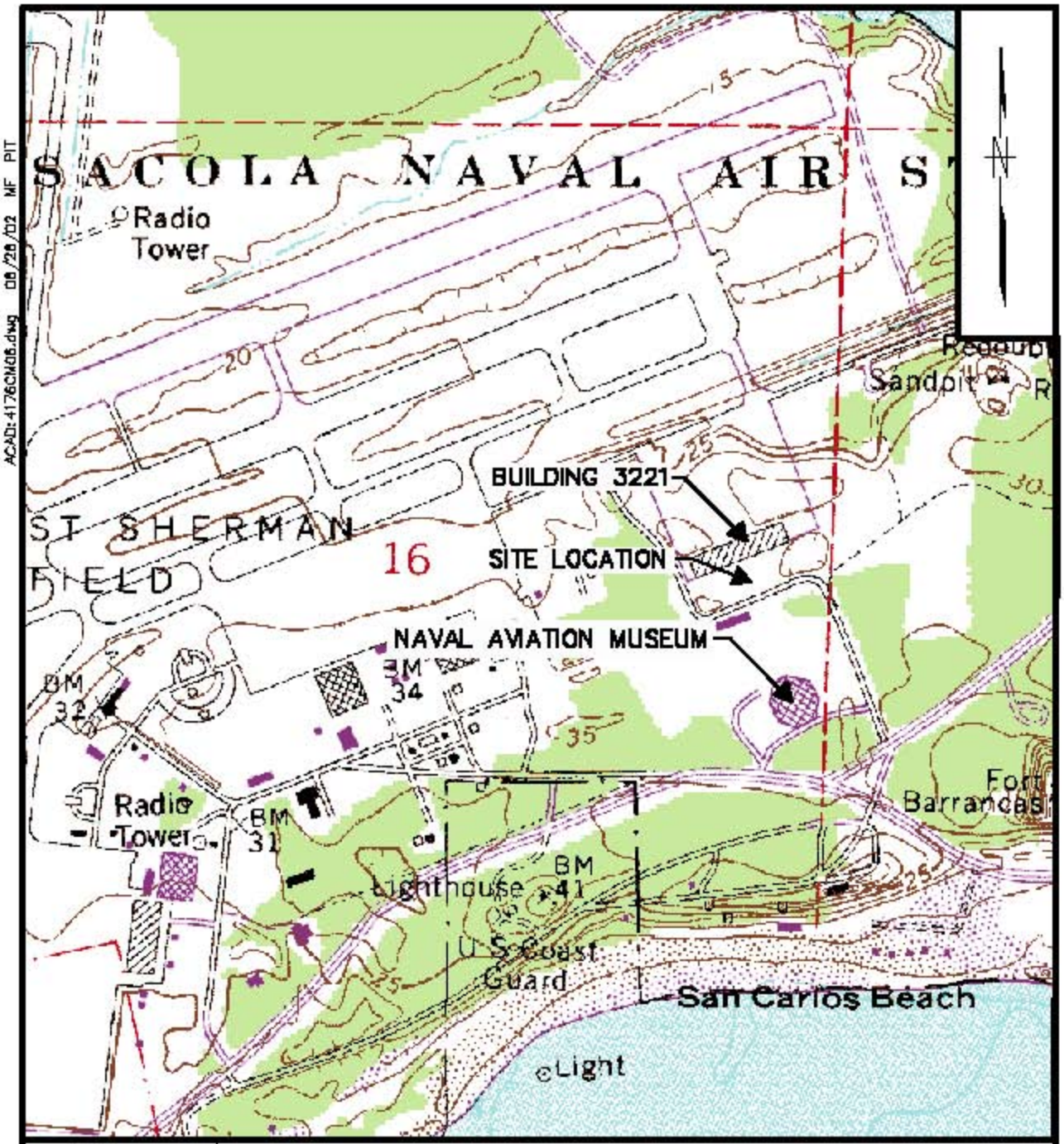


SOURCE:
GEOPHYSICAL INVESTIGATION OF BURIED DRUM AREA SITE 10 (WEST), NAVAL AIR STATION PENSACOLA. ENSAFE/ALLEN & HOSHALL,1994.

DRAWN BY HJB DATE 8/12/02		SITE LOCATION MAP SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED–AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1–1 / REV. 0

FORM CADD NO. 9DIV_AV.DWG – REV 0 – 1/20/98

ACAD: 4176CM05.dwg 08/15/02 HJB PIT



SOURCE: USGS QUADRANGLE MAP, FORT BARRANCAS, FLA. 1970, PHOTOREVISED 1987, MINOR REVISION 1992.

0 1000 2000
SCALE IN FEET

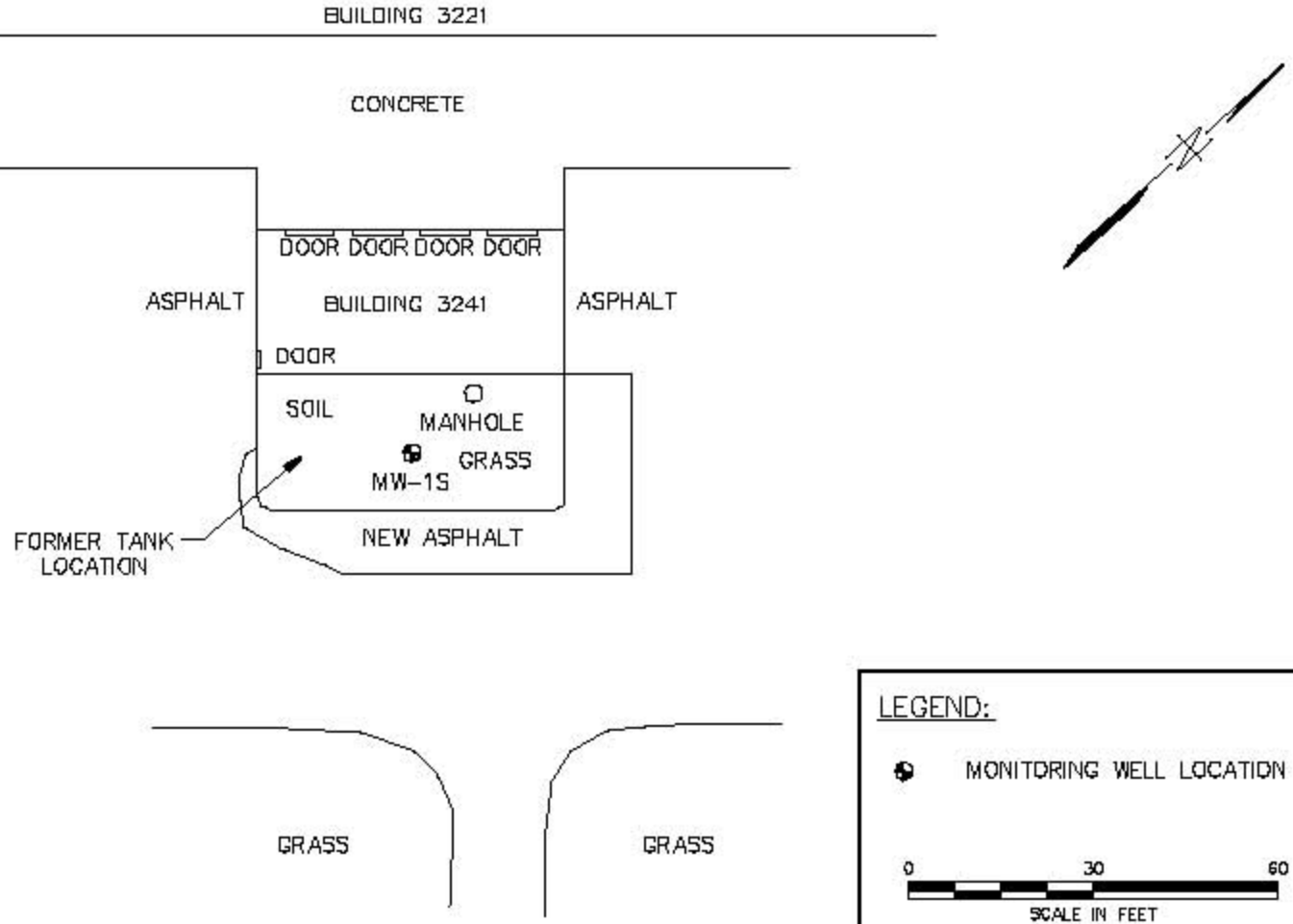
DRAWN BY HJB DATE 8/12/02			CONTRACT NO. 4176
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-2 / REV. 0

SITE TOPOGRAPHIC MAP
SITE ASSESSMENT REPORT
SITE 19 – BUILDING 3241
NAS PENSACOLA
PENSACOLA, FLORIDA

FORM CADD NO. SDIV_AV.DWG - REV 0 - 1/20/99

ACAD: 4176CM06.dwg 08/28/02 MF PIT

ACAD: 4176CP03.dwg 08/28/02 MF PIT



LEGEND:

MONITORING WELL LOCATION

0 30 60

SCALE IN FEET

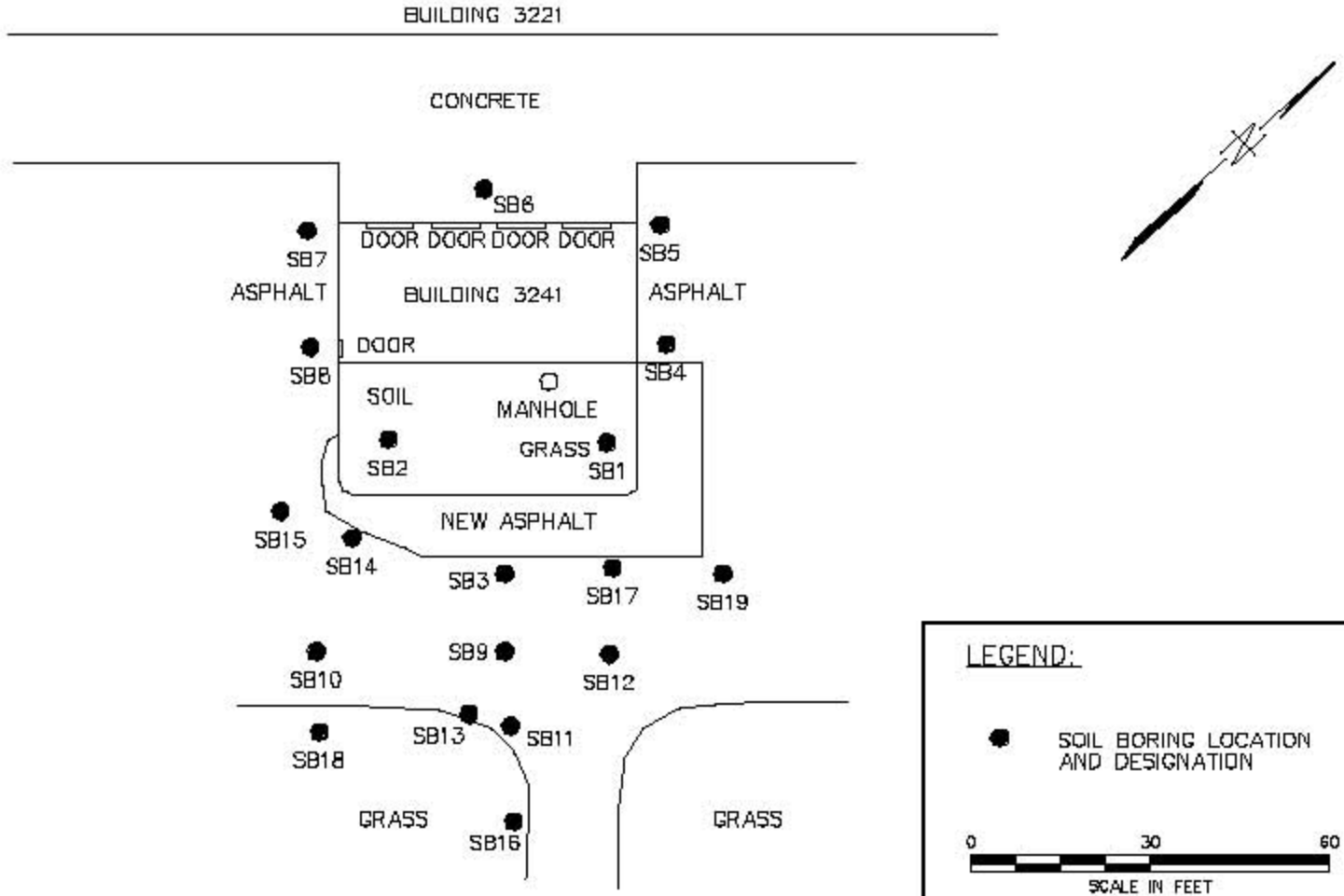
DRAWN BY HJB	DATE 8/15/02	
CHECKED BY	DATE	
COST/SCHED-AREA		
SCALE AS NOTED		

SITE PLAN
SITE ASSESSMENT REPORT
SITE 19 – BUILDING 3241
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NO. 4176		
APPROVED BY	DATE	
APPROVED BY	DATE	
DRAWING NO. FIGURE 1-3		REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

ACAD: 4176CP01.dwg 08/28/02 MF PIT



LEGEND:

SOIL BORING LOCATION AND DESIGNATION

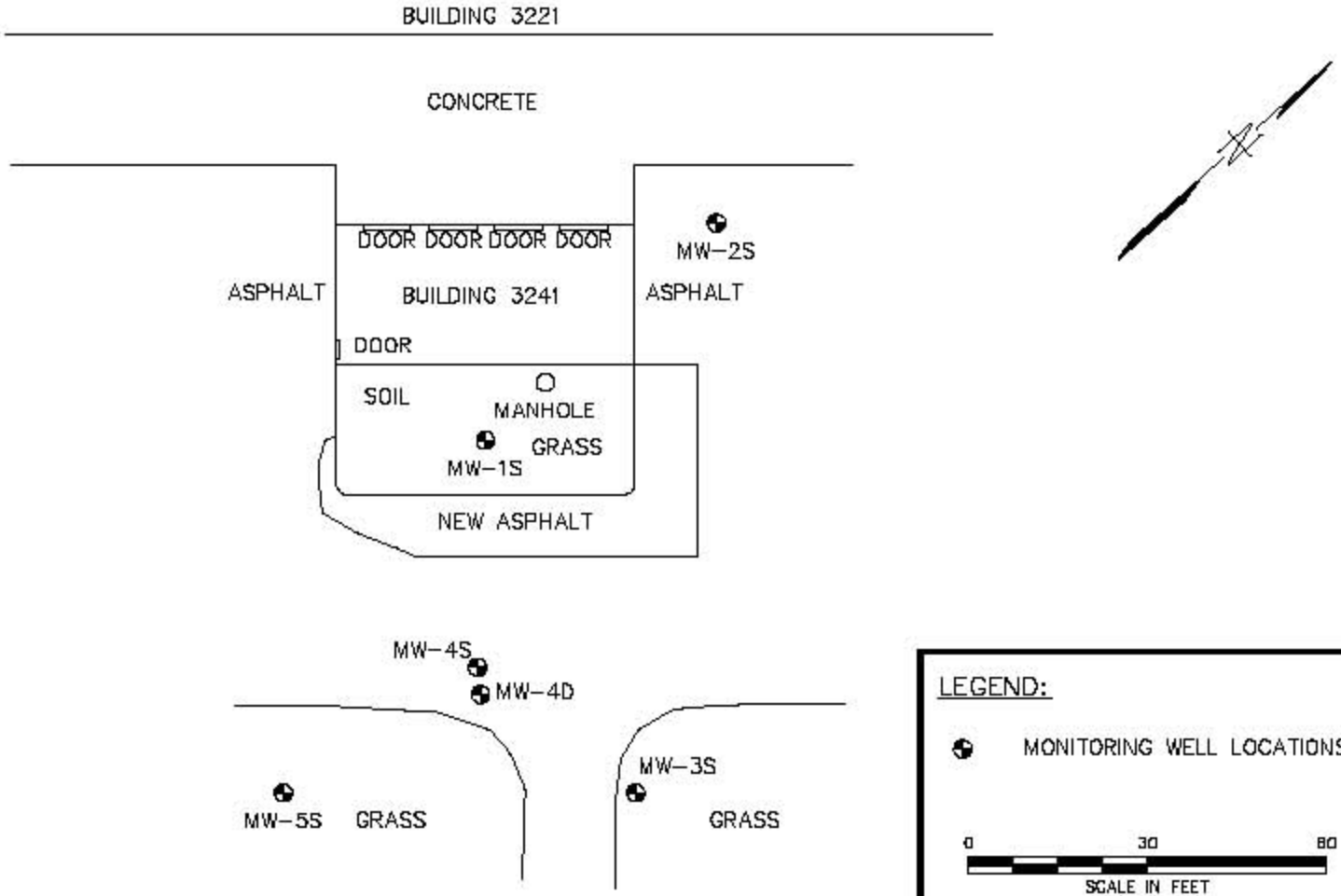
0 30 60

SCALE IN FEET

DRAWN BY HJB DATE 8/12/02	SOIL BORING LOCATIONS SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE		APPROVED BY DATE
COST/SCHED–AREA		APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2–1 REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

ACAD: 4176CP02.dwg 08/15/02 HJB PIT



LEGEND:

MONITORING WELL LOCATIONS

0 30 60

SCALE IN FEET

DRAWN BY HJB DATE 8/12/02	MONITORING WELL LOCATIONS SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE		APPROVED BY DATE
COST/SCHED–AREA		APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2–2 REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

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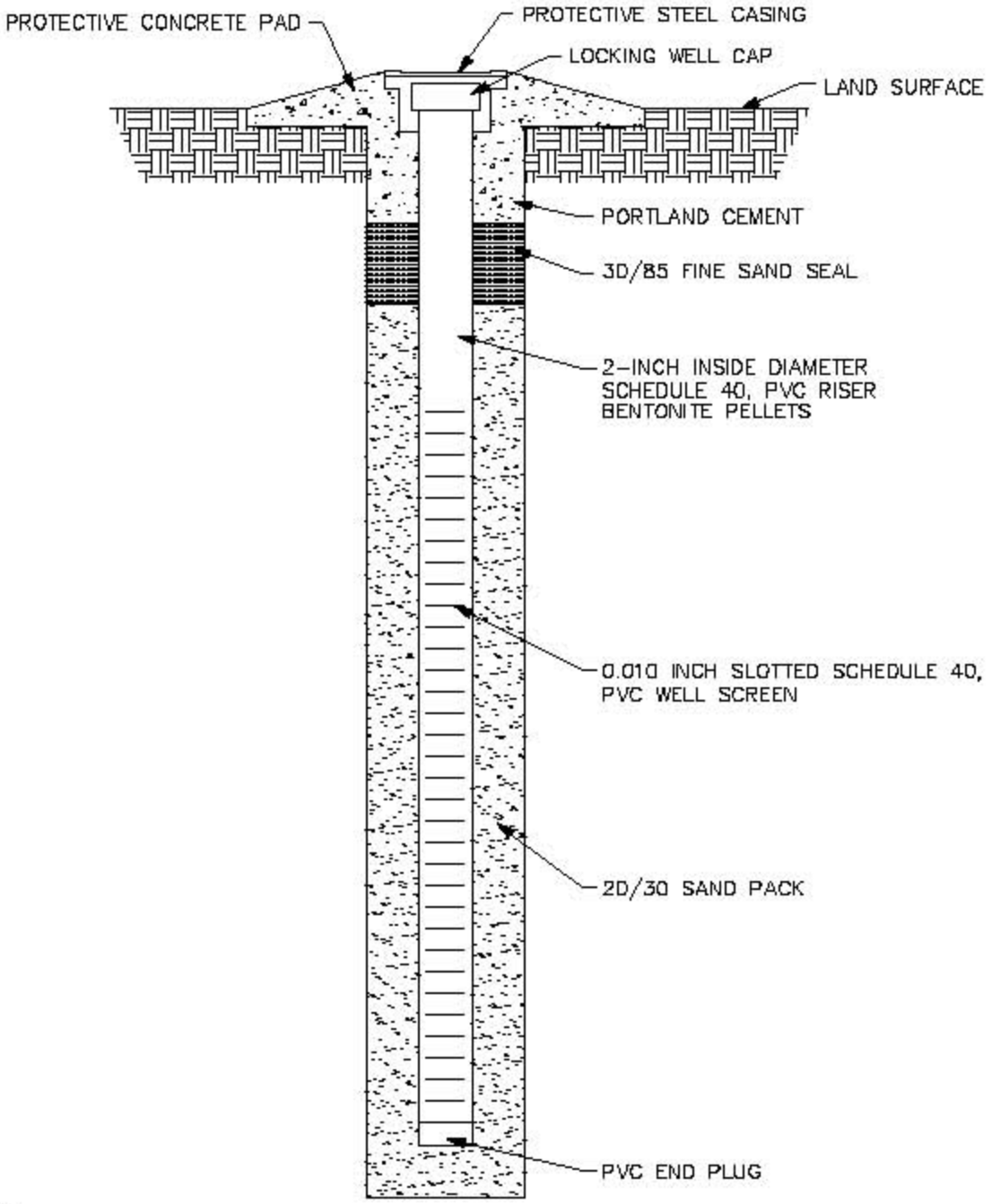


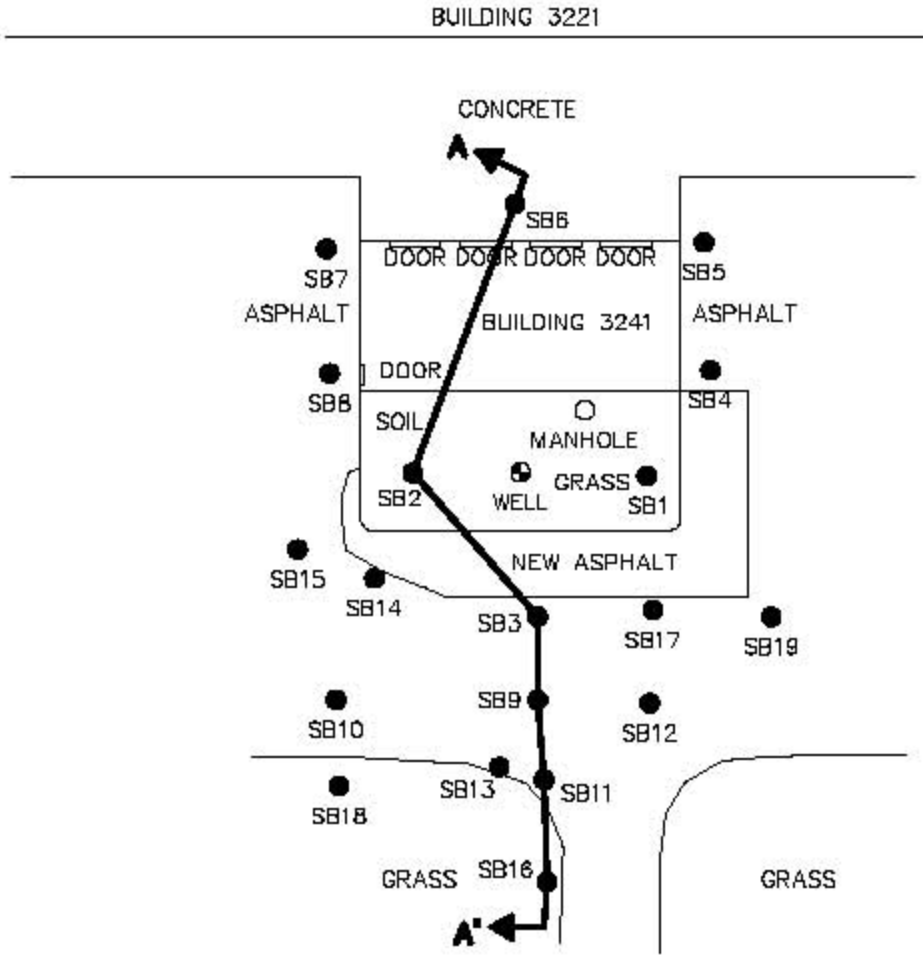
NOTE:

PVC = POLYVINYL CHLORIDE

DRAWN BY HJB DATE 8/12/02	DEPARTMENT OF THE NAVY SOUTHERN DIV FACILITIES ENGINEERING COMD	TYPICAL SHALLOW AND DEEP MONITORING WELL INSTALLATION DETAIL SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-3 REV. 0

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

ACAD: 4176GP01.dwg 08/15/02 HJB PIT



LEGEND:

SOIL BORING LOCATION

CROSS SECTION LOCATION

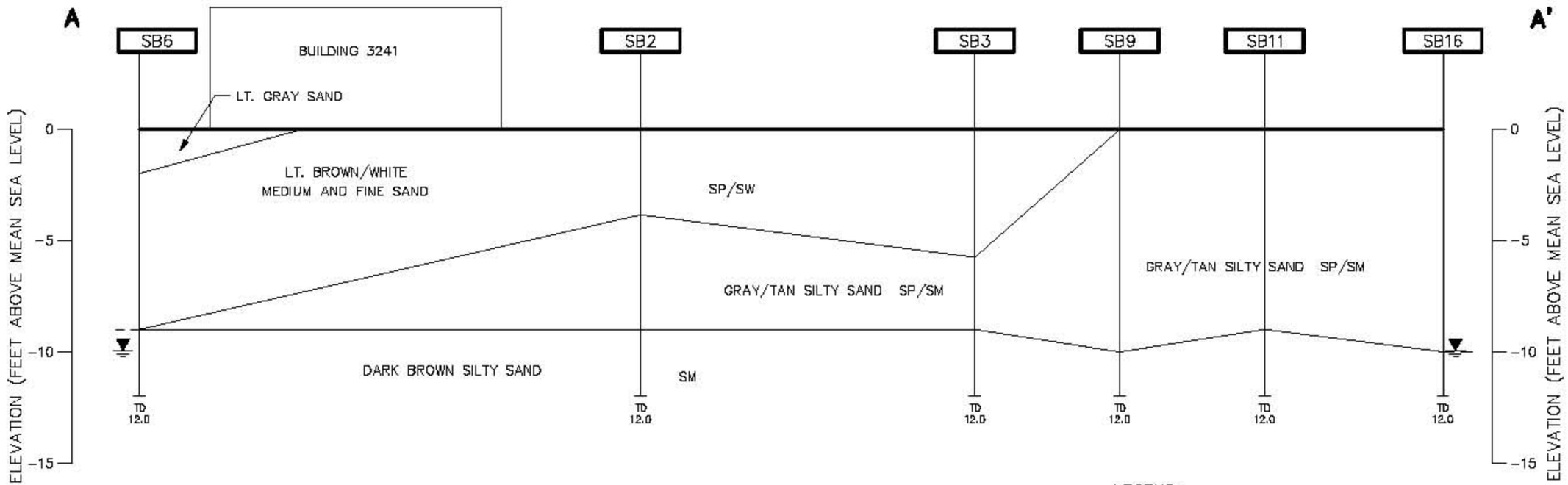
0 30 60

SCALE IN FEET

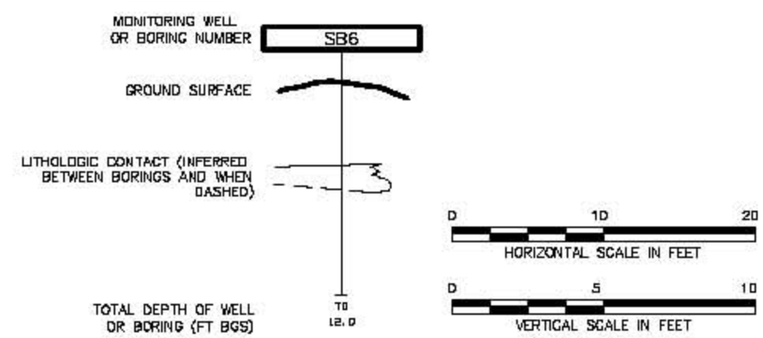
DRAWN BY HJB DATE 8/15/02	STRATIGRAPHIC CROSS SECTION LINE A–A'	CONTRACT NO. 4176
CHECKED BY DATE	SITE ASSESSMENT REPORT	APPROVED BY DATE
COST/SCHED–AREA	SITE 19 – BUILDING 3241	APPROVED BY DATE
SCALE AS NOTED	NAS PENSACOLA	DRAWING NO. FIGURE 3–1 REV. 0
	PENSACOLA, FLORIDA	

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

ACAD: 4176GX01.dwg 08/16/02 HJB PIT



LEGEND:



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

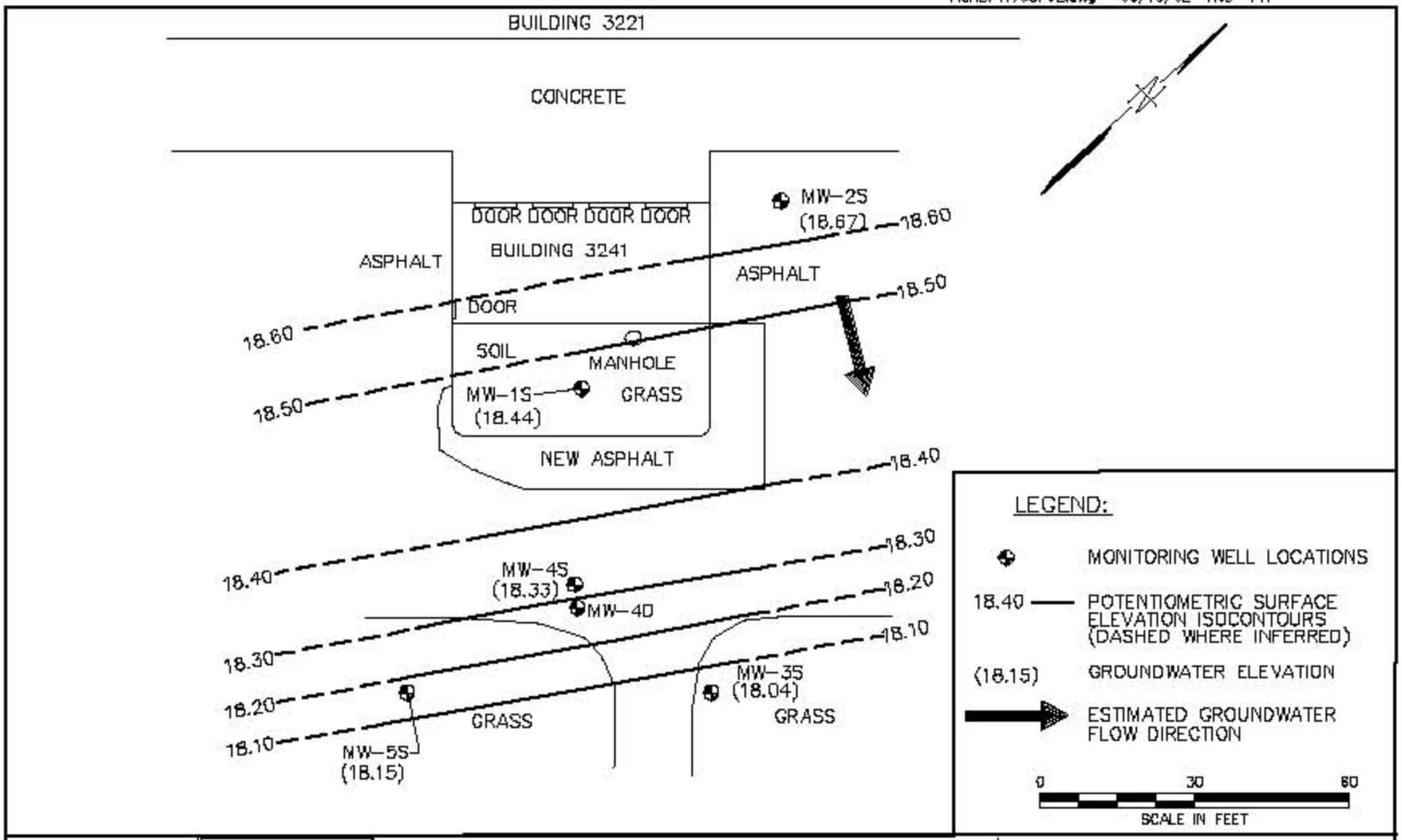
DRAWN BY HJB DATE 8/15/02
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

STRATIGRAPHIC CROSS SECTION A-A'
SITE ASSESSMENT REPORT
SITE 19 – BUILDING 3241
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NO. 4176
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 3-2
REV. 0

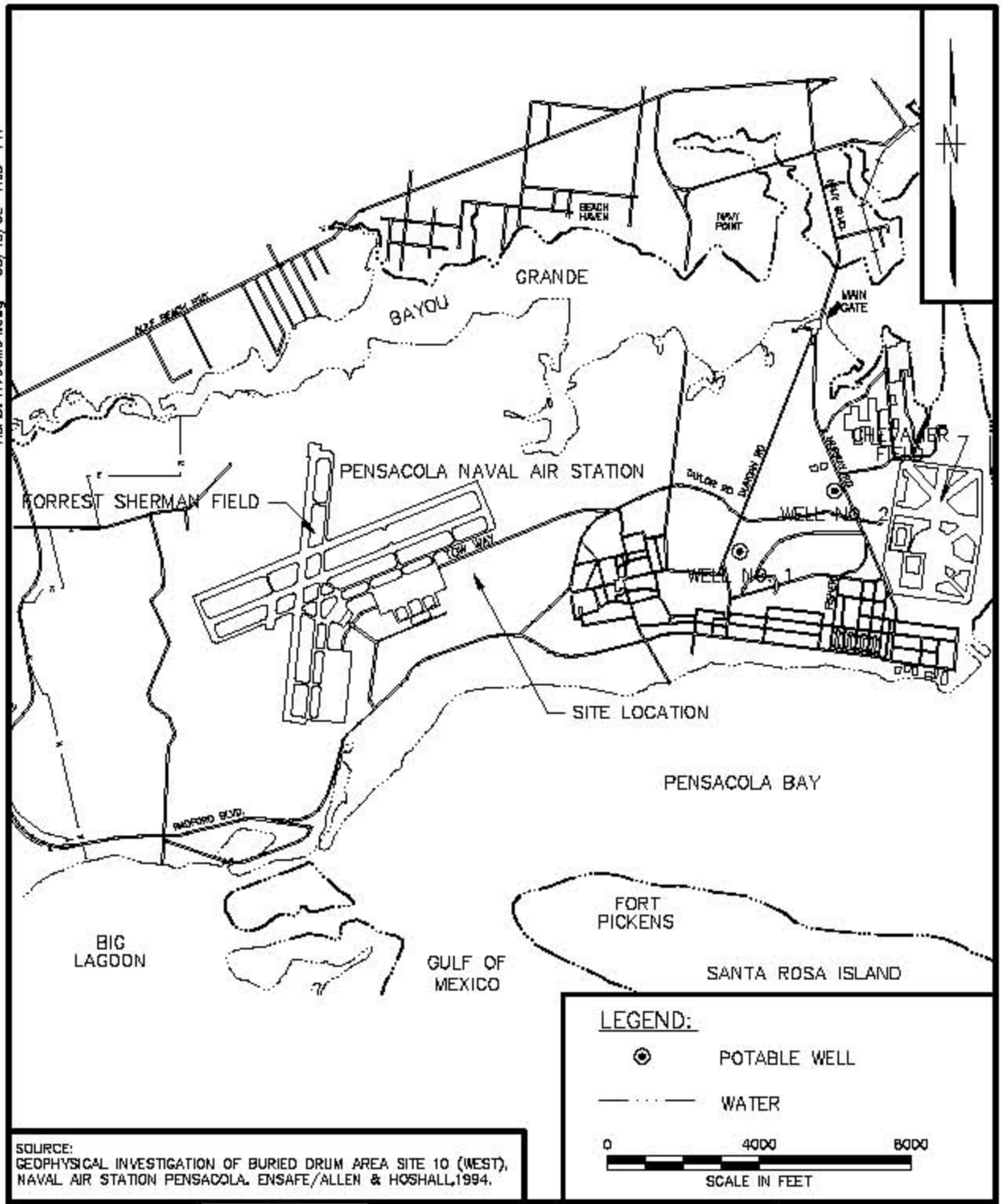
FORM CADD NO. SDIV_BH.DWG - REV 0 - 1/20/96

ACAD: 4176GP02.dwg 08/15/02 HJB PIT



DRAWN BY HJB DATE 8/15/02	SHALLOW WELL GROUNDWATER ELEVATIONS SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE		APPROVED BY DATE
COST/SCHED–AREA		APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 3–3 REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98



LEGEND:

POTABLE WELL

WATER

0 4000 8000

SCALE IN FEET

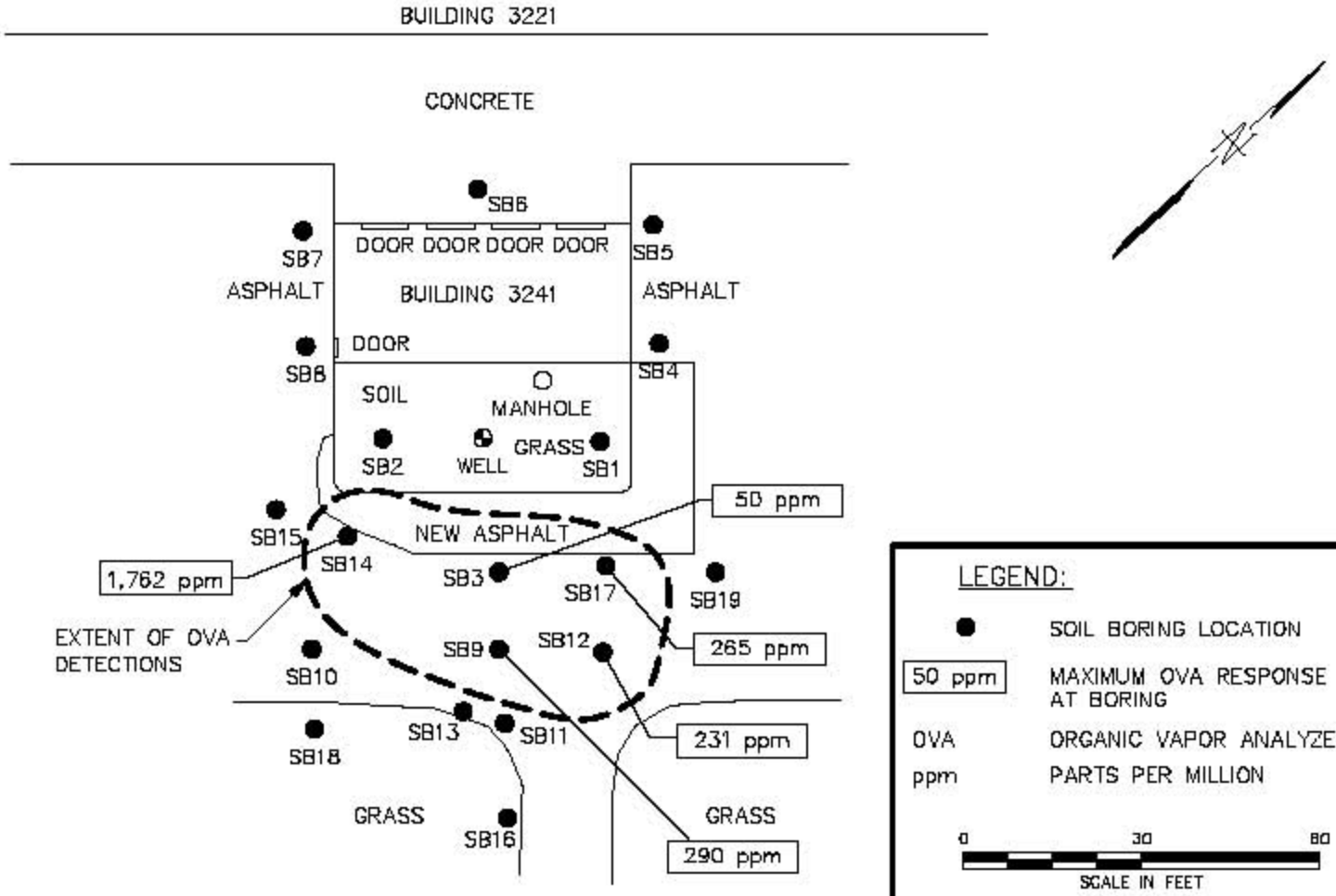
SOURCE:
GEOPHYSICAL INVESTIGATION OF BURIED DRUM AREA SITE 10 (WEST), NAVAL AIR STATION PENSACOLA. ENSAFE/ALLEN & HOSHALL,1994.

DRAWN BY HJB DATE 8/12/02		POTABLE WELL LOCATIONS SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED–AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3–4 REV. 0

FORM CADD NO. 9DIV_AV.DWG – REV 0 – 1/20/98

ACAD: 4176CM04.dwg 08/15/02 HJB PIT

ACAD: 4176GP03.dwg 08/15/02 HJB PIT



LEGEND:

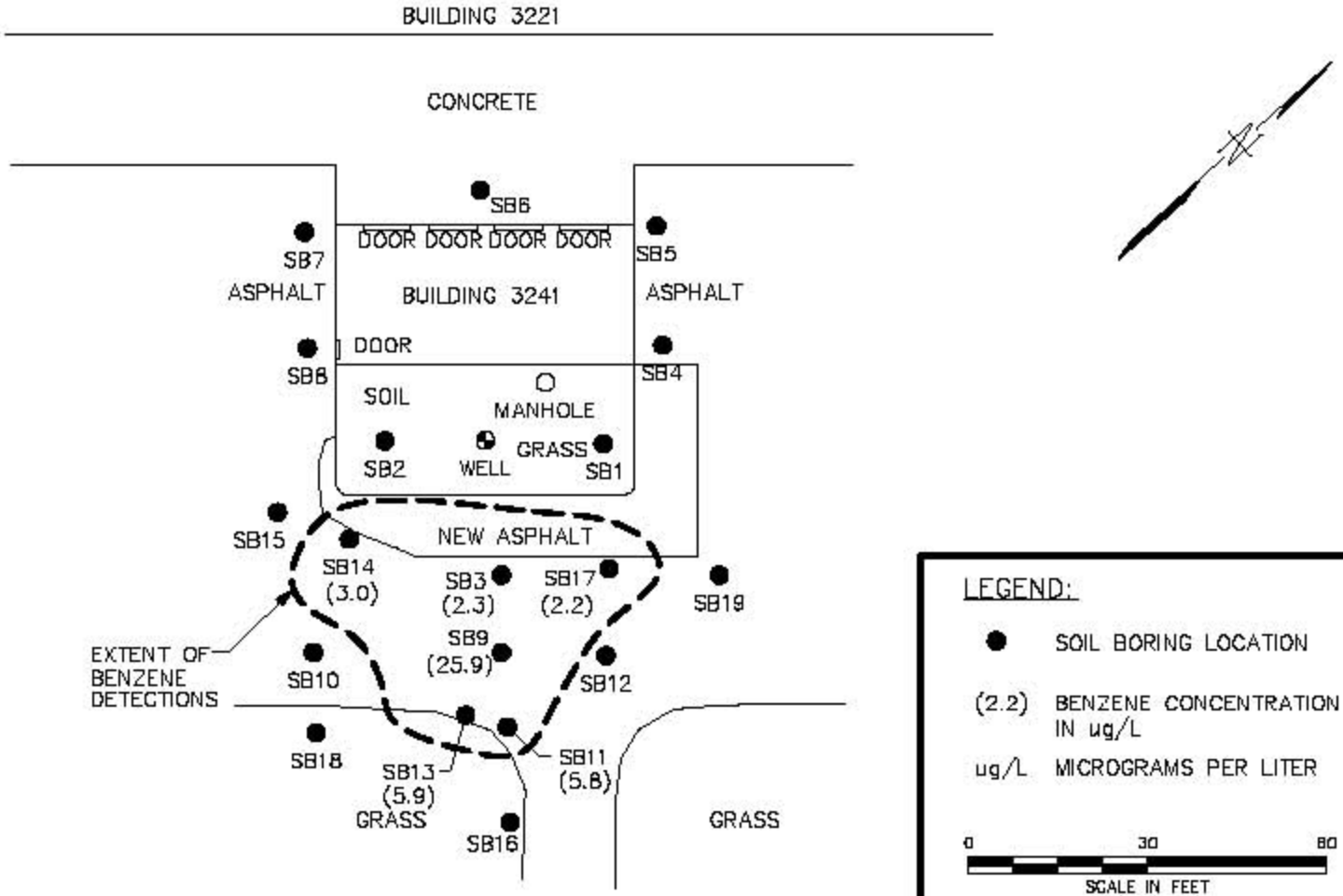
●	SOIL BORING LOCATION
50 ppm	MAXIMUM OVA RESPONSE AT BORING
OVA	ORGANIC VAPOR ANALYZER
ppm	PARTS PER MILLION

0 30 60
SCALE IN FEET

DRAWN BY HJB DATE 8/15/02	SOIL HEADSPACE SCREENING RESULTS SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE		APPROVED BY DATE
COST/SCHED–AREA		APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 4–1 REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

ACAD: 4176DPO4.dwg 08/15/02 HJB PIT



LEGEND:

● SOIL BORING LOCATION

(2.2) BENZENE CONCENTRATION IN ug/L

ug/L MICROGRAMS PER LITER

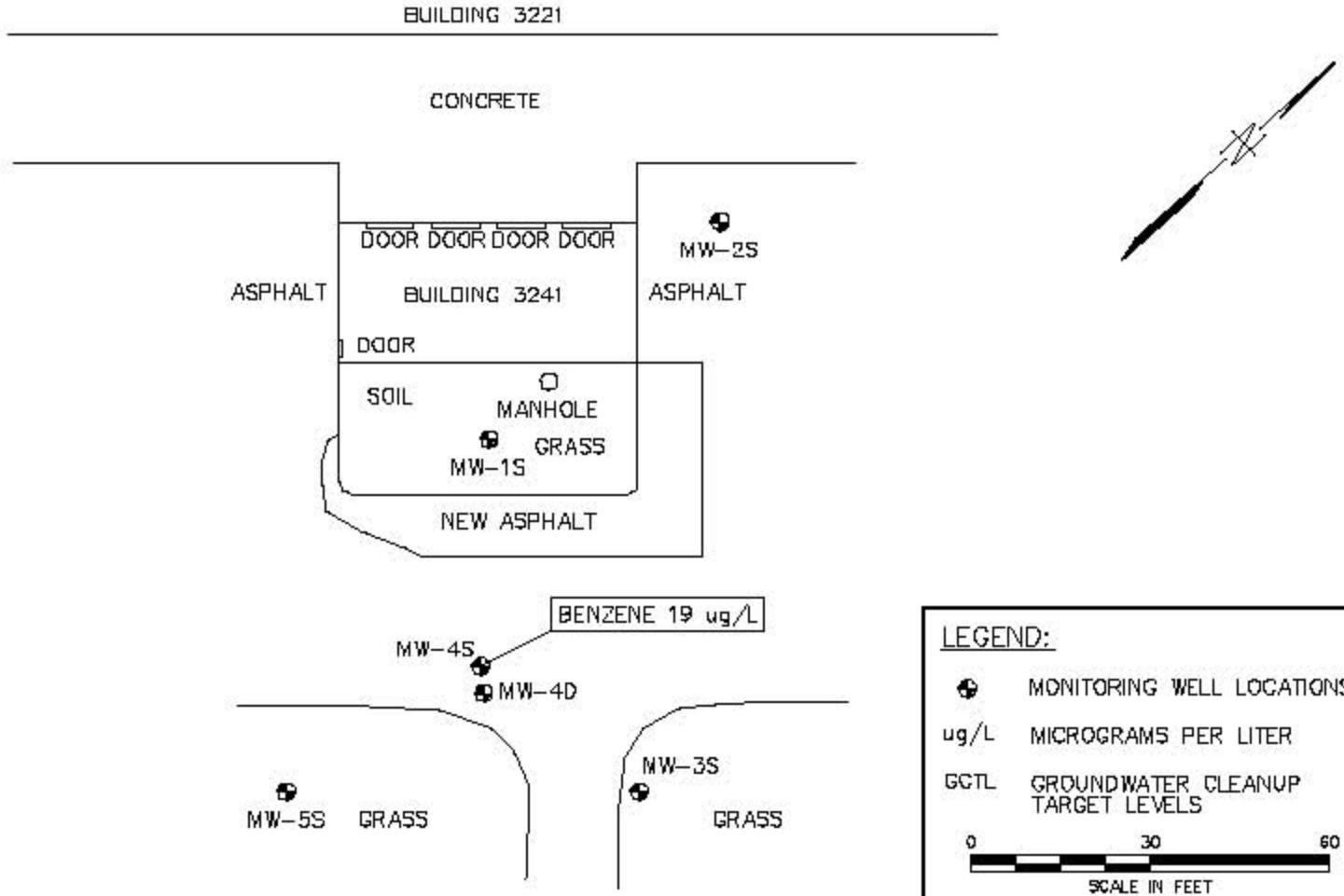
0 30 60

SCALE IN FEET

DRAWN BY HJB DATE 8/15/02	BENZENE CONCENTRATIONS –DPT GROUNDWATER SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE		APPROVED BY DATE
COST/SCHED–AREA		APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 4–2 REV. 0

FORM CADD NO. SDIV_AHLDWG – REV 0 – 1/20/98

ACAD: 4176GP05.dwg 08/28/02 MF PIT



LEGEND:

⊕	MONITORING WELL LOCATIONS
ug/L	MICROGRAMS PER LITER
GCTL	GROUNDWATER CLEANUP TARGET LEVELS

0 30 60

SCALE IN FEET

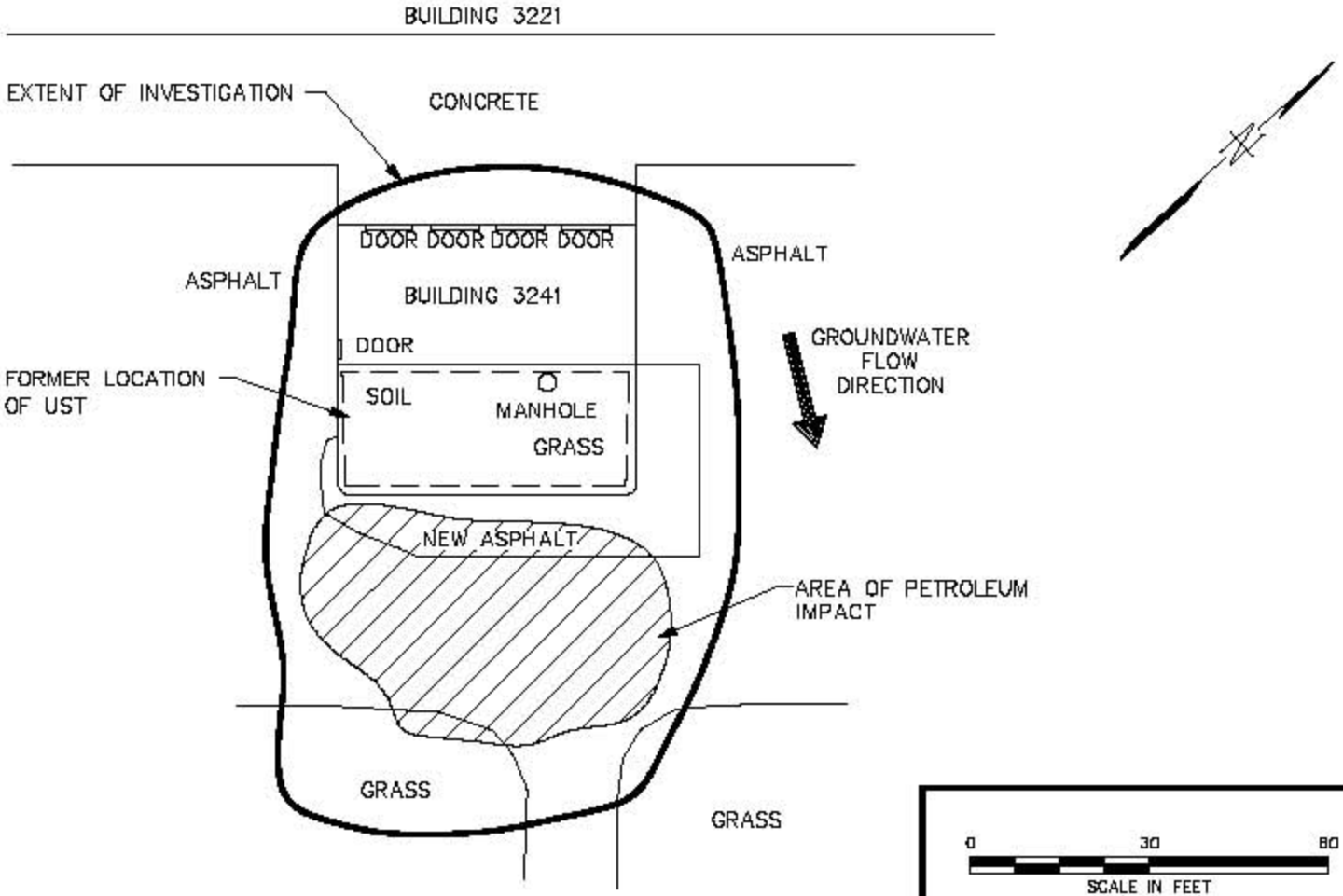
DRAWN BY HJB	DATE 8/15/02
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	

GCTL EXCEEDANCES IN GROUNDWATER
SITE ASSESSMENT REPORT
SITE 19 – BUILDING 3241
NAS PENSACOLA
PENSACOLA, FLORIDA

CONTRACT NO. 4176	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 4-3	REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

ACAD: 4176GP05.dwg 08/16/02 HJB PIT



0 30 60
SCALE IN FEET

DRAWN BY HJB DATE 8/15/02	SITE ASSESSMENT SUMMARY SITE ASSESSMENT REPORT SITE 19 – BUILDING 3241 NAS PENSACOLA PENSACOLA, FLORIDA	CONTRACT NO. 4176
CHECKED BY DATE		APPROVED BY DATE
COST/SCHED–AREA		APPROVED BY DATE
SCALE AS NOTED		DRAWING NO. FIGURE 5–1 REV. 0

FORM CADD NO. SDIV_AH.DWG – REV 0 – 1/20/98

APPENDIX A

SAR SUMMARY SHEET

SITE ASSESSMENT REPORT SUMMARY SHEET

Facility Name: Sherman Field, Building 3241, UST Site 000019, Boiler Room for Building 3221, Naval Air Station, Pensacola Reimbursement Site: ☐

Location: Pensacola, Florida State Contract Site: ☐

EDI #: _____ FAC I.D.# unregulated Other: Non-Prog. ☑

Date Reviewed: _____ Local Government: _____

(1) Source of Spill: Heating Oil UST Date of Spill: Unknown but prior to 1994 when reported

(2) Type of Product:

Gasoline Group	Gallons Lost	Kerosene Group	Gallons Lost
☐ Leaded		☐ Kerosene	
☐ Unleaded Regular		☑ Diesel	Unknown
☐ Unleaded Premium		☐ JP-4 Jet Fuel	
☐ Gasohol		☐ Jet A Fuel	
☐ Undetermined		☐ Unknown	

(3) Description of IRA: Tank Removal

☐ Free product Removal: _____ (gals)
☑ Soil Removal: Unknown (cubic yds)
☐ Soil Incineration: _____ (cubic yds)

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

(5) Maximum Groundwater contamination levels (ppb): Total VOA: 20 benzene: 19 EDB: <0.05
lead: <10 MTBE: <5 other: _____

(6) Brief lithologic description: Medium and fine sand to silty fine sand. White to brown, some gray.

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

Highest current soil concentration (OVA: 1,762 ppm) or (EPA method 5030/8020: 2.3 ppb)

(8) Lower aquifer contaminated? (yes/no) No Depth of vertical contamination: Less than 25 feet (top of screened interval for MW-4D).

(9) Date of last complete round of groundwater sampling: 6/18/02 Date of last soil sampling: 6/12/02

(10) QAPP approved? (yes/no) Date: _____

(11) Direction (e.g. NNW) of surficial groundwater flow: SE Figure _____ on page _____

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

(13) Observed range of seasonal groundwater fluctuations: Unknown (ft)

(14) Estimated rate of groundwater flow: 0.45 shallow/2.2 deep (ft/day)

(15) Hydraulic gradient across site: 0.006 (ft/ft)

(16) Aquifer characteristics:

	Values	Units	Method
Hydraulic conductivity	22 to 108	ft/day	Slug Tests
Storage coefficient	-	ft/ft	-
Aquifer thickness	500	ft	Literature
Effective soil porosity	30	%	Literature
Transmissivity	9,729	Ft^2/day	Slug Tests

(17) Other remarks: None

APPENDIX B

HISTORICAL SITE DATA

41760204

DEPARTMENT OF THE NAVY
COMMANDING OFFICER
NAS PENSACOLA
190 RADFORD BLVD
PENSACOLA, FLORIDA 32508-5217

IN REPLY REFER TO
5090
Ser 00500/248/2 1 8 3
31 OCT 1996

Mr. W. E. Grimsley
Environmental Supervisor II
Environmental Health Services
Petroleum Tank Section
1190 West Leonard Street, Suite 2
Pensacola, Florida 32501

RE: STORAGE TANK CLOSURE, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, 62-761.800

Dear Mr. Grimsley:

The Closure Assessment Form for the Underground Storage Tank System at Building 3241, Naval Air Station Pensacola, is enclosed.

Contamination was discovered during the excavation of the tank with the cause of the contamination appearing to have been a failure of the storage tank system. A contamination assessment will be performed in accordance with Florida Department of Environmental Protection, 17-770.

Should you have questions or a need for additional information, please contact Mr. Dean Spencer, P.E., at (904) 452-3900.

Sincerely,

TIMOTHY THOMSON
Captain, U.S. Navy
Commanding Officer

Encl:
(1) Closure Assessment Form

Copy to:
SOUTHNAVFACENGCOM (L. Vazquez)
NAVAVNDEPOT Pensacola (Code 60005)
PWC Pensacola (Code 911.2)
FDEP Pensacola (E. Ericson)
FDEP Tallahassee (E. Nuzie)

Navy Public Works Center
Environmental Laboratory

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Laboratory Report
Volatiles by Method 8260

Requester: Navy Public Works Environmental
Address: Bldg. 3691
NAS Pensacola,FL
Phone #: 452-3094
Contact: Mr. Paul Semmes

Lab ID Number: 9409314 A
Sample Date: 2 Sep 1994
Received Date: 2 Sep 1994
Sample Site: NAS Pensacola
Job Order #: 120 4876

Sample ID#	Lab	1- 6103			2-			3-			4-		
Sample Name	Requester	Bldg. 3241 MW-1											
Collector Name		G. Swann											
Date/Time	Comp start												
Collected	Comp stop												
(Military)	Grab	2 Sep 1994 @ 1245											
Sample Type	Comp/Grab												
Analyst		Joe Moore											
Date of Analysis		09 Sep 1994											
Sample Matrix		Ground water											
Dilution		Dilution X 1			Dilution X 1			Dilution X 1			Dilution X 1		
PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.
Volatiles by GCMS (Capillary)	METHOD #	1- 6103	units	Limit	2-	units	Limit	3-	units	Limit	4-	units	Limit
Benzene	EPA 8260	220	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Bromobenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Bromochloromethane	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2
Bromodichloromethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Bromoform	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Bromomethane	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2
n-Butylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
sec-Butylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
tert-Butylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Carbon Tetrachloride	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Chlorobenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Chloroethane	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2
Chloroform	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Chloromethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
2-Chlorotoluene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
4-Chlorotoluene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Dibromochloromethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2-Dibromo-3-chloropropane	EPA 8260	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1,2-Dibromoethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Dibromomethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2-Dichlorobenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,3-Dichlorobenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,4-Dichlorobenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Dichlorodifluoromethane	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2
1,1-Dichloroethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2-Dichloroethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,1-Dichloroethene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
cis-1,2-Dichloroethene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
trans-1,2-Dichloroethene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2-Dichloropropane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,3-Dichloropropane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
2,2-Dichloropropane	EPA 8260	BDL	ug/l	4		ug/l	4		ug/l	4		ug/l	4
1,1-Dichloropropene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Ethylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Hexachlorobutadiene	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2
Isopropylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
p-Isopropyltoluene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Methylene chloride	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1

Navy Public Works Center
Environmental Laboratory

Laboratory Report
Volatiles by Method 8260

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Requester: Navy Public Works Environmental
Address: Bldg. 3691
NAS Pensacola,FL
Phone #: 452-3094
Contact: Mr. Paul Semmes

Lab ID Number: 9409314 A
Sample Date: 2 Sep 1994
Received Date: 2 Sep 1994
Sample Site: NAS Pensacola
Job Order #: 120 4876

PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.
Volatiles by GCMS (Capillary)	METHOD #	1- 6103	units	Limit	2-	units	Limit	3-	units	Limit	4-	units	Limit
Naphthalene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
n-Propylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Styrene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,1,1,2-Tetrachloroethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,1,2,2-Tetrachloroethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Tetrachloroethene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Toluene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2,3-Trichlorobenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2,4-Trichlorobenzene	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2
1,1,1-Trichloroethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,1,2-Trichloroethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Trichloroethene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Trichlorofluoromethane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2,3-Trichloropropane	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,2,4-Trimethylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
1,3,5-Trimethylbenzene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
Vinyl Chloride	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
o-Xylene	EPA 8260	BDL	ug/l	1		ug/l	1		ug/l	1		ug/l	1
m,p-Xylene	EPA 8260	BDL	ug/l	2		ug/l	2		ug/l	2		ug/l	2

Surrogate Recoveries Compound	Acceptance Limits				
1,2-Dichloroethane-d4	76-114	92			
Toluene-d8	88-110	101			
Bromofluorobenzene	86-115	94			

Comments: ug/l=micrograms per liter. ug/kg=micrograms per kilogram. BDL=Below Detection Limit.
The well was resampled on 27 Sep 1994 by NPWC personnel to confirm presence of benzene. Analysis resulted in benzene @ 150 ug/l (PPB).
NPWC does not at this time possess an approved CompQAP for groundwater sampling.

Approved by: Jerry Dees, Laboratory Director Date/Time: 30-Sep-94 @ 07:31

PWC 5090/14

 End of Report

Navy Public Works Center
Environmental Laboratory

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Laboratory Report
Extractables by Method 8270A

Requester: NPWC Environmental
Address: Bldg. 3691
NAS, Pensacola, FL 32508
Phone #: 452-3094
Contact: Mr. Paul Semmes

Lab ID Number: 9409314 B
Sample Date: 2 Sep 1994
Received Date: 2 Sep 1994
Sample Site: NAS Pensacola
Job Order #: 120 4876

Sample ID#	Lab	1- 6103	2-	3-	4-
Sample Name	Requester	Bldg. 3241 MW-1			
Collector Name		G. Swann			
Date/Time Collected (Military)	Comp start				
	Comp stop				
	Grab	2 Sep 1994 @ 1245			
Sample Type	Comp/Grab	Grab			
Analyst		Joe Moore			
Date of Analysis		20 Sep 1994			
Sample Matrix		Water			
Dilution		Dilution X 1	Dilution X 1	Dilution X 1	Dilution X 1

PARAMETER BNA Extr.:	METHOD #	ID# 1- 6103	units	Det. Limit	ID# 2-	units	Det. Limit	ID# 3-	units	Det. Limit	ID# 4-	units	Det. Limit
Acenaphthene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Acenaphthylene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Acetophenone	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2-Acetylaminofluorene	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Aldrin	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4-Aminobiphenyl	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Aniline	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Anthracene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Aramite	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
Benzidine	EPA 8270A	BDL	ug/l	50		ug/l	50		ug/l	50		ug/l	50
Benzoic Acid	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Benz(a)anthracene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Benzo(b)fluoranthene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Benzo(k)fluoranthene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Benzo(g,h,i)perylene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Benzo(a)pyrene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
p-Benzoquinone	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Benzyl alcohol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
alpha-BHC	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
beta-BHC	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
delta-BHC	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
gamma-BHC (Lindane)	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Bis(2-chloroethoxy)methane	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Bis(2-chloroethyl)ether	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Bis(2-chloroisopropyl)ether	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Bis(2-ethylhexyl)phthalate	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
4-Bromophenyl phenyl ether	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Butyl benzyl phthalate	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4-Chloroaniline	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Chlorobenzilate	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4-Chloro-3-methylphenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2-Chloronaphthalene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2-Chlorophenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4-Chlorophenyl phenyl ether	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Chrysene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4,4'-DDD	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4,4'-DDE	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4,4'-DDT	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Dibenzo(a,h)anthracene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Dibenzofuran	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Di-n-butyl phthalate	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
1,2-Dichlorobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1,3-Dichlorobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5

Navy Public Works Center
Environmental Laboratory

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Laboratory Report
Extractables by Method 8270A

Requester: NPWC Environmental
Address: Bldg. 3691
NAS, Pensacola, FL 32508
Phone #: 452-3094
Contact: Mr. Paul Semmes

Lab ID Number: 9409314 B
Sample Date: 2 Sep 1994
Received Date: 2 Sep 1994
Sample Site: NAS Pensacola
Job Order #: 120 4876

PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.
BNA Extr.:	METHOD #	1- 6103	units	Limit	2-	units	Limit	3-	units	Limit	4-	units	Limit
1,4-Dichlorobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
3,3-Dichlorobenzidine	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2,4-Dichlorophenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2,6-Dichlorophenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Dieldrin	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Diethyl phthalate	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Dimethoate	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
Dimethylaminazobenzene	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
7,12-Dimethylbenz(a)anthracene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
3,3'-Dimethylbenzidine	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
a,a,-Dimethylphenethylamine	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2,4-Dimethylphenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Dimethyl phthalate	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
4,6-Dinitro-o-cresol	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
2,4-Dinitrophenol	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
2,4-Dinitrotoluene	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
2,6-Dinitrotoluene	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
1,2-Diphenylhydrazine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Di-n-octyl phthalate	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Endosulfan-I	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Endosulfan-II	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Endosulfan Sulfate	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Endrin	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Endrin aldehyde	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Endrin ketone	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Ethyl methanesulfonate	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Fluoranthene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Fluorene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Heptachlor	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Heptachlor epoxide	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Hexachlorobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Hexachlorobutadiene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Hexachlorocyclopentadiene	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
Hexachloroethane	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Indeno(1,2,3-cd)pyrene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Isodrin	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
Isophorone	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
3-Methylcholanthrene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Methyl methanesulfonate	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2-Methylnaphthalene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
o-Cresol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
m,p-Cresols	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Naphthalene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1,4-Naphthoquinone	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1-Naphthylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
2-Naphthylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
2-Nitroaniline	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
3-Nitroaniline	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
4-Nitroaniline	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Nitrobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2-Nitrophenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
4-Nitrophenol	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25

Navy Public Works Center
Environmental Laboratory

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Laboratory Report
Extractables by Method 8270A

Requester: NPWC Environmental
Address: Bldg. 3691
NAS, Pensacola, FL 32508
Phone #: 452-3094
Contact: Mr. Paul Semmes

Lab ID Number: 9409314 B
Sample Date: 2 Sep 1994
Received Date: 2 Sep 1994
Sample Site: NAS Pensacola
Job Order #: 120 4876

PARAMETER BNA Extr.:	METHOD #	ID# 1- 6103	units	Det. Limit	ID# 2-	units	Det. Limit	ID# 3-	units	Det. Limit	ID# 4-	units	Det. Limit
5-Nitro-o-toluidine	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
N-nitrosodibutylamine	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
N-nitrosodiethylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosodimethylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosomethylethylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosodiphenylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosodi-n-propylamine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosomorpholine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosopiperidine	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
N-nitrosopyrrolidine	EPA 8270A	BDL	ug/l	20		ug/l	20		ug/l	20		ug/l	20
Pentachlorobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Pentachloronitrobenzene	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Pentachlorophenol	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Phenacetin	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Phenanthrene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Phenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1,4-Phenylenediamine	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Phorate	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2-Picoline	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Pronamide	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Pyrene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
Pyridine	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
Safrole	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
2,3,4,6-Tetrachlorophenol	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10
Thionazine	EPA 8270A	BDL	ug/l	25		ug/l	25		ug/l	25		ug/l	25
o-Toluidine	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1,2,4-Trichlorobenzene	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2,4,5-Trichlorophenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
2,4,6-Trichlorophenol	EPA 8270A	BDL	ug/l	5		ug/l	5		ug/l	5		ug/l	5
1,3,5-Trinitrobenzene	EPA 8270A	BDL	ug/l	10		ug/l	10		ug/l	10		ug/l	10

SURROGATE RECOVERIES Compound	Acceptance Limits				
2-Fluorophenol	21-110	84			
Phenol-d5	10-110	64			
Nitrobenzene-d5	35-114	60			
2-Fluorobiphenyl	43-116	62			
2,4,6-Tribromophenol	10-123	94			
Terphenyl-d14	33-141	74			

Comments: ug/l=micrograms per liter. ug/kg=micrograms per kilogram. BDL=Below Detection Limit.

Approved by: Jerry Deer, Laboratory Director

Date/Time: 30-Sep-94 @ 07:34

PWC5090/14

Navy Public Works Center
Environmental Laboratory

Bldg.3297, Code 920
NAS Pensacola, FL 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Laboratory Report
Priority Pollutant Acid Extractables

Requester: PWC Transportation
Address:
NAS pensacola, FL 32508
Phone #: 452-4563
Contact: Rob Evans

Lab ID Number: 9405143A
Received Date: 24 May 94
Sample Site: Bldg. 3241
Job Order #: 120 6610

Sample ID#	Lab	1- 2877	2- 2878	3- 2879	4- 2880
Sample Name	Requester	B3241 Middle	B3241 Southeast Wall	B3241 Southwest Wall	B 3241 Northeast Wall
Collector Name		M. Chambers	M. Chambers	M. Chambers	M. Chambers
Time/Date	Comp start				
Sample Collected	Comp stop				
(Military)	Grab	24 May 94 @ 1223	24 May 94 @ 1225	24 May 94 @ 1227	24 May 94 @ 1230
Sample Type	Comp/Grab	Grab	Grab	Grab	Grab
Analyst		Joe Moore			Joe Moore
Date of Analysis		31 May 94			31 May 94
Sample Matrix		Soil	Soil	Soil	Soil
Dilution		Dilution X 170	Dilution X 1	Dilution X 1	Dilution X 670

PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.
Acid Extractables	METHOD #	1- 2877	units	Limit	2- 2878	units	Limit	3- 2879	units	Limit	4- 2880	units	Limit
Priority Pollutant Acid Extractable Compounds (CFR 40, Part 122, App. D, Table II Acid Compounds)													
2-Chlorophenol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
2,4-Dichlorophenol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
2,4-Dimethylphenol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
4,6-Dinitro-o-cresol	EPA 8270	BDL	ug/kg	1700		ug/kg	10		ug/kg	10	BDL	ug/kg	6700
2,4-Dinitrophenol	EPA 8270	BDL	ug/kg	4250		ug/kg	25		ug/kg	25	BDL	ug/kg	16750
2-Nitrophenol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
4-Nitrophenol	EPA 8270	BDL	ug/kg	4250		ug/kg	25		ug/kg	25	BDL	ug/kg	16750
p-Chloro-m-cresol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Pentachlorophenol	EPA 8270	BDL	ug/kg	1700		ug/kg	10		ug/kg	10	BDL	ug/kg	6700
Phenol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
2,4,6-Trichlorophenol	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350

SURROGATE RECOVERIES Compound	Acceptance Limits				
Phenol-d5	24-125	97			56
2-Fluorophenol	25-121	95			56
2,4,6-Tribromophenol	19-122	95			45

Comments: ug/l=micrograms per liter. ug/kg=micrograms per kilogram. BDL=Below Detection Limit.
Note: 2878 & 2879 not analyzed - No evidence of petroleum products on 8260 analysis.

Approved by: Jerry Davis, Laboratory Director

Date/Time: 16-Jun-94 / 06:56

Navy Public Works Center
Environmental Laboratory

Laboratory Report
Priority Pollutant Base/Neutral Extractables

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Requester: PWC Transportation
Address: 0
NAS pensacola, FL 32508
Phone #: 452-4563
Contact: Rob Evans

Lab ID Number: 9406143A
Received Date: 24 May 94
Sample Site: Bldg. 3241
Job Order #: 120 6610

Sample ID#	Lab	1- 2877	2- 2878	3- 2879	4- 2880
Sample Name	Requester	B3241 Middle	B3241 Southeast Wall	B3241 Southwest Wall	B 3241 Northeast Wall
Collector Name		M. Chambers	M. Chambers	M. Chambers	M. Chambers
Time/Date	Comp start				
Sample Collected	Comp stop				
(Military)	Grab	24 May 94 @ 1223	24 May 94 @ 1225	24 May 94 @ 1227	24 May 94 @ 1230
Sample Type	Comp/Grab	Grab	Grab	Grab	Grab
Analyst		Joe Moore			Joe Moore
Date of Analysis		31 May 94			31 May 94
Sample Matrix		Soil	Soil	Soil	Soil
Dilution		Dilution X 170	Dilution X 1	Dilution X 1	Dilution X 670

PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.
Base/Neutral Extractables	METHOD #	1- 2877	units	Limit	2- 2878	units	Limit	3- 2879	units	Limit	4- 2880	units	Limit
Priority Pollutant Base/Neutral Extractable Compounds (CFR 40, Part 122, App. D, Table II, Base/Neutral)													
Acenaphthene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Acenaphthylene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Anthracene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Benzidine	EPA 8270	BDL	ug/kg	8500		ug/kg	5		ug/kg	50	BDL	ug/kg	3350
Benz(a)anthracene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Benzo(a)pyrene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
3,4-Benzofluoranthene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Benzo(g,h,i)perylene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Benzo(k)fluoranthene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Bis(2-chloroethoxy)methane	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Bis(2-chloroethyl)ether	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Bis(2-chloroisopropyl)ether	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Bis(2-ethylhexyl)phthalate	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
4-Bromophenyl phenyl ether	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Butyl benzyl phthalate	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
2-Chloronaphthalene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
4-Chlorophenyl phenyl ether	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Chrysene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Dibenzo(a,h)anthracene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
1,2-Dichlorobenzene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
1,3-Dichlorobenzene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
1,4-Dichlorobenzene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
3,3-Dichlorobenzidine	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Diethyl phthalate	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Dimethyl phthalate	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
Di-n-butyl phthalate	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
2,4-Dinitrotoluene	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
2,6-Dinitrotoluene	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
Di-n-octyl- phthalate	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
1,2-Diphenylhydrazine	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
Fluoranthene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Fluorene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Hexachlorobenzene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Hexachlorobutadiene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Hexachlorocyclopentadiene	EPA 8270	BDL	ug/kg	4250		ug/kg	5		ug/kg	25	BDL	ug/kg	3350
Hexachloroethane	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Indeno(1,2,3-cd)pyrene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Isophorone	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350

Navy Public Works Center
Environmental Laboratory

Laboratory Report
Priority Pollutant Base/Neutral Extractables

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autowon 922-3642

Requester: PWC Transportation
Address: 0
NAS pensacola, FL 32508
Phone #: 452-4563
Contact: Rob Evans

Lab ID Number: 9406143A
Received Date: 24 May 94
Sample Site: Bldg. 3241
Job Order #: 120 6810

PARAMETER Base/Neutral Extractables	METHOD #	ID# 1- 2877	units	Det. Limit	ID# 2- 2878	units	Det. Limit	ID# 3- 2879	units	Det. Limit	ID# 4- 2880	units	Det. Limit
Naphthalene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Nitrobenzene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
N-nitrosodimethylamine	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
N-nitrosodi-n-propylamine	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
N-nitrosodiphenylamine	EPA 8270	BDL	ug/kg	1700		ug/kg	5		ug/kg	10	BDL	ug/kg	3350
Phenanthrene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
Pyrene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350
1,2,4-Trichlorobenzene	EPA 8270	BDL	ug/kg	850		ug/kg	5		ug/kg	5	BDL	ug/kg	3350

SURROGATE RECOVERIES Compound	Acceptance Limits				
Nitrobenzene-d5	35-114	91			57
2-Fluorobiphenyl	43-116	96			59
Terphenyl-d14	33-141	92			59

Comments: ug/l=micrograms per liter. ug/kg=micrograms per kilogram. BDL=Below Detection Limit.
Slight traces of PAH's present, but below detection limit. Elevated detection limits are due to oily sample matrix.
Total extractable petroleum hydrocarbons (estimated): # 2877 = 4,300 mg/kg ; #2880 = 25,000 mg/kg.

Approved by: Jerry Dase, Laboratory Director

Date/Time: 16-Jun-94 / 08:56

Navy Public Works Center
Environmental Laboratory

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Laboratory Report
Priority Pollutant Volatiles

Requester: PWC Transportation
Address: 0
NAS pensacola, FL 32508
Phone #: 452-4563
Contact: Rob Evans

Lab ID Number: 9406143A
Received Date: 24 May 94
Sample Site: Bldg. 3241
Job Order #: 120 6810

Sample ID#	Lab	1- 2877	2- 2878	3- 2879	4- 2880
Sample Name	Requester	B3241 Middle	B3241 Southeast Wall	B3241 Southwest Wall	B 3241 Northeast Wall
Collector Name		M. Chambers	M. Chambers	M. Chambers	M. Chambers
Date/Time	Comp start				
Collected	Comp stop				
(Military)	Grab	24 May 94 @ 1223	24 May 94 @ 1225	24 May 94 @ 1227	24 May 94 @ 1230
Sample Type	Comp/Grab	Grab	Grab	Grab	Grab
Analyst		Joe Moore	Joe Moore	Joe Moore	Joe Moore
Date of Analysis		26 May 94	26 May 94	26 May 94	26 May 94
Sample Matrix		Soil	Soil	Soil	Soil
Dilution		Dilution X 5	Dilution X 1	Dilution X 1	Dilution X 1

PARAMETER		ID#		Det.	ID#		Det.	ID#		Det.	ID#		Det.
Volatiles by GCMS (Capillary)	METHOD #	1- 2877	units	Limit	2- 2878	units	Limit	3- 2879	units	Limit	4- 2880	units	Limit
Priority Pollutant Volatiles (CFR 122, App. D, Table II Volatiles)													
Acrolein	EPA 8260	BDL	ug/kg	500	BDL	ug/kg	100	BDL	ug/kg	100	BDL	ug/kg	100
Acrylonitrile	EPA 8260	BDL	ug/kg	10	BDL	ug/kg	2	BDL	ug/kg	2	BDL	ug/kg	2
Benzene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Bromoform	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Carbon Tetrachloride	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Chlorobenzene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Chlorodibromomethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Chloroethane	EPA 8260	BDL	ug/kg	10	BDL	ug/kg	2	BDL	ug/kg	2	BDL	ug/kg	2
2-Chloroethylvinyl ether	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Chloroform	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Dichlorobromomethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,1-Dichloroethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,2-Dichloroethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,1-Dichloroethylene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,2-Dichloropropane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,3-Dichloropropylene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Ethylbenzene	EPA 8260	105	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Methyl bromide	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Methyl chloride	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Methylene chloride	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,1,2,2-Tetrachloroethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Tetrachloroethylene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Toluene	EPA 8260	29	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,2-trans-dichloroethylene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,1,1-Trichloroethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
1,1,2-Trichloroethane	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Trichloroethene	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
Vinyl Chloride	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
o-Xylene	EPA 8260	180	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1
m,p-Xylenes	EPA 8260	320	ug/kg	10	BDL	ug/kg	2	BDL	ug/kg	2	BDL	ug/kg	2
Methyl-tert-butyl ether	EPA 8260	BDL	ug/kg	5	BDL	ug/kg	1	BDL	ug/kg	1	BDL	ug/kg	1

Surrogate Recoveries Compound	Acceptance Limits				
1,2-Dichloroethane-d4	70-121	104	105	100	101
Toluene-d8	84-138	102	104	101	101
Bromofluorobenzene	59-113	106	94	97	98

Comments: ug/l=micrograms per liter. ug/kg=micrograms per kilogram. BDL=Below Detection Limit.
Note: No evidence of petroleum products in samples 2878 and 2879.

Approved by: Jerry Dees, Laboratory Director

Date/Time: 16-Jun-94 / 06:56

Navy Public Works Center
Environmental Laboratory

Laboratory Report
Priority Pollutant Volatiles

Bldg.3297, Code 920
NAS Pensacola, Fl. 32508-6500
Phone 904-452-3642/4758
Autovon 922-3642

Requester: PWC Transportation
Address:
NAS pensacola, FL 32508
Phone #: 452-4563
Contact: Rob Evans

Lab ID Number: 9406143B
Received Date: 24 May 94
Sample Site: Bldg. 3241
Job Order #: 120 6810

Sample ID#	Lab	1- 2881	2-	3-	4-
Sample Name	Requester	B3241 Northwest Wall			
Collector Name		M. Chambers			
Date/Time Collected (Military)	Comp start				
	Comp stop				
	Grab	24 May 94 @ 1233			
Sample Type	Comp/Grab	Grab			
Analyst		Joe Moore			
Date of Analysis		26 May 94			
Sample Matrix		Soil			
Dilution		Dilution X 1	Dilution X 1	Dilution X 1	Dilution X 1

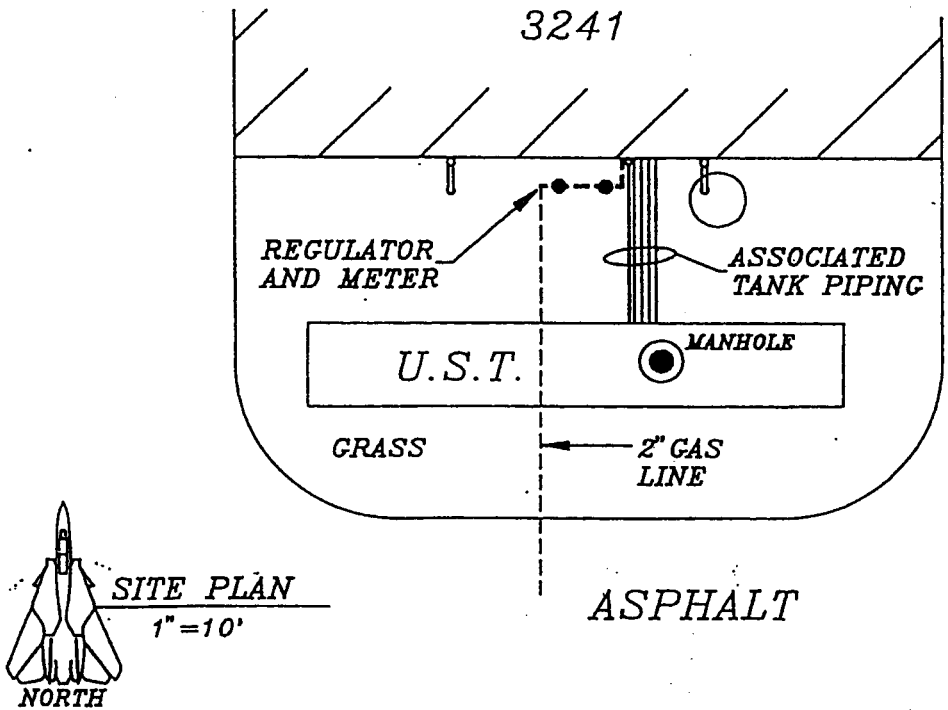
PARAMETER Volatiles by GCMS (Capillary)	METHOD #	1- ID# 2881	units	Det. Limit	2- ID#	units	Det. Limit	3- ID#	units	Det. Limit	4- ID#	units	Det. Limit
Priority Pollutant Volatiles (CFR 122, App. D, Table II Volatiles)													
Acrolein	EPA 8260	BDL	ug/kg	100		ug/kg	100		ug/kg	100		ug/kg	100
Acrylonitrile	EPA 8260	BDL	ug/kg	2		ug/kg	2		ug/kg	2		ug/kg	2
Benzene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Bromoform	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Carbon Tetrachloride	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Chlorobenzene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Chlorodibromomethane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Chloroethane	EPA 8260	BDL	ug/kg	2		ug/kg	2		ug/kg	2		ug/kg	2
2-Chloroethylvinyl ether	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Chloroform	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Dichlorobromomethane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,1-Dichloroethane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,2-Dichloroethane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,1-Dichloroethylene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,2-Dichloropropane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,3-Dichloropropylene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Ethylbenzene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Methyl bromide	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Methyl chloride	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Methylene chloride	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,1,2,2-Tetrachloroethane	EPA 8260	78	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Tetrachloroethylene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Toluene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,2-trans-dichloroethylene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,1,1-Trichloroethane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
1,1,2-Trichloroethane	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Trichloroethene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
Vinyl Chloride	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
o-Xylene	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1
m,p-Xylenes	EPA 8260	BDL	ug/kg	2		ug/kg	2		ug/kg	2		ug/kg	2
Methyl-tert-butyl ether	EPA 8260	BDL	ug/kg	1		ug/kg	1		ug/kg	1		ug/kg	1

Surrogate Recoveries Compound	Acceptance Limits				
1,2-Dichloroethane-d4	70-121	100			
Toluene-d8	84-138	100			
Bromofluorobenzene	59-113	99			

Comments: ug/l=micrograms per liter. ug/kg=micrograms per kilogram. BDL=Below Detection Limit.
No petroleum products present.

Approved by: Jerry Deal, Laboratory Director

Date/Time: 17-Jun-94 / 14:15



SITE PLAN

1" = 10'

TETRA TECH NUS, INC.
1401 Oven Park Drive • Suite 102 • Tallahassee, FL 32312
(850) 385-9899 • FAX (850) 385-9860 • www.tetratech.com

APPENDIX C

SITE ASSESSMENT FIELD DATA

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMB NASP - 3241 - SB1
PROJECT NUMBER: N4176
DATE: 5/14/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Med to fine sand	SW	no cover	0	0		
							with mix silt	to					
							lt brn to white	SM		0			
5	5						As above grey to tan	SM		0	0		
							abrupt change to white						
							fine sand.	SM		0			
	10						very dark brown silty			0	0		
							sand	SM	screen set				
									for GW sample	0	0		
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB2
PROJECT NUMBER: N4176
DATE: 5/14/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Med to fine sand		no cover (ants)		0		
							with minor silt lt brn	SW		0			
							to white	SM					
										0			
	5						gray tan white fine silty	SM			0		
							sand			0			
								SM		0			
	10						very dark brown silty	SM		0	0		
							sand						
									saturated	0	0		
									set screen				
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB3
PROJECT NUMBER: N4176
DATE: 5/14/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Med to fine sand	SW			0		
	2						w/	to		50			
							lt. brn to white	SM					
	4									32			
											0		
	6						grey tan white fine silty	SM		30			
							sand						
	8									20			
	10						dark brown silty sand			19	0		
	12									33			
							"	SM	set screen		0		
	15												
							"	SM	set screen				
	70												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMB: NASP - 3241 - SB4
PROJECT NUMBER: N4176
DATE: 5/14/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						gray	Med to fine sand	SW	asphalt = 3"		0		
								to		0			
								SM					
						dr		SM		0			
	5					grey	As above grey to tan				0		
						tan				0			
						lt tan	silty fine sand	SM					
										0			
						white		SM					
	10									0	0		
										0	0		
						lt	silty fine sand	SM	set screen				
						grey							
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMBER: NASP - 3241 - SB5
PROJECT NUMBER: N4176 DATE: 5/14/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							crushed shell underlay		asphalt = 3"				
							went < 4" lt grey			0	0		
							med to fine silty sand	SM					
										0	0		
	5						as above	SM					
										0	0		
							lt grey as above	SM					
										0	0		
	10						very dark brown silty sand		saturated	0	0		
								SM					
										0	0		
							"	SM	set screen				
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMBER: NASP - 3241 - SB6
PROJECT NUMBER: N4176 DATE: 5/15/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
									concrete 6"	0	0		
						lt gre	med to very fine sand	SM		0	0		
							lt brn to white	SM					
										0	0		
	5						as above	SM					
										0	0		
							as above	SM		0	0		
	10						dark brown silty sand	SM	saturated	0	0		
									set screen	0	0		
							"	SM					
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB7
PROJECT NUMBER: N4176
DATE: 5/15/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt gre	Med to fine sand	SW	asphalt = 3"				
						to tan		to		0	0		
								SM					
										0	0		
	5						as above	SM					
										0	0		
							as above	SM		0	0		
									saturated				
	10						dark brown silty sand	SM		0	0		
										0	0		
							as above		set screen				
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMB: NASP - 3241 - SB8
PROJECT NUMBER: N4176
DATE: 5/15/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt gre	med to fine silty sand	SW	asphalt = 3"				
						to tar		to		0	0		
								SM					
										0	0		
	5						as above	SM					
										0	0		
										0	0		
							as above	SM					
	10						dark brown silty sand			0	0		
									saturated				
										0	0		
							as above	SM	set screen				
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB9
PROJECT NUMBER: N4176
DATE: 5/15/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt gre	med to fine silty sand	SW	asphalt = 3"				
						to tan	with minor black particles	to	odd odor	100	0		
								SM					
									"	154	0		
	5						as above	SM					
									"	86	0		
									"	290	0		
	10						as above	SM	"	125	0		
						dr br	silty sand		saturated				
									"	156	0		
									set screen				
							as above						
	15												
							as above						
	20												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB10
PROJECT NUMBER: N4176
DATE: 5/15/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt grey		SW	asphalt = 3"				
							med to fine silty sand	to		0	0		
								SM					
										0	0		
	5						as above	SM					
										0	0		
										0	0		
							as above	SM					
	10									0	0		
						dr brown	silty sand	SM					
									saturated	0	0		
									set screen				
							as above	SM					
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMBER: NASP - 3241 - SB11
PROJECT NUMBER: N4176 DATE: 5/15/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt gra	med to fine silty	SW	asphalt = 3"		0		
						to tan	sand	to		0			
								SM					
										0			
	5						as above	SM			0		
										0			
										0			
							as above	SM					
	10					drk b	silty fine to med			0	0		
							sand						
										0			
									screen set				
							as above	SM					
	15										0		

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB12
PROJECT NUMBER: N4176
DATE: 5/16/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt grey		SW	asphalt = 3"				
						to brn	silty med to fine sand	to		4	0		
								SM					
										16	0		
	5						as above	SM					
										35	0		
										84	0		
							as above	SM					
	10									231	0		
						drk b	silty med to fine sand		saturated				
										90	0		
									screen set				
							as above						
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241
BORING NUMBER: NASP - 3241 - SB13
PROJECT NUMBER: N4176
DATE: 5/16/2002
DRILLING COMPANY: Kelly Drilling
GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT
DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt grey		SW	asphalt = 3"				
						to tan	silty med to fine sand	to		0			
								SM					
										0			
	5						as above	SM			0		
										0			
										0			
							as above	SM					
	10					drk br	silty med to fine sand			0	0		
									saturated				
										0	0		
									screen set				
							as above						
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMB NASP - 3241 - SB14
PROJECT NUMBER: N4176 DATE: 5/16/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ***
						lt grey		SW	asphalt = 3"		0		
						to tan	silty med to fine sand	to		###			
								SM			0		
										791			
	5						as above	SM			0		
										327			
											0		
							as above	SM		791			
											0		
	10									1642			
						drk br	silty med to fine sand	SM			0		
									saturated	512			
									screen set				
							as above	SM					
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMBER: NASP - 3241 - SB15
PROJECT NUMBER: N4176 DATE: 5/16/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt grey		SW	asphalt = 3"		0		
						to tan	silty med to fine sand	to		0			
								SM			0		
										0			
	5						as above	SM			0		
										0			
											0		
										0			
							as above	SM			0		
	10									0			
						drk b	silty med to fine sand	SM			0		
									saturated	0			
									screen set				
							as above	SM					
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMB NASP - 3241 - SB16
PROJECT NUMBER: N4176 DATE: 5/16/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt gre	silty med to fine sand	SW	asphalt = 3"		0		
						to brn		to		0			
								SM			0		
										0			
	5						as above	SM			0		
										0			
											0		
										0			
							as above	SM			0		
	10									0			
						drk b	silty med to fine sand	SM	saturated		0		
										0			
									set screen				
							as above	SM					
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks:

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NAS Pensacola - BLDG. 3241 BORING NUMB NASP - 3241 - 17
PROJECT NUMBER: N4176 DATE: 5/16/2002
DRILLING COMPANY: Kelly Drilling GEOLOGIST: Larry Smith
DRILLING RIG: Canterra 150 / DPT DRILLER: Bobby Kelly

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
						lt gre	silty	SW	asphalt = 3"		0		
						to tan	med to fine sand	to		78			
								SM			0		
										265			
	5						as above	SM			0		
										7.8			
											0		
										40			
							as above	SM			0		
	10									130			
						drk b	silty med to fine sand	SM	saturated		0		
										225			
									set screen				
	15						as above	SM					

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : NASP Site 19 UST BLDG 3241

INSTRUMENT NAME/MODEL: Horiba U-10

SITE NAME: Site 19 UST BLDG 3241

MANUFACTURER: Horiba

PROJECT No.: N4176

SERIAL NUMBER: 9016

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
06.18.02		M. Akers			3.87	4.08	N/A	pH
					4.38	4.48	N/A	S.C
					2.00	0.00	N/A	turbidity
					8.88	8.98	N/A	DO
					23.10	23.00	N/A	temperature
06.18.02		M. Akers			4.00	4.00	N/A	pH
					4.27	4.50	N/A	S.C
					0.00	0.00	N/A	turbidity
					9.00	8.95	N/A	DO
					23.10	23.10	N/A	temperature

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : NASP Site 19 UST BLDG 3241

INSTRUMENT NAME/MODEL: Horiba U-10

SITE NAME: Site 19 UST BLDG 3241

MANUFACTURER: Horiba

PROJECT No.: N4176

SERIAL NUMBER: 12001

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
06.18.02		H. Engle			3.98	3.94	N/A	pH
					4.50	4.48	N/A	S.C
					234.00	3.00	N/A	turbidity
					8.73	9.73	N/A	DO
					19.60	21.30	N/A	temperature
06.18.02		H. Engle			3.95	4.00	N/A	pH
					4.60	4.50	N/A	S.C
					2.00	0.00	N/A	turbidity
					8.80	9.00	N/A	DO
					20.10	20.20	N/A	temperature

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : NASP Site 19 UST BLDG 3241

INSTRUMENT NAME/MODEL: MicroFid

SITE NAME: NASP Site 19

MANUFACTURER:

PROJECT No.: N4176

SERIAL NUMBER:

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
5/13/2002		L. Smith			1.2	0/100		calibrated 0 and 100 ppm
						0/100		calibration verification
						0/100		calibration verification
5/14/2002					3.4	0/100		calibrated 0 and 100 ppm
						0/100		calibration verification
						0/100		calibration verification
5/15/2002					6.8	0/100		calibrated 0 and 100 ppm
						0/100		calibration verification
						0/100		calibration verification
5/16/2002					4.6	0/100		calibrated 0 and 100 ppm
						0/100		calibration verification
						0/100		calibration verification

SURVEYING DATA SHEET

Project Name: NAS Pensacola Building 3241 Site 19 SAR

Project No.: N4176 **Date:** 6/19/2002

Personnel: H. Engle/M. Akers

Station ID	Backsight (BS)	Height of Instrument (HI)	Foresight (FS)	Elevation	Comments
MW-1S	5.20	35.20		30.00	Arbitrary Datum
MW-2S		35.20	5.88	29.32	
MW-3S		35.20	4.30	30.90	
MW-4S		35.20	4.48	30.72	
MW-4D		35.20	4.40	30.80	
MW-5S		35.20	4.60	30.60	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NASP-3241-MW2S
Site: NASP Site 19 UST
Date Installed: 06/10/02
Date Developed: 06/12/02
Dev. Method: Pumping
Pump Type: Submersible

Depth to Bottom (ft.):17.94
Static Water Level Before (ft.): 10.65
Static Water Level After (ft.): 10.65
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 2

Responsible Personnel: Kelly Drilling Personnel
Drilling Co.: Kelly Drilling
Project Name: NASP Site 19 UST BLDG 3241
Project Number: N4176

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks
3 hours	0	110	Measurements were not collected during well development					Monitoring well was purged until water was visibly clear.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NASP-3241-MW3S
Site: NASP Site 19 UST
Date Installed: 06/11/02
Date Developed: 06/12/02
Dev. Method: Pumping
Pump Type: Submersible

Depth to Bottom (ft.):18.05
Static Water Level Before (ft.): 12.85
Static Water Level After (ft.): 12.85
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 2

Responsible Personnel: Kelly Drilling Personnel
Drilling Co.: Kelly Drilling
Project Name: NASP Site 19 UST BLDG 3241
Project Number: N4176

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks
1.5 hours	0	55	Measurements were not collected during well development					Monitoring well was purged until water was visibly clear.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NASP-3241-MW4S
Site: NASP Site 19 UST
Date Installed: 06/11/02
Date Developed: 06/12/02
Dev. Method: Pumping
Pump Type: Submersible

Depth to Bottom (ft.):18.15
Static Water Level Before (ft.): 12.40
Static Water Level After (ft.): 12.40
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 2

Responsible Personnel: Kelly Drilling Personnel
Drilling Co.: Kelly Drilling
Project Name: NASP Site 19 UST BLDG 3241
Project Number: N4176

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks
2 hours	0	80	Measurements were not collected during well development					Monitoring well was purged until water was visibly clear.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NASP-3241-MW4D
Site: NASP Site 19 UST
Date Installed: 06/11/02
Date Developed: 06/12/02
Dev. Method: Pumping
Pump Type: Submersible

Depth to Bottom (ft.):29.96
Static Water Level Before (ft.): 14.80
Static Water Level After (ft.): 14.80
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 2

Responsible Personnel: Kelly Drilling Personnel
Drilling Co.: Kelly Drilling
Project Name: NASP Site 19 UST BLDG 3241
Project Number: N4176

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks
3 hours	0	110	Measurements were not collected during well development					Monitoring well was purged until water was visibly clear.

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: NASP-3241-MW5S
Site: NASP Site 19 UST
Date Installed: 06/10/02
Date Developed: 06/12/02
Dev. Method: Pumping
Pump Type: Submersible

Depth to Bottom (ft.):17.95
Static Water Level Before (ft.): 12.43
Static Water Level After (ft.): 12.43
Screen Length (ft.): 10
Specific Capacity: _____
Casing ID (in.): 2

Responsible Personnel: Kelly Drilling Personnel
Drilling Co.: Kelly Drilling
Project Name: NASP Site 19 UST BLDG 3241
Project Number: N4176

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks
3 hours	0	110	Measurements were not collected during well development					Monitoring well was purged until water was visibly clear.

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASP Site 19 UST BLDG 3241
Project No.: N4176

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: NASP-3241-SB14-10
Sample Location NASP-3241-SB14-10
Sampled By: H. Engle
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	5.16.02			
Time:	1550	8 - 10'		Sand (Med. To fine)
Method:	5035			
Monitor Reading (ppm	1642			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	Other
VOC	8260	3 40 mL vials	yes	
PAH	8310	1 4 oz. Jar	yes	
TRPG	FL-PRO	1 8 oz. Jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASP Site 19 UST BLDG 3241
Project No.: N4176

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: NASP-3241-SB9-8
Sample Location: NASP-3241-SB9
Sampled By: H. Engle
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	5.16.02			
Time:	1600			
Method:	5035	6 - 8'		Sand (Med. To fine)
Monitor Reading (ppm	290			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	Other
VOC	8260	3 40 mL vials	yes	
PAH	8310	1 4 oz. Jar	yes	
TRPG	FL-PRO	1 8 oz. Jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: NASP Site 19 UST BLDG 3241
Project No.: N4176

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: NASP-3241-SB15-6
Sample Location: NASP-3241-SB15
Sampled By: H. Engle
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	5.16.02			
Time:	1615			
Method:	5035	4 - 6'		Sand (Med. To fine)
Monitor Reading (ppm	0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis		Container Requirements	Collected	Other
VOC	8260	3 40 mL vials	yes	
PAH	8310	1 4 oz. Jar	yes	
TRPG	FL-PRO	1 8 oz. Jar	yes	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Pensacola Site 19 UST BLDG 3241
Project No.: N4176

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: NASP-3241-MW1S
Sample Location: NASP-3241-MW1S
Sampled By: H. Engle
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

		Color	pH	S.C.	Temp.	Turbidity	DO		
Date:	06.18.02								
Time:	13:30	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method:	peristaltic (low flow)	clear	7.47	0.393	26	0	0.15		

PURGE DATA:

		Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Time	Flow Rate
Date:	06.18.02								
Method:	peristaltic (low flow)	700 mL						9:32	700 mL/min
Monitor Reading (ppm):		2.35 L						9:35	550 mL/min
Well Casing Diameter & Material		3.85 L						9:38	500 mL/min
Type: 2" PVC		4.35 L	7.47	0.399	26.1	0	0.55	9:39	500 mL/min
Total Well Depth (TD):	17.19	5.85 L	7.46	0.396	26	0	0.10	9:42	500 mL/min
Static Water Level (WL):	11.56	7.35 L	7.47	0.393	26	0	0.15	9:45	500 mL/min
One Casing Volume(gal/L):	0.90 gal								
Start Purge (hrs):	9:31								
End Purge (hrs):	9:45								
Total Purge Time (min):	14 min								
Total Vol. Purged (gal/L):	1.86 gal								

SAMPLE COLLECTION INFORMATION:

	Analysis	Preservative	Container Requirements	Collected
VOC	8260	HCL	three 40 mL Vials	yes
EDB	504.1	HCL	three 40 mL Vials	yes
PAH	8270	N/A	two 1L ambers	yes
TRPH	FL-PRO	HCL	two 1L ambers	yes
total lead	6010	HNO3	1 500mL plastic	yes

OBSERVATIONS / NOTES:

See Field Analytical Log Sheets for Geochemical Parameters (i.e. natural attenuation).

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

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Pensacola Site 19 UST BLDG 3241
Project No.: N4176

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: NASP-3241-MW2S
Sample Location: NASP-3241-MW2S
Sampled By: H. Engle
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

		Color	pH	S.C.	Temp.	Turbidity	DO		
Date:	06.18.02								
Time:	12:35	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method:	peristaltic (low flow)	clear	6.06	0.114	27.1	0	2.92		

PURGE DATA:

		Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Time	Flow Rate
Date:	06.18.02								
Method:	peristaltic (low flow)	1.25 gal	6.06	0.114	27.1	0	2.92	9:23	500 mL/min
Monitor Reading (ppm):		1.5 gal	6.06	0.114	27.1	0	2.94	9:26	500 mL/min
Well Casing Diameter & Material		1.75 gal	6.05	0.115	27	0	2.92	9:29	500 mL/min
Type: 2" PVC		2.0 gal	6.06	0.114	27.1	0	2.92	9:32	500 mL/min
Total Well Depth (TD):	17.84								
Static Water Level (WL):	10.65								
One Casing Volume(gal/L):	1.15 gal								
Start Purge (hrs):	9:10								
End Purge (hrs):	9:35								
Total Purge Time (min):	25 min								
Total Vol. Purged (gal/L):	2.25 gal								

SAMPLE COLLECTION INFORMATION:

	Analysis	Preservative	Container Requirements	Collected
VOC	8260	HCL	three 40 mL Vials	yes
EDB	504.1	HCL	three 40 mL Vials	yes
PAH	8270	N/A	two 1L ambers	yes
TRPH	FL-PRO	HCL	two 1L ambers	yes
total lead	6010	HNO3	1 500mL plastic	yes

OBSERVATIONS / NOTES:

See Field Analytical Log Sheets for Geochemical Parameters (i.e. natural attenuation).

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

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Pensacola Site 19 UST BLDG 3241
Project No.: N4176

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: NASP-3241-MW3S
Sample Location: NASP-3241-MW3S
Sampled By: M. Akers
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

		Color	pH	S.C.	Temp.	Turbidity	DO		
Date:	06.18.02								
Time:	12:15	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method:	peristaltic (low flow)	clear	6.2	0.199	25.4	0	0.58		

PURGE DATA:

		Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Time	Flow Rate
Date:	06.18.02								
Method:	peristaltic (low flow)	1 gal	6.24	0.199	25.3	0	0.19	7:35	600 mL/min
Monitor Reading (ppm):		1.3 gal	6.22	0.199	25.4	0	0.56	7:38	600 mL/min
Well Casing Diameter & Material		1.6 gal	6.22	0.199	25.4	0	0.57	7:41	600 mL/min
Type: 2" PVC		1.9 gal	6.21	0.200	25.4	0	0.57	7:44	600 mL/min
Total Well Depth (TD):	18.05	2.2 gal	6.20	0.199	25.4	0	0.58	7:47	600 mL/min
Static Water Level (WL):	12.86								
One Casing Volume(gal/L):	0.83 gal								
Start Purge (hrs):	7:20								
End Purge (hrs):	7:50								
Total Purge Time (min):	30min.								
Total Vol. Purged (gal/L):	2.5 gal								

SAMPLE COLLECTION INFORMATION:

	Analysis	Preservative	Container Requirements	Collected
VOC	8260	HCL	three 40 mL Vials	yes
EDB	504.1	HCL	three 40 mL Vials	yes
PAH	8270	N/A	two 1L ambers	yes
TRPH	FL-PRO	HCL	two 1L ambers	yes
total lead	6010	HNO3	1 500mL plastic	yes

OBSERVATIONS / NOTES:

See Field Analytical Log Sheets for Geochemical Parameters (i.e. natural attenuation).

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

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Pensacola Site 19 UST BLDG 3241
Project No.: N4176

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: NASP-3241-MW4S
Sample Location: NASP-3241-MW4S
Sampled By: M. Akers
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

		Color	pH	S.C.	Temp.	Turbidity	DO		
Date:	06.18.02								
Time:	12:30	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method:	peristaltic (low flow)	clear	6.69	0.282	27.1	0	0		

PURGE DATA:

		Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Time	Flow Rate
Date:	06.18.02								
Method:	peristaltic (low flow)	1.25 gal	6.68	0.284	27.1	0	0	10:15	500 mL/min
Monitor Reading (ppm):		1.5 gal	6.69	0.282	27.1	0	0	10:18	500 mL/min
Well Casing Diameter & Material		1.75 gal	6.69	0.282	27.1	0	0	10:21	500 mL/min
Type: 2" PVC		2.0 gal	6.69	0.282	27.1	0	0	10:24	500 mL/min
Total Well Depth (TD):	18.16								
Static Water Level (WL):	12.39								
One Casing Volume(gal/L):	0.92								
Start Purge (hrs):	10:00								
End Purge (hrs):	10:30								
Total Purge Time (min):	30 min								
Total Vol. Purged (gal/L):	2.5 gal								

SAMPLE COLLECTION INFORMATION:

	Analysis	Preservative	Container Requirements	Collected
VOC	8260	HCL	three 40 mL Vials	yes
EDB	504.1	HCL	three 40 mL Vials	yes
PAH	8270	N/A	two 1L ambers	yes
TRPH	FL-PRO	HCL	two 1L ambers	yes
total lead	6010	HNO3	1 500mL plastic	yes

OBSERVATIONS / NOTES:

See Field Analytical Log Sheets for Geochemical Parameters (i.e. natural attenuation).

Circle if Applicable:

MS/MSD	Duplicate ID No.:
NASP-3241-MW4SMS/MSD	

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Pensacola Site 19 UST BLDG 3241
Project No.: N4176

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: NASP-3241-MW4D
Sample Location: NASP-3241-MW4D
Sampled By: M. Akers
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

		Color	pH	S.C.	Temp.	Turbidity	DO		
Date:	06.18.02								
Time:	11:53	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method:	peristaltic (low flow)	clear	9.43	0.223	25.3	0	0		

PURGE DATA:

		Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Time	Flow Rate
Date:	06.18.02								
Method:	peristaltic (low flow)	4 gal	10.2	0.403	25.5	5	0	10:28	200 mL/min
Monitor Reading (ppm):		4.2 gal	10.09	0.367	25.5	0	0	10:31	200 mL/min
Well Casing Diameter & Material		4.3 gal	9.97	0.348	25.5	0	0	10:33	200 mL/min
Type: 2" PVC		5.4 gal	9.44	0.223	25.3	0	0	10:46	200 mL/min
Total Well Depth (TD):	29.95	5.5 gal	9.43	0.223	25.3	0	0	10:49	200 mL/min
Static Water Level (WL):	14.82	5.6 gal	9.43	0.223	25.3	0	0	10:51	200 mL/min
One Casing Volume(gal/L):	2.42 gal								
Start Purge (hrs):	10:00								
End Purge (hrs):	10:58								
Total Purge Time (min):	58 min								
Total Vol. Purged (gal/L):	6.5 gal								

SAMPLE COLLECTION INFORMATION:

	Analysis	Preservative	Container Requirements	Collected
VOC	8260	HCL	three 40 mL Vials	yes
EDB	504.1	HCL	three 40 mL Vials	yes
PAH	8270	N/A	two 1L ambers	yes
TRPH	FL-PRO	HCL	two 1L ambers	yes
total lead	6010	HNO3	1 500mL plastic	yes

OBSERVATIONS / NOTES:

See Field Analytical Log Sheets for Geochemical Parameters (i.e. natural attenuation).

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NAS Pensacola Site 19 UST BLDG 3241
Project No.: N4176

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: NASP-3241-MW5S
Sample Location: NASP-3241-MW5S
Sampled By: H. Engle
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

		Color	pH	S.C.	Temp.	Turbidity	DO		
Date:	06.18.02								
Time:	13:15	Visual	Standard	mS/cm	°C	NTU	mg/l		
Method:	peristaltic (low flow)	clear	6.48	0.148	23.2	0	0.66		

PURGE DATA:

		Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Time	Flow Rate
Date:	06.18.02								
Method:	peristaltic (low flow)	550 mL						8:04	550 mL/min
Monitor Reading (ppm):		2.95 L						8:10	400 mL/min
Well Casing Diameter & Material		4.15 L	6.39	0.143	23.2	0	1.07	8:13	400 mL/min
Type: 2" PVC		5.35 L	6.44	0.146	23.2	0	0.88	8:16	400 mL/min
Total Well Depth (TD):	17.94	6.55 L	6.48	0.148	23.2	0	0.66	8:19	400 mL/min
Static Water Level (WL):	12.45								
One Casing Volume(gal/L):	0.88 gal								
Start Purge (hrs):	8:03								
End Purge (hrs):	8:19								
Total Purge Time (min):	16 min								
Total Vol. Purged (gal/L):	1.63 gal								

SAMPLE COLLECTION INFORMATION:

Analysis		Preservative	Container Requirements	Collected
VOC	8260	HCL	three 40 mL Vials	yes
EDB	504.1	HCL	three 40 mL Vials	yes
PAH	8270	N/A	two 1L ambers	yes
TRPH	FL-PRO	HCL	two 1L ambers	yes
total lead	6010	HNO3	1 500mL plastic	yes

OBSERVATIONS / NOTES:

See Field Analytical Log Sheets for Geochemical Parameters (i.e. natural attenuation).

Circle if Applicable:

MS/MSD	Duplicate ID No.: NASP-3241-DUP

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NASP Site 19 UST Building 3241
Project No.: N4176
Location: NASP Site 19 UST Building 3241
Personnel: H. Engle and M. Akers
Weather Conditions: Clear
Measuring Device: Keck Water Level Indicator
Tidally Influenced: Yes ____ No _x_
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
NASP-3241-MW1S	06.18.02	11:00	30.00	17.19	11.56	0	18.44	
NASP-3241-MW2S	06.18.02	11:05	29.32	17.94	10.65	0	18.67	
NASP-3241-MW3S	06.18.02	11:10	30.90	18.05	12.86	0	18.04	
NASP-3241-MW4S	06.18.02	11:15	30.72	18.16	12.39	0	18.33	
NASP-3241-MW4D	06.18.02	11:20	30.80	29.95	14.82	0	15.98	
NASP-3241-MW5S	06.18.02	11:25	30.60	17.94	12.45	0	18.15	
MW-1S TOC= Arbitrary 30 ft. elevation datum								

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

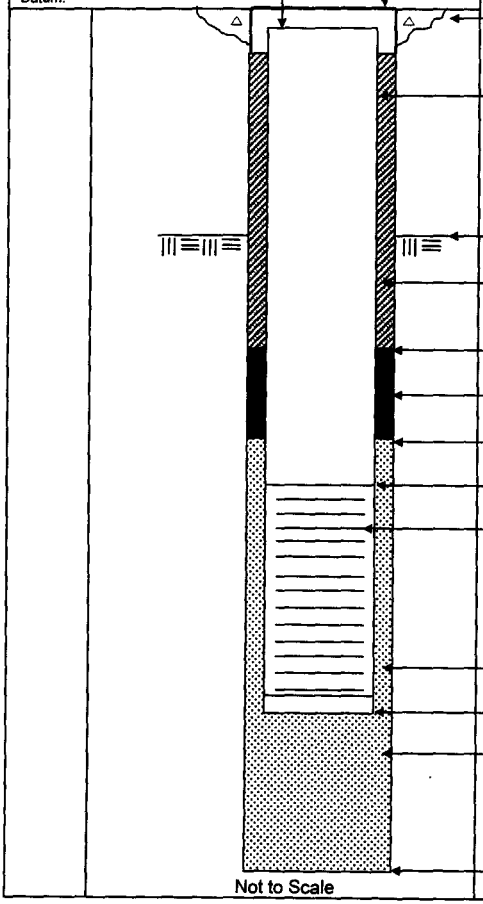
WELL No.: NASP-3241-MW2S

MONITORING WELL SHEET

PROJECT:	NASP Site 19 UST BLDG 3241	DRILLING Co.:	Kelly Drilling	BORING No.:	NASP-3241-SB18
PROJECT No.:	N4176	DRILLER:	Bobby Kelly	DATE COMPLETED:	06.10.02
SITE:	NASP Site 19	DRILLING METHOD:	Hollow-Stem Auger	NORTHING:	
GEOLOGIST:	Larry Smith	DEV. METHOD:	Pumping	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:		/
Elevation / Height of Top of Surface Casing:		/
I.D. of Surface Casing:	8 in.	
Type of Surface Casing:		
Type of Surface Seal:	2 ft. flush-mounted concrete pad	
I.D. of Riser:	2 in.	
Type of Riser:	PVC	
Borehole Diameter:	8 in.	
Elevation / Depth Top of Rock:		/ NA
Type of Backfill:	concrete	
Elevation / Depth of Seal:		/ 4 ft.
Type of Seal:	Bentonite	
Elevation / Depth of Top of Filter Pack:		/ 6 ft.
Elevation / Depth of Top of Screen:		/ 8 ft.
Type of Screen:	PVC	
Slot Size x Length:	0.01	
I.D. of Screen:	2 in.	
Type of Filter Pack:	20/40 filter sand	
Elevation / Depth of Bottom of Screen:		/ 18 ft.
Elevation / Depth of Bottom of Filter Pack:		/ 18 ft.
Type of Backfill Below Well:	N/A	
Elevation / Total Depth of Borehole:		/ 18 ft.

Tetra Tech NUS, Inc.

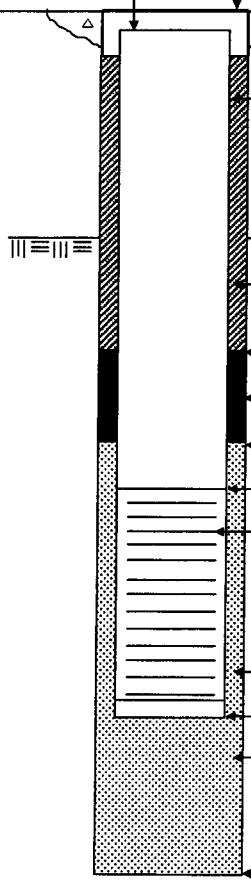
WELL No.: NASP-3241-MW3S

MONITORING WELL SHEET

PROJECT:	NASP Site 19 UST BLDG 3241	DRILLING Co.:	Kelly Drilling	BORING No.:	NASP-3241-SB20
PROJECT No.:	N4176	DRILLER:	Bobby Kelly	DATE COMPLETED:	06.11.02
SITE:	NASP Site 19	DRILLING METHOD:	Hollow-Stem Auger	NORTHING:	
GEOLOGIST:	Larry Smith	DEV. METHOD:	Pumping	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:		/
Elevation / Height of Top of Surface Casing:		/
I.D. of Surface Casing:	8 in.	
Type of Surface Casing:		
Type of Surface Seal:	2 ft. flush-mounted concrete pad	
I.D. of Riser:	2 in.	
Type of Riser:	PVC	
Borehole Diameter:	8 in.	
Elevation / Depth Top of Rock:		/ NA
Type of Backfill:	concrete	
Elevation / Depth of Seal:		/ 4 ft.
Type of Seal:	Bentonite	
Elevation / Depth of Top of Filter Pack:		/ 6 ft.
Elevation / Depth of Top of Screen:		/ 8 ft.
Type of Screen:	PVC	
Slot Size x Length:	0.01	
I.D. of Screen:	2 in.	
Type of Filter Pack:	20/40 filter sand	
Elevation / Depth of Bottom of Screen:		/ 18 ft.
Elevation / Depth of Bottom of Filter Pack:		/ 18 ft.
Type of Backfill Below Well:	N/A	
Elevation / Total Depth of Borehole:		/ 18 ft.

Tetra Tech NUS, Inc.

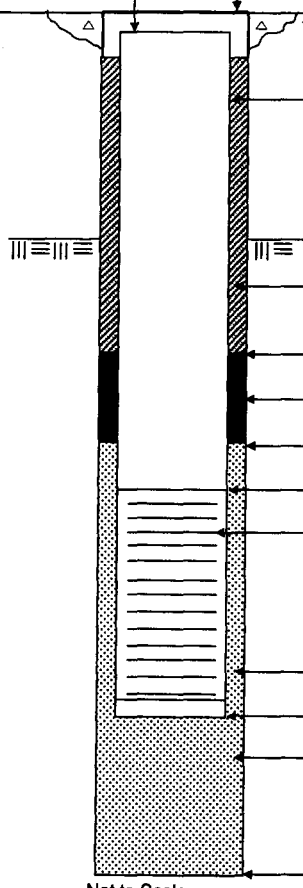
WELL No.: NASP-3241-MW4S

MONITORING WELL SHEET

PROJECT:	NASP Site 19 UST BLDG 3241	DRILLING Co.:	Kelly Drilling	BORING No.:	NASP-3241-SB21
PROJECT No.:	N4176	DRILLER:	Bobby Kelly	DATE COMPLETED:	06.11.02
SITE:	NASP Site 19	DRILLING METHOD:	Hollow-Stem Auger	NORTHING:	
GEOLOGIST:	Larry Smith	DEV. METHOD:	Pumping	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:		/
Elevation / Height of Top of Surface Casing:		/
I.D. of Surface Casing:	8 in.	
Type of Surface Casing:		
Type of Surface Seal:	2 ft. flush-mounted concrete pad	
I.D. of Riser:	2 in.	
Type of Riser:	PVC	
Borehole Diameter:	8 in.	
Elevation / Depth Top of Rock:		/ NA
Type of Backfill:	concrete	
Elevation / Depth of Seal:		/ 4 ft.
Type of Seal:	Bentonite	
Elevation / Depth of Top of Filter Pack:		/ 6 ft.
Elevation / Depth of Top of Screen:		/ 8 ft.
Type of Screen:	PVC	
Slot Size x Length:	0.01	
I.D. of Screen:	2 in.	
Type of Filter Pack:	20/40 filter sand	
Elevation / Depth of Bottom of Screen:		/ 18 ft.
Elevation / Depth of Bottom of Filter Pack:		/ 18 ft.
Type of Backfill Below Well:	N/A	
Elevation / Total Depth of Borehole:		/ 18 ft.

Tetra Tech NUS, Inc.

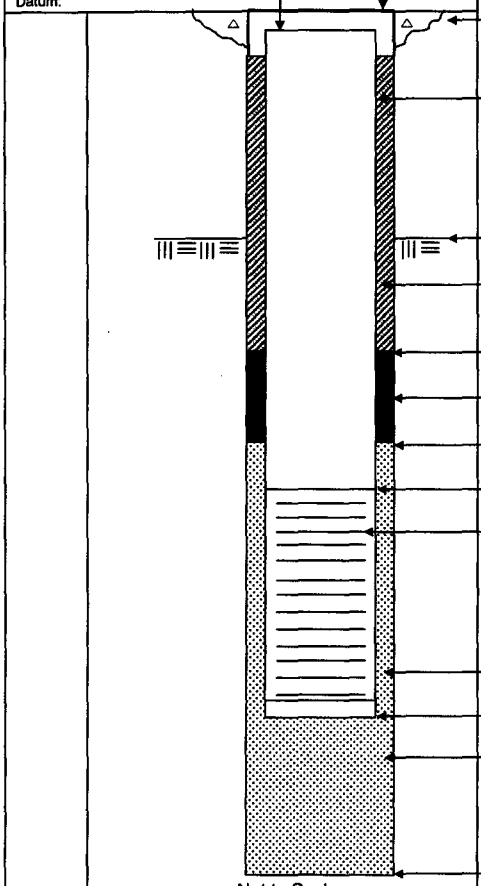
WELL No.: NASP-3241-MW4D

MONITORING WELL SHEET

PROJECT: NASP Site 19 UST BLDG 3241	DRILLING Co.: Kelly Drilling	BORING No.: NASP-3241-SB22
PROJECT No.: N4176	DRILLER: Bobby Kelly	DATE COMPLETED: 06.11.02
SITE: NASP Site 19	DRILLING METHOD: Hollow-Stem Auger	NORTHING:
GEOLOGIST: Larry Smith	DEV. METHOD: Pumping	EASTING:

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:		/
Elevation / Height of Top of Surface Casing:		/
I.D. of Surface Casing:	8 in.	
Type of Surface Casing:		
Type of Surface Seal:	2 ft. flush-mounted concrete pad	
I.D. of Riser:	2 in.	
Type of Riser:	PVC	
Borehole Diameter:	8 in.	
Elevation / Depth Top of Rock:		/ NA
Type of Backfill:	concrete	
Elevation / Depth of Seal:		/ 16 ft.
Type of Seal:	Bentonite	
Elevation / Depth of Top of Filter Pack:		/ 18 ft.
Elevation / Depth of Top of Screen:		/ 20 ft.
Type of Screen:	PVC	
Slot Size x Length:	0.01	
I.D. of Screen:	2 in.	
Type of Filter Pack:	20/40 filter sand	
Elevation / Depth of Bottom of Screen:		/ 30 ft.
Elevation / Depth of Bottom of Filter Pack:		/ 30ft.
Type of Backfill Below Well:	N/A	
Elevation / Total Depth of Borehole:		/ 30 ft.

Tetra Tech NUS, Inc.

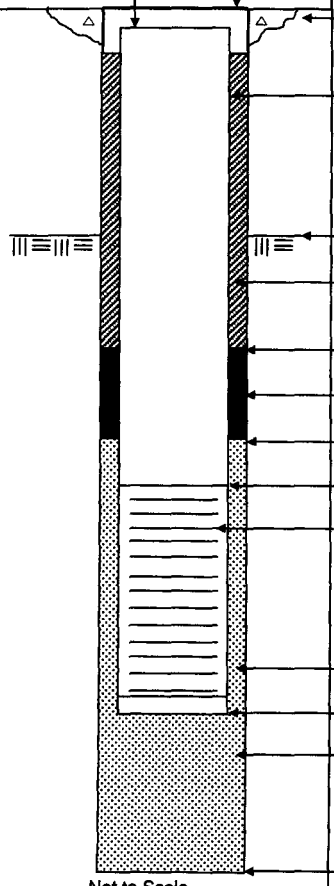
WELL No.: NASP-3241-MW5S

MONITORING WELL SHEET

PROJECT: NASP Site 19 UST BLDG 3241	DRILLING Co.: Kelly Drilling	BORING No.: NASP-3241-SB19
PROJECT No.: N4176	DRILLER: Bobby Kelly	DATE COMPLETED: 06.10.02
SITE: NASP Site 19	DRILLING METHOD: Hollow-Stem Auger	NORTHING:
GEOLOGIST: Larry Smith	DEV. METHOD: Pumping	EASTING:

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:		/
Elevation / Height of Top of Surface Casing:		/
I.D. of Surface Casing:	8 in.	
Type of Surface Casing:		
Type of Surface Seal:	2 ft. flush-mounted concrete pad	
I.D. of Riser:	2 in.	
Type of Riser:	PVC	
Borehole Diameter:	8 in.	
Elevation / Depth Top of Rock:		/ NA
Type of Backfill:	concrete	
Elevation / Depth of Seal:		/ 4 ft.
Type of Seal:	Bentonite	
Elevation / Depth of Top of Filter Pack:		/ 6 ft.
Elevation / Depth of Top of Screen:		/ 8 ft.
Type of Screen:	PVC	
Slot Size x Length:	0.01	
I.D. of Screen:	2 in.	
Type of Filter Pack:	20/40 filter sand	
Elevation / Depth of Bottom of Screen:		/ 18 ft.
Elevation / Depth of Bottom of Filter Pack:		/ 18 ft.
Type of Backfill Below Well:	N/A	
Elevation / Total Depth of Borehole:		/ 18 ft.

APPENDIX D

MOBILE LABORATORY ANALYTICAL REPORT

KB LABS, INC.

PROJECT NARRATIVE

Client:	TtNUS	**Driller/Sampler:**	TtNUS	**Analyst:**	Chris Horrell
Site:	NAS Pensacola Bldg 3241	**KB Labs Project Manager:**	Kelly Bergdoll	**KB Labs Project #:**	02-032-2
Onsite Dates:	5/13/02-5/16/02	**Client Project Manager:**	Howard Engle	**Matrix:**	Water/Soil

Project Scope

From May 13 through 16, 2002, a total of 22 ground water and 7 soil samples were collected at NAS Pensacola (Building 3241 UST), Pensacola, Florida. All samples were analyzed for the following compounds:

Chloromethane, Vinyl Chloride, Bromomethane, Chloroethane, 1,1-Dichloroethene, Methylene Chloride, MtBE, trans-1,2-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Chloroform, 1,1,1-Trichloroethane, Carbon Tetrachloride, Benzene, 1,2-Dichloroethane, Trichloroethene, 1,2-Dichloropropane, Bromodichloromethane, 2-Chloroethylvinyl Ether, cis-1,3-Dichloropropene, Toluene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane, Tetrachloroethene, Dibromochloromethane, Chlorobenzene, Ethylbenzene, m&p-Xylene, o-Xylene, Bromoform, 1,1,2,2-Tetrachloroethane, and Naphthalene.

Analytical Procedure

All water samples were analyzed using SW846 Method 5030/8260 for waters. Ten (10) milliliters (mL) of water were purged with helium and the volatile organic compounds (VOCs) were collected on a solid-phase adsorption trap. The adsorption trap was heated and back-purged with helium and the components were separated by capillary column gas chromatography and measured with a mass spectrometer (GC/MS) operated in the electron impact full-scan mode. The individual VOCs in the samples were measured against corresponding VOC standards.

All soil samples were analyzed using SW846 Method 5030/8260. One (1) gram (gm) of soil sample was added to 10 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 surrogate compounds, which were added to all analyses. Four (4) surrogate compounds were 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. 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: _____

KB LABS, INC.

DATA REPORT NARRATIVE

Client:	TtNUS	**Driller/Sampler:**	TtNUS	**Analyst:**	Chris Horrell
Site:	NAS Pensacola Bldg 3241	**KB Labs Project Manager:**	Kelly Bergdoll	**KB Labs Project #:**	02-032-2
Onsite Dates:	5/13/02-5/16/02	**Client Project Manager:**	Howard Engle	**Matrix:**	Water/Soil

1. 1,1,2,2-Tetrachloroethane results for samples **Existing Well**, **G7**, and **G15** were reported between the Method Detection Limit and Reporting Limit to meet the Action Levels for groundwater samples (Table 1 of SOW). These results were flagged with FDEP Data Qualifier "I" in the Final Data.

2. 1,1-Dichloroethene recoveries for Sample Matrix Spikes and Laboratory Control Spikes (See Table 1) are erratic because of possible active sites in the GC/MS system. Since there were no hits for 11DCE, data was not affected.

Signature: _____

Title: Director of Operations

Date: _____

KB LABS, INC.

Table 1: Analytical Run Sequence/Surrogate Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager**: Howard Engle	**Matrix:** Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery				Surrogate Control Limits: 80%(LCL) to 120%(UCL)			
		S1*	S2*	S3*	S4*	S1*	S2*	S3*	S4*
BLANK	05/13/02	85	100	110	103	Pass	Pass	Pass	Pass
VSTD 01	05/13/02	84	92	105	102	Pass	Pass	Pass	Pass
VSTD 05	05/13/02	91	94	105	103	Pass	Pass	Pass	Pass
VSTD 10	05/13/02	96	98	104	104	Pass	Pass	Pass	Pass
VSTD 20	05/13/02	97	101	103	111	Pass	Pass	Pass	Pass
VSTD 100	05/13/02	97	102	103	105	Pass	Pass	Pass	Pass
LCS	05/13/02	104	99	98	102	Pass	Pass	Pass	Pass
CCS	05/13/02	100	101	102	106	Pass	Pass	Pass	Pass
CCS-MtBE	05/13/02	97	101	95	102	Pass	Pass	Pass	Pass
BLANK	05/13/02	102	103	99	105	Pass	Pass	Pass	Pass
CCS	05/14/02	71	93	103	105	< LCL	Pass	Pass	Pass
CCS-MtBE	05/14/02	78	97	105	103	< LCL	Pass	Pass	Pass
BLANK	05/14/02	86	96	104	103	Pass	Pass	Pass	Pass
LCS	05/14/02	83	94	103	105	Pass	Pass	Pass	Pass
EXISTING WELL	05/14/02	58	76	96	100	< LCL	< LCL	Pass	Pass
SB1-9.5	05/14/02	79	89	102	103	< LCL	Pass	Pass	Pass
G1	05/14/02	75	84	97	101	< LCL	Pass	Pass	Pass
G2	05/14/02	105	98	102	106	Pass	Pass	Pass	Pass
G1 MS	05/14/02	87	95	105	105	Pass	Pass	Pass	Pass
G1 MSD	05/14/02	93	102	103	105	Pass	Pass	Pass	Pass
G3	05/14/02	92	100	102	104	Pass	Pass	Pass	Pass
G3-12	05/14/02	90	98	102	105	Pass	Pass	Pass	Pass
GW4	05/14/02	87	93	99	103	Pass	Pass	Pass	Pass
G3-16	05/14/02	85	86	103	112	Pass	Pass	Pass	Pass
BLANK	05/14/02	93	91	100	105	Pass	Pass	Pass	Pass
DNR-1.0	05/14/02	91	102	104	106	Pass	Pass	Pass	Pass
DNR 5.0	05/14/02	94	101	103	104	Pass	Pass	Pass	Pass
DNR 10.0	05/14/02	94	102	101	106	Pass	Pass	Pass	Pass
DNR 20.0	05/14/02	94	103	101	105	Pass	Pass	Pass	Pass
DNR 10.0	05/14/02	95	103	101	105	Pass	Pass	Pass	Pass
LCS	05/14/02	99	103	102	106	Pass	Pass	Pass	Pass
CCS	05/14/02	97	99	104	107	Pass	Pass	Pass	Pass
CCS-MtBE	05/14/02	95	103	102	105	Pass	Pass	Pass	Pass
BLANK	05/14/02	95	103	104	105	Pass	Pass	Pass	Pass

***Surrogate Compounds:**
S1 = 1,2- Dichloroethane-D4
S2 = 1,2-Difluorobenzene
S3 = Toluene-D8
S4 = 4-Bromofluorobenzene

KB LABS, INC.

Table 1: Analytical Run Sequence/Surrogate Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager**: Howard Engle	**Matrix:** Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery				Surrogate Control Limits: 80%(LCL) to 120%(UCL)			
		S1*	S2*	S3*	S4*	S1*	S2*	S3*	S4*
CCS	05/15/02	80	88	101	105	Pass	Pass	Pass	Pass
CCS-MtBE	05/15/02	83	99	105	105	Pass	Pass	Pass	Pass
BLANK	05/15/02	94	101	103	106	Pass	Pass	Pass	Pass
LCS	05/15/02	81	91	101	105	Pass	Pass	Pass	Pass
G5	05/15/02	86	98	101	104	Pass	Pass	Pass	Pass
G6	05/15/02	81	86	98	105	Pass	Pass	Pass	Pass
G5 MS	05/15/02	86	89	98	108	Pass	Pass	Pass	Pass
G5 MSD	05/15/02	95	98	101	111	Pass	Pass	Pass	Pass
G7	05/15/02	93	98	100	104	Pass	Pass	Pass	Pass
G8	05/15/02	93	95	96	103	Pass	Pass	Pass	Pass
SB9-2	05/15/02	87	90	99	103	Pass	Pass	Pass	Pass
SB9-8	05/15/02	63	74	92	101	< LCL	< LCL	Pass	Pass
G9	05/15/02	84	91	97	105	Pass	Pass	Pass	Pass
G10	05/15/02	82	90	98	102	Pass	Pass	Pass	Pass
G9-17/19	05/15/02	100	88	119	157	Pass	Pass	Pass	> UCL
G11	05/15/02	84	91	98	104	Pass	Pass	Pass	Pass
CCS	05/15/02	94	102	103	108	Pass	Pass	Pass	Pass
CCS-MtBE	05/15/02	88	100	103	103	Pass	Pass	Pass	Pass
BLANK	05/15/02	96	102	104	104	Pass	Pass	Pass	Pass
CCS	05/16/02	90	100	100	103	Pass	Pass	Pass	Pass
CCS-MtBE	05/16/02	88	100	94	100	Pass	Pass	Pass	Pass
BLANK	05/16/02	95	97	96	99	Pass	Pass	Pass	Pass
LCS	05/16/02	96	98	97	102	Pass	Pass	Pass	Pass
GW12	05/16/02	93	94	96	102	Pass	Pass	Pass	Pass
GW13	05/16/02	94	98	95	101	Pass	Pass	Pass	Pass
G14	05/16/02	96	94	96	102	Pass	Pass	Pass	Pass
GW12MS	05/16/02	106	99	97	103	Pass	Pass	Pass	Pass
GW12MSD	05/16/02	104	102	95	107	Pass	Pass	Pass	Pass
G15	05/16/02	96	97	96	100	Pass	Pass	Pass	Pass
SB14/10	05/16/02	98	96	94	99	Pass	Pass	Pass	Pass
G16	05/16/02	96	90	94	104	Pass	Pass	Pass	Pass
SB12-10	05/16/02	100	102	97	103	Pass	Pass	Pass	Pass
G17	05/16/02	86	95	96	100	Pass	Pass	Pass	Pass
SB17/4	05/16/02	94	95	95	99	Pass	Pass	Pass	Pass

***Surrogate Compounds:**
S1 = 1,2- Dichloroethane-D4
S2 = 1,2-Difluorobenzene
S3 = Toluene-D8
S4 = 4-Bromofluorobenzene

KB LABS, INC.

Table 1: Analytical Run Sequence/Surrogate Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager**: Howard Engle	**Matrix:** Water/Soil

Sample ID	Date of Analysis	Surrogate % Recovery				Surrogate Control Limits: 80%(LCL) to 120%(UCL)			
		S1*	S2*	S3*	S4*	S1*	S2*	S3*	S4*
G18	05/16/02	90	92	93	99	Pass	Pass	Pass	Pass
G19	05/16/02	92	93	96	101	Pass	Pass	Pass	Pass
CCS	05/16/02	81	92	96	99	Pass	Pass	Pass	Pass
CCS-MtBE	05/16/02	94	97	96	103	Pass	Pass	Pass	Pass
BLANK	05/16/02	107	101	96	105	Pass	Pass	Pass	Pass
Comments:	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: _____

***Surrogate Compounds:**
S1 = 1,2- Dichloroethane-D4
S2 = 1,2-Difluorobenzene
S3 = Toluene-D8
S4 = 4-Bromofluorobenzene

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager:** Howard Engle	**Matrix:** Water/Soil

Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Samples: G1 MS, G1 MSD **Date of Analysis:** 5/14/2002

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Chloromethane	74	111	20	94	102	8	Pass	Pass	Pass
Vinyl Chloride	85	108	20	105	109	4	Pass	> UCL	Pass
Bromomethane	61	201	20	48	87	57	< LCL	Pass	> RPDL
Chloroethane	74	119	20	45	51	12	< LCL	< LCL	Pass
1,1-Dichloroethene	63	157	20	76	175	79	Pass	> UCL	> RPDL
Methylene Chloride	101	148	20	95	106	11	< LCL	Pass	Pass
t-1,2-Dichloroethene	66	147	20	91	109	18	Pass	Pass	Pass
1,1-Dichloroethane	82	134	20	100	112	11	Pass	Pass	Pass
c-1,2-Dichloroethene	86	128	20	93	106	13	Pass	Pass	Pass
Chloroform	127	145	20	92	102	11	< LCL	< LCL	Pass
1,1,1-Trichloroethane	86	108	20	98	105	8	Pass	Pass	Pass
Carbon Tetrachloride	103	141	20	94	102	9	< LCL	< LCL	Pass
Benzene	98	119	20	96	107	11	< LCL	Pass	Pass
1,2-Dichloroethane	86	130	20	90	102	12	Pass	Pass	Pass
Trichloroethene	84	121	20	95	111	16	Pass	Pass	Pass
1,2-Dichloropropane	95	121	20	94	106	11	< LCL	Pass	Pass
Bromodichloromethane	102	141	20	91	101	11	< LCL	< LCL	Pass
c-1,3-Dichloropropene	84	119	20	92	96	4	Pass	Pass	Pass
Toluene	103	121	20	96	101	5	< LCL	< LCL	Pass
t-1,3-Dichloropropene	73	132	20	95	98	4	Pass	Pass	Pass
1,1,2-Trichloroethane	91	131	20	92	99	8	Pass	Pass	Pass
Tetrachloroethene	108	150	20	99	105	6	< LCL	< LCL	Pass
Dibromochloromethane	103	117	20	88	97	10	< LCL	< LCL	Pass
Chlorobenzene	90	118	20	98	106	7	Pass	Pass	Pass
Ethylbenezene	102	122	20	98	104	6	< LCL	Pass	Pass
m,p-Xylene	78	154	20	104	108	4	Pass	Pass	Pass
o-Xylene	102	133	20	99	105	6	< LCL	Pass	Pass
Bromoform	78	126	20	89	103	15	Pass	Pass	Pass
1,1,2,2-Tetrachloroethane	66	150	20	91	71	24	Pass	Pass	> RPDL
Naphthalene	70	130	20	99	119	18	Pass	Pass	Pass

Note: Control Limits are based on method detection limit (mdl) studies for 2001.

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager:** Howard Engle	**Matrix:** Water/Soil

Samples: G5 MS, G5 MSD **Date of Analysis:** 5/15/2002

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Chloromethane	74	111	20	112	98	14	> UCL	Pass	Pass
Vinyl Chloride	85	108	20	108	111	3	> UCL	> UCL	Pass
Bromomethane	61	201	20	83	88	6	Pass	Pass	Pass
Chloroethane	74	119	20	65	68	5	< LCL	< LCL	Pass
1,1-Dichloroethene	63	157	20	68	183	92	Pass	> UCL	> RPDL
Methylene Chloride	101	148	20	98	106	8	< LCL	Pass	Pass
t-1,2-Dichloroethene	66	147	20	96	110	13	Pass	Pass	Pass
1,1-Dichloroethane	82	134	20	99	111	11	Pass	Pass	Pass
c-1,2-Dichloroethene	86	128	20	91	109	18	Pass	Pass	Pass
Chloroform	127	145	20	91	103	13	< LCL	< LCL	Pass
1,1,1-Trichloroethane	86	108	20	101	107	5	Pass	Pass	Pass
Carbon Tetrachloride	103	141	20	94	102	8	< LCL	< LCL	Pass
Benzene	98	119	20	91	101	10	< LCL	Pass	Pass
1,2-Dichloroethane	86	130	20	92	102	10	Pass	Pass	Pass
Trichloroethene	84	121	20	87	98	12	Pass	Pass	Pass
1,2-Dichloropropane	95	121	20	88	100	12	< LCL	Pass	Pass
Bromodichloromethane	102	141	20	93	103	11	< LCL	Pass	Pass
c-1,3-Dichloropropene	84	119	20	80	104	25	< LCL	Pass	> RPDL
Toluene	103	121	20	96	100	4	< LCL	< LCL	Pass
t-1,3-Dichloropropene	73	132	20	79	101	25	Pass	Pass	> RPDL
1,1,2-Trichloroethane	91	131	20	74	94	23	< LCL	Pass	> RPDL
Tetrachloroethene	108	150	20	92	101	9	< LCL	< LCL	Pass
Dibromochloromethane	103	117	20	73	93	25	< LCL	< LCL	> RPDL
Chlorobenzene	90	118	20	105	106	1	Pass	Pass	Pass
Ethylbenezene	102	122	20	107	105	2	Pass	Pass	Pass
m,p-Xylene	78	154	20	110	115	5	Pass	Pass	Pass
o-Xylene	102	133	20	105	110	4	Pass	Pass	Pass
Bromoform	78	126	20	75	105	33	< LCL	Pass	> RPDL
1,1,2,2-Tetrachloroethane	66	150	20	94	125	29	Pass	Pass	> RPDL
Naphthalene	70	130	20	89	89	0	Pass	Pass	Pass

Note: Control Limits are based on method detection limit (mdl) studies for 2001.

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager:** Howard Engle	**Matrix:** Water/Soil

Samples: GW12 MS, GW12 MSD **Date of Analysis:** 5/16/2002

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Chloromethane	74	111	20	100	109	8	Pass	Pass	Pass
Vinyl Chloride	85	108	20	104	105	1	Pass	Pass	Pass
Bromomethane	61	201	20	61	60	1	Pass	< LCL	Pass
Chloroethane	74	119	20	84	91	7	Pass	Pass	Pass
1,1-Dichloroethene	63	157	20	166	84	66	> UCL	Pass	> RPDL
Methylene Chloride	101	148	20	106	113	6	Pass	Pass	Pass
t-1,2-Dichloroethene	66	147	20	105	108	3	Pass	Pass	Pass
1,1-Dichloroethane	82	134	20	114	115	0	Pass	Pass	Pass
c-1,2-Dichloroethene	86	128	20	109	112	3	Pass	Pass	Pass
Chloroform	127	145	20	106	106	1	< LCL	< LCL	Pass
1,1,1-Trichloroethane	86	108	20	107	105	2	Pass	Pass	Pass
Carbon Tetrachloride	103	141	20	99	101	2	< LCL	< LCL	Pass
Benzene	98	119	20	109	113	3	Pass	Pass	Pass
1,2-Dichloroethane	86	130	20	118	112	5	Pass	Pass	Pass
Trichloroethene	84	121	20	100	103	3	Pass	Pass	Pass
1,2-Dichloropropane	95	121	20	111	114	3	Pass	Pass	Pass
Bromodichloromethane	102	141	20	111	111	1	Pass	Pass	Pass
c-1,3-Dichloropropene	84	119	20	113	112	1	Pass	Pass	Pass
Toluene	103	121	20	98	95	2	< LCL	< LCL	Pass
t-1,3-Dichloropropene	73	132	20	118	108	9	Pass	Pass	Pass
1,1,2-Trichloroethane	91	131	20	112	104	7	Pass	Pass	Pass
Tetrachloroethene	108	150	20	96	94	3	< LCL	< LCL	Pass
Dibromochloromethane	103	117	20	110	100	10	Pass	< LCL	Pass
Chlorobenzene	90	118	20	108	109	1	Pass	Pass	Pass
Ethylbenezene	102	122	20	103	106	3	Pass	Pass	Pass
m,p-Xylene	78	154	20	100	105	5	Pass	Pass	Pass
o-Xylene	102	133	20	102	105	3	Pass	Pass	Pass
Bromoform	78	126	20	115	108	7	Pass	Pass	Pass
1,1,2,2-Tetrachloroethane	66	150	20	133	120	10	Pass	Pass	Pass
Naphthalene	70	130	20	120	103	16	Pass	Pass	Pass

Note: Control Limits are based on method detection limit (mdl) studies for 2001.

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager:** Howard Engle	**Matrix:** Water/Soil

Laboratory Control Spikes (LCS):

Samples:	LCS #1			**Date of Analysis:**		5/13/2002			
	LCS #2					5/14/2002			
	LCS #3					5/14/2002			
Spike Compounds	**Control Limits**			**Percent Recoveries**			**Control Limit Checks**		
	Lower		**Upper**	**LCS#1**	**LCS#2**	**LCS#3**	**LCS#1**	**LCS#2**	**LCS#3**
Chloromethane	70	to	130	92	118	104	Pass	Pass	Pass
Vinyl Chloride	70	to	130	87	95	98	Pass	Pass	Pass
Bromomethane	70	to	130	41	99	100	< LCL	Pass	Pass
Chloroethane	70	to	130	40	111	40	< LCL	Pass	< LCL
1,1-Dichloroethene	70	to	130	134	52	146	> UCL	< LCL	> UCL
Methylene Chloride	70	to	130	92	86	104	Pass	Pass	Pass
t-1,2-Dichloroethene	70	to	130	86	88	104	Pass	Pass	Pass
1,1-Dichloroethane	70	to	130	97	92	109	Pass	Pass	Pass
c-1,2-Dichloroethene	70	to	130	91	82	100	Pass	Pass	Pass
Chloroform	70	to	130	94	85	102	Pass	Pass	Pass
1,1,1-Trichloroethane	70	to	130	92	85	103	Pass	Pass	Pass
Carbon Tetrachloride	70	to	130	90	72	98	Pass	Pass	Pass
Benzene	70	to	130	95	85	110	Pass	Pass	Pass
1,2-Dichloroethane	70	to	130	107	84	103	Pass	Pass	Pass
Trichloroethene	70	to	130	92	76	100	Pass	Pass	Pass
1,2-Dichloropropane	70	to	130	100	74	106	Pass	Pass	Pass
Bromodichloromethane	70	to	130	96	77	99	Pass	Pass	Pass
c-1,3-Dichloropropene	70	to	130	107	77	112	Pass	Pass	Pass
Toluene	70	to	130	88	94	100	Pass	Pass	Pass
t-1,3-Dichloropropene	70	to	130	110	81	112	Pass	Pass	Pass
1,1,2-Trichloroethane	70	to	130	103	67	100	Pass	< LCL	Pass
Tetrachloroethene	70	to	130	90	928	97	Pass	> UCL	Pass
Dibromochloromethane	70	to	130	105	68	101	Pass	< LCL	Pass
Chlorobenzene	70	to	130	100	99	104	Pass	Pass	Pass
Ethylbenezene	70	to	130	90	97	101	Pass	Pass	Pass
m,p-Xylene	70	to	130	94	105	108	Pass	Pass	Pass
o-Xylene	70	to	130	91	98	105	Pass	Pass	Pass
Bromoform	70	to	130	110	76	101	Pass	Pass	Pass
1,1,2,2-Tetrachloroethane	70	to	130	128	94	118	Pass	Pass	Pass
Naphthalene	70	to	130	131	86	151	> UCL	Pass	> UCL

Note: Control limits are based on method guidance.

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: TtNUS	**Driller/Sampler:** TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-032-2
On-site Dates: 5/13/02-5/16/02	**Client Project Manager:** Howard Engle	**Matrix:** Water/Soil

Samples: LCS #4 — **Date of Analysis:** 5/15/2002
LCS #5 — 5/16/2002

Spike Compounds	Control Limits			Percent Recoveries		Control Limit Checks	
	Lower		Upper	LCS#1	LCS#2	LCS#1	LCS#2
Chloromethane	70	to	130	114	97	Pass	Pass
Vinyl Chloride	70	to	130	93	91	Pass	Pass
Bromomethane	70	to	130	103	67	Pass	< LCL
Chloroethane	70	to	130	98	103	Pass	Pass
1,1-Dichloroethene	70	to	130	129	146	Pass	> UCL
Methylene Chloride	70	to	130	82	99	Pass	Pass
t-1,2-Dichloroethene	70	to	130	83	95	Pass	Pass
1,1-Dichloroethane	70	to	130	87	101	Pass	Pass
c-1,2-Dichloroethene	70	to	130	77	94	Pass	Pass
Chloroform	70	to	130	81	96	Pass	Pass
1,1,1-Trichloroethane	70	to	130	84	94	Pass	Pass
Carbon Tetrachloride	70	to	130	75	89	Pass	Pass
Benzene	70	to	130	83	104	Pass	Pass
1,2-Dichloroethane	70	to	130	83	104	Pass	Pass
Trichloroethene	70	to	130	72	92	Pass	Pass
1,2-Dichloropropane	70	to	130	70	101	Pass	Pass
Bromodichloromethane	70	to	130	73	97	Pass	Pass
c-1,3-Dichloropropene	70	to	130	74	111	Pass	Pass
Toluene	70	to	130	97	95	Pass	Pass
t-1,3-Dichloropropene	70	to	130	77	112	Pass	Pass
1,1,2-Trichloroethane	70	to	130	64	101	< LCL	Pass
Tetrachloroethene	70	to	130	93	90	Pass	Pass
Dibromochloromethane	70	to	130	64	100	< LCL	Pass
Chlorobenzene	70	to	130	102	104	Pass	Pass
Ethylbenzene	70	to	130	102	99	Pass	Pass
m,p-Xylene	70	to	130	106	100	Pass	Pass
o-Xylene	70	to	130	102	98	Pass	Pass
Bromoform	70	to	130	69	100	< LCL	Pass
1,1,2,2-Tetrachloroethane	70	to	130	93	118	Pass	Pass
Naphthalene	70	to	130	98	128	Pass	Pass

Note: Control limits are based on method guidance.

Signature: _____

Title: Director of Operations

KB LABS, INC.

Table 2: VOC Spike Compound Percent Recoveries

Client: TtNUS	**Driller/Sampler**: TtNUS	**Analyst:** Chris Horrell
Site: NAS Pensacola Bldg 3241 **On-site Dates:** 5/13/02-5/16/02	**KB Labs Project Manager:** Kelly Bergdoll **Client Project Manager:** Howard Engle	**KB Labs Project No.:** 02-032-2 **Matrix:** Water/Soil

Date: _____

KB LABS, INC.

Final Data Report

Project # 02-032-2

NAS Pensacola - Building 3241 UST

Pensacola, FL

May 14-16, 2002

Prepared for: Tetra Tech NUS

Mobile Laboratory Services	Well ID Existing Well	Well ID G1	Well ID G2	Well ID G3	Well ID G3-16	Well ID GW4	Well ID G5	Well ID G6
Date of Analysis:	5/14/2002	5/14/2002	5/14/2002	5/14/2002	5/14/2002	5/14/2002	5/15/2002	5/15/2002
Matrix:	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor:	1	1	1	1	1	1	1	1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<1	<1	<1	<1	<1	<1	<1	<1
MtBE	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	**2.3**	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloroethylvinyl ether	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
m&p-Xylene	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	**0.9 I**	<1	<1	<1	<1	<1	<1	<1
Naphthalene	**2.4**	**1.2**	**1.0**	**2.2**	<1	<1	<1	<1

Units are ug/L for waters and mg/Kg for soils.

KB LABS, INC.

Final Data Report

Project # 02-032-2

NAS Pensacola - Building 3241 UST

Pensacola, FL

May 14-16, 2002

Prepared for: Tetra Tech NUS

Mobile Laboratory Services	Well ID G7	Well ID G8	Well ID G9	Well ID G9-17/19	Well ID G10	Well ID G11	Well ID GW12	Well ID GW13
Date of Analysis:	5/15/2002	5/15/2002	5/15/2002	5/15/2002	5/15/2002	5/15/2002	5/16/2002	5/16/2002
Matrix:	Water	Water	Water	Water	Water	Water	Water	Water
Dilution Factor:	1	1	1	1	1	1	1	1
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	<1	<1	<1	<1	<1	<1	<1	<1
MtBE	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	**25.9**	<1	<1	**5.8**	<1	**5.9**
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1
2-Chloroethylvinyl ether	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	<1	<1	**3.2**	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1
m&p-Xylene	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	**0.8 I**	<1	<1	<1	<1	<1	<1	<1
Naphthalene	**2.4**	**4.5**	**1.3**	<1	<1	<1	**1.8**	<1

Units are ug/L for waters and mg/Kg for soils.

KB LABS, INC.

Final Data Report

Project # 02-032-2

NAS Pensacola - Building 3241 UST

Pensacola, FL

May 14-16, 2002

Prepared for: Tetra Tech NUS

Mobile Laboratory Services	Well ID G14	Well ID G15	Well ID G16	Well ID G17	Well ID G18	Well ID G19	Well ID SB1-9.5	Well ID G3-12
Date of Analysis:	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/16/2002	5/14/2002	5/14/2002
Matrix:	Water	Water	Water	Water	Water	Water	Soil	Soil
Dilution Factor:	1	1	1	1	1	1	1	1
Chloromethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Vinyl chloride	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Bromomethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Chloroethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Methylene chloride	<1	<1	<1	<1	<1	<1	<0.01	<0.01
MtBE	<5	<5	<5	<5	<5	<5	<0.01	<0.01
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Chloroform	<1	<1	<1	<1	<1	<1	<0.01	<0.01
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Benzene	**3.0**	<1	<1	**2.0**	<1	<1	<0.01	<0.01
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Trichloroethene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
2-Chloroethylvinyl ether	<1	<1	<1	<1	<1	<1	<0.01	<0.01
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Toluene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Chlorobenzene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Ethylbenzene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
m&p-Xylene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
o-Xylene	<1	<1	<1	<1	<1	<1	<0.01	<0.01
Bromoform	<1	<1	<1	<1	<1	<1	<0.01	<0.01
1,1,2,2-Tetrachloroethane	<1	**0.7 I**	<1	<1	<1	<1	<0.01	<0.01
Naphthalene	<1	**1.7**	<1	<1	<1	**1.4**	**0.014**	<0.01

Units are ug/L for waters and mg/Kg for soils.

KB LABS, INC.

Final Data Report

Project # 02-032-2

NAS Pensacola - Building 3241 UST

Pensacola, FL

May 14-16, 2002

Prepared for: Tetra Tech NUS

Mobile Laboratory Services	Well ID SB9-2	Well ID SB9-8	Well ID SB12-10	Well ID SB14/10	Well ID SB17/4	Method Blank Blank	Method Blank Blank	Method Blank Blank
Date of Analysis:	5/15/2002	5/15/2002	5/16/2002	5/16/2002	5/16/2002	5/14/2002	5/15/2002	5/16/2002
Matrix:	Soil	Soil	Soil	Soil	Soil	Water	Water	Water
Dilution Factor:	1	1	1	1	1	1	1	1
Chloromethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Vinyl chloride	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Bromomethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Chloroethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,1-Dichloroethene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Methylene chloride	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
MtBE	<0.01	<0.01	<0.01	<0.01	<0.01	<5	<5	<5
trans-1,2-Dichloroethene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,1-Dichloroethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
cis-1,2-Dichloroethene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Chloroform	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,1,1-Trichloroethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Carbon tetrachloride	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,2-Dichloroethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Trichloroethene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,2-Dichloropropane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Bromodichloromethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
2-Chloroethylvinyl ether	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
cis-1,3-Dichloropropene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
trans-1,3-Dichloropropene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,1,2-Trichloroethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Tetrachloroethene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Dibromochloromethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Chlorobenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Ethylbenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
m&p-Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
o-Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Bromoform	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
1,1,2,2-Tetrachloroethane	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1
Naphthalene	**0.011**	<0.01	<0.01	<0.01	<0.01	**2.1**	**1.8**	**2.2**

Units are ug/L for waters and mg/Kg for soils.

APPENDIX B

Results as Reported by the Laboratory

TETRA TECH NUS INC

Client Sample ID: NASP-3241-SB9-10

GC/MS Volatiles

Lot-Sample #...: A2F140234-001 **Work Order #...:** E23TD1AA **Matrix.....:** WG

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

Client Sample ID: NASP-3241-SB14-8

GC/MS Volatiles

Lot-Sample #...: A2F140234-002 Work Order #...: E23TM1AA Matrix.....: WG
Date Sampled...: 06/12/02 17:15 Date Received..: 06/14/02
Prep Date.....: 06/26/02 Analysis Date..: 06/26/02
Prep Batch #...: 2178120
Dilution Factor: 0.83 Initial Wgt/Vol: 5 g Final Wgt/Vol..: 5 mL
% Moisture.....: Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	42	ug/kg	3.2
cis-1,2-Dichloroethene	ND	2.1	ug/kg	0.70
trans-1,2-Dichloroethene	ND	2.1	ug/kg	0.61
Xylenes (total)	ND	4.2	ug/kg	1.6
Methyl tert-butyl ether	ND	17	ug/kg	0.70
1,2-Dibromoethane (EDB)	ND	4.2	ug/kg	1.0
Acrolein	ND	83	ug/kg	11
Acrylonitrile	ND	83	ug/kg	17
Benzene	ND	4.2	ug/kg	0.54
Bromoform	ND	4.2	ug/kg	1.3
Bromomethane	ND	4.2	ug/kg	1.5
Carbon tetrachloride	ND	4.2	ug/kg	0.83
Chlorobenzene	ND	4.2	ug/kg	0.43
Chlorodibromomethane	ND	4.2	ug/kg	0.91
Chloroethane	ND	4.2	ug/kg	1.8
Chloroform	ND	4.2	ug/kg	0.68
Chloromethane	ND	4.2	ug/kg	1.1
Dichlorobromomethane	ND	4.2	ug/kg	1.0
1,1-Dichloroethane	ND	4.2	ug/kg	0.48
1,2-Dichloroethane	ND	4.2	ug/kg	0.61
1,1-Dichloroethene	**26**	**4.2**	**ug/kg**	**1.0**
1,2-Dichloropropane	ND	4.2	ug/kg	0.62
cis-1,3-Dichloropropene	ND	4.2	ug/kg	0.53
trans-1,3-Dichloropropene	ND	4.2	ug/kg	0.71
Ethylbenzene	ND	4.2	ug/kg	0.49
Methylene chloride	ND	4.2	ug/kg	1.1
1,1,2,2-Tetrachloroethane	ND	4.2	ug/kg	1.5
Tetrachloroethene	ND	4.2	ug/kg	1.0
Toluene	**2.3 J**	**4.2**	**ug/kg**	**0.44**
1,1,1-Trichloroethane	ND	4.2	ug/kg	0.76
1,1,2-Trichloroethane	ND	4.2	ug/kg	1.0
Trichloroethene	ND	4.2	ug/kg	0.63
Vinyl chloride	ND	4.2	ug/kg	1.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	84	(59 - 138)
1,2-Dichloroethane-d4	82	(61 - 130)
Toluene-d8	86	(60 - 143)
4-Bromofluorobenzene	90	(47 - 158)

(Continued on next page)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-SB14-8

GC/MS Volatiles

Lot-Sample #...: A2F140234-002 **Work Order #...:** E23TM1AA **Matrix.....:** WG

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...:	A2F140234-003	Work Order #...:	E23TP1AA	Matrix.....:	WQ
Date Sampled...:	06/12/02	Date Received..:	06/14/02		
Prep Date.....:	06/21/02	Analysis Date..:	06/21/02		
Prep Batch #...:	2172533				
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	**0.45 J**	**1.0**	**ug/L**	**0.18**
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	**1.4**	**1.0**	**ug/L**	**0.26**
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	**2.2**	**1.0**	**ug/L**	**0.14**
Chloromethane	ND	1.0	ug/L	0.13
Dichlorobromomethane	**2.0**	**1.0**	**ug/L**	**0.17**
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	ND	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	109	(73 - 122)
1,2-Dichloroethane-d4	90	(61 - 128)
Toluene-d8	91	(76 - 110)
4-Bromofluorobenzene	76	(74 - 116)

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TETRA TECH NUS INC

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A2F140234-003 **Work Order #...:** E23TP1AA **Matrix.....:** WQ

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

TRIP BLANK

GC/MS Volatiles

Lot-Sample #: A2F140234-003 **Work Order #:** E23TP1AA **Matrix:** WQ

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW2S

GC/MS Volatiles

Lot-Sample #...: A2F190201-002 Work Order #...: E3APX1AA Matrix.....: WG
Date Sampled...: 06/18/02 12:35 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	ND	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	ND	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	84	(74 - 116)

TETRA TECH NUS INC

NASP-3241-MW2S

GC/MS Volatiles

Lot-Sample #: A2F190201-002 Work Order #: E3APX1AA Matrix: WG

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: EASP-3241-MW3S

GC/MS Volatiles

Lot-Sample #...: A2F190201-003 Work Order #...: E3AP01AA Matrix.....: WG
Date Sampled...: 06/18/02 12:15 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	ND	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	ND	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	84	(74 - 116)

TETRA TECH NUS INC

NASP-3241-MW3S

GC/MS Volatiles

Lot-Sample #: A2F190201-003 Work Order #: E3AP01AA Matrix: WG

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW4S

GC/MS Volatiles

Lot-Sample #...: A2F190201-004 Work Order #...: E3AP11AA Matrix.....: WG
Date Sampled...: 06/18/02 12:30 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	19	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	ND	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	0.64 J	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	0.34 J	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(73 - 122)
1,2-Dichloroethane-d4	92	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	85	(74 - 116)

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TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW4S

GC/MS Volatiles

Lot-Sample #...: A2F190201-004 Work Order #...: E3AP11AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

NASP-3241-MW4S

GC/MS Volatiles

Lot-Sample #: A2F190201-004 Work Order #: E3AP11AA Matrix: WG

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW4D

GC/MS Volatiles

Lot-Sample #...: A2F190201-005 Work Order #...: E3AP21AA Matrix.....: WG
Date Sampled...: 06/18/02 11:53 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	ND	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	ND	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	85	(74 - 116)

TETRA TECH NUS INC

NASP-3241-MW4D

GC/MS Volatiles

Lot-Sample #: A2F190201-005 Work Order #: E3AP21AA Matrix: WG

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW5S

GC/MS Volatiles

Lot-Sample #...: A2F190201-006 Work Order #...: E3AQV1AA Matrix.....: WG
Date Sampled...: 06/18/02 13:15 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	0.31 J	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	ND	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	103	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	85	(74 - 116)

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TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW58

GC/MS Volatiles

Lot-Sample #...: A2F190201-006 Work Order #...: E3AQV1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

NASP-3241-MW5S

GC/MS Volatiles

Lot-Sample #: A2F190201-006 Work Order #: E3AQV1AA Matrix: WG

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-DUP

GC/MS Volatiles

Lot-Sample #...: A2F190201-007 Work Order #...: E3AQW1AA Matrix.....: WG
Date Sampled...: 06/18/02 13:15 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	0.33 J	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	ND	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	103	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	82	(74 - 116)

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TETRA TECH NUS INC

Client Sample ID: NASP-3241-DUP

GC/MS Volatiles

Lot-Sample #...: A2F190201-007 Work Order #...: E3AQW1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

NASP-3241-DUP

GC/MS Volatiles

Lot-Sample #: A2F190201-007 Work Order #: E3AQW1AA Matrix: WG

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A2F190201-008 Work Order #...: E3AQ21AA Matrix.....: WQ
Date Sampled...: 06/18/02 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	ND	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	0.28 J	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	ND	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	0.25 J	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	84	(74 - 116)

(Continued on next page)

TETRA TECH NUS INC

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: A2F190201-008 Work Order #...: E3AQ21AA Matrix.....: WQ

NOTE(S):

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

TRIP BLANK

GC/MS Volatiles

Lot-Sample #: A2F190201-008 Work Order #: E3AQ21AA Matrix: WQ

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-RB

GC/MS Volatiles

Lot-Sample #...: A2F190201-009 Work Order #...: E3AQ61AA Matrix.....: WQ
Date Sampled...: 06/18/02 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2-Chloroethyl vinyl ether	ND	10	ug/L	0.32
cis-1,2-Dichloroethene	ND	0.50	ug/L	0.22
trans-1,2-Dichloroethene	ND	0.50	ug/L	0.15
Xylenes (total)	ND	1.0	ug/L	0.33
Methyl tert-butyl ether	ND	5.0	ug/L	0.13
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	0.22
Acrolein	ND	20	ug/L	3.2
Acrylonitrile	ND	20	ug/L	1.1
Benzene	ND	1.0	ug/L	0.16
Bromoform	ND	1.0	ug/L	0.18
Bromomethane	ND	1.0	ug/L	0.20
Carbon tetrachloride	ND	1.0	ug/L	0.12
Chlorobenzene	ND	1.0	ug/L	0.14
Chlorodibromomethane	ND	1.0	ug/L	0.26
Chloroethane	ND	1.0	ug/L	0.26
Chloroform	ND	1.0	ug/L	0.14
Chloromethane	0.18 J	1.0	ug/L	0.13
Dichlorobromomethane	ND	1.0	ug/L	0.17
1,1-Dichloroethane	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.21
1,1-Dichloroethene	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.17
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.27
Ethylbenzene	ND	1.0	ug/L	0.12
Methylene chloride	0.41 J,B	1.0	ug/L	0.34
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.25
Tetrachloroethene	ND	1.0	ug/L	0.23
Toluene	0.56 J	1.0	ug/L	0.18
1,1,1-Trichloroethane	ND	1.0	ug/L	0.15
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.14
Vinyl chloride	ND	1.0	ug/L	0.15

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	103	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
Toluene-d8	89	(76 - 110)
4-Bromofluorobenzene	85	(74 - 116)

(Continued on next page)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-RB

GC/MS Volatiles

Lot-Sample #...: A2F190201-009 Work Order #...: E3AQ61AA Matrix.....: WQ

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

TETRA TECH NUS INC

NASP-3241-RB

GC/MS Volatiles

Lot-Sample #: A2F190201-009 Work Order #: E3AQ61AA Matrix: WQ

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW1S

HPLC

Lot-Sample #...: A2F190201-001 Work Order #...: E3APT2AC Matrix.....: WG
Date Sampled...: 06/18/02 13:30 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	0.19 J	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	0.12 PG	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	46	(16 - 110)
Terphenyl-d14	93	(29 - 132)

NOTE(S):

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW2S

HPLC

Lot-Sample #...: A2F190201-002 Work Order #...: E3APX2AC Matrix.....: WG
Date Sampled...: 06/18/02 12:35 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	32	(16 - 110)
Terphenyl-d14	63	(29 - 132)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW3S

HPLC

Lot-Sample #...: A2F190201-003 Work Order #...: E3AP02AC Matrix.....: WG
Date Sampled...: 06/18/02 12:15 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	39	(16 - 110)
Terphenyl-d14	78	(29 - 132)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW4S

HPLC

Lot-Sample #...: A2F190201-004 Work Order #...: E3AP12AC Matrix.....: WG
Date Sampled...: 06/18/02 12:30 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	41	(16 - 110)
Terphenyl-d14	82	(29 - 132)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW4D

HPLC

Lot-Sample #...: A2F190201-005 Work Order #...: E3AP22AC Matrix.....: WG
Date Sampled...: 06/18/02 11:53 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	23	(16 - 110)
Terphenyl-d14	45	(29 - 132)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-MW5S

HPLC

Lot-Sample #...: A2F190201-006 Work Order #...: E3AQV2AC Matrix.....: WG
Date Sampled...: 06/18/02 13:15 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	28	(16 - 110)
Terphenyl-d14	59	(29 - 132)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-DUP

HPLC

Lot-Sample #...: A2F190201-007 Work Order #...: E3AQW2AC Matrix.....: WG
Date Sampled...: 06/18/02 13:15 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	32	(16 - 110)
Terphenyl-d14	66	(29 - 132)

TETRA TECH NUS INC

Client Sample ID: NASP-3241-RB

HPLC

Lot-Sample #...: A2F190201-009 Work Order #...: E3AQ62AC Matrix.....: WQ
Date Sampled...: 06/18/02 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/26/02
Prep Batch #...: 2176266
Dilution Factor: 1 Initial Wgt/Vol: 1000 mL Final Wgt/Vol..: 1 mL
Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	1.0	ug/L	0.25
Acenaphthylene	ND	1.0	ug/L	0.13
Anthracene	ND	2.0	ug/L	0.028
Benzo(a)anthracene	ND	0.10	ug/L	0.025
Benzo(a)pyrene	ND	0.10	ug/L	0.023
Benzo(b)fluoranthene	ND	0.10	ug/L	0.018
Benzo(ghi)perylene	ND	0.10	ug/L	0.032
Benzo(k)fluoranthene	ND	0.10	ug/L	0.020
Chrysene	ND	0.10	ug/L	0.021
Dibenz(a,h)anthracene	ND	0.10	ug/L	0.045
Fluoranthene	ND	0.10	ug/L	0.081
Fluorene	ND	1.0	ug/L	0.027
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	0.049
1-Methylnaphthalene	ND	2.0	ug/L	0.41
2-Methylnaphthalene	ND	2.0	ug/L	0.19
Naphthalene	ND	2.0	ug/L	0.45
Phenanthrene	ND	1.0	ug/L	0.044
Pyrene	ND	0.10	ug/L	0.024

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	47	(16 - 110)
Terphenyl-d14	94	(29 - 132)

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3AP0 **Client ID:** NASP-3241-MW3S

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	U	1	ICPST	6/24/2002	12:03

Comments: Lot #: A2F190201 Sample #: 3

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3AP1 **Client ID:** NASP-3241-MW4S

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	U	1	ICPST	6/24/2002	12:08

Comments: Lot #: A2F190201 Sample #: 4

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form I Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3AP2 **Client ID:** NASP-3241-MW4D

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	B	1	ICPST	6/24/2002	12:21

Comments: Lot #: A2F190201 Sample #: 5

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3APT **Client ID:** NASP-3241-MW1S

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0023	B	1	ICPST	6/24/2002	11:38

Comments: Lot #: A2F190201 Sample #: 1

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3APX **Client ID:** NASP-3241-MW2S

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	B	1	ICPST	6/24/2002	11:59

Comments: Lot #: A2F190201 Sample #: 2

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3AQ6 **Client ID:** NASP-3241-RB

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	U	1	ICPST	6/24/2002	12:35

Comments: Lot #: A2F190201 Sample #: 9

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form I Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3AQV **Client ID:** NASP-3241-MW5S

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	U	1	ICPST	6/24/2002	12:26

Comments: Lot #: A2F190201 Sample #: 6

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

STL North Canton

Metals Data Reporting Form

Sample Results

Lab Sample ID: E3AQW **Client ID:** NASP-3241-DUP

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.35	0.0011	0.0030	0.0011	U	1	ICPST	6/24/2002	12:31

Comments: Lot #: A2F190201 Sample #: 7

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 1 Equivalent

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STL Tampa

LOG NO: B2-12439
Received: 20 JUN 02
Reported: 27 JUN 02

Mr. Dave Heakin
STL North Canton
4101 Shuffel Drive
North Canton, OH 44720

Project: SR038756
Sampled By: Client
Code: 162620627

POSITIVE RESULTS SUMMARY REPORT

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-8	NASP-3241-RB	06-18-02

PARAMETER	12439-8
Petroleum Range Organics (FL-PRO) (FL-PRO) Petroleum Hydrocarbons , mg/l	0.11J

Nancy Robertson

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Mr. Dave Heakin
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4101 Shuffel Drive
North Canton, OH 44720

Project: SR038756
Sampled By: Client
Code: 145520627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-1	NASP-3241-MW1S	06-18-02
12439-2	NASP-3241-MW2S	06-18-02
12439-3	NASP-3241-MW3S	06-18-02
12439-4	NASP-3241-MW4S	06-18-02
12439-5	NASP-3241-MW4D	06-18-02

PARAMETER	12439-1	12439-2	12439-3	12439-4	12439-5
Petroleum Range Organics (FL-PRO) (FL-PRO)					
Petroleum Hydrocarbons , mg/l	<0.30	<0.30	<0.30	<0.30	<0.30
Surrogate, o-Terphenyl	140 %	100 %	100 %	120 %	110 %
Dilution Factor	1	1	1	1	1
Prep Date	06.21.02	06.21.02	06.21.02	06.21.02	06.21.02
Analysis Date	06.24.02	06.24.02	06.24.02	06.24.02	06.24.02
Batch ID	0621A	0621A	0621A	0621A	0621A
Microextractables (504)					
1,2-Dibromoethane (EDB), ug/l	<0.020	<0.020	<0.020	<0.020	<0.020
Dilution Factor	1	1	1	1	1
Prep Date	06.24.02	06.24.02	06.24.02	06.24.02	06.24.02
Analysis Date	06.24.02	06.24.02	06.24.02	06.24.02	06.24.02
Batch ID	0624E	0624E	0624E	0624E	0624E

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LOG NO: B2-12439
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4101 Shuffel Drive
North Canton, OH 44720

Project: SR038756
Sampled By: Client
Code: 145520627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-6	NASP-3241-MW5S	06-18-02
12439-7	NASP-3241-DUP	06-18-02
12439-8	NASP-3241-RB	06-18-02

PARAMETER	12439-6	12439-7	12439-8
Petroleum Range Organics (FL-PRO) (FL-PRO)			
Petroleum Hydrocarbons , mg/l	<0.30	<0.30	0.11J
Surrogate, o-Terphenyl	110 %	130 %	120 %
Dilution Factor	1	1	1
Prep Date	06.21.02	06.21.02	06.21.02
Analysis Date	06.24.02	06.24.02	06.24.02
Batch ID	0621A	0621A	0621A
Microextractables (504)			
1,2-Dibromoethane (EDB), ug/l	<0.020	<0.020	<0.020
Dilution Factor	1	1	1
Prep Date	06.24.02	06.24.02	06.24.02
Analysis Date	06.24.02	06.24.02	06.24.02
Batch ID	0624E	0624E	0624E

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Project: SR038756
Sampled By: Client
Code: 145520627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-9	Reporting Limit (RL)	
12439-10	Method Detection Limit (MDL)	

PARAMETER	12439-9	12439-10
Petroleum Range Organics (FL-PRO) (FL-PRO)		
Petroleum Hydrocarbons , mg/l	0.30	0.10
Microextractables (504)		
1,2-Dibromoethane (EDB), ug/l	0.020	0.014

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STL Tampa

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Project: SR038756
Sampled By: Client
Code: 145520627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-11	Method Blank	

PARAMETER	12439-11
Petroleum Range Organics (FL-PRO) (FL-PRO)	
Petroleum Hydrocarbons , mg/l	<0.30
Surrogate, o-Terphenyl	93 %
Dilution Factor	1
Prep Date	06.21.02
Analysis Date	06.24.02
Batch ID	0621A
Microextractables (504)	
1,2-Dibromoethane (EDB), ug/l	<0.020
Dilution Factor	1
Prep Date	06.24.02
Analysis Date	06.24.02
Batch ID	0624E

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LOG NO: B2-12439
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4101 Shuffel Drive
North Canton, OH 44720

Project: SR038756
Sampled By: Client
Code: 162620627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-12	Lab Control Standard % Recovery	
12439-13	Lab Control Standard Duplicate % Recovery	
12439-14	Precision (%RPD) of LCS/LCSD	
12439-15	LCS Accuracy Control Limit (%R)	
12439-16	LCS Precision Control Limit (Advisory) %RPD	

PARAMETER	12439-12	12439-13	12439-14	12439-15	12439-16
Petroleum Range Organics (FL-PRO) (FL-PRO)					
Petroleum Hydrocarbons , %	111 %	111 %	0 %	41-118 %	<20 %
Surrogate, o-Terphenyl	110 %	110 %	---	38-156 %	---
Dilution Factor	1	1	---	---	---
Prep Date	06.21.02	06.21.02	06.21.02	---	---
Analysis Date	06.24.02	06.24.02	06.24.02	---	---
Batch ID	0621A	0621A	0621A	---	---
Microextractables (504)					
1,2-Dibromoethane (EDB), %	92 %	91 %	1.1 %	70-130 %	<30 %
1,2-Dibromo-3-chloropropane, %	103 %	102 %	1.0 %	70-130 %	<30 %
Dilution Factor	1	1	---	---	---
Prep Date	06.24.02	06.24.02	06.24.02	---	---
Analysis Date	06.24.02	06.24.02	06.24.02	---	---
Batch ID	0624E	0624E	0624E	---	---

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LOG NO: B2-12439
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4101 Shuffel Drive
North Canton, OH 44720

Project: SR038756
Sampled By: Client
Code: 162620627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-17	Matrix Spike % Recovery	
12439-18	Matrix Spike Duplicate % Recovery	
12439-19	Precision (%RPD) MS/MSD	
12439-20	MS Accuracy Advisory Limit (%R)	
12439-21	MS Precision Advisory Limit (%RPD)	

PARAMETER	12439-17	12439-18	12439-19	12439-20	12439-21
Petroleum Range Organics (FL-PRO) (FL-PRO)					
Petroleum Hydrocarbons , %	126 %*	123 %*	2.7 %	41-101 %	<20 %
Surrogate, o-Terphenyl	140 %	140 %	---	38-156 %	---
Dilution Factor	1	1	---	---	---
Prep Date	06.21.02	06.21.02	06.21.02	---	---
Analysis Date	06.24.02	06.24.02	06.24.02	---	---
Batch ID	0621A	0621A	0621A	---	---
Microextractables (504)					
1,2-Dibromoethane (EDB), %	98 %	105 %	6.9 %	70-130 %	<30 %
1,2-Dibromo-3-chloropropane, %	96 %	126 %	27 %	70-130 %	<30 %
Dilution Factor	1	1	---	---	---
Prep Date	06.24.02	06.24.02	06.24.02	---	---
Analysis Date	06.24.02	06.24.02	06.24.02	---	---
Batch ID	0624E	0624E	0624E	---	---

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LOG NO: B2-12439
Received: 20 JUN 02
Reported: 27 JUN 02

Mr. Dave Heakin
STL North Canton
4101 Shuffel Drive
North Canton, OH 44720

Project: SR038756
Sampled By: Client
Code: 163020627

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED
12439-22	MS/MSD Sample ID	

PARAMETER	12439-22
Petroleum Range Organics (FL-PRO) (FL-PRO)	
Petroleum Hydrocarbons ,	12439-4
Batch ID	0621A
Microextractables (504)	
1,2-Dibromoethane (EDB),	12439-4
1,2-Dibromo-3-chloropropane,	12439-4
Batch ID	0624E

Methods: EPA SW-846, FDEP
DOH Certification #E84282
* = Exceeds advisory limit.

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL project manager who signed this test report.

J = The flag "J" indicates the presence of a compound that meets the identification criteria, but the result is less than the sample RL and greater than the MDL.

Nancy Robertson, Project Manager

STL Tampa is a part of Severn Trent Laboratories, Inc.

APPENDIX C

Support Documentation

SDG NARRATIVE
2F19201

The following report contains the analytical results for eleven water samples and three quality control samples submitted to STL North Canton by Tetra Tech NUS, Inc. from the NAS Pensacola Bldg 3231 Site, project number N4176-P2244 (SS). The samples were received June 14 and 19, 2002, according to documented sample acceptance procedures.

The FLO-PRO and EDB 504.2 analyses were performed at the STL Tampa laboratory. A copy of their data is presented in this report.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated. Preliminary results were provided to Amy Thomson on June 27 and July 16, 2002.

Please refer to individual analytical sections for laboratory specific narratives.

SAMPLE RECEIVING

The coolers were received at temperatures ranging from 1.8 to 2.9° C.

APPENDIX E

VALIDATED LABORATORY ANALYTICAL REPORTS

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS
(Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225), Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048), Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001), New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024), Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003), Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

Y:\HerrenD\Narrative\QCinsSW846.doc, Revised: 07/24/01

[redacted]

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

14

STL-4124 (0901)

Client: TtNUS	Project Manager: Howard Engle	Date: 6/18/02	Chain of Custody Number: 124004
Address: 1401 Oven Park Dr. Suite 201	Telephone Number (Area Code)/Fax Number: (850) 385-8899 / (850) 385-9860	Lab Number	Page 1 of 1
City: Tallahassee; State: FL; Zip Code: 32308	Site Contact: H. Engle	Lab Contact: M. Akers	
Project Name and Location (State): NASP Site 19 UST BLDG 3241	Carrier/Waybill Number: 8350-5454-8900		
Contract/Purchase Order/Quote No.: N4176-P2244 (SS)			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil		Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Na2S2O3	VOC (8260)	EDB (504.1)	PAH (8310)	TRPH (FL-PRO)	Total Lead (6010)								Special Instructions/ Conditions of Receipt
NASP-3241-MW1S	6/18/02	1330		X				X		X	X			X	3	3	2	2	1	-							Time is Central
NASP-3241-MW2S		1235																									Time
NASP-3241-MW3S		1215																									
NASP-3241-MW4S		1230																									
NASP-3241-MW4D		1153																									
NASP-3241-MW5S		1315																									
NASP-3241-DUP		1315																									
NASP-3241-MW4S MS		1230																									matrix spike
NASP-3241-MW4S MSD		1230																									matrix spike
Trip Blank	—	—													2												
NASP-3241-RB	6/18/02	—						X		X				X	3	3	2	2	1								

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 28 days

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]			1. Received By: [signature]	6-19-02	945
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

STL North Canton

[redacted]

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

13

STL-4124 (0901)

Client: Letra Tech NUS	Project Manager: Howard Engle	Date: 06/12/02	Chain of Custody Number: 124200
Address: 1401 Oven Park Dr. Suite 201	Telephone Number (Area Code)/Fax Number: 850-385-9899 / 850-385-9860	Lab Number	Page 1 of 1
City: Tallahassee; State: FL; Zip Code: 32308	Site Contact: H. Engle	Lab Contact: Mike Akers	
Project Name and Location (State): NAS Pensacola BLDG 3231	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.: N4176-D2244 (SS)			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	H_2O	Analysis (Attach list if more space is needed): VOC (8260)	Special Instructions/ Conditions of Receipt
NASP-3241-SB9-10	06/12/02	1700				X								X	✓	
NASP-3241-SB14-8	↓	1715				X								X	✓	
Trip Blank	↓	—		X							X				✓	

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 28 days

QC Requirements (Specify): LCS/LCSD, MS/MSD

	Date	Time		Date	Time
1. Relinquished By: William Harrell	06/13/02	17:00	1. Received By: [illegible]	6-14-02	9:15
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

STL North Canton

SDG NARRATIVE
2F19201

The following report contains the analytical results for eleven water samples and three quality control samples submitted to STL North Canton by Tetra Tech NUS, Inc. from the NAS Pensacola Bldg 3231 Site, project number N4176-P2244 (SS). The samples were received June 14 and 19, 2002, according to documented sample acceptance procedures.

The FLO-PRO and EDB 504.2 analyses were performed at the STL Tampa laboratory. A copy of their data is presented in this report.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated. Preliminary results were provided to Amy Thomson on June 27 and July 16, 2002.

Please refer to individual analytical sections for laboratory specific narratives.

SAMPLE RECEIVING

The coolers were received at temperatures ranging from 1.8 to 2.9° C.

SDG NARRATIVE
2F19201

GC/MS VOLATILES

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Sample(s) that contain results between the MDL and the RL were flagged with "J". There is the possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The solid samples in this lot were preserved by freezing in water.

2-Chloroethyl vinyl ether cannot be reliably recovered in an acid preserved sample.

Samples were not preserved by freezing within 48 hours of sampling. For this project, the client was taking soil samples in the field, and placing them in a 40ml vial containing 5 ml of reagent water. We were to place the vials in the freezer upon receipt, thereby preserving the sample. However when the samples were received, they were logged in as waters, and were not recognized as soils that needed to be placed in the freezer. The samples were placed in the freezer as soon as the problem was discovered.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

Sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "B". All target analytes in the Method Blank must be below the reporting limit (RL) or the associated sample(s) must be ND with the exception of common laboratory contaminants.

MS/MSD/LCS/DCS Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
2F19201

POLYNUCLEAR AROMATIC HYDROCARBONS 8310

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS/Sample Duplicate Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
2F19201

METALS

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Sample(s) that contain results between the MDL and the RL were flagged with "B". There is the possibility of false positive or mis-identification at these quantitation levels. The acceptance criteria for the ICB, CCB, and Method Blank are ± the standard reporting limit (SRL).

Holding Time Violation

All samples were prepared and analyzed within the method-specified holding time requirements.

Method Blank Contamination

All analytes in the method blank were less than the associated reporting limits.

MS/MSD/LCS/DCS/Sample Duplicate Outside of QC Criteria

All spike recovery and RPD data met method-specific quality control criteria.

Calibrations

All calibrations and calibration verifications met method-specific quality control criteria.

SDG NARRATIVE
2F19201

STL TAMPA

Please refer to the narrative provided by STL Tampa.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3H371AA **Matrix.....:** WATER
MB Lot-Sample #: A2F210000-533

Prep Date.....: 06/20/02 **Final Wgt/Vol..:** 5 mL
Analysis Date..: 06/20/02 **Prep Batch #...:** 2172533
Dilution Factor: 1 **Initial Wgt/Vol:** 5 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	5.0	ug/L	SW846 8260B
2-Chloroethyl vinyl ether	ND	10	ug/L	SW846 8260B
Acrolein	ND	20	ug/L	SW846 8260B
Acrylonitrile	ND	20	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Chlorodibromomethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	1.0	ug/L	SW846 8260B
Dichlorobromomethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	107	(73 - 122)
1,2-Dichloroethane-d4	87	(61 - 128)
Toluene-d8	91	(76 - 110)
4-Bromofluorobenzene	76	(74 - 116)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3H371AA **Matrix.....:** WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

TETRA TECH NUS INC

Method Blank Report

GC/MS Volatiles

Lot-Sample #: A2F210000-533 B **Work Order #:** E3H371AA **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3RVR1AA **Matrix.....:** SOLID
MB Lot-Sample #: A2F270000-120

Prep Date.....: 06/26/02 **Final Wgt/Vol..:** 5 mL
Analysis Date..: 06/26/02 **Prep Batch #...:** 2178120
Dilution Factor: 1 **Initial Wgt/Vol:** 5 g

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Chloroethyl vinyl ether	ND	50	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B
Methyl tert-butyl ether	ND	20	ug/kg	SW846 8260B
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260B
Acrolein	ND	100	ug/kg	SW846 8260B
Acrylonitrile	ND	100	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
Bromomethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Chlorodibromomethane	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Chloromethane	ND	5.0	ug/kg	SW846 8260B
Dichlorobromomethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	83	(59 - 138)
1,2-Dichloroethane-d4	77	(61 - 130)
Toluene-d8	88	(60 - 143)
4-Bromofluorobenzene	91	(47 - 158)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3RVR1AA **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3H371AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: A2F210000-533 E3H371AD-LCSD
Prep Date.....: 06/20/02 **Analysis Date..:** 06/20/02
Prep Batch #...: 2172533
Dilution Factor: 1 **Final Wgt/Vol..:** 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Xylenes (total)	101	(87 - 116)			SW846 8260B
	100	(87 - 116)	1.0	(0-30)	SW846 8260B
cis-1,2-Dichloroethene	106	(85 - 113)			SW846 8260B
	107	(85 - 113)	0.77	(0-30)	SW846 8260B
trans-1,2-Dichloroethene	109	(79 - 120)			SW846 8260B
	109	(79 - 120)	0.72	(0-30)	SW846 8260B
Benzene	**103**	**(80 - 116)**			**SW846 8260B**
	102	**(80 - 116)**	**1.2**	**(0-20)**	**SW846 8260B**
Bromoform	114	(76 - 150)			SW846 8260B
	115	(76 - 150)	0.57	(0-30)	SW846 8260B
Bromomethane	91	(64 - 129)			SW846 8260B
	90	(64 - 129)	1.2	(0-30)	SW846 8260B
Carbon tetrachloride	121	(75 - 149)			SW846 8260B
	129	(75 - 149)	6.5	(0-30)	SW846 8260B
Chlorobenzene	**104**	**(76 - 117)**			**SW846 8260B**
	102	**(76 - 117)**	**1.8**	**(0-20)**	**SW846 8260B**
Chlorodibromomethane	113	(81 - 138)			SW846 8260B
	109	(81 - 138)	3.5	(0-30)	SW846 8260B
Chloroethane	89	(66 - 126)			SW846 8260B
	86	(66 - 126)	2.8	(0-30)	SW846 8260B
Chloroform	107	(84 - 128)			SW846 8260B
	105	(84 - 128)	2.6	(0-30)	SW846 8260B
Chloromethane	94	(48 - 123)			SW846 8260B
	92	(48 - 123)	2.8	(0-30)	SW846 8260B
Dichlorobromomethane	101	(87 - 130)			SW846 8260B
	101	(87 - 130)	0.050	(0-30)	SW846 8260B
1,1-Dichloroethane	95	(86 - 123)			SW846 8260B
	92	(86 - 123)	3.3	(0-30)	SW846 8260B
1,2-Dichloroethane	95	(79 - 136)			SW846 8260B
	94	(79 - 136)	1.8	(0-30)	SW846 8260B
1,1-Dichloroethene	**117**	**(63 - 130)**			**SW846 8260B**
	118	**(63 - 130)**	**1.5**	**(0-20)**	**SW846 8260B**
1,2-Dichloropropane	97	(82 - 115)			SW846 8260B
	95	(82 - 115)	1.6	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	94	(84 - 130)			SW846 8260B
	93	(84 - 130)	1.4	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	86	(84 - 130)			SW846 8260B
	83 a	(84 - 130)	3.5	(0-30)	SW846 8260B

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3H371AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: A2F210000-533 E3H371AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Ethylbenzene	99	(86 - 116)			SW846 8260B
	97	(86 - 116)	1.7	(0-30)	SW846 8260B
Methylene chloride	118	(78 - 118)			SW846 8260B
	116	(78 - 118)	2.0	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	103	(85 - 118)			SW846 8260B
	96	(85 - 118)	6.4	(0-30)	SW846 8260B
Tetrachloroethene	108	(88 - 113)			SW846 8260B
	110	(88 - 113)	2.0	(0-30)	SW846 8260B
Toluene	**99**	**(74 - 119)**			**SW846 8260B**
	96	**(74 - 119)**	**2.8**	**(0-20)**	**SW846 8260B**
1,1,1-Trichloroethane	107	(78 - 140)			SW846 8260B
	109	(78 - 140)	1.9	(0-30)	SW846 8260B
1,1,2-Trichloroethane	105	(83 - 122)			SW846 8260B
	102	(83 - 122)	2.4	(0-30)	SW846 8260B
Trichloroethene	**111**	**(75 - 122)**			**SW846 8260B**
	109	**(75 - 122)**	**1.5**	**(0-20)**	**SW846 8260B**
Vinyl chloride	92	(61 - 120)			SW846 8260B
	96	(61 - 120)	4.4	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	112	(73 - 122)
	108	(73 - 122)
1,2-Dichloroethane-d4	94	(61 - 128)
	95	(61 - 128)
Toluene-d8	95	(76 - 110)
	95	(76 - 110)
4-Bromofluorobenzene	90	(74 - 116)
	91	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3H371AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: A2F210000-533 E3H371AD-LCSD
Prep Date.....: 06/20/02 **Analysis Date..:** 06/20/02
Prep Batch #...: 2172533
Dilution Factor: 1 **Final Wgt/Vol..:** 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Xylenes (total)	30	30	ug/L	101		SW846 8260B
	30	30	ug/L	100	1.0	SW846 8260B
cis-1,2-Dichloroethene	10	11	ug/L	106		SW846 8260B
	10	11	ug/L	107	0.77	SW846 8260B
trans-1,2-Dichloroethene	10	11	ug/L	109		SW846 8260B
	10	11	ug/L	109	0.72	SW846 8260B
Benzene	**10**	**10**	**ug/L**	**103**		**SW846 8260B**
	10	**10**	**ug/L**	**102**	**1.2**	**SW846 8260B**
Bromoform	10	11	ug/L	114		SW846 8260B
	10	11	ug/L	115	0.57	SW846 8260B
Bromomethane	10	9.1	ug/L	91		SW846 8260B
	10	9.0	ug/L	90	1.2	SW846 8260B
Carbon tetrachloride	10	12	ug/L	121		SW846 8260B
	10	13	ug/L	129	6.5	SW846 8260B
Chlorobenzene	**10**	**10**	**ug/L**	**104**		**SW846 8260B**
	10	**10**	**ug/L**	**102**	**1.8**	**SW846 8260B**
Chlorodibromomethane	10	11	ug/L	113		SW846 8260B
	10	11	ug/L	109	3.5	SW846 8260B
Chloroethane	10	8.9	ug/L	89		SW846 8260B
	10	8.6	ug/L	86	2.8	SW846 8260B
Chloroform	10	11	ug/L	107		SW846 8260B
	10	10	ug/L	105	2.6	SW846 8260B
Chloromethane	10	9.4	ug/L	94		SW846 8260B
	10	9.2	ug/L	92	2.8	SW846 8260B
Dichlorobromomethane	10	10	ug/L	101		SW846 8260B
	10	10	ug/L	101	0.050	SW846 8260B
1,1-Dichloroethane	10	9.5	ug/L	95		SW846 8260B
	10	9.2	ug/L	92	3.3	SW846 8260B
1,2-Dichloroethane	10	9.5	ug/L	95		SW846 8260B
	10	9.4	ug/L	94	1.8	SW846 8260B
1,1-Dichloroethene	**10**	**12**	**ug/L**	**117**		**SW846 8260B**
	10	**12**	**ug/L**	**118**	**1.5**	**SW846 8260B**
1,2-Dichloropropane	10	9.7	ug/L	97		SW846 8260B
	10	9.5	ug/L	95	1.6	SW846 8260B
cis-1,3-Dichloropropene	10	9.4	ug/L	94		SW846 8260B
	10	9.3	ug/L	93	1.4	SW846 8260B
trans-1,3-Dichloropropene	10	8.6	ug/L	86		SW846 8260B
	10	8.3 a	ug/L	83	3.5	SW846 8260B

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A2F140234 **Work Order #...:** E3H371AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: A2F210000-533 E3H371AD-LCSD

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Ethylbenzene	10	9.9	ug/L	99		SW846 8260B
	10	9.7	ug/L	97	1.7	SW846 8260B
Methylene chloride	10	12	ug/L	118		SW846 8260B
	10	12	ug/L	116	2.0	SW846 8260B
1,1,2,2-Tetrachloroethane	10	10	ug/L	103		SW846 8260B
	10	9.6	ug/L	96	6.4	SW846 8260B
Tetrachloroethene	10	11	ug/L	108		SW846 8260B
	10	11	ug/L	110	2.0	SW846 8260B
Toluene	**10**	**9.9**	**ug/L**	**99**		**SW846 8260B**
	10	**9.6**	**ug/L**	**96**	**2.8**	**SW846 8260B**
1,1,1-Trichloroethane	10	11	ug/L	107		SW846 8260B
	10	11	ug/L	109	1.9	SW846 8260B
1,1,2-Trichloroethane	10	10	ug/L	105		SW846 8260B
	10	10	ug/L	102	2.4	SW846 8260B
Trichloroethene	**10**	**11**	**ug/L**	**111**		**SW846 8260B**
	10	**11**	**ug/L**	**109**	**1.5**	**SW846 8260B**
Vinyl chloride	10	9.2	ug/L	92		SW846 8260B
	10	9.6	ug/L	96	4.4	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	112	(73 - 122)
	108	(73 - 122)
1,2-Dichloroethane-d4	94	(61 - 128)
	95	(61 - 128)
Toluene-d8	95	(76 - 110)
	95	(76 - 110)
4-Bromofluorobenzene	90	(74 - 116)
	91	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A2F190201
MB Lot-Sample #: A2F260000-172
Analysis Date..: 06/25/02
Dilution Factor: 1

Work Order #...: E3PGH1AA
Prep Date.....: 06/25/02
Prep Batch #...: 2177172
Initial Wgt/Vol: 5 mL

Matrix.....: WATER
Final Wgt/Vol..: 5 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	SW846 8260B
2-Chloroethyl vinyl ether	ND	10	ug/L	SW846 8260B
Methyl tert-butyl ether	ND	5.0	ug/L	SW846 8260B
Acrolein	ND	20	ug/L	SW846 8260B
Acrylonitrile	ND	20	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Chlorodibromomethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	1.0	ug/L	SW846 8260B
Dichlorobromomethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	0.41 J	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
1,2-Dichloroethane-d4	91	(61 - 128)
Toluene-d8	90	(76 - 110)
4-Bromofluorobenzene	85	(74 - 116)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A2F190201 Work Order #...: E3PGH1AA Matrix.....: WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

TETRA TECH NUS INC

Method Blank Report

GC/MS Volatiles

Lot-Sample #: A2F260000-172 B Work Order #: E3PGH1AA Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A2F190201 Work Order #...: E3AP11AG-MS Matrix.....: WG
MS Lot-Sample #: A2F190201-004 E3AP11AH-MSD
Date Sampled...: 06/18/02 12:30 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Xylenes (total)	105	(89 - 121)			SW846 8260B
	103	(89 - 121)	1.4	(0-30)	SW846 8260B
cis-1,2-Dichloroethene	100	(87 - 114)			SW846 8260B
	100	(87 - 114)	0.46	(0-30)	SW846 8260B
trans-1,2-Dichloroethene	105	(85 - 116)			SW846 8260B
	104	(85 - 116)	0.38	(0-30)	SW846 8260B
Benzene	75 a	(78 - 118)			SW846 8260B
	114	(78 - 118)	14	(0-20)	SW846 8260B
Bromoform	105	(58 - 176)			SW846 8260B
	105	(58 - 176)	0.37	(0-30)	SW846 8260B
Bromomethane	86	(55 - 145)			SW846 8260B
	87	(55 - 145)	0.69	(0-30)	SW846 8260B
Carbon tetrachloride	108	(63 - 176)			SW846 8260B
	110	(63 - 176)	2.1	(0-30)	SW846 8260B
Chlorobenzene	101	(76 - 117)			SW846 8260B
	100	(76 - 117)	0.71	(0-20)	SW846 8260B
Chlorodibromomethane	102	(71 - 158)			SW846 8260B
	102	(71 - 158)	0.07	(0-30)	SW846 8260B
Chloroethane	91	(59 - 142)			SW846 8260B
	88	(59 - 142)	3.4	(0-30)	SW846 8260B
Chloroform	104	(83 - 141)			SW846 8260B
	105	(83 - 141)	0.56	(0-30)	SW846 8260B
Chloromethane	85	(40 - 137)			SW846 8260B
	82	(40 - 137)	3.4	(0-39)	SW846 8260B
Dichlorobromomethane	96	(80 - 146)			SW846 8260B
	96	(80 - 146)	0.54	(0-30)	SW846 8260B
1,1-Dichloroethane	103	(88 - 127)			SW846 8260B
	103	(88 - 127)	0.61	(0-30)	SW846 8260B
1,2-Dichloroethane	112	(71 - 160)			SW846 8260B
	112	(71 - 160)	0.52	(0-30)	SW846 8260B
1,1-Dichloroethene	105	(62 - 130)			SW846 8260B
	107	(62 - 130)	1.4	(0-20)	SW846 8260B
1,2-Dichloropropane	101	(87 - 114)			SW846 8260B
	100	(87 - 114)	0.49	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	91	(82 - 130)			SW846 8260B
	90	(82 - 130)	0.75	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	93	(73 - 147)			SW846 8260B
	92	(73 - 147)	1.5	(0-30)	SW846 8260B
Ethylbenzene	104	(86 - 132)			SW846 8260B
	103	(86 - 132)	0.69	(0-30)	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A2F190201 Work Order #...: E3AP11AG-MS Matrix.....: WG
MS Lot-Sample #: A2F190201-004 E3AP11AH-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methylene chloride	104	(82 - 115)			SW846 8260B
	102	(82 - 115)	2.1	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	103	(88 - 116)			SW846 8260B
	104	(88 - 116)	0.58	(0-30)	SW846 8260B
Tetrachloroethene	105	(85 - 121)			SW846 8260B
	104	(85 - 121)	1.9	(0-30)	SW846 8260B
Toluene	102	(70 - 119)			SW846 8260B
	102	(70 - 119)	0.31	(0-20)	SW846 8260B
1,1,1-Trichloroethane	105	(71 - 162)			SW846 8260B
	105	(71 - 162)	0.05	(0-30)	SW846 8260B
1,1,2-Trichloroethane	103	(86 - 129)			SW846 8260B
	102	(86 - 129)	0.29	(0-30)	SW846 8260B
Trichloroethene	99	(62 - 130)			SW846 8260B
	98	(62 - 130)	0.85	(0-20)	SW846 8260B
Vinyl chloride	89	(88 - 126)			SW846 8260B
	88	(88 - 126)	1.0	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	99	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
	99	(61 - 128)
Toluene-d8	94	(76 - 110)
	94	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	97	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A2F190201 Work Order #...: E3AP11AG-MS Matrix.....: WG
MS Lot-Sample #: A2F190201-004 E3AP11AH-MSD
Date Sampled...: 06/18/02 12:30 Date Received..: 06/19/02
Prep Date.....: 06/25/02 Analysis Date..: 06/25/02
Prep Batch #...: 2177172
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Xylenes (total)	ND	30	31	ug/L	105		SW846 8260B
	ND	30	31	ug/L	103	1.4	SW846 8260B
cis-1,2-Dichloroethene	ND	10	10	ug/L	100		SW846 8260B
	ND	10	10	ug/L	100	0.46	SW846 8260B
trans-1,2-Dichloroethene	ND	10	10	ug/L	105		SW846 8260B
	ND	10	10	ug/L	104	0.38	SW846 8260B
Benzene	19	10	26	ug/L	75 a		SW846 8260B
	19	10	30	ug/L	114	14	SW846 8260B
Bromoform	ND	10	11	ug/L	105		SW846 8260B
	ND	10	10	ug/L	105	0.37	SW846 8260B
Bromomethane	ND	10	8.6	ug/L	86		SW846 8260B
	ND	10	8.7	ug/L	87	0.69	SW846 8260B
Carbon tetrachloride	ND	10	11	ug/L	108		SW846 8260B
	ND	10	11	ug/L	110	2.1	SW846 8260B
Chlorobenzene	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	100	0.71	SW846 8260B
Chlorodibromomethane	ND	10	10	ug/L	102		SW846 8260B
	ND	10	10	ug/L	102	0.07	SW846 8260B
Chloroethane	ND	10	9.1	ug/L	91		SW846 8260B
	ND	10	8.8	ug/L	88	3.4	SW846 8260B
Chloroform	ND	10	10	ug/L	104		SW846 8260B
	ND	10	10	ug/L	105	0.56	SW846 8260B
Chloromethane	ND	10	8.5	ug/L	85		SW846 8260B
	ND	10	8.2	ug/L	82	3.4	SW846 8260B
Dichlorobromomethane	ND	10	9.6	ug/L	96		SW846 8260B
	ND	10	9.6	ug/L	96	0.54	SW846 8260B
1,1-Dichloroethane	ND	10	10	ug/L	103		SW846 8260B
	ND	10	10	ug/L	103	0.61	SW846 8260B
1,2-Dichloroethane	ND	10	11	ug/L	112		SW846 8260B
	ND	10	11	ug/L	112	0.52	SW846 8260B
1,1-Dichloroethene	ND	10	11	ug/L	105		SW846 8260B
	ND	10	11	ug/L	107	1.4	SW846 8260B
1,2-Dichloropropane	ND	10	10	ug/L	101		SW846 8260B
	ND	10	10	ug/L	100	0.49	SW846 8260B
cis-1,3-Dichloropropene	ND	10	9.1	ug/L	91		SW846 8260B
	ND	10	9.0	ug/L	90	0.75	SW846 8260B
trans-1,3-Dichloropropene	ND	10	9.3	ug/L	93		SW846 8260B
	ND	10	9.2	ug/L	92	1.5	SW846 8260B
Ethylbenzene	0.64	10	11	ug/L	104		SW846 8260B
	0.64	10	11	ug/L	103	0.69	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A2F190201 Work Order #...: E3AP11AG-MS Matrix.....: WG
MS Lot-Sample #: A2F190201-004 E3AP11AH-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Methylene chloride	ND	10	10	ug/L	104		SW846 8260B
	ND	10	10	ug/L	102	2.1	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	10	10	ug/L	103		SW846 8260B
	ND	10	10	ug/L	104	0.58	SW846 8260B
Tetrachloroethene	ND	10	11	ug/L	105		SW846 8260B
	ND	10	10	ug/L	104	1.9	SW846 8260B
Toluene	0.34	10	11	ug/L	102		SW846 8260B
	0.34	10	11	ug/L	102	0.31	SW846 8260B
1,1,1-Trichloroethane	ND	10	10	ug/L	105		SW846 8260B
	ND	10	10	ug/L	105	0.05	SW846 8260B
1,1,2-Trichloroethane	ND	10	10	ug/L	103		SW846 8260B
	ND	10	10	ug/L	102	0.29	SW846 8260B
Trichloroethene	ND	10	9.9	ug/L	99		SW846 8260B
	ND	10	9.8	ug/L	98	0.85	SW846 8260B
Vinyl chloride	ND	10	8.9	ug/L	89		SW846 8260B
	ND	10	8.8	ug/L	88	1.0	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
	99	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
	99	(61 - 128)
Toluene-d8	94	(76 - 110)
	94	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	97	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

HPLC

Client Lot #...: A2F190201
MB Lot-Sample #: A2F250000-266
Analysis Date..: 06/26/02
Dilution Factor: 1

Work Order #...: E3L601AA
Prep Date.....: 06/25/02
Prep Batch #...: 2176266
Initial Wgt/Vol: 1000 mL

Matrix.....: WATER
Final Wgt/Vol..: 1 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	1.0	ug/L	SW846 8310
Acenaphthylene	ND	1.0	ug/L	SW846 8310
Anthracene	ND	2.0	ug/L	SW846 8310
Benzo(a)anthracene	ND	0.10	ug/L	SW846 8310
Benzo(a)pyrene	ND	0.10	ug/L	SW846 8310
Benzo(b)fluoranthene	ND	0.10	ug/L	SW846 8310
Benzo(ghi)perylene	ND	0.10	ug/L	SW846 8310
Benzo(k)fluoranthene	ND	0.10	ug/L	SW846 8310
Chrysene	ND	0.10	ug/L	SW846 8310
Dibenz(a,h)anthracene	ND	0.10	ug/L	SW846 8310
Fluoranthene	ND	0.10	ug/L	SW846 8310
Fluorene	ND	1.0	ug/L	SW846 8310
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	SW846 8310
1-Methylnaphthalene	ND	2.0	ug/L	SW846 8310
2-Methylnaphthalene	ND	2.0	ug/L	SW846 8310
Naphthalene	ND	2.0	ug/L	SW846 8310
Phenanthrene	ND	1.0	ug/L	SW846 8310
Pyrene	ND	0.10	ug/L	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Benzo(e)pyrene	45	(16 - 110)
Terphenyl-d14	89	(29 - 132)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

STL North Canton

Metals Data Reporting Form

Initial Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I50624A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	ICB 6/24/2002 9:27 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Lead	220.353	3	1.1	U								

STL North Canton

Metals Data Reporting Form

Continuing Calibration Blank Results

Instrument: ICPST **Units:** ug/L

Chart Number: I50624A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	CCB 6/24/2002 9:52 AM		CCB 6/24/2002 10:54 AM		CCB 6/24/2002 11:54 AM		CCB 6/24/2002 12:51 PM			
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Lead	220.353	3	1.7	B	1.1	U	1.1	U	1.1	U		

STL North Canton

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: E3C71B

Matrix: Water **Units:** mg/L **Prep Date:** 6/20/2002 **Prep Batch:** 2171105

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Lead	220.353	0.0011	0.0030	0.0011	U	1	ICPST	6/24/2002	11:28

Comments: Lot #: A2F190201

Version 4.91.3

U Result is less than the IDL

B Result is between IDL and RL

Form 3 Equivalent

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b/UX92936.D
Report Date: 06/26/2002

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX92936.D
Analysis Type: SOIL

Injection Date: 26-JUN-2002 07:54
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
0 Benzene	250.0000	239.8787	4.0	50.0	
0 Xylene-o	250.0000	242.4585	3.0	50.0	
0 m + p-Xylene	500.0000	493.7830	1.2	50.0	
0 Chlorobenzene	250.0000	239.4659	4.2	50.0	
0 Toluene	250.0000	244.2786	2.3	20.0	
0 1,1-Dichloroethene	250.0000	240.6364	3.7	20.0	
0 Trichloroethene	250.0000	237.5763	5.0	50.0	
1 Chloromethane	250.0000	258.5849	3.4	50.0	
2 Bromomethane	250.0000	266.1148	6.4	50.0	
3 Vinyl Chloride	250.0000	238.9930	4.4	20.0	
4 Chloroethane	250.0000	253.0804	1.2	50.0	
5 Methylene Chloride	250.0000	241.4458	3.4	50.0	
6 Acetone	500.0000	773.7056	54.7	50.0	<-
7 Carbon Disulfide	250.0000	245.8086	1.7	50.0	
9 1,1-Dichloroethane	250.0000	241.9220	3.2	50.0	
10 trans-1,2-Dichloroethene	250.0000	240.6066	3.8	50.0	
11 cis-1,2-dichloroethene	250.0000	235.9615	5.6	50.0	
12 1,2-Dichloroethene (total)	500.0000	476.5681	4.7	50.0	
13 Chloroform	250.0000	241.0862	3.6	20.0	
14 1,2-Dichloroethane	250.0000	242.1730	3.1	50.0	
15 2-Butanone	500.0000	640.8771	28.2	50.0	
16 1,1,1-Trichloroethane	250.0000	250.5583	0.2	50.0	
17 Carbon Tetrachloride	250.0000	251.3129	0.5	50.0	
18 Bromodichloromethane	250.0000	249.2654	0.3	50.0	
19 1,2-Dichloropropane	250.0000	242.2454	3.1	20.0	
19 Fluorobenzene	250.0000	250.0000	0.0	50.0	
20 cis-1,3-Dichloropropene	250.0000	244.1225	2.4	50.0	
22 Dibromochloromethane	250.0000	256.0237	2.4	50.0	
23 1,1,2-Trichloroethane	250.0000	245.3125	1.9	50.0	
25 trans-1,3-Dichloropropene	250.0000	252.2227	0.9	50.0	
25 1,4-Dichlorobenzene-d4	250.0000	250.0000	0.0	50.0	
26 Bromoform	250.0000	266.2602	6.5	50.0	
27 4-Methyl-2-pentanone	500.0000	569.2916	13.9	50.0	
28 2-Hexanone	500.0000	596.3418	19.3	50.0	
29 Tetrachloroethene	250.0000	242.1775	3.1	50.0	
30 1,1,2,2-Tetrachloroethane	250.0000	257.7060	3.1	50.0	
33 Ethylbenzene	250.0000	244.5880	2.2	20.0	
34 Styrene	250.0000	247.6772	0.9	50.0	
35 Xylenes (total)	750.0000	736.2415	1.8	50.0	

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b/UX92936.D
Report Date: 06/26/2002

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX92936.D
Analysis Type: SOIL

Injection Date: 26-JUN-2002 07:54
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N2

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
38 Dichlorodifluoromethane	250.0000	251.7829	0.7	50.0
39 Trichlorofluoromethane	250.0000	266.4024	6.6	50.0
39 Chlorobenzene-d5	250.0000	250.0000	0.0	50.0
40 Acrolein	2500.0000	2276.1498	9.0	50.0
41 Acrylonitrile	2500.0000	2715.6398	8.6	50.0
42 Vinyl acetate	250.0000	257.4750	3.0	50.0
43 2-Chloroethyl vinyl ether	500.0000	464.6548	7.1	50.0
47 Freon-113	250.0000	249.1837	0.3	50.0
48 1,3-Dichlorobenzene	250.0000	244.7761	2.1	50.0
49 1,4-Dichlorobenzene	250.0000	242.8557	2.9	50.0
50 1,2-Dichlorobenzene	250.0000	238.8071	4.5	50.0
51 Acetonitrile	2500.0000	2943.5933	17.7	50.0
52 Iodomethane	250.0000	248.0454	0.8	50.0
59 1,4-Dioxane	12500.0000	10832.4614	13.3	50.0
60 Dibromomethane	250.0000	241.6088	3.4	50.0
62 Ethyl Methacrylate	250.0000	251.6059	0.6	50.0
63 1,2-Dibromoethane	250.0000	250.6727	0.3	50.0
64 1,1,1,2-Tetrachloroethane	250.0000	253.9176	1.6	50.0
65 1,2,3-Trichloropropane	250.0000	248.1316	0.7	50.0
66 1,4-Dichloro-2-butene	250.0000	261.1233	4.4	50.0
69 1,2-Dibromo-3-chloropropane	250.0000	254.8991	2.0	50.0
82 Methyl tert-butyl ether	250.0000	258.8067	3.5	50.0
84 Tetrahydrofuran	250.0000	269.6369	7.9	50.0
97 tert-Butyl Alcohol	5000.0000	4738.8758	5.2	50.0
98 Cyclohexane	250.0000	250.4041	0.2	50.0
99 Hexane	250.0000	247.4995	1.0	50.0
102 2,2-Dichloropropane	250.0000	251.4700	0.6	50.0
103 1,1-Dichloropropene	250.0000	242.8670	2.9	50.0
104 1,3-Dichloropropane	250.0000	245.6316	1.7	50.0
105 Isopropylbenzene	250.0000	243.5292	2.6	50.0
106 Bromobenzene	250.0000	234.8758	6.0	50.0
107 2-Chlorotoluene	250.0000	242.0654	3.2	50.0
108 n-Propylbenzene	250.0000	240.8797	3.6	50.0
109 4-Chlorotoluene	250.0000	240.2339	3.9	50.0
110 1,3,5-Trimethylbenzene	250.0000	244.6673	2.1	50.0
111 tert-Butylbenzene	250.0000	236.0705	5.6	50.0
112 1,2,4-Trimethylbenzene	250.0000	245.4752	1.8	50.0
113 sec-Butylbenzene	250.0000	243.7181	2.5	50.0
114 4-Isopropyltoluene	250.0000	248.3683	0.7	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b/UX92936.D
Report Date: 06/26/2002

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux9.i
Lab File ID: UX92936.D
Analysis Type: SOIL

Injection Date: 26-JUN-2002 07:54
Lab Sample ID: 250NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N2

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
115 n-Butylbenzene	250.0000	251.8175	0.7	50.0
116 1,2,4-Trichlorobenzene	250.0000	234.7424	6.1	50.0
117 Naphthalene	250.0000	230.7366	7.7	50.0
118 Hexachlorobutadiene	250.0000	241.0629	3.6	50.0
119 1,2,3-Trichlorobenzene	250.0000	229.4009	8.2	50.0
132 Bromochloromethane	250.0000	244.7111	2.1	50.0
137 1,3,5-Trichlorobenzene	250.0000	247.3878	1.0	50.0
138 Methyl Acetate	500.0000	562.5354	12.5	50.0
139 Methylcyclohexane	250.0000	242.7205	2.9	50.0
22 Toluene-d8	250.0000	217.2012	13.1	50.0
32 Bromofluorobenzene	250.0000	225.8569	9.7	50.0
47 1,2-Dichloroethane-d4	250.0000	193.0189	22.8	50.0
125 Dibromofluoromethane	250.0000	206.7364	17.3	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b\UX92936.D Page 1
Report Date: 26-Jun-2002 09:04

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 26-JUN-2002 07:54
Lab File ID: UX92936.D Init. Cal. Date(s): 18-MAY-2002 19-JUN-2002
Analysis Type: SOIL Init. Cal. Times: 19:35 12:01
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b\8260SUX9-3.m

	COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D	
$	4 1,2-Dichloroethane-d4	0.29501	0.22777	0.010	-22.8	50.0	
$	5 Toluene-d8	1.29509	1.12518	0.010	-13.1	50.0	
$	6 Bromofluorobenzene	0.52270	0.47222	0.010	-9.7	50.0	
$	7 Dibromofluoromethane	0.20193	0.16698	0.010	-17.3	50.0	
	8 Dichlorodifluoromethane	0.26010	0.26195	0.010	0.7	50.0	
	9 Chloromethane	0.57143	0.59105	0.100	3.4	50.0	
	10 Vinyl Chloride	0.40146	0.38378	0.010	-4.4	20.0	
	11 Bromomethane	250	266	0.010	-6.4	50.0	
	12 Chloroethane	0.21030	0.21289	0.010	1.2	50.0	
	13 Trichlorofluoromethane	0.28457	0.30324	0.010	6.6	50.0	
	14 Acrolein	0.05054	0.04601	0.010	-9.0	50.0	
	16 1,1-Dichloroethene	0.21844	0.21025	0.050	-3.7	20.0	
	15 Acetone	500	774	0.010	-54.7	50.0	<-
	54 Freon-113	0.18985	0.18923	0.010	-0.3	50.0	
	56 Iodomethane	0.32653	0.32398	0.010	-0.8	50.0	
	18 Carbon Disulfide	0.73784	0.72547	0.010	-1.7	50.0	
	55 Acetonitrile	0.04966	0.05848	0.010	17.7	50.0	
	17 Methylene Chloride	0.25290	0.24425	0.010	-3.4	50.0	
	19 Acrylonitrile	0.15695	0.17049	0.010	8.6	50.0	
	78 Methyl tert-butyl ether	0.63754	0.65999	0.010	3.5	50.0	
	84 Hexane	0.52575	0.52050	0.010	-1.0	50.0	
	21 Vinyl acetate	0.62209	0.64070	0.010	3.0	50.0	
	22 1,1-Dichloroethane	0.52443	0.50748	0.100	-3.2	50.0	
	23 2-Butanone	0.25446	0.32616	0.010	28.2	50.0	
	20 trans-1,2-Dichloroethene	0.24982	0.24043	0.010	-3.8	50.0	
	24 cis-1,2-dichloroethene	0.27056	0.25537	0.010	-5.6	50.0	
M	25 1,2-Dichloroethene (total)	0.26019	0.24790	0.010	-4.7	50.0	
	86 2,2-Dichloropropane	0.23591	0.23730	0.010	0.6	50.0	
	111 Bromochloromethane	0.12170	0.11912	0.010	-2.1	50.0	
	79 Tetrahydrofuran	0.13689	0.14764	0.010	7.9	50.0	
	26 Chloroform	0.39760	0.38342	0.010	-3.6	20.0	
	27 1,1,1-Trichloroethane	0.32261	0.32333	0.010	0.2	50.0	
	87 1,1-Dichloropropene	0.31932	0.31021	0.010	-2.9	50.0	
	28 Carbon Tetrachloride	0.27535	0.27679	0.010	0.5	50.0	
	29 1,2-Dichloroethane	0.41371	0.40076	0.010	-3.1	50.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 26-JUN-2002 07:54
Lab File ID: UX92936.D Init. Cal. Date(s): 18-MAY-2002 19-JUN-2002
Analysis Type: SOIL Init. Cal. Times: 19:35 12:01
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b\8260SUX9-3.m

	COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D	
	30 Benzene	1.04259	1.00038	0.010	-4.0	50.0	
	31 Trichloroethene	0.26039	0.24745	0.010	-5.0	50.0	
	32 1,2-Dichloropropane	0.31408	0.30433	0.010	-3.1	20.0	
	63 1,4-Dioxane	0.00305	0.00265	0.010	-13.3	50.0	<-
	64 Dibromomethane	0.13353	0.12905	0.010	-3.4	50.0	
	33 Bromodichloromethane	0.29054	0.28968	0.010	-0.3	50.0	
	34 2-Chloroethyl vinyl ether	0.17885	0.16621	0.010	-7.1	50.0	
	36 cis-1,3-Dichloropropene	0.37961	0.37068	0.010	-2.4	50.0	
	35 4-Methyl-2-pentanone	0.44592	0.50771	0.010	13.9	50.0	
	37 Toluene	1.59109	1.55468	0.010	-2.3	20.0	
	38 trans-1,3-Dichloropropene	0.45648	0.46054	0.010	0.9	50.0	
	65 Ethyl Methacrylate	0.45213	0.45504	0.010	0.6	50.0	
	40 1,1,2-Trichloroethane	0.30032	0.29469	0.010	-1.9	50.0	
	88 1,3-Dichloropropane	0.54047	0.53103	0.010	-1.7	50.0	
	41 Tetrachloroethene	0.26870	0.26029	0.010	-3.1	50.0	
	39 2-Hexanone	0.54134	0.64565	0.010	19.3	50.0	
	42 Dibromochloromethane	0.28853	0.29548	0.010	2.4	50.0	
	66 1,2-Dibromoethane	0.29449	0.29528	0.010	0.3	50.0	
	43 Chlorobenzene	1.06191	1.01716	0.300	-4.2	50.0	
	44 Ethylbenzene	0.58340	0.57077	0.010	-2.2	20.0	
	45 m + p-Xylene	0.71147	0.70262	0.010	-1.2	50.0	
	46 Xylene-o	0.70870	0.68732	0.010	-3.0	50.0	
M	47 Xylenes (total)	0.71055	0.69752	0.010	-1.8	50.0	
	48 Styrene	1.16731	1.15647	0.010	-0.9	50.0	
	49 Bromoform	0.17214	0.18334	0.100	6.5	50.0	
	89 Isopropylbenzene	1.80253	1.75587	0.010	-2.6	50.0	
	50 1,1,2,2-Tetrachloroethane	0.73595	0.75863	0.300	3.1	50.0	
	90 Bromobenzene	0.77320	0.72642	0.010	-6.0	50.0	
	68 1,2,3-Trichloropropane	0.94227	0.93522	0.010	-0.7	50.0	
	69 1,4-Dichloro-2-butene	0.36022	0.37625	0.010	4.4	50.0	
	92 n-Propylbenzene	0.98290	0.94704	0.010	-3.6	50.0	
	91 2-Chlorotoluene	0.82194	0.79585	0.010	-3.2	50.0	
	94 1,3,5-Trimethylbenzene	2.91158	2.84948	0.010	-2.1	50.0	
	93 4-Chlorotoluene	0.86116	0.82752	0.010	-3.9	50.0	
	95 tert-Butylbenzene	2.72280	2.57109	0.010	-5.6	50.0	
	96 1,2,4-Trimethylbenzene	3.01211	2.95759	0.010	-1.8	50.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux9.i Injection Date: 26-JUN-2002 07:54
Lab File ID: UX92936.D Init. Cal. Date(s): 18-MAY-2002 19-JUN-2002
Analysis Type: SOIL Init. Cal. Times: 19:35 12:01
Lab Sample ID: 250NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux9.i\N20626A.b\8260SUX9-3.m

COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D
97 sec-Butylbenzene	3.93130	3.83252	0.010	-2.5	50.0
51 1,3-Dichlorobenzene	1.58884	1.55564	0.010	-2.1	50.0
52 1,4-Dichlorobenzene	1.63960	1.59275	0.010	-2.9	50.0
53 1,2-Dichlorobenzene	1.54371	1.47459	0.010	-4.5	50.0
98 4-Isopropyltoluene	3.18909	3.16828	0.010	-0.7	50.0
99 n-Butylbenzene	2.94770	2.96913	0.010	0.7	50.0
100 1,2,4-Trichlorobenzene	1.03362	0.97054	0.010	-6.1	50.0
102 Hexachlorobutadiene	0.50754	0.48939	0.010	-3.6	50.0
101 Naphthalene	2.81593	2.59896	0.010	-7.7	50.0
103 1,2,3-Trichlorobenzene	0.95382	0.87523	0.010	-8.2	50.0
82 tert-Butyl Alcohol	0.03853	0.03652	0.010	-5.2	50.0
138 Methyl Acetate	0.34459	0.38769	0.010	12.5	50.0
139 Methylcyclohexane	0.46350	0.45001	0.010	-2.9	50.0
83 Cyclohexane	0.69501	0.69613	0.010	0.2	50.0
137 1,3,5-Trichlorobenzene	1.12484	1.11308	0.010	-1.0	50.0
67 1,1,1,2-Tetrachloroethane	0.33222	0.33743	0.010	1.6	50.0
72 1,2-Dibromo-3-chloropropane	0.13873	0.14144	0.010	2.0	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b/UXX2499.D
Report Date: 06/20/2002

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux10.i
Lab File ID: UXX2499.D
Analysis Type: WATER

Injection Date: 20-JUN-2002 17:50
Lab Sample ID: 50NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux10.i\

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D	
39 Chlorobenzene-d5	50.0000	50.0000	0.0	50.0	
40 Acrolein	500.0000	166.9157	66.6	50.0	<-
41 Acrylonitrile	500.0000	507.4704	1.5	50.0	
42 Vinyl acetate	50.0000	39.2458	21.5	50.0	
43 2-Chloroethyl vinyl ether	100.0000	103.4187	3.4	50.0	
47 Freon-113	50.0000	59.0661	18.1	50.0	
48 1,3-Dichlorobenzene	50.0000	46.1291	7.7	50.0	
49 1,4-Dichlorobenzene	50.0000	45.6355	8.7	50.0	
50 1,2-Dichlorobenzene	50.0000	45.9385	8.1	50.0	
51 Acetonitrile	500.0000	514.1079	2.8	50.0	
52 Iodomethane	50.0000	57.5721	15.1	50.0	
59 1,4-Dioxane	2500.0000	2891.9699	15.7	50.0	
60 Dibromomethane	50.0000	53.5081	7.0	50.0	
62 Ethyl Methacrylate	50.0000	44.0425	11.9	50.0	
63 1,2-Dibromoethane	50.0000	49.6472	0.7	50.0	
64 1,1,1,2-Tetrachloroethane	50.0000	51.7737	3.5	50.0	
65 1,2,3-Trichloropropane	50.0000	46.3238	7.4	50.0	
66 1,4-Dichloro-2-butene	50.0000	31.5904	36.8	50.0	
69 1,2-Dibromo-3-chloropropane	50.0000	51.3784	2.8	50.0	
82 Methyl tert-butyl ether	50.0000	38.1401	23.7	50.0	
84 Tetrahydrofuran	50.0000	50.0466	0.1	50.0	
98 2,2-Dichloropropane	50.0000	40.4383	19.1	50.0	
99 1,1-Dichloropropene	50.0000	48.7058	2.6	50.0	
100 1,3-Dichloropropane	50.0000	44.5847	10.8	50.0	
102 Bromobenzene	50.0000	46.4079	7.2	50.0	
103 2-Chlorotoluene	50.0000	42.2943	15.4	50.0	
104 n-Propylbenzene	50.0000	43.0731	13.9	50.0	
105 4-Chlorotoluene	50.0000	44.8561	10.3	50.0	
106 1,3,5-Trimethylbenzene	50.0000	42.7962	14.4	50.0	
107 tert-Butylbenzene	50.0000	42.6551	14.7	50.0	
108 1,2,4-Trimethylbenzene	50.0000	42.4371	15.1	50.0	
109 sec-Butylbenzene	50.0000	40.7819	18.4	50.0	
110 4-Isopropyltoluene	50.0000	43.6334	12.7	50.0	
111 n-Butylbenzene	50.0000	39.6746	20.7	50.0	
112 1,2,4-Trichlorobenzene	50.0000	43.2925	13.4	50.0	
113 Naphthalene	50.0000	40.9054	18.2	50.0	
114 Hexachlorobutadiene	50.0000	47.1519	5.7	50.0	
115 1,2,3-Trichlorobenzene	50.0000	46.2939	7.4	50.0	
124 tert-Butyl Alcohol	1000.0000	929.3220	7.1	50.0	

Data File: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b/UXX2499.D
Report Date: 06/20/2002

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: a3ux10.i
Lab File ID: UXX2499.D
Analysis Type: WATER

Injection Date: 20-JUN-2002 17:50
Lab Sample ID: 50NG-CC
Method File: \\qcanoh04\dd\chem\MSV\a3ux10.i\

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
125 Hexane	50.0000	54.5607	9.1	50.0
127 Cyclohexane	50.0000	46.2449	7.5	50.0
128 Isopropylbenzene	50.0000	45.2980	9.4	50.0
130 Fluorobenzene	50.0000	50.0000	0.0	50.0
132 1,4-Dichlorobenzene-d4	50.0000	50.0000	0.0	50.0
133 Bromochloromethane	50.0000	53.4069	6.8	50.0
141 1,3,5-Trichlorobenzene	50.0000	44.0219	12.0	50.0
143 Methyl Acetate	100.0000	99.7554	0.2	50.0
144 Methylcyclohexane	50.0000	48.8033	2.4	50.0
22 Toluene-d8	50.0000	48.5157	3.0	50.0
32 Bromofluorobenzene	50.0000	45.6950	8.6	50.0
47 1,2-Dichloroethane-d4	50.0000	45.6611	8.7	50.0
131 Dibromofluoromethane	50.0000	54.0138	8.0	50.0

Data File: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b\UXX2499.D
Report Date: 20-Jun-2002 18:51

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux10.i Injection Date: 20-JUN-2002 17:50
Lab File ID: UXX2499.D Init. Cal. Date(s): 11-MAR-2002 07-MAY-2002
Analysis Type: WATER Init. Cal. Times: 13:32 12:01
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b\8260LLUX10.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
$	4 Dibromofluoromethane	0.20454	0.22096	0.010	8.0	50.0	
$	5 1,2-Dichloroethane-d4	0.25521	0.23307	0.010	-8.7	50.0	
$	6 Toluene-d8	1.16172	1.12723	0.010	-3.0	50.0	
$	7 Bromofluorobenzene	0.44739	0.40887	0.010	-8.6	50.0	
	8 Dichlorodifluoromethane	0.20605	0.25171	0.010	22.2	50.0	
	9 Chloromethane	0.35347	0.36104	0.100	2.1	50.0	
	10 Vinyl Chloride	0.34807	0.35786	0.010	2.8	20.0	
	11 Bromomethane	0.21734	0.22307	0.010	2.6	50.0	
	12 Chloroethane	0.22773	0.22319	0.010	-2.0	50.0	
	13 Trichlorofluoromethane	0.30762	0.40225	0.010	30.8	50.0	
	15 Acrolein	0.04061	0.01356	0.010	-66.6	50.0	<-
	16 Acetone	100	126	0.010	-26.4	50.0	
	17 1,1-Dichloroethene	0.22574	0.25473	0.010	12.8	20.0	
	18 Freon-113	0.19893	0.23500	0.010	18.1	50.0	
	19 Iodomethane	0.34711	0.39968	0.010	15.1	50.0	
	20 Carbon Disulfide	0.79412	0.82591	0.010	4.0	50.0	
	21 Methylene Chloride	0.24997	0.27005	0.010	8.0	50.0	
	22 Acetonitrile	0.03746	0.03852	0.010	2.8	50.0	
	23 Acrylonitrile	0.11315	0.11484	0.010	1.5	50.0	
	24 Methyl tert-butyl ether	0.59524	0.45405	0.010	-23.7	50.0	
	25 trans-1,2-Dichloroethene	0.25188	0.26154	0.010	3.8	50.0	
	26 Hexane	0.05452	0.05949	0.010	9.1	50.0	
	27 Vinyl acetate	0.46556	0.36543	0.010	-21.5	50.0	
	28 1,1-Dichloroethane	0.44332	0.39440	0.100	-11.0	50.0	
	29 tert-Butyl Alcohol	0.02392	0.02223	0.010	-7.1	50.0	
	30 2-Butanone	100	117	0.010	-17.3	50.0	
M	31 1,2-Dichloroethene (total)	0.25466	0.26213	0.010	2.9	50.0	
	32 cis-1,2-dichloroethene	0.25744	0.26272	0.010	2.1	50.0	
	33 2,2-Dichloropropane	0.23285	0.18832	0.010	-19.1	50.0	
	34 Bromochloromethane	0.12407	0.13253	0.010	6.8	50.0	
	35 Chloroform	0.37328	0.37030	0.010	-0.8	20.0	
	36 Tetrahydrofuran	50.00000	50.04658	0.010	-0.1	50.0	
	37 1,1,1-Trichloroethane	0.29304	0.29692	0.010	1.3	50.0	
	38 1,1-Dichloropropene	0.30738	0.29942	0.010	-2.6	50.0	
	39 Carbon Tetrachloride	0.23788	0.29403	0.010	23.6	50.0	
	40 1,2-Dichloroethane	0.31571	0.28099	0.010	-11.0	50.0	

Data File: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b\UXX2499.D
Report Date: 20-Jun-2002 18:51

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux10.i Injection Date: 20-JUN-2002 17:50
Lab File ID: UXX2499.D Init. Cal. Date(s): 11-MAR-2002 07-MAY-2002
Analysis Type: WATER Init. Cal. Times: 13:32 12:01
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b\8260LLUX10.m

	COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D	
	41 Benzene	1.06082	1.00998	0.010	-4.8	50.0	
	42 Trichloroethene	0.26455	0.27878	0.010	5.4	50.0	
	43 1,2-Dichloropropane	0.27155	0.23996	0.010	-11.6	20.0	
	44 1,4-Dioxane	0.00293	0.00338	0.010	15.7	50.0	<-
	45 Dibromomethane	0.13305	0.14239	0.010	7.0	50.0	
	46 Bromodichloromethane	0.28288	0.27921	0.010	-1.3	50.0	
	47 2-Chloroethyl vinyl ether	0.10468	0.10826	0.010	3.4	50.0	
	48 cis-1,3-Dichloropropene	0.38348	0.34730	0.010	-9.4	50.0	
	49 4-Methyl-2-pentanone	0.30974	0.30706	0.010	-0.9	50.0	
	50 Toluene	1.45303	1.36865	0.010	-5.8	20.0	
	51 trans-1,3-Dichloropropene	0.42650	0.36119	0.010	-15.3	50.0	
	52 Ethyl Methacrylate	0.47093	0.41482	0.010	-11.9	50.0	
	53 1,1,2-Trichloroethane	0.28508	0.26882	0.010	-5.7	50.0	
	54 1,3-Dichloropropane	0.52140	0.46493	0.010	-10.8	50.0	
	55 Tetrachloroethene	0.26338	0.28116	0.010	6.8	50.0	
	56 2-Hexanone	0.32730	0.30510	0.010	-6.8	50.0	
	57 Dibromochloromethane	0.27608	0.28658	0.010	3.8	50.0	
	58 1,2-Dibromoethane	0.28646	0.28444	0.010	-0.7	50.0	
	59 Chlorobenzene	0.93406	0.89875	0.300	-3.8	50.0	
	60 1,1,1,2-Tetrachloroethane	0.29746	0.30801	0.010	3.5	50.0	
	61 Ethylbenzene	0.52729	0.48887	0.010	-7.3	20.0	
	62 m + p-Xylene	0.65025	0.62477	0.010	-3.9	50.0	
M	63 Xylenes (total)	0.64505	0.61448	0.010	-4.7	50.0	
	64 Xylene-o	0.63464	0.59390	0.010	-6.4	50.0	
	65 Styrene	1.06414	1.02133	0.010	-4.0	50.0	
	66 Bromoform	0.18712	0.20841	0.100	11.4	50.0	
	67 Isopropylbenzene	1.53464	1.39032	0.010	-9.4	50.0	
	68 1,1,2,2-Tetrachloroethane	0.71558	0.63703	0.300	-11.0	50.0	
	69 1,4-Dichloro-2-butene	0.18530	0.11708	0.010	-36.8	50.0	
	70 1,2,3-Trichloropropane	0.22727	0.21056	0.010	-7.4	50.0	
	71 Bromobenzene	0.74147	0.68820	0.010	-7.2	50.0	
	72 n-Propylbenzene	0.80544	0.69386	0.010	-13.9	50.0	
	73 2-Chlorotoluene	0.71815	0.60747	0.010	-15.4	50.0	
	74 1,3,5-Trimethylbenzene	2.23901	1.91643	0.010	-14.4	50.0	
	75 4-Chlorotoluene	0.73842	0.66245	0.010	-10.3	50.0	
	76 tert-Butylbenzene	1.96878	1.67957	0.010	-14.7	50.0	

Data File: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b\UXX2499.D
Report Date: 20-Jun-2002 18:51

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a3ux10.i Injection Date: 20-JUN-2002 17:50
Lab File ID: UXX2499.D Init. Cal. Date(s): 11-MAR-2002 07-MAY-2002
Analysis Type: WATER Init. Cal. Times: 13:32 12:01
Lab Sample ID: 50NG-CC Quant Type: ISTD
Method: \\qcanoh04\dd\chem\MSV\a3ux10.i\P20620A.b\8260LLUX10.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
77 1,2,4-Trimethylbenzene	2.32765	1.97557	0.010	-15.1	50.0
78 sec-Butylbenzene	2.67351	2.18061	0.010	-18.4	50.0
79 4-Isopropyltoluene	2.14525	1.87209	0.010	-12.7	50.0
80 1,3-Dichlorobenzene	1.38546	1.27820	0.010	-7.7	50.0
81 1,4-Dichlorobenzene	1.46859	1.34040	0.010	-8.7	50.0
82 n-Butylbenzene	1.75090	1.38933	0.010	-20.7	50.0
83 1,2-Dichlorobenzene	1.35355	1.24360	0.010	-8.1	50.0
84 1,2-Dibromo-3-chloropropane	0.11022	0.11326	0.010	2.8	50.0
85 1,2,4-Trichlorobenzene	0.59130	0.51198	0.010	-13.4	50.0
86 Hexachlorobutadiene	0.25096	0.23667	0.010	-5.7	50.0
87 Naphthalene	1.37492	1.12484	0.010	-18.2	50.0
88 1,2,3-Trichlorobenzene	0.47921	0.44369	0.010	-7.4	50.0
98 Cyclohexane	0.43111	0.39873	0.010	-7.5	50.0
143 Methyl Acetate	0.23675	0.23618	0.010	-0.2	50.0
144 Methylcyclohexane	0.35609	0.34757	0.010	-2.4	50.0
141 1,3,5-Trichlorobenzene	0.74045	0.65192	0.010	-12.0	50.0

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hpl2.i
Lab File ID: 009-0901.D
Analysis Type:
Lab Sample ID: ICV
Method: \\QCANOH04\DD\chem\GCLC\a2hpl2.i\020617IC-1.b\HPL2_LC.m

Injection Date: 17-JUN-2002 19:58
Init. Cal. Date(s): 23-MAR-2000 17-JUN-2002
Init. Cal. Times: 10:13 19:34
Quant Type: ESTD

	COMPOUND	RRF	RF2	MIN RRF	%D	MAX %D	
	2 Naphthalene	30006	26652	0.010	-11.2	15.0	
	3 1-Methyl Naphthalene	25161	18659	0.010	-25.8	15.0	<-
	4 2-Methyl Naphthalene	17390	17847	0.010	2.6	15.0	
	5 Acenaphthene	4363	3490	0.010	-20.0	15.0	<-
	6 Fluorene	244115	228623	0.010	-6.3	15.0	
	7 Phenanthrene	2966923	2954377	0.010	-0.4	15.0	
	8 Anthracene	9371773	7384435	0.010	-21.2	15.0	<-
	9 Fluoranthene	178797	172189	0.010	-3.7	15.0	
	10 Pyrene	4333043	4411911	0.010	1.8	15.0	
$	11 Terphenyl-d14	1585122	70614	0.010	-95.5	15.0	<-
	12 Benz(a)anthracene	8029181	8320478	0.010	3.6	15.0	
	13 Chrysene	5646686	5787609	0.010	2.5	15.0	
$	14 Benz(e)pyrene	2254220	91342	0.010	-95.9	15.0	<-
	15 Benz(b)fluoranthene	2064024	1946843	0.010	-5.7	15.0	
	16 Benz(k)fluoranthene	9499920	9706777	0.010	2.2	15.0	
	17 Benz(a)pyrene	7673210	8018777	0.010	4.5	15.0	
	18 Dibenz(a,h)anthracene	1721732	1726818	0.010	0.3	15.0	
	19 Benz(ghi)perylene	1313709	1377414	0.010	4.8	15.0	
	20 Indeno(1,2,3-cd)pyrene	1589238	1636581	0.010	3.0	15.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hpl2.i
Lab File ID: 009-0901.D
Analysis Type:
Lab Sample ID: ICV
Method: \\QCANOH04\DD\chem\GCLC\a2hpl2.i\020617IC-2.b\HPL2_LCu.m

Injection Date: 17-JUN-2002 19:58
Init. Cal. Date(s): 17-JUN-2002 17-JUN-2002
Init. Cal. Times: 17:13 19:34
Quant Type: ESTD

	COMPOUND	RRF	RF2	MIN RRF	%D	MAX %D	
	2 Naphthalene	9683	9506	0.010	-1.8	15.0	
	3 Acenaphthylene	6387	6193	0.010	-3.0	15.0	
	4 1-Methyl naphthalene	5875	5782	0.010	-1.6	15.0	
	5 2-Methyl naphthalene	7742	7528	0.010	-2.8	15.0	
	6 Acenaphthene	489	463	0.010	-5.2	15.0	
	7 Fluorene	5603	5248	0.010	-6.3	15.0	
	8 Phenanthrene	100880	100052	0.010	-0.8	15.0	
	9 Anthracene	209808	193463	0.010	-7.8	15.0	
	10 Fluoranthene	24144	24297	0.010	0.6	15.0	
	11 Pyrene	20576	21057	0.010	2.3	15.0	
$	12 Terphenyl-d14	22475	886	0.010	-96.1	15.0	<-
	13 Benz(a)anthracene	59178	59593	0.010	0.7	15.0	
	14 Chrysene	92276	93422	0.010	1.2	15.0	
$	15 Benz(e)pyrene	34581	1365	0.010	-96.1	15.0	<-
	16 Benz(b)fluoranthene	65891	65587	0.010	-0.5	15.0	
	17 Benz(k)fluoranthene	46637	45860	0.010	-1.7	15.0	
	18 Benz(a)pyrene	53553	56004	0.010	4.6	15.0	
	19 Dibenz(a,h)anthracene	14170	15273	0.010	7.8	15.0	
	20 Benz(ghi)perylene	22164	24287	0.010	9.6	15.0	
	21 Indeno(1,2,3-cd)pyrene	56734	56631	0.010	-0.2	15.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hpl2.i Injection Date: 25-JUN-2002 23:57
Lab File ID: 014-1401.D Init. Cal. Date(s): 23-MAR-2000 17-JUN-2002
Analysis Type: Init. Cal. Times: 10:13 19:34
Lab Sample ID: C913 Quant Type: ESTD
Method: \\QCANOH04\DD\chem\GCLC\a2hpl2.i\020625-1.b\HPL2_LC.m

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
	2 Naphthalene	30006	29145	0.010	-2.9	15.0	
	3 1-Methyl Naphthalene	25161	20714	0.010	-17.7	15.0	<-
	4 2-Methyl Naphthalene	17390	16828	0.010	-3.2	15.0	
	5 Acenaphthene	4363	3064	0.010	-29.8	15.0	<-
	6 Fluorene	244115	200039	0.010	-18.1	15.0	<-
	7 Phenanthrene	2966923	2979357	0.010	0.4	15.0	
	8 Anthracene	9371773	9169301	0.010	-2.2	15.0	
	9 Fluoranthene	178797	194797	0.010	8.9	15.0	
	10 Pyrene	4333043	4291739	0.010	-1.0	15.0	
$	11 Terphenyl-d14	1585122	1745036	0.010	10.1	15.0	
	12 Benz(a)anthracene	8029181	8567115	0.010	6.7	15.0	
	13 Chrysene	5646686	5797814	0.010	2.7	15.0	
$	14 Benz(e)pyrene	2254220	2391295	0.010	6.1	15.0	
	15 Benz(b)fluoranthene	2064024	2051444	0.010	-0.6	15.0	
	16 Benz(k)fluoranthene	9499920	10276237	0.010	8.2	15.0	
	17 Benz(a)pyrene	7673210	8054161	0.010	5.0	15.0	
	18 Dibenz(a,h)anthracene	1721732	1554151	0.010	-9.7	15.0	
	19 Benz(ghi)perylene	1313709	1103390	0.010	-16.0	15.0	<-
	20 Indeno(1,2,3-cd)pyrene	1589238	1609343	0.010	1.3	15.0	

STL - North Canton

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hpl2.i Injection Date: 26-JUN-2002 10:01
Lab File ID: 027-0401.D Init. Cal. Date(s): 23-MAR-2000 17-JUN-2002
Analysis Type: Init. Cal. Times: 10:13 19:34
Lab Sample ID: C913 Quant Type: ESTD
Method: \\QCANOH04\DD\chem\GCLC\a2hpl2.i\020625-1.b\HPL2_LC.m

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
	2 Naphthalene	30006	36735	0.010	22.4	15.0	<-
	3 1-Methyl Naphthalene	25161	20830	0.010	-17.2	15.0	<-
	4 2-Methyl Naphthalene	17390	13943	0.010	-19.8	15.0	<-
	5 Acenaphthene	4363	2754	0.010	-36.9	15.0	<-
	6 Fluorene	244115	201729	0.010	-17.4	15.0	<-
	7 Phenanthrene	2966923	3004798	0.010	1.3	15.0	
	8 Anthracene	9371773	9143712	0.010	-2.4	15.0	
	9 Fluoranthene	178797	155125	0.010	-13.2	15.0	
	10 Pyrene	4333043	4428505	0.010	2.2	15.0	
$	11 Terphenyl-d14	1585122	1735192	0.010	9.5	15.0	
	12 Benz(a)anthracene	8029181	8683137	0.010	8.1	15.0	
	13 Chrysene	5646686	5894772	0.010	4.4	15.0	
$	14 Benz(e)pyrene	2254220	2422196	0.010	7.5	15.0	
	15 Benz(b)fluoranthene	2064024	2081447	0.010	0.8	15.0	
	16 Benz(k)fluoranthene	9499920	10294589	0.010	8.4	15.0	
	17 Benz(a)pyrene	7673210	8627043	0.010	12.4	15.0	
	18 Dibenz(a,h)anthracene	1721732	1654097	0.010	-3.9	15.0	
	19 Benz(ghi)perylene	1313709	1258690	0.010	-4.2	15.0	
	20 Indeno(1,2,3-cd)pyrene	1589238	1565651	0.010	-1.5	15.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hpl2.i Injection Date: 25-JUN-2002 23:57
Lab File ID: 014-1401.D Init. Cal. Date(s): 17-JUN-2002 17-JUN-2002
Analysis Type: Init. Cal. Times: 17:13 19:34
Lab Sample ID: C913 Quant Type: ESTD
Method: \\QCANOH04\DD\chem\GCLC\a2hpl2.i\020625-2.b\HPL2_LCu.m

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
	1 Carbazole	++++	13928	0.010	++++	15.0	<-
	2 Naphthalene	9683	9910	0.010	2.3	15.0	
	3 Acenaphthylene	6387	6535	0.010	2.3	15.0	
	4 1-Methyl naphthalene	5875	5940	0.010	1.1	15.0	
	5 2-Methyl naphthalene	7742	7906	0.010	2.1	15.0	
	6 Acenaphthene	489	416	0.010	-14.8	15.0	
	7 Fluorene	5603	4715	0.010	-15.8	15.0	<-
	8 Phenanthrene	100880	102242	0.010	1.4	15.0	
	9 Anthracene	209808	219999	0.010	4.9	15.0	
	10 Fluoranthene	24144	24723	0.010	2.4	15.0	
	11 Pyrene	20576	20397	0.010	-0.9	15.0	
$	12 Terphenyl-d14	22475	22845	0.010	1.6	15.0	
	13 Benz(a)anthracene	59178	60062	0.010	1.5	15.0	
	14 Chrysene	92276	93326	0.010	1.1	15.0	
$	15 Benz(e)pyrene	34581	34889	0.010	0.9	15.0	
	16 Benz(b)fluoranthene	65891	68272	0.010	3.6	15.0	
	17 Benz(k)fluoranthene	46637	47875	0.010	2.7	15.0	
	18 Benz(a)pyrene	53553	54544	0.010	1.9	15.0	
	19 Dibenz(a,h)anthracene	14170	14727	0.010	3.9	15.0	
	20 Benz(ghi)perylene	22164	24542	0.010	10.7	15.0	
	21 Indeno(1,2,3-cd)pyrene	56734	57567	0.010	1.5	15.0	

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: a2hpl2.i Injection Date: 26-JUN-2002 10:01
Lab File ID: 027-0401.D Init. Cal. Date(s): 17-JUN-2002 17-JUN-2002
Analysis Type: Init. Cal. Times: 17:13 19:34
Lab Sample ID: C913 Quant Type: ESTD
Method: \\QCANOH04\DD\chem\GCLC\a2hpl2.i\020625-2.b\HPL2_LCu.m

	COMPOUND	RRF	RF1	MIN RRF	%D	MAX %D	
	1 Carbazole	++++	13859	0.010	++++	15.0	<-
	2 Naphthalene	9683	9867	0.010	1.9	15.0	
	3 Acenaphthylene	6387	6501	0.010	1.8	15.0	
	4 1-Methyl naphthalene	5875	5883	0.010	0.1	15.0	
	5 2-Methyl naphthalene	7742	7866	0.010	1.6	15.0	
	6 Acenaphthene	489	416	0.010	-14.8	15.0	
	7 Fluorene	5603	4728	0.010	-15.6	15.0	<-
	8 Phenanthrene	100880	101492	0.010	0.6	15.0	
	9 Anthracene	209808	219806	0.010	4.8	15.0	
	10 Fluoranthene	24144	24591	0.010	1.8	15.0	
	11 Pyrene	20576	21684	0.010	5.4	15.0	
$	12 Terphenyl-d14	22475	22629	0.010	0.7	15.0	
	13 Benz(a)anthracene	59178	59623	0.010	0.8	15.0	
	14 Chrysene	92276	92858	0.010	0.6	15.0	
$	15 Benz(e)pyrene	34581	34744	0.010	0.5	15.0	
	16 Benz(b)fluoranthene	65891	68287	0.010	3.6	15.0	
	17 Benz(k)fluoranthene	46637	47644	0.010	2.2	15.0	
	18 Benz(a)pyrene	53553	57717	0.010	7.8	15.0	
	19 Dibenz(a,h)anthracene	14170	15447	0.010	9.0	15.0	
	20 Benz(ghi)perylene	22164	25487	0.010	15.0	15.0	
	21 Indeno(1,2,3-cd)pyrene	56734	56496	0.010	-0.4	15.0	

SEVERN TRENT SERVICES
STL Tampa

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Case Narrative: STL Project B212439

Client: Tetra Tech NUS

Project: Tetra Tech

Laboratory: STL Tampa

Eight liquid samples were received on June 20, 2002 and logged in as STL Project B212439.

FL PRO
The recovery for FL PRO in the MS/MSD were outside advisory limits. The LCS indicated acceptable method performance.

No additional QA/QC issues were noted.

STL Tampa is a part of Severn Trent Laboratories, Inc.

FORM 3
WATER FL PRO MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Lab Code:

Client: Project: SDG No.: 1L0624

Matrix Spike - Sample No.: 12439-4

COMPOUND	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	MS CONC (mg/L)	MS % REC#	QC. LIMITS REC.
FLPROTPH	2.9	0.040	3.7	126*	41-101

COMPOUND	SPIKE ADDED (mg/L)	MSD CONC (mg/L)	MSD % REC#	AVG % REC	% RPD$#	QC LIMITS RPD	QC LIMITS REC.
FLPROTPH	2.9	3.6	123*	124	2.7	20	41-101

$ %RPD calculated using the spike and spike duplicate concentrations as per SW846 8000B

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 2 out of 2 outside limits

COMMENTS: _____

FORM III FL PRO

APPENDIX F

SLUG TEST DATA AND ANALYTICAL PLOTS

Site Information	
Site Name	NASP
Project Number	Site 19
	N 4176

Well Information	
Name	MW-25
Inside Diameter	2"
Total Depth	17.84 (nisk)
Depth to Water	~~10.86~~ 10.65
Water Column	7.19
Screen length	10'
TOC Elevation	

17.84
10.65
7.19

Data Logger	
Model	1000B
Serial Number	1KB-761
Test Rate	Log
Mode (TOC/SUR)	TOC
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	~~10.0945~~ 10.0509
Offset	~~0.0038~~ 0.0103
Linearity	~~0.00~~ 0.0441
PSI	10

Test	
Test Number	0
ID	2
Slug In/Out	Slug out
XD depth	17.5
XD install time	0938
XD reading	6.22
slug depth	15'
slug install time	0948
slug length	5' (to eye bolt on end)
slug diameter	1"
slug volume	–
slug displacement	–
reference setting	0.00
reference reading	6.23
start time	0954
initial displacement	3.06
end time	1005
final XD reading	6.26

Bumped XD on Slug Pull

PEN Site 19 MW-2S Slug Out 1

SE1000C
Environmental Logger
06/20 09:51

Unit# 00761 Test 0

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00002
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 09:46:53

Elapsed Time	INPUT 1
0.0000	-0.003
0.0033	0.893
0.0066	2.340
0.0100	3.065 - 3.09
0.0133	2.751
0.0166	1.682
0.0200	1.189
0.0233	1.065
0.0266	0.919
0.0300	1.046
0.0333	0.738
0.0366	1.234
0.0400	0.553
0.0433	0.518
0.0466	0.461
0.0500	0.394
0.0533	0.362
0.0566	0.308
0.0600	0.267
0.0633	0.241
0.0666	0.384
0.0700	0.407
0.0733	0.327
0.0766	-0.012
0.0800	0.155
0.0833	0.079
0.0866	0.085
0.0900	0.082
0.0933	0.079
0.0966	0.066
0.1000	0.057
0.1033	0.050
0.1066	0.044
0.1100	0.044

+0.025

PEN Site 19 MW-2S Slug Out 1

0.1133	0.038
0.1166	0.031
0.1200	0.028
0.1233	0.028
0.1266	0.025
0.1300	0.019
0.1333	0.015
0.1366	0.015
0.1400	0.015
0.1433	0.009
0.1466	0.012
0.1500	0.009
0.1533	0.009
0.1566	0.009
0.1600	0.003
0.1633	0.006
0.1666	0.003
0.1700	0.003
0.1733	0.000
0.1766	0.003
0.1800	0.000
0.1833	0.000
0.1866	-0.003
0.1900	-0.003
0.1933	-0.003
0.1966	-0.006
0.2000	-0.003
0.2033	-0.006
0.2066	-0.003
0.2100	-0.003
0.2133	-0.006
0.2166	-0.006
0.2200	-0.006
0.2233	-0.006
0.2266	-0.006
0.2300	-0.006
0.2333	-0.006
0.2366	-0.006
0.2400	-0.006
0.2433	-0.006
0.2466	-0.009
0.2500	-0.009
0.2533	-0.006
0.2566	-0.009
0.2600	-0.006
0.2633	-0.006
0.2666	-0.009
0.2700	-0.006
0.2733	-0.009
0.2766	-0.009
0.2800	-0.009
0.2833	-0.006
0.2866	-0.012
0.2900	-0.012
0.2933	-0.012
0.2966	-0.006
0.3000	-0.009

PEN Site 19 MW-2S Slug Out 1

0.3033	-0.012
0.3066	-0.015
0.3100	-0.012
0.3133	-0.012
0.3166	-0.012
0.3200	-0.009
0.3233	-0.012
0.3266	-0.012
0.3300	-0.012
0.3333	-0.012
0.3500	-0.009
0.3666	-0.012
0.3833	-0.012
0.4000	-0.012
0.4166	-0.012
0.4333	-0.015
0.4500	-0.019
0.4666	-0.019
0.4833	-0.015
0.5000	-0.019
0.5166	-0.012
0.5333	-0.022
0.5500	-0.019
0.5666	-0.019
0.5833	-0.015
0.6000	-0.012
0.6166	-0.019
0.6333	-0.022
0.6500	-0.019
0.6666	-0.019
0.6833	-0.019
0.7000	-0.022
0.7166	-0.022
0.7333	-0.019
0.7500	-0.019
0.7666	-0.019
0.7833	-0.015
0.8000	-0.019
0.8166	-0.025
0.8333	-0.019
0.8500	-0.019
0.8666	-0.022
0.8833	-0.019
0.9000	-0.022
0.9166	-0.019
0.9333	-0.015
0.9500	-0.019
0.9666	-0.019
0.9833	-0.022
1.0000	-0.019
1.2000	-0.025
1.4000	-0.022
1.6000	-0.022
1.8000	-0.025
2.0000	-0.019
2.2000	-0.025
2.4000	-0.025

PEN Site 19 MW-2S Slug Out 1

2.6000	-0.022
2.8000	-0.028
3.0000	-0.022
3.2000	-0.025
3.4000	-0.025
3.6000	-0.022
3.8000	-0.022
4.0000	-0.022
4.2000	-0.022
4.4000	-0.022
4.6000	-0.025
4.8000	-0.025
5.0000	-0.022
5.2000	-0.025
5.4000	-0.022
5.6000	-0.025
5.8000	-0.022
6.0000	-0.022
6.2000	-0.019
6.4000	-0.025
6.6000	-0.022
6.8000	-0.019
7.0000	-0.022
7.2000	-0.022
7.4000	-0.025
7.6000	-0.022
7.8000	-0.022
8.0000	-0.022
8.2000	-0.022
8.4000	-0.022
8.6000	-0.022
8.8000	-0.022
9.0000	-0.022
9.2000	-0.022
9.4000	-0.022
9.6000	-0.022
9.8000	-0.022
10.0000	-0.022
12.0000	-0.025

Site Information	
Site Name	NASP
Project Number	Site 19 3241
	N 4176

Well Information	
Name	MW-25
Inside Diameter	2"
Total Depth	17.84
Depth to Water	10.65
Water Column	7.19
Screen length	10.00
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	1KB-761
Test Rate	Log
Mode (TOC/SUR)	TOC
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	20837
Scale	10.0509
Offset	0.0103
Linearity	0.0441
PSI	10

Test	
Test Number	I
ID	2
Slug In/Out	Slug out
XD depth	17.5
XD install time	0938
XD reading	6.28
slug depth	15'
slug install time	1007
slug length	5'
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	~~6.26~~ 6.25
start time	10:25
initial displacement	
end time	10:36
final XD reading	6.25

PEN Site 19 MW-2S Slug Out 2

SE1000C
Environmental Logger
06/20 09:54

Unit# 00761 Test 1

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00002
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 10:19:02

Elapsed Time	INPUT 1
0.0000	0.015
0.0033	1.978
0.0066	1.784
0.0100	2.194
0.0133	2.534
0.0166	1.641
0.0200	1.164
0.0233	1.040
0.0266	0.944
0.0300	0.849
0.0333	0.766
0.0366	0.677
0.0400	0.607
0.0433	0.531
0.0466	0.474
0.0500	0.426
0.0533	0.375
0.0566	0.324
0.0600	0.295
0.0633	0.264
0.0666	0.232
0.0700	0.210
0.0733	0.187
0.0766	0.162
0.0800	0.152
0.0833	0.140
0.0866	0.127
0.0900	0.114
0.0933	0.092
0.0966	0.105
0.1000	0.092
0.1033	0.085
0.1066	0.082
0.1100	0.076

2.534
1.006
2.528

PEN Site 19 MW-2S Slug Out 2

0.1133	0.070
0.1166	0.063
0.1200	0.060
0.1233	0.060
0.1266	0.057
0.1300	0.050
0.1333	0.054
0.1366	0.047
0.1400	0.044
0.1433	0.041
0.1466	0.044
0.1500	0.038
0.1533	0.041
0.1566	0.038
0.1600	0.038
0.1633	0.038
0.1666	0.034
0.1700	0.031
0.1733	0.031
0.1766	0.028
0.1800	0.028
0.1833	0.031
0.1866	0.034
0.1900	0.031
0.1933	0.028
0.1966	0.025
0.2000	0.028
0.2033	0.025
0.2066	0.028
0.2100	0.028
0.2133	0.022
0.2166	0.025
0.2200	0.022
0.2233	0.025
0.2266	0.025
0.2300	0.028
0.2333	0.025
0.2366	0.022
0.2400	0.025
0.2433	0.019
0.2466	0.025
0.2500	0.022
0.2533	0.022
0.2566	0.022
0.2600	0.022
0.2633	0.025
0.2666	0.022
0.2700	0.022
0.2733	0.015
0.2766	0.022
0.2800	0.019
0.2833	0.022
0.2866	0.022
0.2900	0.025
0.2933	0.019
0.2966	0.019
0.3000	0.019

PEN Site 19 MW-2S Slug Out 2

0.3033	0.019
0.3066	0.019
0.3100	0.019
0.3133	0.015
0.3166	0.019
0.3200	0.022
0.3233	0.015
0.3266	0.019
0.3300	0.015
0.3333	0.019
0.3500	0.015
0.3666	0.015
0.3833	0.019
0.4000	0.015
0.4166	0.015
0.4333	0.015
0.4500	0.015
0.4666	0.012
0.4833	0.012
0.5000	0.012
0.5166	0.012
0.5333	0.015
0.5500	0.015
0.5666	0.012
0.5833	0.015
0.6000	0.012
0.6166	0.009
0.6333	0.012
0.6500	0.012
0.6666	0.015
0.6833	0.012
0.7000	0.012
0.7166	0.012
0.7333	0.015
0.7500	0.009
0.7666	0.009
0.7833	0.012
0.8000	0.012
0.8166	0.009
0.8333	0.012
0.8500	0.009
0.8666	0.012
0.8833	0.012
0.9000	0.009
0.9166	0.012
0.9333	0.009
0.9500	0.012
0.9666	0.012
0.9833	0.009
1.0000	0.006
1.2000	0.012
1.4000	0.009
1.6000	0.012
1.8000	0.009
2.0000	0.009
2.2000	0.006
2.4000	0.009

PEN Site 19 MW-2S Slug Out 2

2.6000	0.009
2.8000	0.012
3.0000	0.006
3.2000	0.009
3.4000	0.009
3.6000	0.006
3.8000	0.006
4.0000	0.009
4.2000	0.003
4.4000	0.006
4.6000	0.006
4.8000	0.006
5.0000	0.012
5.2000	0.006
5.4000	0.009
5.6000	0.012
5.8000	0.009
6.0000	0.009
6.2000	0.009
6.4000	0.012
6.6000	0.009
6.8000	0.009
7.0000	0.006
7.2000	0.009
7.4000	0.009
7.6000	0.009
7.8000	0.009
8.0000	0.012
8.2000	0.006
8.4000	0.009
8.6000	0.009
8.8000	0.006
9.0000	0.006
9.2000	0.006
9.4000	0.009
9.6000	0.006
9.8000	0.009
10.0000	0.006
12.0000	0.012

Site Information	NASP
Site Name	Site 19 3241
Project Number	N4176

Well Information	
Name	4D
Inside Diameter	2"
Total Depth	29.95
Depth to Water	14.83
Water Column	15.12
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	203837
Test Rate	Log
Mode (TOC/SUR)	TOC
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	10.0509
Offset	0.0103
Linearity	0.0441
PSI	10

Test	
Test Number	~~3~~ 2
ID	4
Slug In/Out	~~Slugout~~ Slugout
XD depth	25'
XD install time	1058
XD reading	9.64
slug depth	~~20~~ 19.5
slug install time	1103
slug length	5'
slug diameter	19
slug volume	
slug displacement	
reference setting	0.00
reference reading	9.64
start time	11:03
initial displacement	
end time	11:15
final XD reading	

~~19.83~~
20

29.95
14.83
15.12

moved XD
test not valid

PEN Site 19 MW-4D Slug Out 1

SE1000C
Environmental Logger
06/20 09:58

Unit# 00761 Test 2

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00004
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 10:59:20

Elapsed Time	INPUT 1
0.0000	-2.597
0.0033	-1.817
0.0066	-1.438
0.0100	-1.040
0.0133	-1.578
0.0166	-1.951
0.0200	-2.110
0.0233	-2.237
0.0266	-2.342
0.0300	-2.412
0.0333	-2.486
0.0366	-2.540
0.0400	-2.603
0.0433	-2.642
0.0466	-2.699
0.0500	-2.747
0.0533	-2.779
0.0566	-2.817
0.0600	-2.852
0.0633	-2.849
0.0666	-2.658
0.0700	-2.677
0.0733	-2.683
0.0766	-2.680
0.0800	-2.699
0.0833	-2.683
0.0866	-2.705
0.0900	-2.693
0.0933	-2.804
0.0966	-2.861
0.1000	-2.868
0.1033	-2.893
0.1066	-2.906
0.1100	-2.919

add 3.374

PEN Site 19 MW-4D Slug Out 1

0.1133	-2.935
0.1166	-2.941
0.1200	-2.951
0.1233	-2.960
0.1266	-2.967
0.1300	-2.976
0.1333	-2.989
0.1366	-2.995
0.1400	-3.002
0.1433	-3.008
0.1466	-3.011
0.1500	-3.014
0.1533	-3.024
0.1566	-3.024
0.1600	-3.027
0.1633	-3.046
0.1666	-3.049
0.1700	-3.049
0.1733	-3.056
0.1766	-3.059
0.1800	-3.056
0.1833	-3.059
0.1866	-3.065
0.1900	-3.062
0.1933	-3.068
0.1966	-3.068
0.2000	-3.075
0.2033	-3.072
0.2066	-3.078
0.2100	-3.078
0.2133	-3.088
0.2166	-3.132
0.2200	-3.199
0.2233	-3.193
0.2266	-3.212
0.2300	-3.234
0.2333	-3.342
0.2366	-3.323
0.2400	-3.330
0.2433	-3.342
0.2466	-3.339
0.2500	-3.349
0.2533	-3.346
0.2566	-3.349
0.2600	-3.346
0.2633	-3.349
0.2666	-3.352
0.2700	-3.349
0.2733	-3.349
0.2766	-3.349
0.2800	-3.352
0.2833	-3.352
0.2866	-3.355
0.2900	-3.355
0.2933	-3.355
0.2966	-3.355
0.3000	-3.355

PEN Site 19 MW-4D Slug Out 1

0.3033	-3.349
0.3066	-3.352
0.3100	-3.355
0.3133	-3.352
0.3166	-3.355
0.3200	-3.352
0.3233	-3.352
0.3266	-3.355
0.3300	-3.352
0.3333	-3.358
0.3500	-3.355
0.3666	-3.352
0.3833	-3.362
0.4000	-3.358
0.4166	-3.355
0.4333	-3.362
0.4500	-3.362
0.4666	-3.362
0.4833	-3.362
0.5000	-3.358
0.5166	-3.362
0.5333	-3.362
0.5500	-3.365
0.5666	-3.365
0.5833	-3.365
0.6000	-3.365
0.6166	-3.362
0.6333	-3.365
0.6500	-3.365
0.6666	-3.368
0.6833	-3.362
0.7000	-3.362
0.7166	-3.368
0.7333	-3.365
0.7500	-3.362
0.7666	-3.365
0.7833	-3.368
0.8000	-3.368
0.8166	-3.362
0.8333	-3.368
0.8500	-3.371
0.8666	-3.365
0.8833	-3.365
0.9000	-3.368
0.9166	-3.365
0.9333	-3.368
0.9500	-3.368
0.9666	-3.371
0.9833	-3.368
1.0000	-3.368
1.2000	-3.371
1.4000	-3.371
1.6000	-3.371
1.8000	-3.368
2.0000	-3.368
2.2000	-3.368
2.4000	-3.374

PEN Site 19 MW-4D Slug Out 1

2.6000	-3.368
2.8000	-3.368
3.0000	-3.371
3.2000	-3.374
3.4000	-3.368
3.6000	-3.368
3.8000	-3.371
4.0000	-3.368
4.2000	-3.374
4.4000	-3.368
4.6000	-3.374
4.8000	-3.368
5.0000	-3.374
5.2000	-3.374
5.4000	-3.371
5.6000	-3.371
5.8000	-3.371
6.0000	-3.371
6.2000	-3.368
6.4000	-3.371
6.6000	-3.371
6.8000	-3.371
7.0000	-3.371
7.2000	-3.374
7.4000	-3.371
7.6000	-3.374
7.8000	-3.374
8.0000	-3.371
8.2000	-3.371
8.4000	-3.368
8.6000	-3.374
8.8000	-3.374
9.0000	-3.371
9.2000	-3.374
9.4000	-3.371
9.6000	-3.374
9.8000	-3.374
10.0000	-3.371

Site Information	
Site Name	WASD
Project Number	Site 19
	N4176

Well Information	
Name	4D
Inside Diameter	2"
Total Depth	29.95
Depth to Water	14.83
Water Column	15.12
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	203837
Test Rate	Log
Mode (TOC/SUR)	SUR
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	10.0509
Offset	0.0103
Linearity	0.0421
PSI	10

Test	
Test Number	3
ID	4
Slug In/Out	~~Slug out~~ Slug in
XD depth	25'
XD install time	1058
XD reading	9.64
slug depth	19.5
slug install time	1124
slug length	5'
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	9.64
start time	1124
initial displacement	1.35
end time	1135
final XD reading	9.64

PEN Site 19 MW-4D Slug In 1

SE1000C
Environmental Logger
06/20 10:01

Unit# 00761 Test 3

Setups:	INPUT 1
Type	Level (F)
Mode	Surface
I.D.	00004
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 11:16:58

Elapsed Time	INPUT 1
0.0000	-0.003
0.0033	0.000
0.0066	0.015
0.0100	0.152
0.0133	0.359
0.0166	0.672
0.0200	0.809
0.0233	0.930
0.0266	1.121
0.0300	1.201
0.0333	1.213
0.0366	1.360
0.0400	0.834
0.0433	1.201
0.0466	0.892
0.0500	0.818
0.0533	1.054
0.0566	0.643
0.0600	0.806
0.0633	0.637
0.0666	0.627
0.0700	0.637
0.0733	0.535
0.0766	0.525
0.0800	0.496
0.0833	0.452
0.0866	0.391
0.0900	0.334
0.0933	0.296
0.0966	0.251
0.1000	0.229
0.1033	0.203
0.1066	0.181
0.1100	0.165

PEN Site 19 MW-4D Slug In 1

0.1133	0.146
0.1166	0.130
0.1200	0.127
0.1233	0.114
0.1266	0.101
0.1300	0.089
0.1333	0.089
0.1366	0.079
0.1400	0.076
0.1433	0.070
0.1466	0.066
0.1500	0.063
0.1533	0.054
0.1566	0.050
0.1600	0.047
0.1633	0.044
0.1666	0.044
0.1700	0.044
0.1733	0.041
0.1766	0.038
0.1800	0.035
0.1833	0.035
0.1866	0.031
0.1900	0.035
0.1933	0.031
0.1966	0.028
0.2000	0.025
0.2033	0.025
0.2066	0.025
0.2100	0.028
0.2133	0.025
0.2166	0.019
0.2200	0.022
0.2233	0.019
0.2266	0.019
0.2300	0.025
0.2333	0.019
0.2366	0.015
0.2400	0.019
0.2433	0.019
0.2466	0.015
0.2500	0.019
0.2533	0.015
0.2566	0.019
0.2600	0.022
0.2633	0.012
0.2666	0.009
0.2700	0.012
0.2733	0.015
0.2766	0.015
0.2800	0.012
0.2833	0.015
0.2866	0.012
0.2900	0.015
0.2933	0.012
0.2966	0.009
0.3000	0.012

PEN Site 19 MW-4D Slug In 1

0.3033	0.012
0.3066	0.006
0.3100	0.009
0.3133	0.006
0.3166	0.009
0.3200	0.012
0.3233	0.009
0.3266	0.006
0.3300	0.009
0.3333	0.006
0.3500	0.006
0.3666	0.006
0.3833	0.006
0.4000	0.006
0.4166	0.006
0.4333	0.003
0.4500	0.003
0.4666	0.006
0.4833	0.006
0.5000	0.006
0.5166	0.003
0.5333	0.006
0.5500	0.000
0.5666	0.003
0.5833	0.000
0.6000	0.000
0.6166	0.003
0.6333	0.003
0.6500	0.000
0.6666	0.003
0.6833	0.003
0.7000	0.000
0.7166	-0.003
0.7333	0.006
0.7500	0.003
0.7666	0.000
0.7833	0.000
0.8000	0.003
0.8166	0.003
0.8333	0.000
0.8500	-0.003
0.8666	0.006
0.8833	0.003
0.9000	0.006
0.9166	0.000
0.9333	0.000
0.9500	0.000
0.9666	0.000
0.9833	-0.003
1.0000	0.003
1.2000	0.003
1.4000	0.003
1.6000	0.003
1.8000	0.000
2.0000	0.000
2.2000	0.000
2.4000	0.003

PEN Site 19 MW-4D Slug In 1

2.6000	0.003
2.8000	0.003
3.0000	0.000
3.2000	0.000
3.4000	0.000
3.6000	0.000
3.8000	0.003
4.0000	0.000
4.2000	0.000
4.4000	-0.003
4.6000	0.003
4.8000	0.003
5.0000	0.003
5.2000	0.003
5.4000	-0.003
5.6000	0.000
5.8000	0.003
6.0000	0.000
6.2000	0.003
6.4000	0.000
6.6000	0.006
6.8000	0.003
7.0000	0.000
7.2000	0.000
7.4000	0.003
7.6000	0.000
7.8000	0.006
8.0000	0.000
8.2000	0.000
8.4000	0.003
8.6000	0.000
8.8000	0.003
9.0000	-0.003
9.2000	0.000
9.4000	0.000
9.6000	-0.003
9.8000	0.003
10.0000	0.000

Site Information	
Site Name	NASP
Project Number	Site 19
	N 4176

Well Information	
Name	4D
Inside Diameter	24
Total Depth	29.95
Depth to Water	14.83
Water Column	15.12
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	203837
Test Rate	Log
Mode (TOC/SUR)	~~SUR~~ TOC
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	10.0509
Offset	0.0103
Linearity	0.0441
PSI	10

Test	
Test Number	4
ID	4
Slug In/Out	slug out
XD depth	25'
XD install time	1058
XD reading	9.64
slug depth	19.5
slug install time	1058
slug length	5'
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	~~9.64~~ 9.65
start time	1138
initial displacement	1.66
end time	1148
final XD reading	9.68

slug cord wrapped around XD, left slug @ top of well

PEN Site 19 MW-4D Slug Out 2

SE1000C
Environmental Logger
06/20 10:04

Unit# 00761 Test 4

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00004
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 11:30:51

Elapsed Time	INPUT 1
0.0000	0.015
0.0033	0.653
0.0066	0.936
0.0100	1.181
0.0133	1.487
0.0166	1.668
0.0200	1.506
0.0233	1.347
0.0266	1.219
0.0300	1.114
0.0333	1.025
0.0366	0.945
0.0400	0.872
0.0433	0.812
0.0466	0.745
0.0500	0.694
0.0533	0.643
0.0566	0.605
0.0600	0.563
0.0633	0.525
0.0666	0.484
0.0700	0.452
0.0733	0.420
0.0766	0.398
0.0800	0.369
0.0833	0.347
0.0866	0.324
0.0900	0.308
0.0933	0.289
0.0966	0.270
0.1000	0.251
0.1033	0.242
0.1066	0.232
0.1100	0.213

1.656

PEN Site 19 MW-4D Slug Out 2

0.1133	0.203
0.1166	0.194
0.1200	0.181
0.1233	0.178
0.1266	0.162
0.1300	0.156
0.1333	0.149
0.1366	0.143
0.1400	0.136
0.1433	0.130
0.1466	0.130
0.1500	0.121
0.1533	0.117
0.1566	0.114
0.1600	0.111
0.1633	0.111
0.1666	0.101
0.1700	0.095
0.1733	0.092
0.1766	0.089
0.1800	0.082
0.1833	0.076
0.1866	0.079
0.1900	0.076
0.1933	0.070
0.1966	0.066
0.2000	0.066
0.2033	0.063
0.2066	0.063
0.2100	0.060
0.2133	0.060
0.2166	0.060
0.2200	0.057
0.2233	0.050
0.2266	0.050
0.2300	0.054
0.2333	0.050
0.2366	0.054
0.2400	0.054
0.2433	0.054
0.2466	0.057
0.2500	0.050
0.2533	0.050
0.2566	0.047
0.2600	0.050
0.2633	0.050
0.2666	0.050
0.2700	0.047
0.2733	0.041
0.2766	0.044
0.2800	0.044
0.2833	0.035
0.2866	0.035
0.2900	0.038
0.2933	0.038
0.2966	0.035
0.3000	0.035

PEN Site 19 MW-4D Slug Out 2

0.3033	0.035
0.3066	0.035
0.3100	0.038
0.3133	0.035
0.3166	0.031
0.3200	0.035
0.3233	0.035
0.3266	0.035
0.3300	0.035
0.3333	0.031
0.3500	0.038
0.3666	0.031
0.3833	0.031
0.4000	0.031
0.4166	0.028
0.4333	0.031
0.4500	0.028
0.4666	0.025
0.4833	0.028
0.5000	0.031
0.5166	0.028
0.5333	0.025
0.5500	0.028
0.5666	0.025
0.5833	0.025
0.6000	0.028
0.6166	0.031
0.6333	0.028
0.6500	0.025
0.6666	0.025
0.6833	0.022
0.7000	0.028
0.7166	0.019
0.7333	0.015
0.7500	0.015
0.7666	0.015
0.7833	0.019
0.8000	0.019
0.8166	0.022
0.8333	0.019
0.8500	0.015
0.8666	0.015
0.8833	0.019
0.9000	0.019
0.9166	0.022
0.9333	0.022
0.9500	0.019
0.9666	0.019
0.9833	0.019
1.0000	0.022
1.2000	0.019
1.4000	0.015
1.6000	0.015
1.8000	0.019
2.0000	0.019
2.2000	0.015
2.4000	0.015

PEN Site 19 MW-4D Slug Out 2

2.6000	0.012
2.8000	0.012
3.0000	0.019
3.2000	0.019
3.4000	0.019
3.6000	0.015
3.8000	0.015
4.0000	0.019
4.2000	0.015
4.4000	0.015
4.6000	0.015
4.8000	0.012
5.0000	0.012
5.2000	0.015
5.4000	0.015
5.6000	0.019
5.8000	0.015
6.0000	0.015
6.2000	0.019
6.4000	0.019
6.6000	0.019
6.8000	0.015
7.0000	0.019
7.2000	0.019
7.4000	0.012
7.6000	0.015
7.8000	0.015
8.0000	0.019
8.2000	0.012
8.4000	0.019
8.6000	0.012
8.8000	0.015
9.0000	0.019
9.2000	0.022
9.4000	0.012
9.6000	0.015
9.8000	0.019
10.0000	0.015

Site Information	
Site Name	WASP
Project Number	Site 19
	W4176

Well Information	
Name	4D
Inside Diameter	2"
Total Depth	29.95
Depth to Water	14.83
Water Column	15.12
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	1KB-761
Test Rate	Log
Mode (TOC/SUR)	SUR
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	10.0509
Offset	0.0103
Linearity	0.04271
PSI	10

Test	
Test Number	5
ID	4
Slug In/Out	Slug IN
XD depth	29'
XD install time	1058
XD reading	9.64
slug depth	19.5
slug install time	1151
slug length	5'
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	9.65
start time	1151
initial displacement	1.23
end time	1202
final XD reading	9.65

PEN Site 19 MW-4D Slug In 2

SE1000C
Environmental Logger
06/20 10:07

Unit# 00761 Test 5

Setups:	INPUT 1
Type	Level (F)
Mode	Surface
I.D.	00004
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 11:45:03

Elapsed Time	INPUT 1
0.0000	-0.003
0.0033	-0.003
0.0066	-0.003
0.0100	0.000
0.0133	0.089
0.0166	0.449
0.0200	0.777
0.0233	1.076
0.0266	1.121
0.0300	1.150
0.0333	1.233
0.0366	1.137
0.0400	1.127
0.0433	1.201
0.0466	1.147
0.0500	0.955
0.0533	0.841
0.0566	0.710
0.0600	0.694
0.0633	0.697
0.0666	0.675
0.0700	0.640
0.0733	0.602
0.0766	0.563
0.0800	0.522
0.0833	0.484
0.0866	0.449
0.0900	0.382
0.0933	0.328
0.0966	0.286
0.1000	0.261
0.1033	0.226
0.1066	0.203
0.1100	0.181

PEN Site 19 MW-4D Slug In 2

0.1133	0.168
0.1166	0.143
0.1200	0.133
0.1233	0.121
0.1266	0.111
0.1300	0.105
0.1333	0.098
0.1366	0.089
0.1400	0.082
0.1433	0.073
0.1466	0.073
0.1500	0.060
0.1533	0.057
0.1566	0.060
0.1600	0.050
0.1633	0.047
0.1666	0.044
0.1700	0.044
0.1733	0.044
0.1766	0.041
0.1800	0.038
0.1833	0.035
0.1866	0.035
0.1900	0.035
0.1933	0.031
0.1966	0.028
0.2000	0.031
0.2033	0.028
0.2066	0.025
0.2100	0.025
0.2133	0.025
0.2166	0.025
0.2200	0.022
0.2233	0.022
0.2266	0.019
0.2300	0.019
0.2333	0.019
0.2366	0.015
0.2400	0.019
0.2433	0.019
0.2466	0.019
0.2500	0.022
0.2533	0.015
0.2566	0.012
0.2600	0.012
0.2633	0.019
0.2666	0.019
0.2700	0.012
0.2733	0.015
0.2766	0.015
0.2800	0.012
0.2833	0.015
0.2866	0.009
0.2900	0.012
0.2933	0.012
0.2966	0.012
0.3000	0.012

PEN Site 19 MW-4D Slug In 2

0.3033	0.015
0.3066	0.012
0.3100	0.009
0.3133	0.012
0.3166	0.006
0.3200	0.012
0.3233	0.012
0.3266	0.012
0.3300	0.009
0.3333	0.009
0.3500	0.006
0.3666	0.000
0.3833	0.003
0.4000	0.009
0.4166	0.009
0.4333	0.003
0.4500	0.006
0.4666	0.003
0.4833	0.006
0.5000	0.006
0.5166	0.003
0.5333	0.003
0.5500	0.003
0.5666	0.003
0.5833	0.000
0.6000	0.006
0.6166	0.006
0.6333	0.003
0.6500	0.003
0.6666	0.000
0.6833	0.003
0.7000	0.003
0.7166	0.003
0.7333	0.003
0.7500	0.003
0.7666	0.000
0.7833	0.003
0.8000	-0.003
0.8166	0.006
0.8333	0.003
0.8500	0.006
0.8666	0.003
0.8833	0.003
0.9000	0.000
0.9166	0.000
0.9333	0.003
0.9500	0.000
0.9666	0.000
0.9833	0.003
1.0000	-0.003
1.2000	0.000
1.4000	0.003
1.6000	0.003
1.8000	0.003
2.0000	0.000
2.2000	0.000
2.4000	0.003

PEN Site 19 MW-4D Slug In 2

2.6000	0.006
2.8000	0.003
3.0000	0.000
3.2000	0.000
3.4000	0.000
3.6000	0.003
3.8000	0.006
4.0000	0.006
4.2000	0.006
4.4000	0.006
4.6000	0.003
4.8000	0.006
5.0000	0.003
5.2000	-0.003
5.4000	0.003
5.6000	0.000
5.8000	0.003
6.0000	0.003
6.2000	0.000
6.4000	0.000
6.6000	0.006
6.8000	0.006
7.0000	0.003
7.2000	0.003
7.4000	0.000
7.6000	0.003
7.8000	0.003
8.0000	0.000
8.2000	0.003
8.4000	0.003
8.6000	0.000
8.8000	0.009
9.0000	0.003
9.2000	0.003
9.4000	0.003
9.6000	0.003
9.8000	0.003
10.0000	0.003

Site Information	NASA
Site Name	Site 19
Project Number	N4176

Well Information	
Name	SS
Inside Diameter	2"
Total Depth	17.96
Depth to Water	12.45
Water Column	5.51
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	1KB-761
Test Rate	Log
Mode (TOC/SUR)	TOC
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	10.0502
Offset	0.0103
Linearity	0.0447
PSI	10

Test	~~6~~
Test Number	~~5~~ 6
ID	~~Slug out~~ 5
Slug In/Out	Slug out
XD depth	17.9
XD install time	1218
XD reading	5.00
slug depth	~~17~~ 15.48
slug install time	1224
slug length	4'
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	4.96
start time	1238
initial displacement	1.88
end time	1248
final XD reading	4.96

Slug wrapped XD cable

17.96
12.45
5.51

PEN Site 19 MW-5S Slug Out 1

SE1000C
Environmental Logger
06/20 10:10

Unit# 00761 Test 6

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00005
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 12:30:26

Elapsed Time	INPUT 1
0.0000	0.410
0.0033	1.659
0.0066	1.475
0.0100	1.405
0.0133	1.888
0.0166	1.643
0.0200	1.386
0.0233	1.567
0.0266	1.500
0.0300	1.414
0.0333	1.411
0.0366	1.373
0.0400	1.360
0.0433	1.335
0.0466	1.332
0.0500	1.300
0.0533	1.265
0.0566	1.243
0.0600	1.135
0.0633	1.186
0.0666	1.154
0.0700	1.151
0.0733	1.125
0.0766	1.093
0.0800	1.071
0.0833	1.058
0.0866	1.036
0.0900	1.017
0.0933	1.014
0.0966	0.973
0.1000	0.963
0.1033	0.944
0.1066	0.928
0.1100	0.871

PEN Site 19 MW-5S Slug Out 1

0.1133	0.880
0.1166	0.810
0.1200	0.820
0.1233	0.814
0.1266	0.795
0.1300	0.775
0.1333	0.756
0.1366	0.737
0.1400	0.725
0.1433	0.715
0.1466	0.705
0.1500	0.677
0.1533	0.661
0.1566	0.645
0.1600	0.639
0.1633	0.623
0.1666	0.616
0.1700	0.597
0.1733	0.594
0.1766	0.578
0.1800	0.569
0.1833	0.562
0.1866	0.547
0.1900	0.537
0.1933	0.531
0.1966	0.518
0.2000	0.515
0.2033	0.508
0.2066	0.496
0.2100	0.492
0.2133	0.483
0.2166	0.473
0.2200	0.467
0.2233	0.461
0.2266	0.457
0.2300	0.454
0.2333	0.445
0.2366	0.438
0.2400	0.435
0.2433	0.429
0.2466	0.426
0.2500	0.419
0.2533	0.419
0.2566	0.410
0.2600	0.403
0.2633	0.400
0.2666	0.397
0.2700	0.397
0.2733	0.384
0.2766	0.388
0.2800	0.384
0.2833	0.378
0.2866	0.375
0.2900	0.375
0.2933	0.368
0.2966	0.368
0.3000	0.362

PEN Site 19 MW-5S Slug Out 1

0.3033	0.359
0.3066	0.359
0.3100	0.353
0.3133	0.353
0.3166	0.349
0.3200	0.353
0.3233	0.340
0.3266	0.343
0.3300	0.340
0.3333	0.337
0.3500	0.327
0.3666	0.318
0.3833	0.305
0.4000	0.302
0.4166	0.292
0.4333	0.286
0.4500	0.279
0.4666	0.276
0.4833	0.270
0.5000	0.263
0.5166	0.260
0.5333	0.254
0.5500	0.254
0.5666	0.248
0.5833	0.244
0.6000	0.241
0.6166	0.235
0.6333	0.238
0.6500	0.232
0.6666	0.225
0.6833	0.225
0.7000	0.225
0.7166	0.219
0.7333	0.219
0.7500	0.213
0.7666	0.213
0.7833	0.209
0.8000	0.209
0.8166	0.200
0.8333	0.203
0.8500	0.200
0.8666	0.194
0.8833	0.194
0.9000	0.190
0.9166	0.190
0.9333	0.184
0.9500	0.187
0.9666	0.187
0.9833	0.181
1.0000	0.181
1.2000	0.152
1.4000	0.136
1.6000	0.124
1.8000	0.111
2.0000	0.098
2.2000	0.089
2.4000	0.085

PEN Site 19 MW-5S Slug Out 1

2.6000	0.076
2.8000	0.073
3.0000	0.063
3.2000	0.063
3.4000	0.057
3.6000	0.054
3.8000	0.047
4.0000	0.044
4.2000	0.044
4.4000	0.038
4.6000	0.035
4.8000	0.035
5.0000	0.035
5.2000	0.031
5.4000	0.025
5.6000	0.028
5.8000	0.028
6.0000	0.025
6.2000	0.022
6.4000	0.019
6.6000	0.019
6.8000	0.019
7.0000	0.015
7.2000	0.015
7.4000	0.015
7.6000	0.012
7.8000	0.015
8.0000	0.012
8.2000	0.012
8.4000	0.015
8.6000	0.012
8.8000	0.009
9.0000	0.009
9.2000	0.012
9.4000	0.009
9.6000	0.009
9.8000	0.009
10.0000	0.003

Site Information	NASP
Site Name	S, Ze 19
Project Number	N4176

Well Information	
Name	55
Inside Diameter	2"
Total Depth	17.96
Depth to Water	12.45
Water Column	5.51
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	1KB-761
Test Rate	Log
Mode (TOC/SUR)	TOC
Level/Func.	Level

XD	
Model	PXD 260
Serial Number	203837
Scale	10.0509
Offset	0.0103
Linearity	0.0441
PSI	10

Test	
Test Number	7
ID	5
Slug In/Out	Slug out
XD depth	17.9
XD install time	1218
XD reading	5.00
slug depth	15.45
slug install time	1250
slug length	4 ~~8~~
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	4.96
start time	1258
initial displacement	2.56
end time	1308
final XD reading	4.95

PEN Site 19 MW-5S Slug Out 2

SE1000C
Environmental Logger
06/20 10:13

Unit# 00761 Test 7

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00005
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 12:52:09

Elapsed Time	INPUT 1	
0.0000	0.273	
0.0033	1.786	
0.0066	2.174	
0.0100	2.562	2.556
x 0.0133	0.791	
0.0166	1.558	
0.0200	1.729	
0.0233	1.424	
0.0266	1.456	
0.0300	1.469	
0.0333	1.405	
0.0366	1.383	
0.0400	1.345	
0.0433	1.319	
0.0466	1.287	
0.0500	1.278	
0.0533	1.256	
0.0566	1.265	
0.0600	1.205	
0.0633	1.182	
0.0666	1.147	
0.0700	1.135	
0.0733	1.103	
0.0766	1.081	
0.0800	1.058	
0.0833	1.033	
0.0866	1.011	
0.0900	0.988	
0.0933	0.969	
0.0966	0.950	
0.1000	0.928	
0.1033	0.909	
0.1066	0.887	
0.1100	0.874	

PEN Site 19 MW-5S Slug Out 2

0.1133	0.849
0.1166	0.836
0.1200	0.817
0.1233	0.798
0.1266	0.782
0.1300	0.766
0.1333	0.747
0.1366	0.731
0.1400	0.718
0.1433	0.699
0.1466	0.686
0.1500	0.674
0.1533	0.661
0.1566	0.642
0.1600	0.629
0.1633	0.620
0.1666	0.604
0.1700	0.597
0.1733	0.585
0.1766	0.575
0.1800	0.562
0.1833	0.550
0.1866	0.540
0.1900	0.534
0.1933	0.524
0.1966	0.515
0.2000	0.508
0.2033	0.499
0.2066	0.492
0.2100	0.483
0.2133	0.477
0.2166	0.467
0.2200	0.464
0.2233	0.457
0.2266	0.451
0.2300	0.445
0.2333	0.435
0.2366	0.435
0.2400	0.426
0.2433	0.422
0.2466	0.413
0.2500	0.410
0.2533	0.413
0.2566	0.397
0.2600	0.400
0.2633	0.394
0.2666	0.394
0.2700	0.384
0.2733	0.381
0.2766	0.378
0.2800	0.378
0.2833	0.372
0.2866	0.368
0.2900	0.365
0.2933	0.362
0.2966	0.359
0.3000	0.359

PEN Site 19 MW-5S Slug Out 2

0.3033	0.349
0.3066	0.353
0.3100	0.349
0.3133	0.346
0.3166	0.343
0.3200	0.340
0.3233	0.337
0.3266	0.333
0.3300	0.337
0.3333	0.330
0.3500	0.324
0.3666	0.308
0.3833	0.298
0.4000	0.295
0.4166	0.286
0.4333	0.283
0.4500	0.276
0.4666	0.273
0.4833	0.263
0.5000	0.263
0.5166	0.257
0.5333	0.254
0.5500	0.248
0.5666	0.244
0.5833	0.238
0.6000	0.235
0.6166	0.235
0.6333	0.225
0.6500	0.225
0.6666	0.222
0.6833	0.219
0.7000	0.219
0.7166	0.213
0.7333	0.209
0.7500	0.206
0.7666	0.206
0.7833	0.206
0.8000	0.200
0.8166	0.197
0.8333	0.194
0.8500	0.190
0.8666	0.197
0.8833	0.187
0.9000	0.184
0.9166	0.184
0.9333	0.181
0.9500	0.181
0.9666	0.178
0.9833	0.178
1.0000	0.174
1.2000	0.152
1.4000	0.133
1.6000	0.120
1.8000	0.108
2.0000	0.098
2.2000	0.089
2.4000	0.079

PEN Site 19 MW-5S Slug Out 2

2.6000	0.073
2.8000	0.066
3.0000	0.066
3.2000	0.060
3.4000	0.054
3.6000	0.050
3.8000	0.047
4.0000	0.044
4.2000	0.041
4.4000	0.038
4.6000	0.034
4.8000	0.031
5.0000	0.034
5.2000	0.031
5.4000	0.028
5.6000	0.025
5.8000	0.025
6.0000	0.022
6.2000	0.022
6.4000	0.019
6.6000	0.019
6.8000	0.019
7.0000	0.015
7.2000	0.019
7.4000	0.015
7.6000	0.019
7.8000	0.012
8.0000	0.012
8.2000	0.015
8.4000	0.009
8.6000	0.012
8.8000	0.012
9.0000	0.012
9.2000	0.006
9.4000	0.009
9.6000	0.009
9.8000	0.012
10.0000	0.006

PEN Site 19 MW-5S Slug Out 3

SE1000C
Environmental Logger
06/20 10:16

Unit# 00761 Test 8

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	00005
Reference	0.000
Linearity	0.040
Scale factor	10.050
Offset	0.010
Delay mSEC	100.000

Step 0 06/19 13:11:27

Elapsed Time	INPUT 1
0.0000	0.130
0.0033	1.961
0.0066	2.222
0.0100	2.216
0.0133	1.011
0.0166	1.739
0.0200	1.599
0.0233	1.424
0.0266	1.488
0.0300	1.456
0.0333	1.408
0.0366	1.392
0.0400	1.360
0.0433	1.329
0.0466	1.300
0.0500	1.275
0.0533	1.249
0.0566	1.236
0.0600	1.202
0.0633	1.176
0.0666	1.144
0.0700	1.119
0.0733	1.106
0.0766	1.081
0.0800	1.049
0.0833	1.039
0.0866	1.001
0.0900	0.973
0.0933	0.973
0.0966	0.947
0.1000	0.925
0.1033	0.906
0.1066	0.887
0.1100	0.864

2.210

.012

Site Information	
Site Name	NASP
Project Number	Site 19
	N ~~283~~ 4176

Well Information	
Name	SS
Inside Diameter	2"
Total Depth	17.96
Depth to Water	12.45
Water Column	5.51
Screen length	10'
TOC Elevation	

Data Logger	
Model	1000B
Serial Number	1KB-761
Test Rate	Log
Mode (TOC/SUR)	TOC
Level/Func.	Level

XD	
Model	PRD-260
Serial Number	203837
Scale	10.0509
Offset	0.0103
Linearity	0.0421
PSI	10

Test	
Test Number	8
ID	5
Slug In/Out	Slug out
XD depth	17.9
XD install time	1218
XD reading	5.00
slug depth	15.25
slug install time	1310
slug length	4'
slug diameter	1"
slug volume	
slug displacement	
reference setting	0.00
reference reading	4.92
start time	1317
initial displacement	2.22
end time	1327
final XD reading	4.95

PEN Site 19 MW-5S Slug Out 3

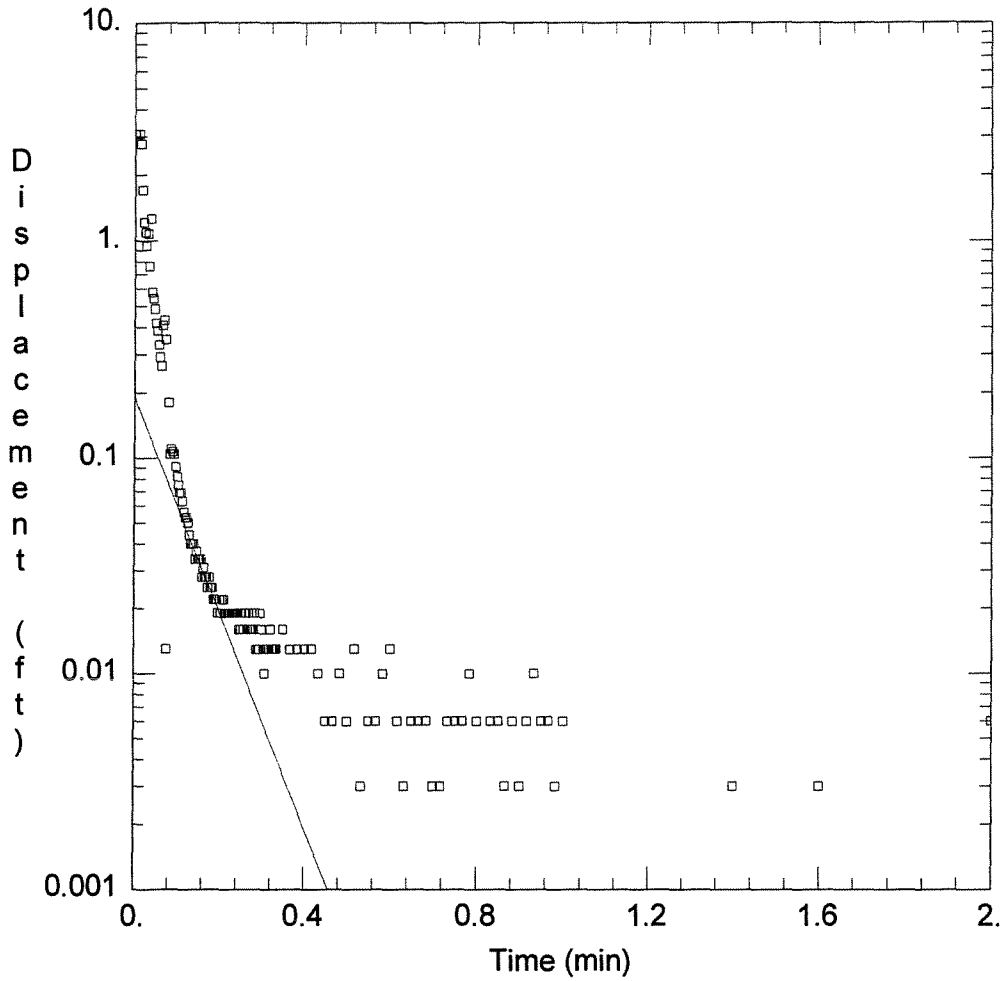
0.1133	0.852
0.1166	0.830
0.1200	0.814
0.1233	0.791
0.1266	0.775
0.1300	0.760
0.1333	0.747
0.1366	0.728
0.1400	0.715
0.1433	0.699
0.1466	0.683
0.1500	0.664
0.1533	0.655
0.1566	0.639
0.1600	0.629
0.1633	0.620
0.1666	0.604
0.1700	0.591
0.1733	0.585
0.1766	0.572
0.1800	0.559
0.1833	0.550
0.1866	0.537
0.1900	0.527
0.1933	0.521
0.1966	0.515
0.2000	0.502
0.2033	0.496
0.2066	0.489
0.2100	0.483
0.2133	0.477
0.2166	0.467
0.2200	0.461
0.2233	0.454
0.2266	0.451
0.2300	0.445
0.2333	0.438
0.2366	0.435
0.2400	0.426
0.2433	0.419
0.2466	0.416
0.2500	0.413
0.2533	0.410
0.2566	0.403
0.2600	0.397
0.2633	0.397
0.2666	0.391
0.2700	0.391
0.2733	0.381
0.2766	0.378
0.2800	0.375
0.2833	0.372
0.2866	0.372
0.2900	0.368
0.2933	0.362
0.2966	0.362
0.3000	0.359

PEN Site 19 MW-5S Slug Out 3

0.3033	0.353
0.3066	0.349
0.3100	0.349
0.3133	0.349
0.3166	0.343
0.3200	0.343
0.3233	0.340
0.3266	0.337
0.3300	0.333
0.3333	0.333
0.3500	0.321
0.3666	0.311
0.3833	0.302
0.4000	0.295
0.4166	0.289
0.4333	0.283
0.4500	0.276
0.4666	0.273
0.4833	0.267
0.5000	0.257
0.5166	0.251
0.5333	0.248
0.5500	0.244
0.5666	0.241
0.5833	0.238
0.6000	0.232
0.6166	0.232
0.6333	0.225
0.6500	0.229
0.6666	0.225
0.6833	0.216
0.7000	0.219
0.7166	0.209
0.7333	0.213
0.7500	0.209
0.7666	0.206
0.7833	0.200
0.8000	0.200
0.8166	0.200
0.8333	0.197
0.8500	0.197
0.8666	0.187
0.8833	0.187
0.9000	0.190
0.9166	0.184
0.9333	0.184
0.9500	0.181
0.9666	0.178
0.9833	0.174
1.0000	0.174
1.2000	0.152
1.4000	0.130
1.6000	0.120
1.8000	0.108
2.0000	0.095
2.2000	0.092
2.4000	0.085

PEN Site 19 MW-5S Slug Out 3

2.6000	0.073
2.8000	0.069
3.0000	0.063
3.2000	0.063
3.4000	0.057
3.6000	0.057
3.8000	0.047
4.0000	0.044
4.2000	0.041
4.4000	0.044
4.6000	0.038
4.8000	0.035
5.0000	0.031
5.2000	0.028
5.4000	0.028
5.6000	0.028
5.8000	0.028
6.0000	0.025
6.2000	0.025
6.4000	0.028
6.6000	0.025
6.8000	0.022
7.0000	0.022
7.2000	0.022
7.4000	0.022
7.6000	0.025
7.8000	0.015
8.0000	0.019
8.2000	0.019
8.4000	0.015
8.6000	0.019
8.8000	0.019
9.0000	0.012
9.2000	0.019
9.4000	0.015
9.6000	0.015
9.8000	0.019
10.0000	0.012



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\192SO1.AQT
Date: 06/26/02 Time: 14:23:19

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN Site 19
Test Well: PEN-19-2S
Test Date: 6/20/02

AQUIFER DATA

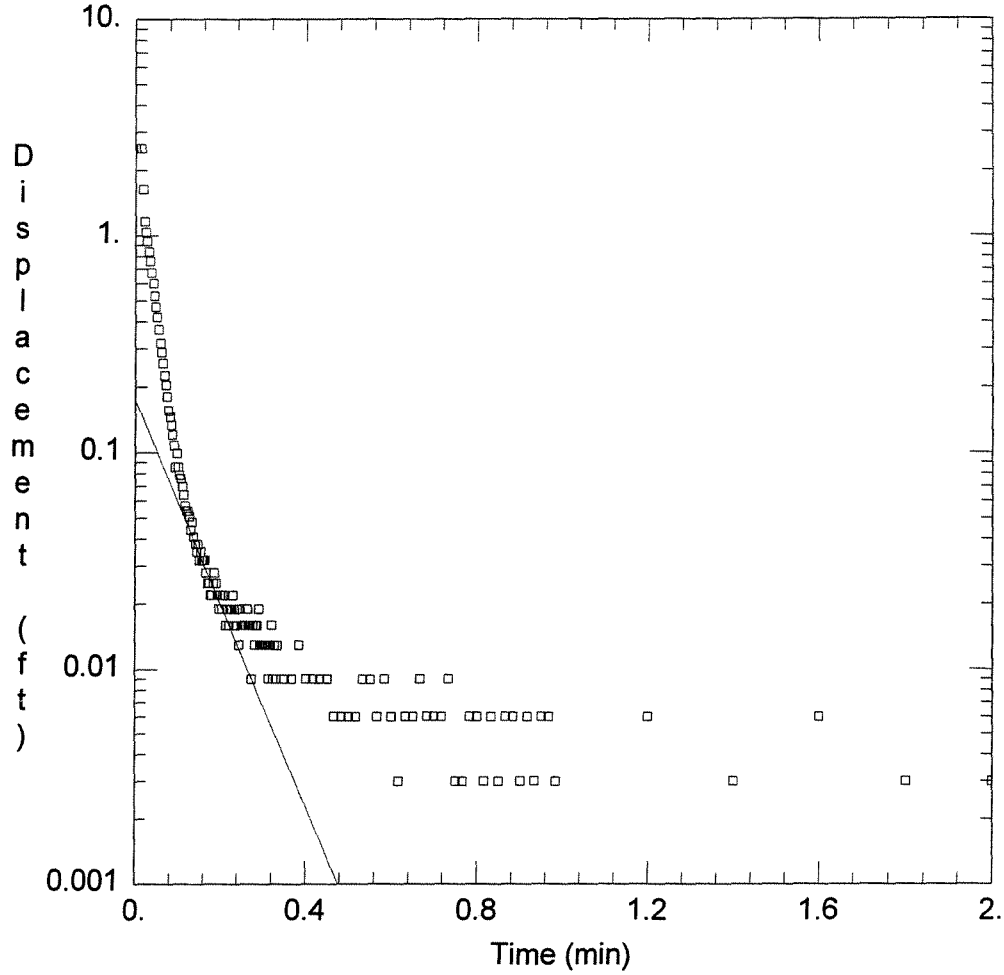
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Initial Displacement: 3.09 ft
Water Column Height: 7.19 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.3333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 90.07 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\192SO2.AQT
Date: 06/26/02 Time: 14:23:27

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN-Site 19
Test Well: PEN-19-2S
Test Date: 6/20/02

AQUIFER DATA

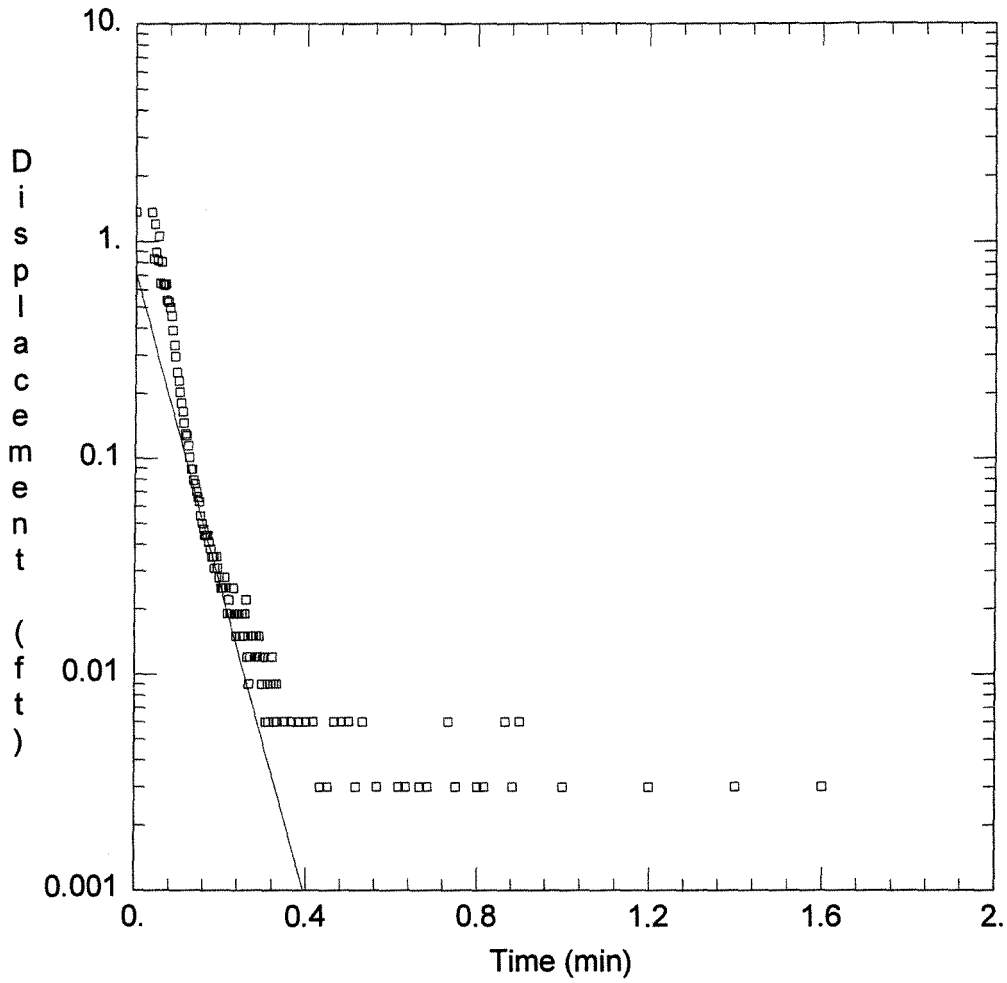
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Initial Displacement: 2.528 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 7.19 ft
Wellbore Radius: 0.3333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 84.9 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\194DI1.AQT
Date: 06/26/02 Time: 13:49:18

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN Site 19
Test Well: PEN-19-4D
Test Date: 6/20/02

AQUIFER DATA

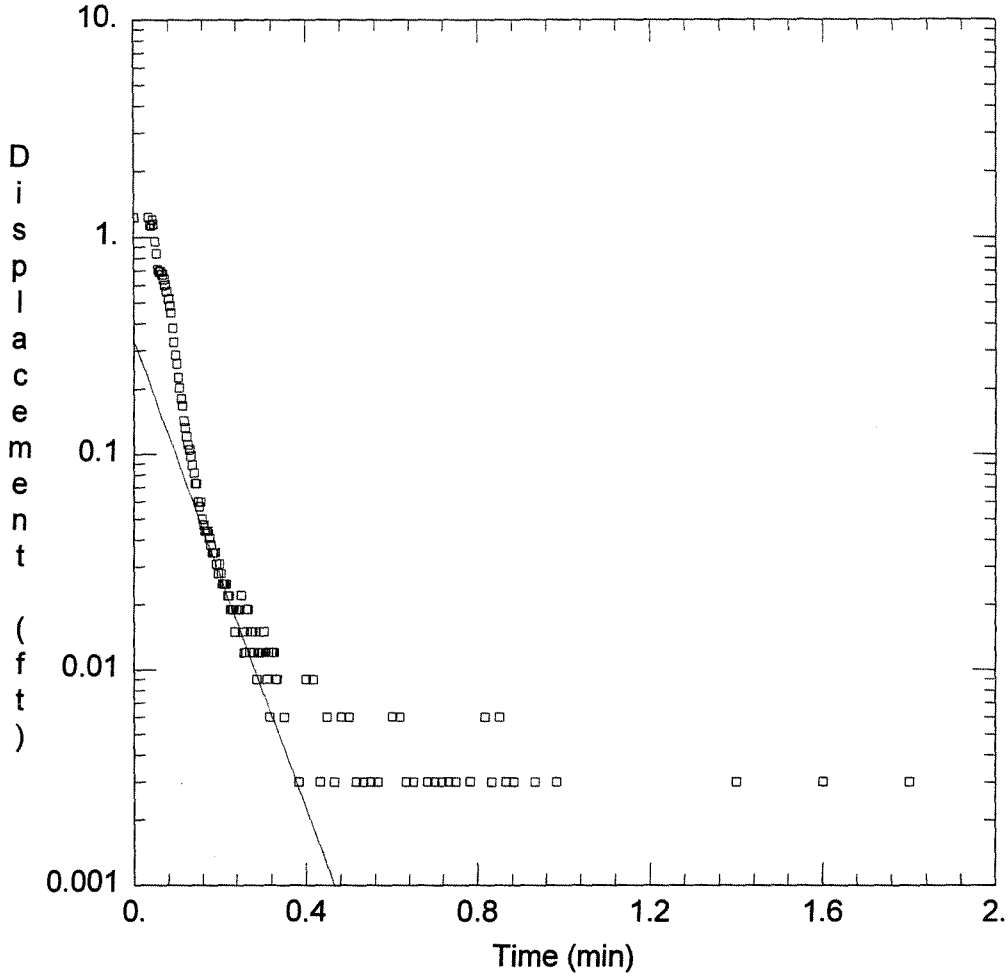
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.36 ft
Water Column Height: 14.83 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.3333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 105.9 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\194DI2.AQT
Date: 06/26/02 Time: 13:50:02

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN Site 19
Test Well: PEN-19-4D
Test Date: 6/20/02

AQUIFER DATA

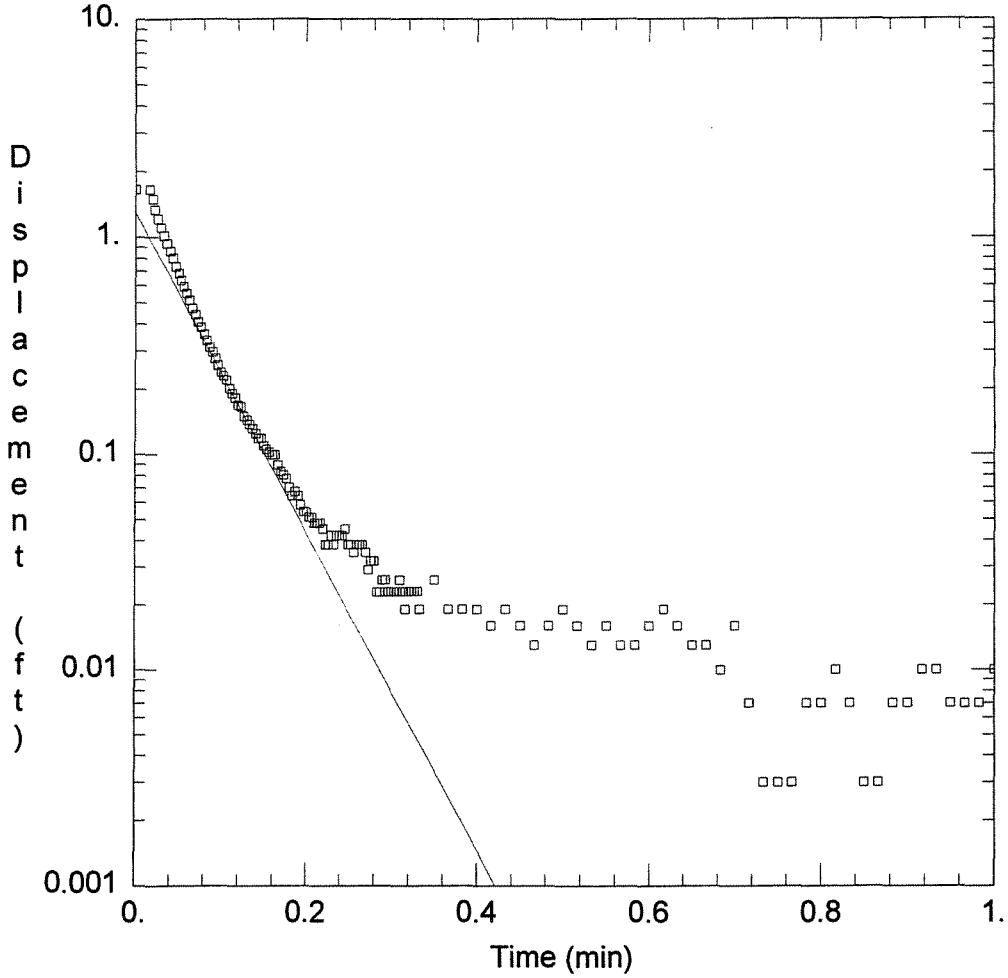
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Initial Displacement: 1.233 ft
Water Column Height: 15.12 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.3333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 110.7 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\194DO2.AQT
Date: 06/26/02 Time: 13:51:08

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN Site 19
Test Well: PEN-19-4D
Test Date: 6/20/02

AQUIFER DATA

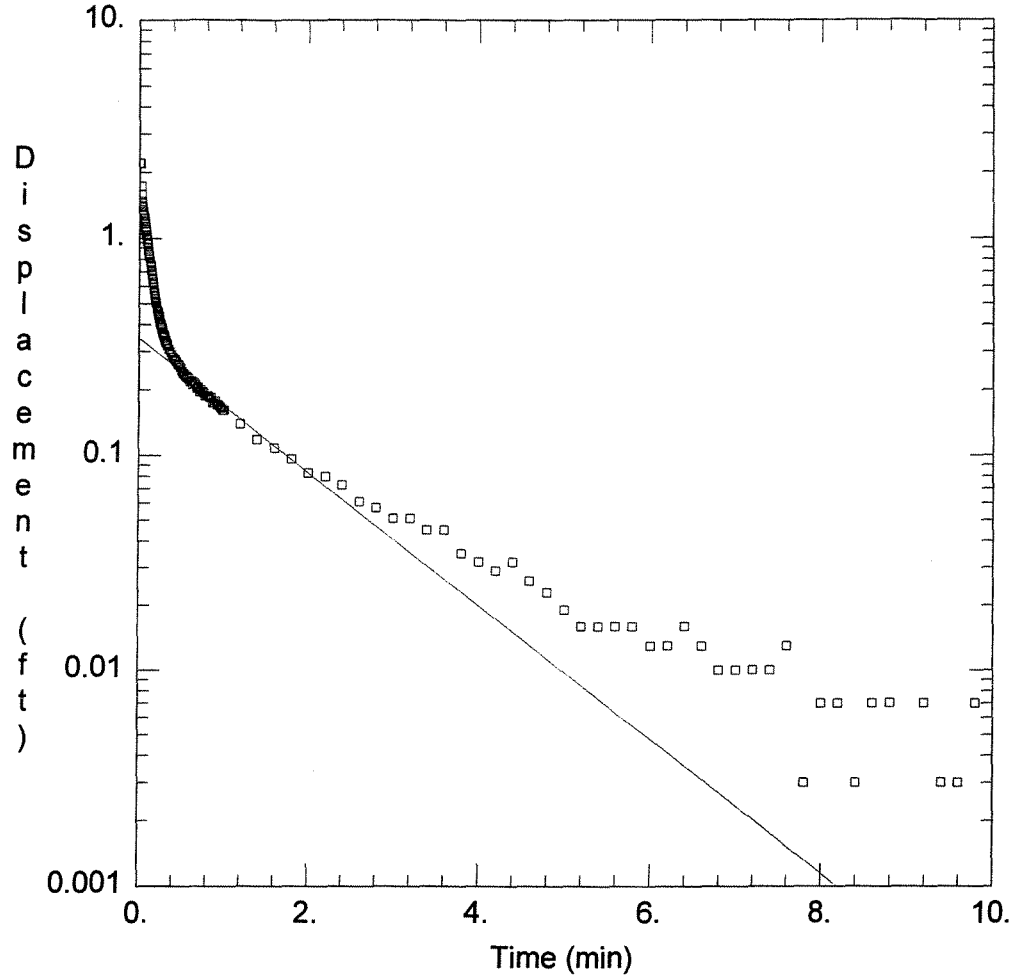
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.656 ft
Water Column Height: 14.83 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.3333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 107.9 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\195SO3.AQT
Date: 06/26/02 Time: 12:44:33

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N 4176
Test Location: PEN Site 19
Test Well: PEN-19-5S
Test Date: 6/20/02

AQUIFER DATA

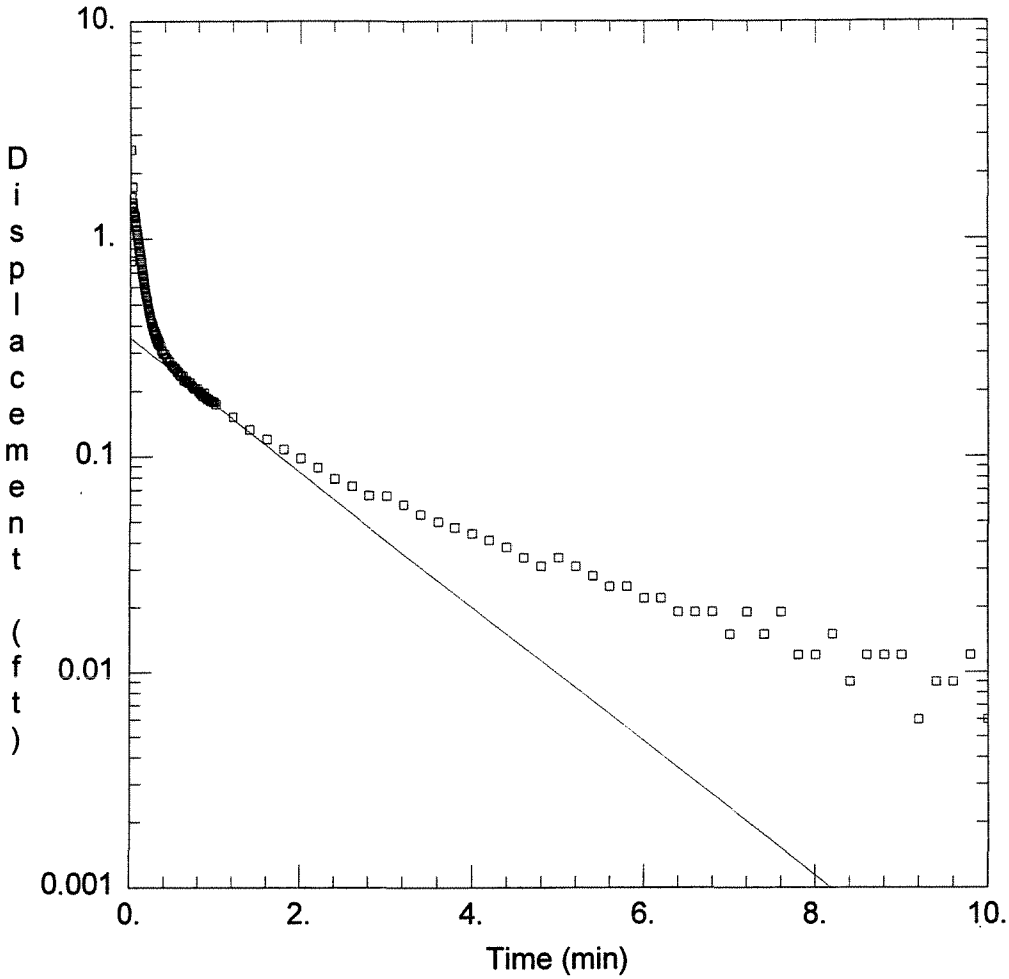
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Initial Displacement: 2.21 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 5.51 ft
Wellbore Radius: 0.3333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 5.341 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\195SO2.AQT
Date: 06/26/02 Time: 12:43:18

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN Site 19
Test Well: PEN-19-5S
Test Date: 6//20/02

AQUIFER DATA

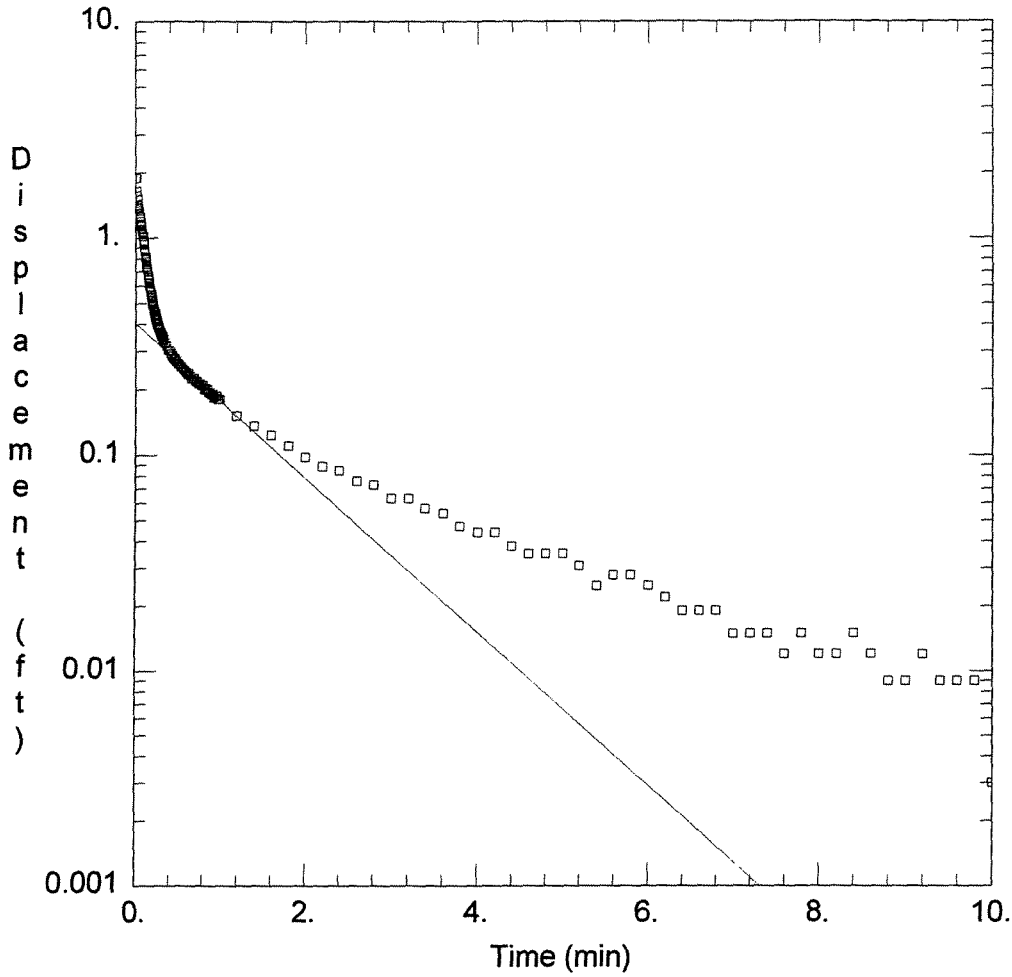
Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Initial Displacement: 2.556 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 5.51 ft
Wellbore Radius: 0.3333 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 5.362 ft/day



WELL TEST ANALYSIS

Data Set: E:\NAVY\NASPEN~1\CTO222~1\DATA\FIELDD~1\SLUGTE~1\195SO1.AQT
Date: 06/26/02 Time: 12:40:38

PROJECT INFORMATION

Company: TtNUS
Client: South Div
Project: N4176
Test Location: PEN Site 19
Test Well: PEN-19-5S
Test Date: 6/20/02

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Initial Displacement: 1.888 ft
Water Column Height: 5.51 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.3333 ft
Screen Length: 10. ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 6.143 ft/day