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SITE ASSESSMENT REPORT FOR BUILDING 312 OIL-WATER SEPARATOR 312-OW BASE REALIGNMENT AND CLOSURE NAS CECIL FIELD LF
4/9/2002
TETRA TECH NUS INC

Site Assessment Report
for
Building 312,
Oil-Water Separator 312-OW

Base Realignment and Closure

Naval Air Station Cecil Field
Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888

Contract Task Order 0168

April 2002

02JAX0062

SITE ASSESSMENT REPORT
FOR
BUILDING 312, OIL-WATER SEPARATOR 312-OW
BASE REALIGNMENT AND CLOSURE

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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Naval Facilities Engineering Command
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0168

APRIL 2002

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The Site Assessment contained in this report was prepared using sound hydrogeologic principles and judgement. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This Site Assessment Report was developed for Building 312, OWS 312-OW at the NAS Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

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04/09/

Date

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ACRONYMS

ABB-ES	ABB Environmental Services
BCT	Base Closure Team
bls	Below Land Surface
btoc	Below Top of Casing
BTEX	Benzene, Toluene, Ethylbenzene, Total Xylenes
°C	Degree Celsius
CCI	CH2M Hill Constructors, Inc.
COCs	Contaminants of Concern
CompQAP	Comprehensive Quality Assurance Plan
CSR	Confirmatory Sampling Report
CTO	Contract Task Order
DPT	Direct Push Technology
DRO	Diesel Range Organics
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida – Petroleum Range Organics
ft	foot/feet
GCTL	Groundwater Cleanup Target Level
GIR	General Information Report
gpd	Gallons-Per-Day
gpm	Gallons-Per-Minute
ID	Inside Diameter
K	Hydraulic Conductivity
HLA	Harding Lawson Associates
K	Hydraulic Conductivity
KAG	Kerosene Analytical Group
mg/L	Milligram per liter
mg/kg	Milligram per kilogram
ml	Milliliter
mS/cm	Milli Siemans per Centimeter
msl	Mean Sea Level
MTBE	Methyl-tert-butyl Ether
OD	Outside Diameter
OVA-FID	Organic Vapor Analyzer-Flame Ionization Detector
OWS	Oil-water Separator

ACRONYMS (CONTINUED)

NADSC	Natural Attenuation Default Source Concentration
NAS	Naval Air Station
PPEO	Priority Pollutant Extractable Organics
ppm	Part-per-million
PPVO	Priority Pollutant Volatile Organics
PVC	Polyvinyl Chloride
RAC	Remedial Action Contractor
SA	Site Assessment
SAP	Site Assessment Plan
SAR	Site Assessment Report
SCTLs	Soil Cleanup Target Levels
Sec	Seconds
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SPECAP	Specific Capacity
SRR	Source Removal Report
S_y	Specific Yield
T	Transmissivity
TICs	Tentatively Identified Compounds
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

Tetra Tech NUS, Inc. (TtNUS) was authorized by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a site assessment (SA) at Building 312 at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. Specifically, the SA applied to the oil-water separator (OWS) located on the north side of Building 312, which will be referred to hereafter OWS 312-OW. A site location map is provided as Figure 1-1. The following paragraphs provide available background information for the site.

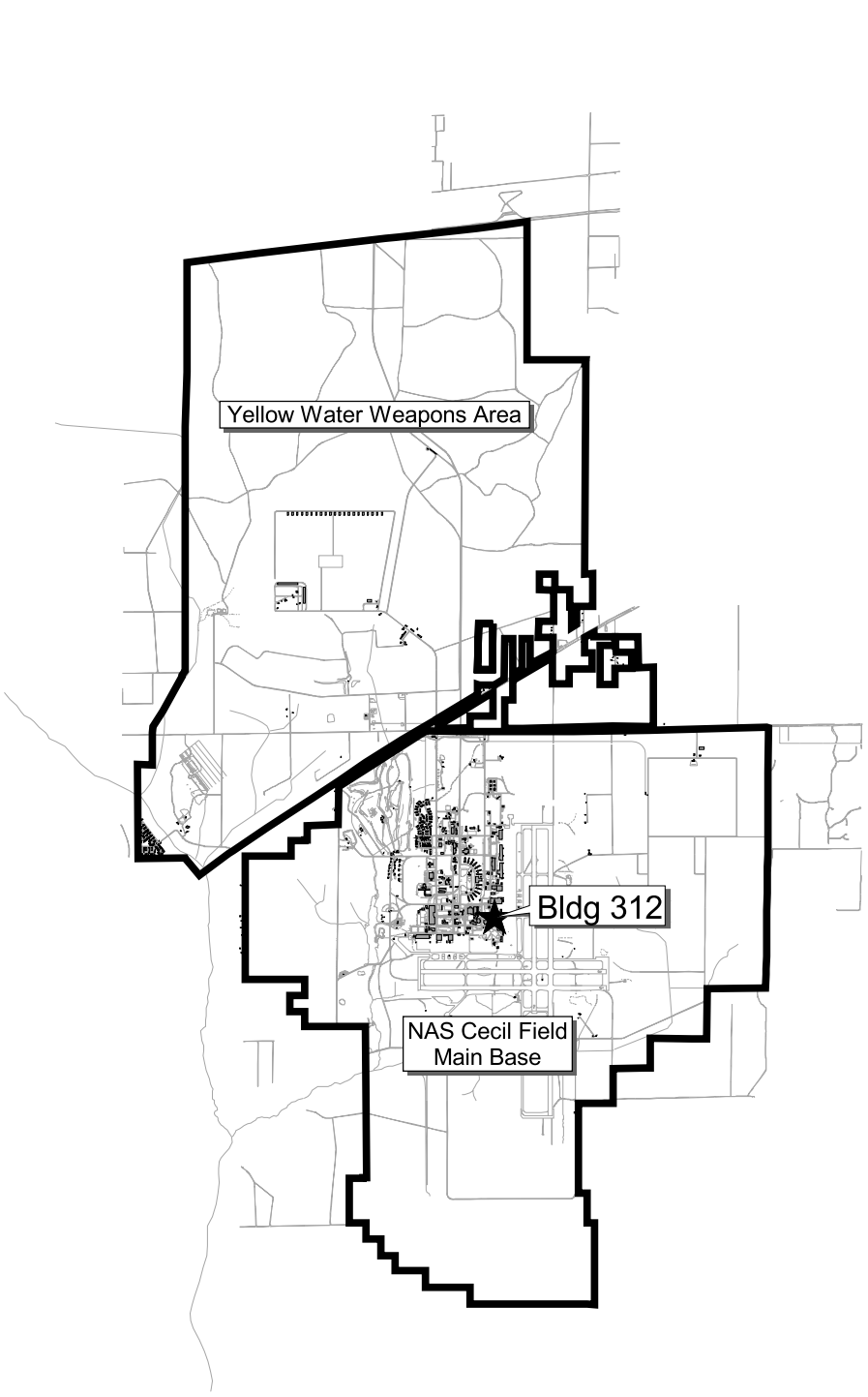
This SA is intended to evaluate the extent of petroleum hydrocarbons in subsurface soils and groundwater in accordance with the requirements of Chapter 62-770, Florida Administrative Code (FAC). This Site Assessment Report (SAR) provides a characterization of site conditions from which to base future courses of action.

1.2 SITE DESCRIPTION, HISTORY, AND LAND USE

OWS 312-OW is located on the north side of Building 312, formerly a corrosion control hangar for NAS Cecil Field. A topographic map is provided as Figure 1-2.

Several buildings are shown on Figure 1-3 that surround Building 312. The buildings, their current tenant, and current use are listed below:

67	Boeing	Aircraft maintenance and repair.
312	Boeing and Milton Woods	General contractor activities.
338	NADEP	Engineering services and administration.
385	empty	
386	empty	
387	empty	
844	Defense Security Services	Security consultant for the military.
887	Titan	Information technology firm.
1820	Boeing	Aircraft maintenance and repair.
1826	Boeing	HVAC and fire suppression system.



DRAWN BY MJJ	DATE 25Feb02	SITE LOCATION MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
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SCALE AS NOTED			DRAWING NO. FIGURE 1-1 / REV 0

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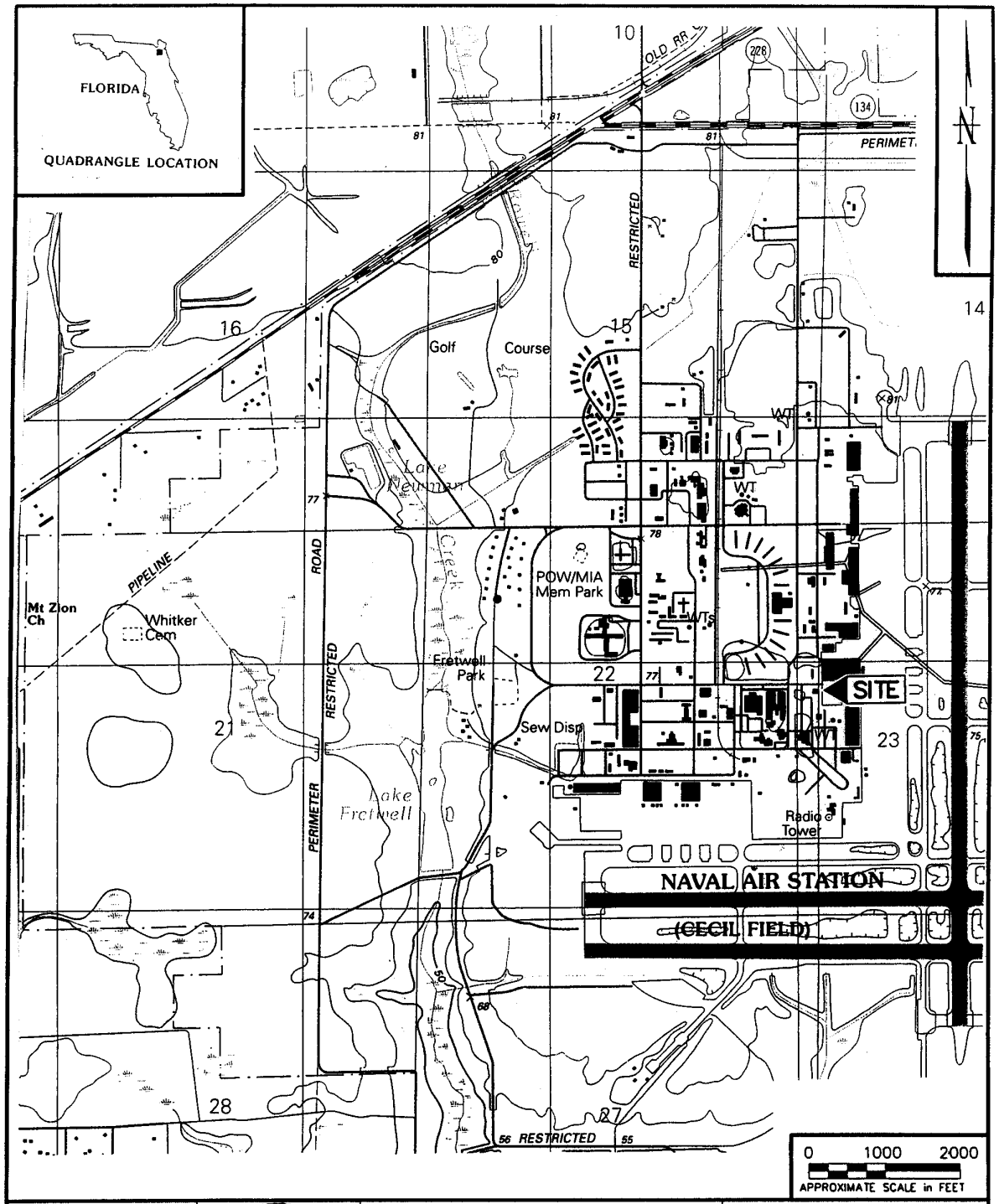

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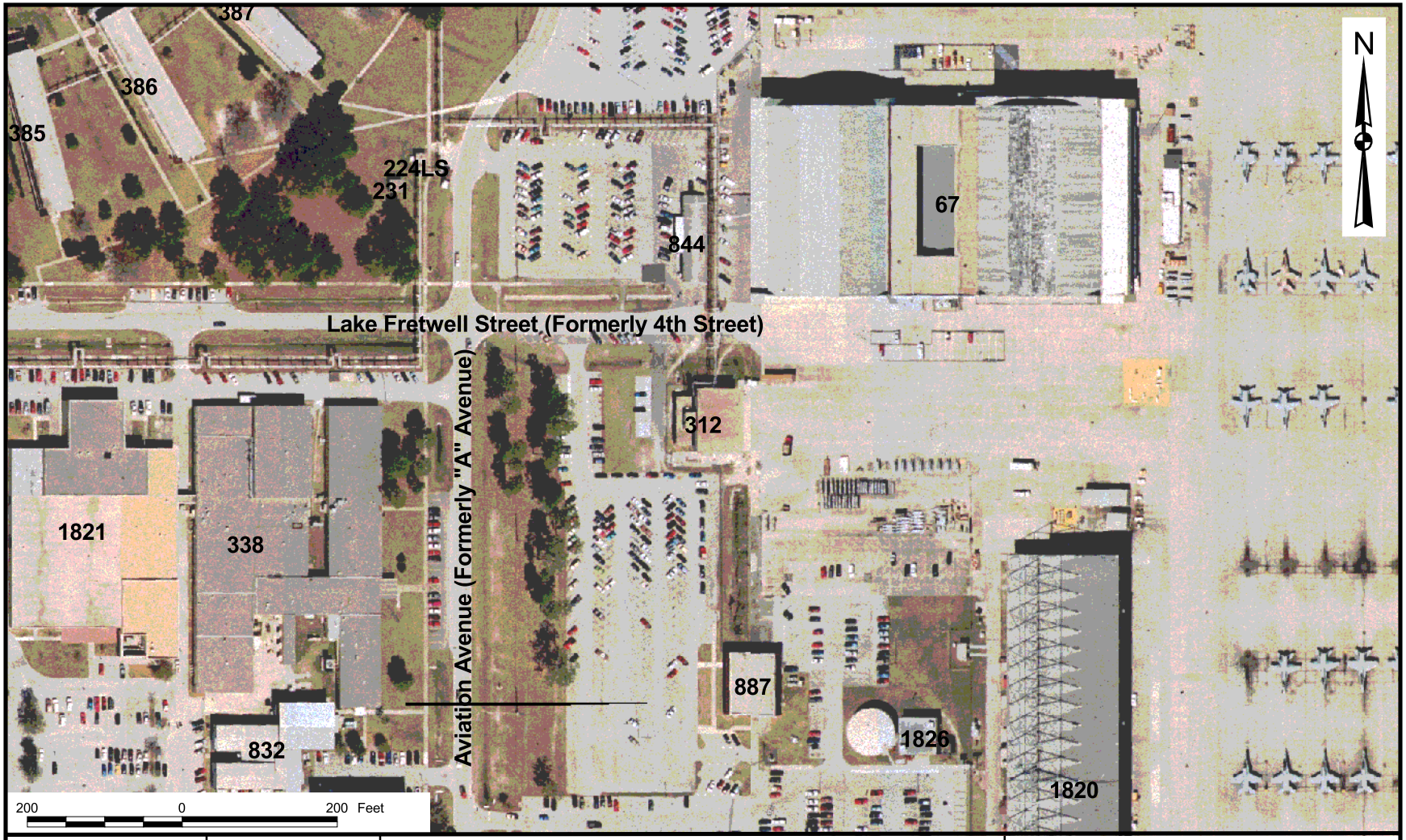
SCALE AS NOTED			DRAWING NO. FIGURE 1-2 REV. 0

Source: USGS Fiftone Florida 7.5-Minute Topographic Quadrangle, 1993



DRAWN BY MJJ	DATE 16Mar02	LAND USE MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
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SCALE AS NOTED			DRAWING NO. FIGURE 1-3 / REV 0

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A site plan is provided as Figure 1-4. Building 312 was constructed in 1957 for use as a sanding, priming, and corrosion control facility for jet aircraft. A wash rack for general cleaning of jet aircraft is located just off the southeast quarter of Building 312 (not shown on figures). All wastewater and wash rack rinsewater from Building 312 flow through the OWS 312-OW prior to entering Building 312LS (a lift station built in 1957) [ABB Environmental Services (ABB-ES), 1994]. The lift station then pumps its load to the NAS Cecil Field wastewater treatment plant. The OWS 312-OW was installed in 1988 with a 900-gallon capacity [Harding Lawson Associates (HLA), 1999].

Building 312 appears to have been sloped to allow wastewater, generated during operations, to drain to a spill collection system (basically a long floor drain) that runs the length of the eastern side of the building. That wastewater appears to travel to the OWS through a 10-inch polyvinyl chloride (PVC) line (Figure 1-4). A 6-inch PVC line connects the OWS and OWS Tank (Figure 1-4) to each other and both are accessible by manhole covers. However, information on how the OWS was constructed or how it is connected to the lift station is not available. The site is surrounded by grass, but there is concrete paving to the north and east and Building 312 is about 10 feet to the south. There are no surface water bodies within 1,000 feet of the site, but a ditch that is normally dry exists on the north side of the site. An environmental investigation and remedial action (to be discussed in the following section) have been conducted since 1998, and the OWS remains in place.

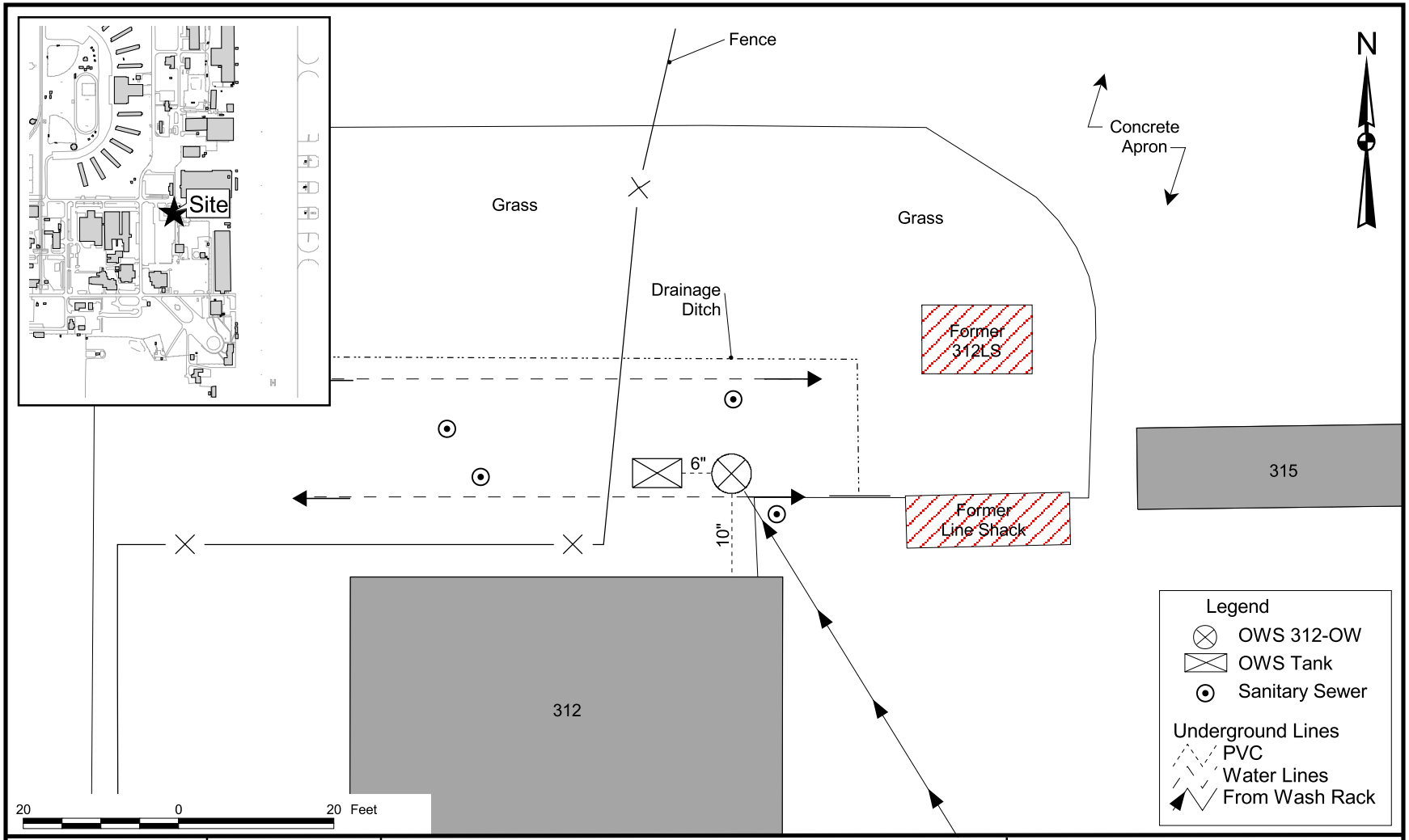
1.3 PREVIOUS INVESTIGATIONS

1.3.1 Confirmatory Sampling Report

HLA completed the Confirmatory Sampling Report (CSR) for this site in 1999. The CSR indicated the existence of soil contamination in the area of the OWS and the report recommended that action be taken with regard to the soil contamination. Since no groundwater contamination was encountered, no further action was recommended regarding groundwater. A copy of the CSR is provided in Appendix A.

1.3.2 Source Removal Report (SRR)

CH2M Hill Constructors Inc. (CCI) conducted source removal around OWS 312-OW for SOUTHNAVFACENGCOM from January 31, 2000 to March 30, 2000 (CCI, 2000). The primary objective of the soil excavation at the site was to remove petroleum-contaminated soils that exceed the soil cleanup target levels (SCTLs) outlined in Chapter 62-770, FAC. CCI removed a total of 99.7 tons of petroleum-contaminated soils. The horizontal limits of the excavation were extended until headspace concentrations were below 50 parts-per-million (ppm) or a permanent underground structure was encountered. The excavation's horizontal boundaries were limited to the north by the drainage ditch, to the south by Building 312, and to the east by manhole structures and piping. The depth of the excavation measured 7



DRAWN BY MJJ	DATE 11Oct01	SITE PLAN MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
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COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-4 / REV 0

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to 8 feet. Since it appeared that all physically unobstructed, petroleum-contaminated soil had been removed, CCI recommended that a Natural Attenuation Monitoring Plan be prepared for the site. However, in a letter dated April 5, 2001, FDEP concluded that since soil and groundwater contamination had been detected during the source removal, an SA would be required for the site. A map of the area of excavation (CCI, 2000) is included as Appendix B along with the letter from the FDEP requiring that a SA be conducted at the site.

1.4 WATER WELL INFORMATION

Chapter 62-770.600, FAC requires water well survey information relative to the site under investigation. The General Information Report (GIR) prepared by ABB-ES (1998) indicates that there are five potable wells within a 0.5-mile radius of the site. The GIR also indicates those wells are Floridan Aquifer wells, and it provides a map of their location.

2.0 FIELD INVESTIGATION

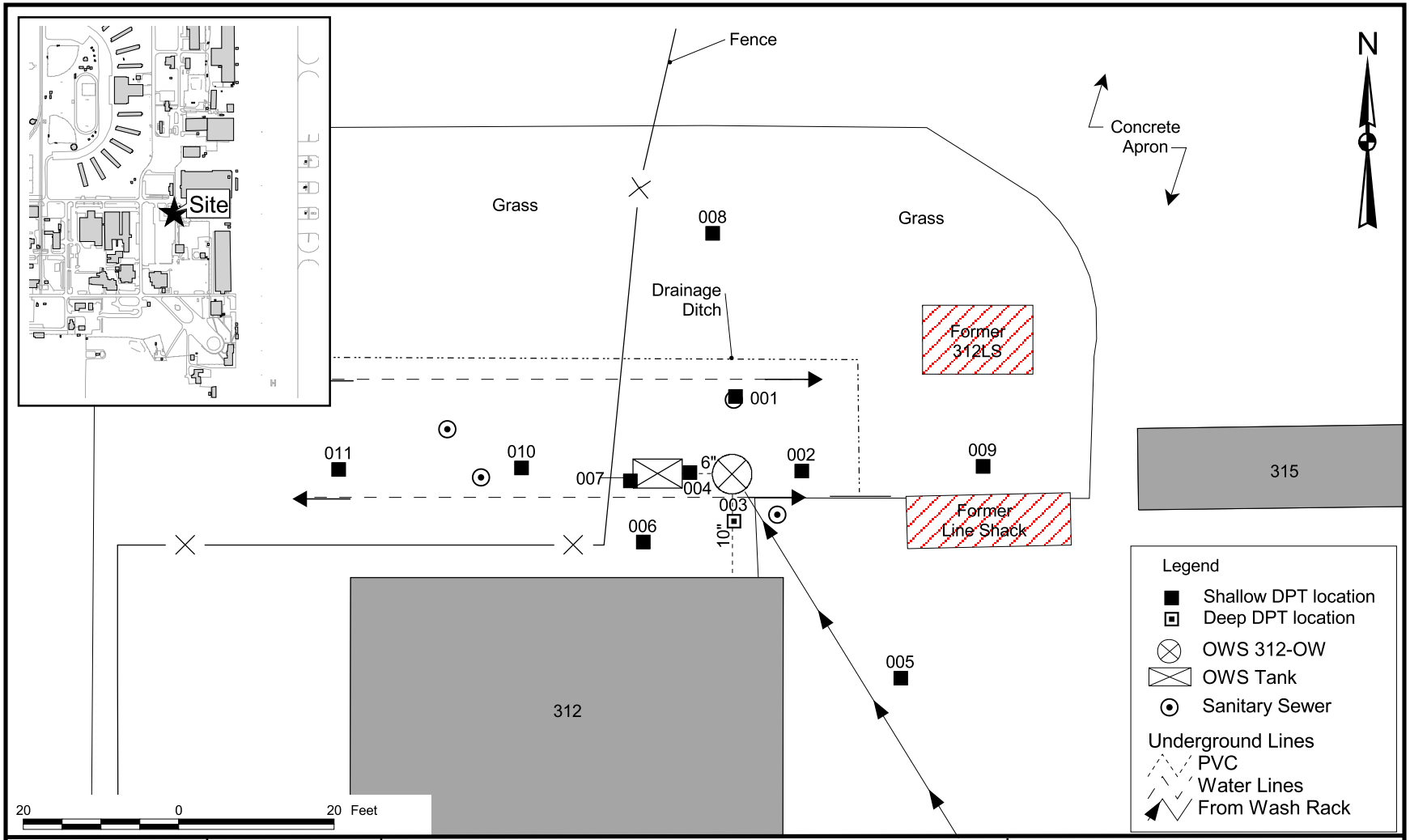
The field procedures and sampling activities described in this SAR were performed in general accord with the TtNUS Comprehensive Quality Assurance Plan (CompQAP) number 980038, which includes the FDEP's Standard Operating Procedures for laboratory operations and sample collection activities (DEP-QA-001/92) and the Base-wide Generic Work Plan Volumes I and II (TtNUS, 1998) for NAS Cecil Field. Soil and groundwater samples collected during our investigation for analyses by a fixed based laboratory were shipped on ice and under chain of custody to Accutest Laboratory, Orlando, Florida. The CompQAP number for the Accutest Florida facility is 940304. Based on the type of site and the analytical rationale given in previous investigations, TtNUS used the used oil group analysis listed in Chapter 62-770, FAC for determination of fixed-based sample results.

2.1 PHASE 1

A soil vapor assessment and groundwater screening was conducted between September 5 and September 11, 2001. Eleven soil borings were advanced by hand auger in the vicinity of the Building 312, OWS 312-OW area. Following the soil screening, TtNUS personnel collected groundwater samples by direct push technology (DPT) groundwater sampler technology from the same 11 soil boring locations. A site plan with these boring locations is provided as Figure 2-1. The following sections describe the methodologies used during this investigation.

2.1.1 Hand Augered Soil Borings

TtNUS personnel assessed the soil at each of the 11 locations (CEF-312-SB-001 through CEF-312-SB-011). Soil borings were advanced using a stainless steel, 3-inch, inside diameter (ID) hand-auger. The soil borings were advanced to the capillary fringe or a depth of about 4 ft below land surface (bls), and soil samples were collected at 1-ft intervals and screened with an organic vapor analyzer with flame ionization detector (OVA-FID). Soil vapor analysis was performed in accordance with the headspace screening methodology prescribed by Chapter 62-770.200(2), FAC. A duplicate sample from the interval with the highest OVA-FID reading was retained and analyzed by the mobile laboratory for benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and diesel range organics (DRO). Soil samples were collected for fixed based laboratory analysis of the following contaminants of concern (COCs):



DRAWN BY MJJ	DATE 11Oct01	DPT LOCATION MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
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- Total metals (arsenic, cadmium, chromium, and lead) by SW846 6010B
- Priority pollutant volatile organics (PPVO) with tentatively identified compounds (TICs)
- Priority pollutant extractable organics (PPEO) with TICs
- Total recoverable petroleum hydrocarbons (TRPH) by Florida Petroleum Range Organics (FL-PRO)

Appendix C shows the soil boring logs for each location with the unfiltered and filtered OVA-FID results.

2.1.2 Sediment Samples

As indicated by Figure 1-2, a drainage ditch brackets the area north and east of the OWS, so there is the potential for deposition of sedimentary materials in this low-lying area. For that reason, TtNUS personnel collected sediment samples at locations C001 and C002 for used oil group analyses from approximately 1 ft bls at each location. The fixed-based laboratory analyses are the same set that was run on the soil samples mentioned in the previous section. The samples were collected in accordance with Chapter 62-770, FAC and analyzed by a fixed-based laboratory to assess the extent of contamination.

2.1.3 Groundwater Sampling Direct-Push Investigation

Following the soil screening, TtNUS personnel collected groundwater samples from the same 11 soil boring locations. The samples were collected using a detachable drive tip attached to a 24-inch long, retractable, stainless steel well screen encased in the lead probe tube. After the water sampler was advanced into the water-bearing zone, the probe was withdrawn 48 inches to allow the retractable screen to open to the formation. For groundwater recovery, a length of polyethylene tubing was inserted into the probe and connected to a peristaltic pump. Several screen volumes were then pumped from the probe in order to reduce the turbidity level and ensure a representative sample. After purging, the groundwater samples were collected by pumping directly into three 40-milliliter (ml) vials with Teflon®-coated septa, and one 1-liter amber glass bottle with Teflon® lid. Shallow groundwater samples were collected from approximately 4 to 8 ft bls, and the deep groundwater sample was collected at approximately 26 to 30 ft bls. Consistent with the soil samples, the groundwater samples were analyzed for BTEX, naphthalene, and DRO by the same mobile laboratory. The aforementioned activities concluded the first phase of the investigation.

2.2 PHASE 2

After initial Phase 1 activities, the Base Closure Team (BCT) reviewed the DPT groundwater and soil boring results on October 17, 2001. The BCT agreed that no additional soil delineation was needed, and they agreed to a plan to delineate the extent of groundwater contamination with the addition of three

wells. Two shallow monitoring wells (approximately 13 ft bls) would be installed for horizontal delineation, and one intermediate well (approximately 30 ft bls) would be installed for vertical delineation at Building 312, OWS 312-OW. The following paragraphs describe in detail the activities performed during Phase 2 of the site assessment.

2.2.1 Monitoring Well Installation

On December 7, 2001, three monitoring wells (CEF-312LS-3S, CEF-312LS-4S, and CEF-312LS-1I) were drilled and installed by Trans American Drilling under the supervision of TtNUS personnel. The location of the newly installed and existing monitoring wells are depicted on Figure 2-2.

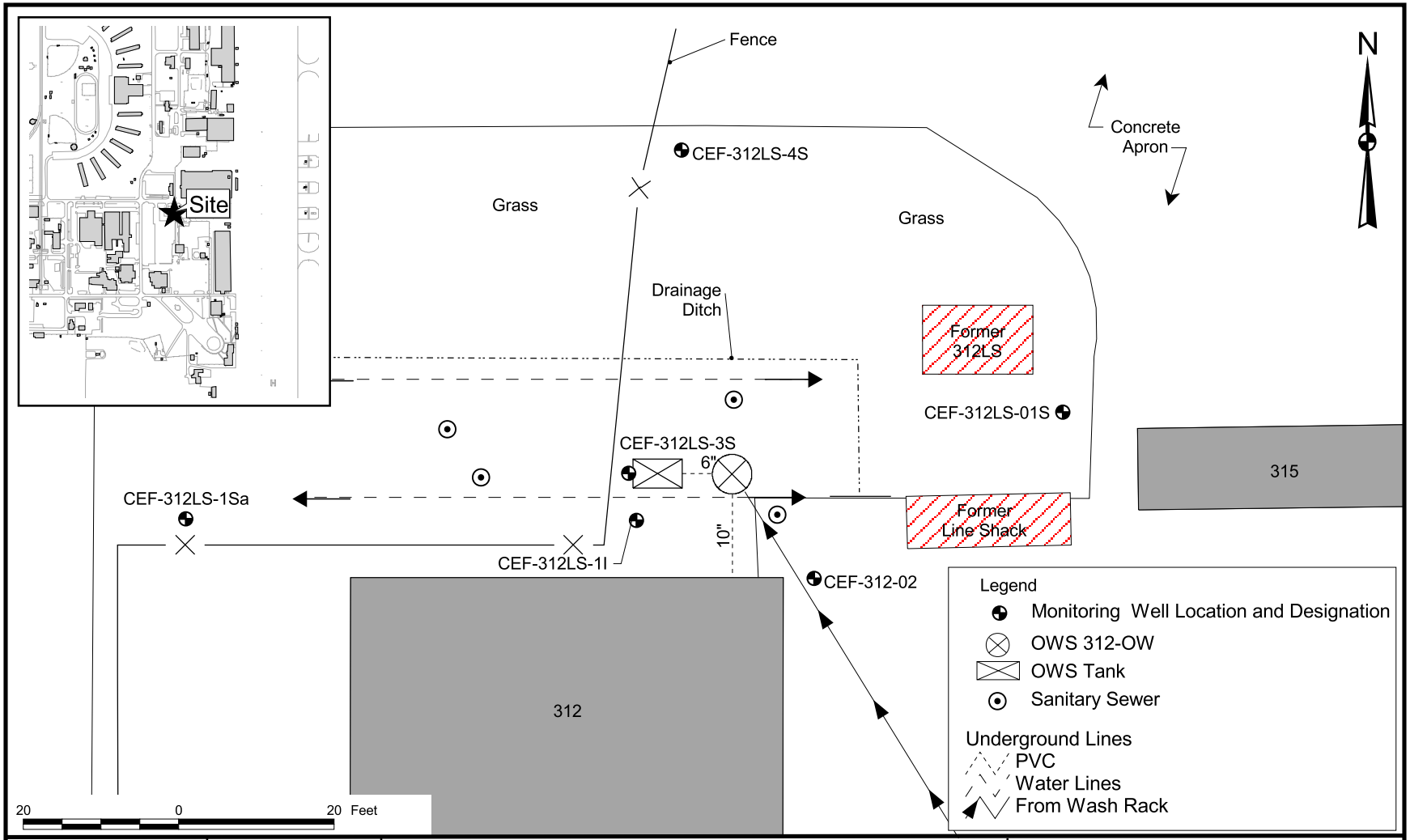
Underground utilities were cleared by the appropriate utility departments and also investigated at each boring location by advancing the boring with a post hole digger from 0 to 4 ft bls. The wells were constructed using a truck-mounted drill rig with 8-inch outside diameter (OD) hollow stem augers. The outer casing of the intermediate well was constructed using the same method except the augers were 14-inch OD. The inner casing of the intermediate well was completed about a day later using mud rotary technique. Monitoring well completion logs are presented in Appendix D. The cuttings and other solid wastes from this drilling activity were containerized and will be properly disposed.

Shallow well CEF-312LS-3S was located to confirm the petroleum contamination reported from the DPT groundwater screening. Shallow well CEF-312LS-4S was located to delineate the petroleum contamination at the northern extent of the site. Intermediate well CEF-312LS-1I was installed to confirm the vertical extent of groundwater contamination in the “source” area.

Each well was developed using a submersible pump. During well development, field measurements of pH, temperature, and specific conductance were monitored from the water generated. The wells were developed under supervision of a geologist for about one hour or until the field measurements became stable and the development water became clear. Water quality stabilization was determined by comparison of the last three measurements using the following criteria: temperature ±1 degree Celsius (°C), pH ±0.1 standard unit, and specific conductance ±10 percent. The development water was containerized for proper disposal.

2.2.2 Water Level Measurements

Water level measurements were collected to determine the depth to water in the surficial aquifer and to determine the relative groundwater flow direction. The depth to water measurements were measured on December 12, 2001 and January 11, 2002, to satisfy the requirements of the SAR as stated in Chapter 62-770, FAC. Measurements were collected from the north rim of the top of well casings using



DRAWN BY MJJ	DATE 11Oct01	MONITORING WELL LOCATION MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
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SCALE AS NOTED			DRAWING NO. FIGURE 2-2 / REV 0

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an electronic oil-water level indicator. No free product was encountered during this work. Well construction and water table elevation data are provided on Table 2-1.

TABLE 2-1
MONITORING WELL CONSTRUCTION AND WATER ELEVATION DATA

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Monitoring Well Identification	Well Depth (feet btoc)	Top-of-Casing Elevation (feet, msl)	December 12, 2001		January 11, 2002	
			Depth to Water (feet btoc)	Water-Level Elevation (feet, msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet, msl)
CEF-312LS-01S	15.58	74.32	7.56	66.76	8.00	66.32
CEF-312LS-1Sa	15.89	75.25	8.14	67.11	8.70	66.55
CEF-312-02	13.03	74.77	5.91	68.86	8.37	66.40
CEF-312LS-3S	12.96	74.89	7.92	66.97	8.42	66.47
CEF-312LS-4S	13.97	76.57	9.62	66.95	10.10	66.47
CEF-312LS-1I	30.27	74.66	5.71	68.95	8.19	66.47

Notes:
msl = mean sea level
btoc = below top of casing

The elevation of the north rim for each top of well casing was surveyed on December 17, 2001 by ARC Surveying and Mapping with respect to the National Geodetic Vertical Datum (1988) and to the State Plane Coordinates for Florida East Zone, North American Datum (1983/1990). The survey data for the new and existing wells are provided in Appendix D. The groundwater elevation was calculated by subtracting the depth to water from the top of casing elevation.

2.2.3 Groundwater Sampling of Monitoring Wells

Prior to sampling, approximately three to five well volumes of groundwater were removed from each well using low flow quiescent purging methods. Temperature, pH, specific conductance measurements, and well purge volumes were recorded at the time of sample collection. Groundwater sampling of the monitoring wells was performed to determine the presence or absence of dissolved petroleum hydrocarbons in groundwater in the vicinity of Building 312, OWS 312-OW. Groundwater samples were collected by TtNUS personnel, using low flow technique, from the three newly installed monitoring wells (CEF-312LS-3S, CEF-312LS-4S and CEF-312LS-1I) and three existing monitoring wells (CEF-312LS-01S, CEF-312LS-02, and CEF-312LS-15A) on December 12, 2001. The groundwater samples were analyzed for constituents of the used oil group. Those analyses consisted of the following

methods: Total metals (arsenic, cadmium, chromium, and lead) by SW846 6010B with TICs by SW846 8260B, PPEO with TICs by SW846 8270C, and TRPH by Florida-Petroleum Range Organics (FL-PRO). Groundwater samples were placed on ice and shipped to Accutest Laboratory, Orlando, Florida.

Groundwater field sampling data sheets are provided in Appendix E.

2.2.4 SPECAP Testing

Specific capacity (SPECAP) testing was performed on three wells at the site (CEF-312LS-01S, CEF-312LS-1Sa, and CEF-312LS-4S). The objective of the SPECAP tests was to determine the productivity or yield per unit of drawdown of the aquifer in which the well is screened, and to estimate hydraulic conductivity and transmissivity. Although there is published information (Halford, 1998) concerning the hydraulic conductivity at the northern end of NAS Cecil Field, SPECAP tests were conducted to provide site-specific information for Building 312 for comparison to the published values. To complete the SPECAP tests, a 1.66-inch OD PVC electronic submersible pump (Whaler® Brand pump) was used to pump the well while the data was collected with a Hermit® 3000 electronic datalogger. The aquifer parameters were calculated from the SPECAP test data using a computer program that was developed by Bradbury and Rothschild (1985). The respective drawdown and recovery graphs for each well are presented in Appendix F. This work completed Phase 2 of the SA Investigation.

3.0 SITE ASSESSMENT RESULTS

3.1 PHASE 1

3.1.1 Soil Vapor Measurements

In September 2001, eleven soil borings (CEF-312-SB-001 through CEF-312-SB-011) were advanced to the capillary fringe to delineate soils at the Building 312, OWS 312-OW site. Since this site is a used oil site, visual observation is required by Chapter 62-770.600 (3)(f), FAC to determine whether the soil on site is contaminated or saturated with used oil. However, since no visible soil staining was evidenced at the site on the surface or in soil borings, headspace analysis was conducted on soil samples collected during the soil vapor assessment using an OVA-FID. The water table was measured in well CEF-312LS-01S at 5.10-ft btoc. No soil OVA responses were observed during the DPT investigation. Soil OVA (unfiltered and filtered) results are provided on the soil boring logs provided in Appendix C.

3.1.2 Soil Quality

Since no soil vapor readings were indicated, soil samples were generally collected from approximately 1 ft above the water table. These soil samples were sent for analysis by an on-site mobile laboratory for BTEX, naphthalene, and DRO. Some BTEX compounds were detected in the samples, and the results for three samples were above the leachability-to-groundwater SCTLs. Specifically, samples from three borings (CEF-312-SB-001, CEF-312-SB-002, and CEF-312-SB-004) exceeded the SCTL for benzene. Both naphthalene and DRO were not detected in any of the soil samples. Table 3-1 summarizes the soil analytical mobile laboratory data, and Figure 3-1 displays the benzene data collected at the site. Appendix G contains the mobile laboratory report for these soil analyses.

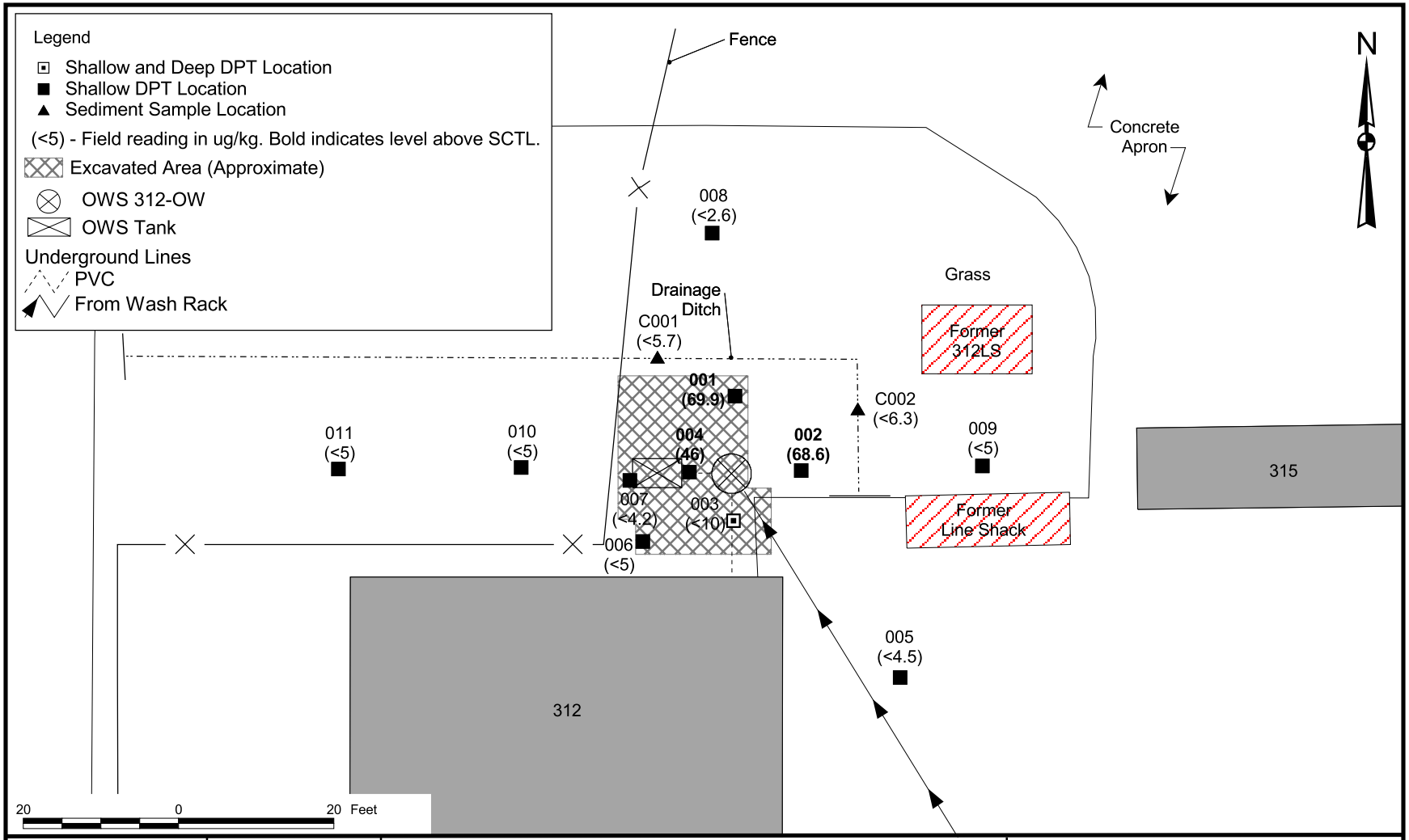
Based on the requirements of Chapter 62-770, FAC, since no soil vapor readings or staining were observed, TtNUS collected one soil sample for fixed-based laboratory analysis from the boring which appeared to display the highest BTEX concentration (Table 3-1). The sample, collected from CEF-312-SB-002, was labeled CEF-312-SB-B002-04. It should also be stated this location was topographically downgradient from the OWS. It was collected at the same depth as the mobile laboratory sample, approximately 4 ft bls, and it was analyzed for the used oil group constituents. Table 3-2 summarizes the fixed-based soil analytical laboratory data. Results indicated that TRPH [549 milligrams per kilogram (mg/kg)] exceeded its Leachability Based on Groundwater Criteria value of 340 mg/kg in boring CEF-312-SB-002. Several TICs were also identified at this location, however, no target levels have been established for these compounds in Chapter 62-777, FAC.

TABLE 3-1
SUMMARY OF MOBILE LABORATORY DATA IN SOIL

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Compounds	**SCTLs**	Sample Identification "CEF-312-SB-"											
		001 @ 3 ft.	001 @ 4 ft.	002 @ 4 ft.	003 @ 4 ft.	004 @ 2 ft.	005 @ 4 ft.	006 @ 4 ft.	007 @ 4 ft.	008 @ 4 ft.	009 @ 4 ft.	010 @ 4 ft.	011 @ 4 ft.
Benzene	7	**69.9**	<4.5	**68.6**	<10	**46**	<4.5	<5	<4.2	<2.6	<5	<5	<5
Toluene	500	34.2	<4.5	63.7	<10	23	<4.5	11	<4.2	8.6	5.7	8.4	7.3
Ethylbenzene	600	<10	<4.5	<10	15.7	<10	<4.5	<5	<4.2	<2.6	<5	<5	<5
Total xylenes	200	13.6	<9.0	14.2	17.4	46.3	<9.0	7.2	<8.4	12.1	<10	15.7	11.4
DRO	None	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Naphthalene	1700	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500

Notes:
Samples were collected on September 7 and 11, 2001.
Concentrations bolded where SCTL is exceeded.
DRO = Diesel Range Organics.
Compound units in micrograms per kilogram (µg/kg) except DRO, which is in mg/kg.
Sample identifications shown with depth of bottom of sample interval.



DRAWN BY MJJ	DATE 11Oct01	FIELD SOIL RESULTS (BENZENE) DPT INVESTIGATION BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1 / REV 0

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TABLE 3-2
SUMMARY OF FIXED-BASED ANALYTICAL DATA IN SOIL

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Compounds	SCTLs[1]	Soil Boring Number CEF-312-SB-B002
		4 feet below land surface
		Sampled: 10/4/2001
Priority Pollutant Volatile Organic Compounds (µg/kg)		None Detected
Priority Pollutant Extractable Organic Compounds (µg/kg)		
Butyl benzyl phthalate	310	235 J
TRPH (mg/kg)		
TRPH	340	549
Tentatively Identified Compounds (Volatiles) (µg/kg)		None Detected
Tentatively Identified Compounds (Semi-volatiles) (µg/kg)		
3-Penten-1-ol, 2-methyl-	NE	1300
Cyclopropane, 1,1,2-trimethyl-	NE	1300
Cyclododecane	NE	460
1-Tridecene	NE	520
1-Tetradecene	NE	480
Octadecane, 1-chloro-	NE	3000
Pentatriacontane	NE	1700
Heptadecane, 2,6,10,15-tetramethyl-	NE	930
Tetratetracontane	NE	9200
Tricosane	NE	3100
Tritetracosane	NE	12000
Docosane	NE	570
Unknown	NE	760
Unknown	NE	4600
Metals (mg/kg)	Hi-Cut Values[2]	
Arsenic	2.0375	0.42
Cadmium	1.715	0.36
Chromium	7.75 [3]	7.5
Lead	196.9	11.7

Notes:
[1]Based on Chapter 62-777, Florida Administrative Code, Leachability to Groundwater Criteria.
[2] Values extablished for NAS Cecil Field.
[3] This value established for hexavalent chromium.
[*]Duplicate sample.

U = not detected.
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
J = estimated.
TRPH = total recoverable petroluem hydrocarbons
NE = not established

Unlike the mobile laboratory results, no BTEX concentrations were detected in the fixed-based laboratory sample. The laboratory report is provided in Appendix H.

3.1.3 Sediment Sample Results

As indicated in Section 2.1.1, TtNUS personnel collected sediment samples for mobile laboratory screening, but the results, shown in Appendix G, indicate only minor concentrations of xylenes detected. Those detections were below the SCTL.

TtNUS also collected sediment samples, as indicated in Section 2.1.2, at locations C001 and C002 for used oil group analyses by a fixed-based laboratory. Similar to the soil sample, no BTEX or volatile organic compounds (VOCs) were detected in the sediment samples. However, the sediment sample collected from location C001 did exceed several SCTLs for both TRPH and PPEO compounds as seen on Table 3-3 and presented on Figure 3-2. The laboratory report is provided in Appendix I.

3.1.4 Water Quality

Direct-push groundwater sampling results from the mobile laboratory field screening reported exceedances of groundwater cleanup target levels (GCTLs) for benzene [1100 micrograms per liter (µg/L)], m&p xylenes (8000 µg/L), o-xylenes (1600 µg/L) and naphthalene (99 µg/L) in sample CEF-312-GW-007 (location 007), and m&p xylenes (16.4 µg/L) in sample CEF-312-GW-008 (location 008). The complete mobile laboratory results are presented in Appendix G and they are summarized on Table 3-4. Figure 3-3 illustrates the field groundwater results for BTEX and Figure 3-4 illustrates the field groundwater results for naphthalene.

Groundwater samples were collected from the three newly installed wells (CEF-312LS-3S, CEF-312LS-4S, and CEF-312LS-1I) and three existing monitoring wells (CEF-312LS-01S, CEF-312LS-02, and CEF-312LS-1Sa) on December 12, 2001 and submitted to Accutest Laboratory for used oil group analysis. A review of the analytical results shows the COCs in groundwater were below their respective GCTLs in the monitoring wells. Fixed-based analytical results are provided in Table 3-5 and presented on Figure 3-5. Groundwater laboratory data sheets are included in Appendix J.

3.1.5 Aquifer Characteristics

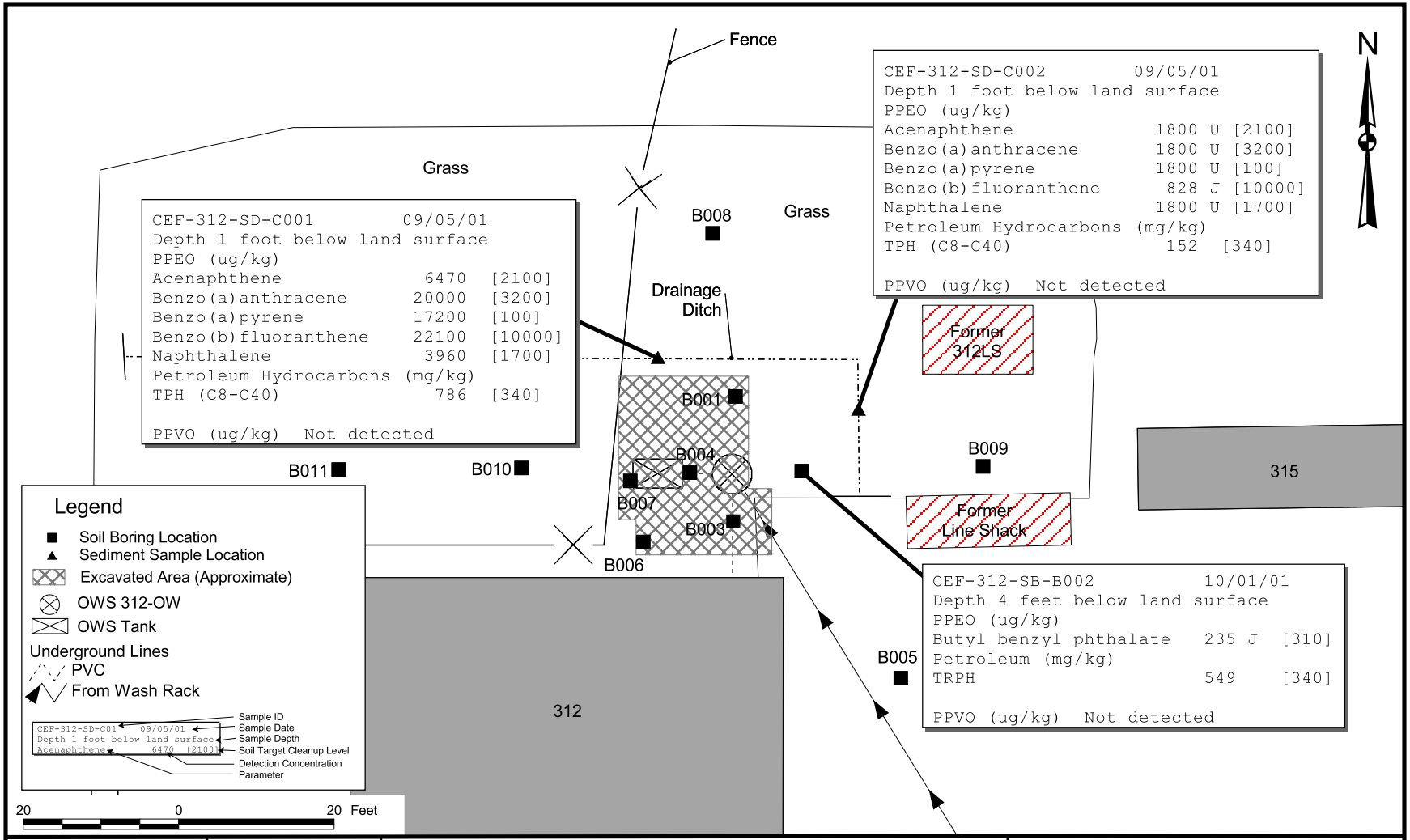
Groundwater levels were measured on December 12, 2001 and January 11, 2002 from the three newly installed monitoring wells (CEF-312LS-3S, CEF-312LS-4S, and CEF-312LS-1I) and three existing monitoring wells (CEF-312LS-01S, CEF-312LS-02, and CEF-312LS-1Sa). Groundwater elevation measurements were calculated from the field data (Table 2-1) and plotted on Figure 3-6

TABLE 3-3
SUMMARY OF FIXED-BASED ANALYTICAL DATA IN SEDIMENT

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Compounds	**SCTLs**	Sample Identification "CEF-312-SD-"	
		C001 @ 1 ft.	C002 @ 1 ft.
Benzene	7	<5.7	<6.3
Toluene	500	<5.7	<6.3
Ethylbenzene	600	<5.7	<6.3
Total xylenes	200	<17	<19
TRPH	340	**786**	152
Acenaphthene	2100	**6470**	<1800
Anthracene	2500000	10800	<1800
Benzo (a) anthracene	3200	**20000**	<1800
Benzo (a) pyrene	8000	**17200**	<1800
Benzo (b) fluoranthene	10000	**22100**	828J
Benzo (g,h,i) perylene	32000000	16800	967J
Benzo (k) fluoranthene	25000	7080	<1800
Chrysene	77000	17800	<1800
Dibenzo (a,h) anthracene	30000	3250	<1800
Fluoranthene	1200000	47500	<1800
Fluorene	160000	5830	<1800
Indeno (1,2,3-cd) pyrene	28000	18300	719
Naphthalene	1700	**3960**	<1800
Phenanthrene	250000	38900	<1800
Pyrene	880000	30900	<1800
Arsenic	29	4.1	0.97
Cadmium	8	0.71	1.9
Chromium	NA	8.8	13.6
Lead	NA	25.7	48.6

Notes:
Samples were collected on September 5, 2001.
Concentrations bolded where SCTL is exceeded.
J = estimated.
NA = not available.
Compound units in µg/kg except TRPH and metals, which are in mg/kg.
Sample identifications shown with depth of bottom of sample interval.



DRAWN BY MJJ	DATE 11Jan02	FIXED-BASED SOIL AND SEDIMENT RESULT MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-2 / REV 0

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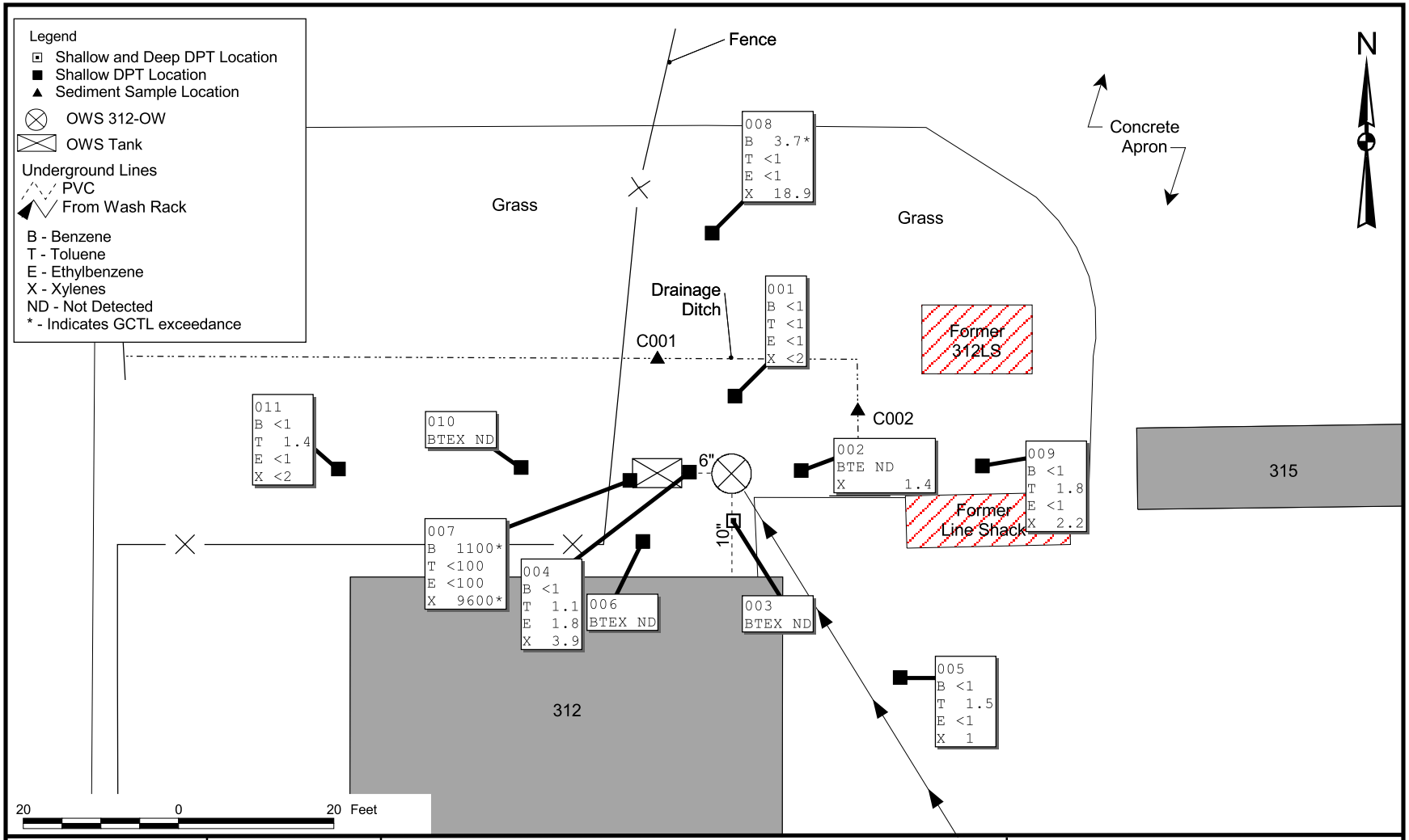
TABLE 3-4
SUMMARY OF MOBILE LABORATORY DATA IN GROUNDWATER

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Compounds	GCTLs	Sample Identification "CEF-312-GW-"											
		001 @ 7 ft.	002 @ 8 ft.	003 @ 8 ft.	003 @ 30 ft.	004 @ 8 ft.	005 @ 8 ft.	006 @ 8 ft.	007 @ 8 ft.	008 @ 8 ft.	009 @ 8 ft.	010 @ 8 ft.	011 @ 8 ft.
Benzene	1	<1	<1	<1	<1	<1	<1	<1	**1100**	**3.7**	<1	<1	<1
Toluene	40	<1	<1	<1	<1	1.1	1.5	<1	<100	<1	1.8	<1	1.4
Ethylbenzene	30	<1	<1	<1	<1	1.8	<1	<1	<100	<1	<1	<1	<1
Total xylenes	20	<2	1.4	<2	<2	3.9	1	<2	**9600**	18.9	2.2	<2	<2
DRO	None	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	20	<20	<20	<20	<20	<20	<20	<20	**99**	<20	<20	<20	<20

Notes:
Sample date was September 11, 2001.
Concentrations bolded where GCTL is exceeded.
Compound units in micrograms per liter except DRO, which is in milligrams per liter.
Sample identifications shown with depth of bottom of DPT sample screen.



DRAWN BY MJJ	DATE 11Oct01	FIELD GROUNDWATER RESULTS (BTEX) DPT INVESTIGATION BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-3 / REV 0

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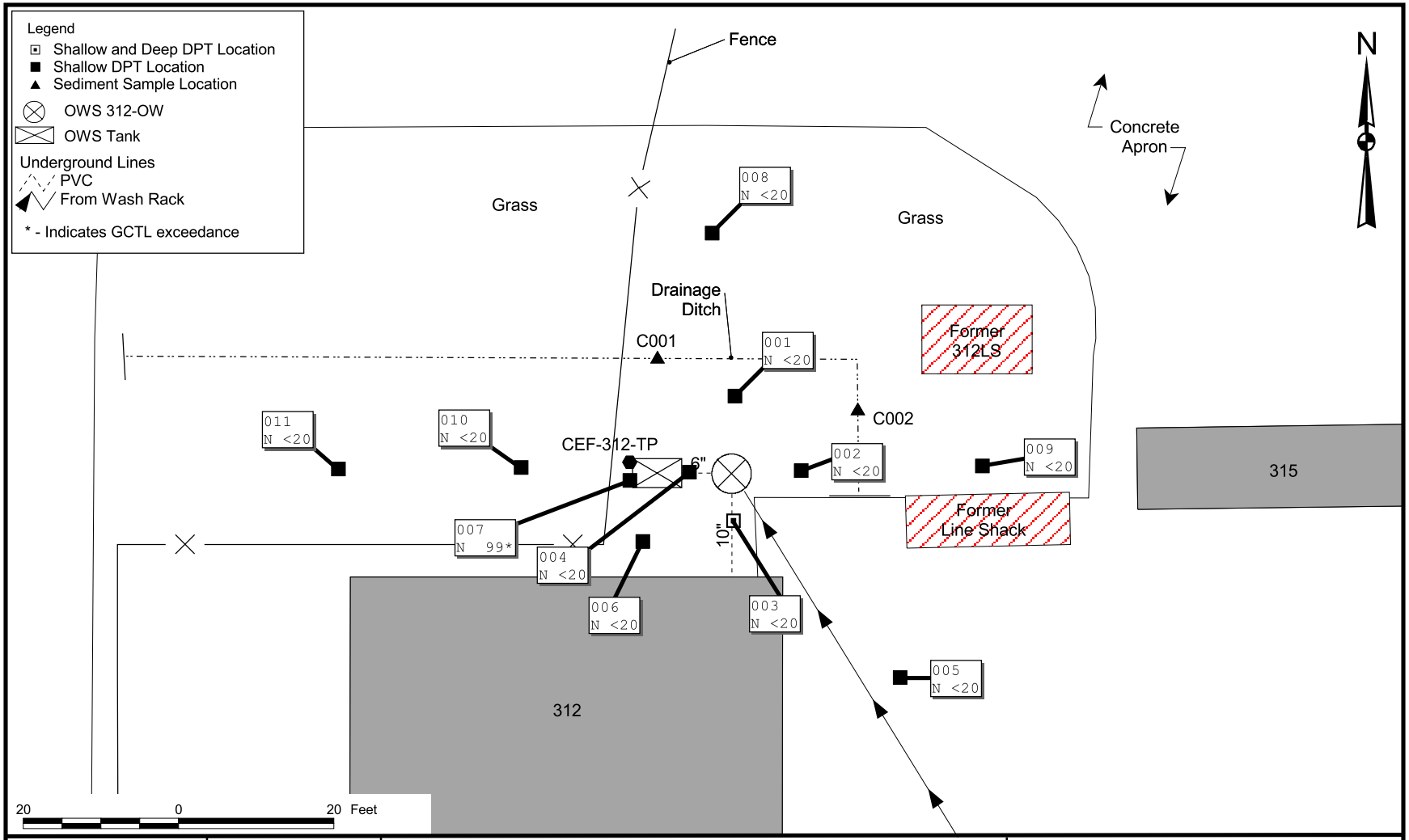

DRAWN BY MJJ	DATE 11Oct01	FIELD GROUNDWATER RESULTS (NAPHTHALENE) DPT INVESTIGATION BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-4 / REV 0

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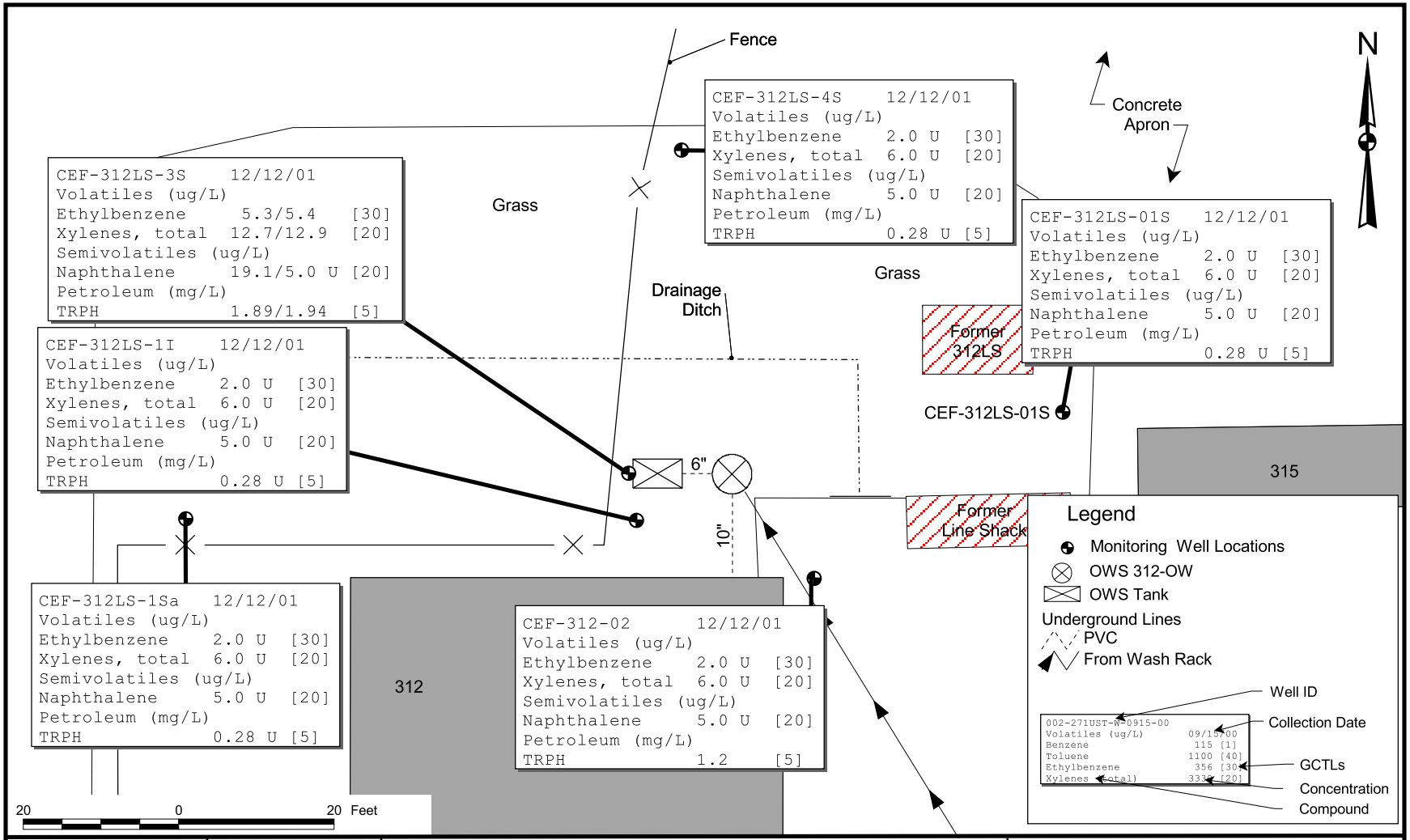
TABLE 3-5
SUMMARY OF DETECTIONS IN GROUNDWATER

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Compounds	GCTLs[1]	December 12, 2001						
		Monitoring Well Number CEF-312						
		02	LS-3S*	LS-01S	LS-1Sa	LS-4S	LS-3S	LS-1I
Priority Pollutant Volatile Organic Compounds (µg/L)								
Ethylbenzene	30	2.0 U	5.4	2.0 U	2.0 U	2.0 U	5.3	2.0 U
Xylenes, total	20	6.0 U	12.9	6.0 U	6.0 U	6.0 U	12.7	6.0 U
Priority Pollutant Extractable Organic Compounds (µg/L)								
Naphthalene	20	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	19.1	5.0 U
TRPH (mg/L)								
TRPH	5	1.2	1.94	0.28 U	0.28 U	0.28 U	1.89	0.28 U
Tentatively Identified Compounds (mg/L)								
Benzene, 1,2-diethyl-	NE						16	
Benzene, 1,3-diethyl-5-methyl-	NE		21					
Benzene, 1-ethyl-2-methyl-	NE		23				24	
Benzene, 1-ethyl-2,3-dimethyl-	NE		27				29	
Benzene, 2-ethyl-1,3-dimethyl-	NE		53				29	
Benzene, 2-ethyl-1,4-dimethyl-	NE		30					
Benzene, 4-ethyl-1,2-dimethyl-	NE		25				52	
Benzene, 1-methyl-2-propyl-	NE						16	
Benzene, 1-methyl-3-propyl-	NE						19	
Benzene, 1-methyl-4-propyl-	NE		19					
Benzene, 1-methyl-2-(1-methylethyl	NE		31				46	
Benzene, 1-methyl-4-(1-methylethyl	NE		18				35	
Benzene, 1-methyl-3-(1-methylethyl	NE						23	
Benzene, (1-methyl-1-propenyl)-,(Z)-	NE						74	
Benzene, (2-methyl-1-propenyl)-	NE		31					
Benzene, (2-methyl-2-propenyl)-	NE						30	
Benzene, 1,2,3,4-tetramethyl-	NE		30				42	
Benzene, 1,2,3,5-tetramethyl-	NE						41	
Benzene, 1,2,4,5-tetramethyl-	NE						25	
Benzene, 1,2,4-trimethyl-	NE						65	
Benzene, methyl(1-methylethyl)-	NE						18	
1H-Indene, 2,3-dihydro-4-methyl-	NE	30	26				24	
1H-Indene, 2,3-dihydro-5-methyl-	NE						44	
Indan, 1-methyl-	NE		48					
Indane	NE	20					20	
Naphthalene, 1,2,3,4-tetrahydro-	NE		40				36	
Unknown	NE						29	

Notes:
[1]Based on Chapter 62-770, Florida Administrative Code.
*Duplicate sample.
U = not detected.
mg/L = milligrams per liter NE = not establsihed



DRAWN BY MJJ	DATE 10Jan02	FIXED-BASED GROUNDWATER CONCENTRATION MAP SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-5 / REV 0

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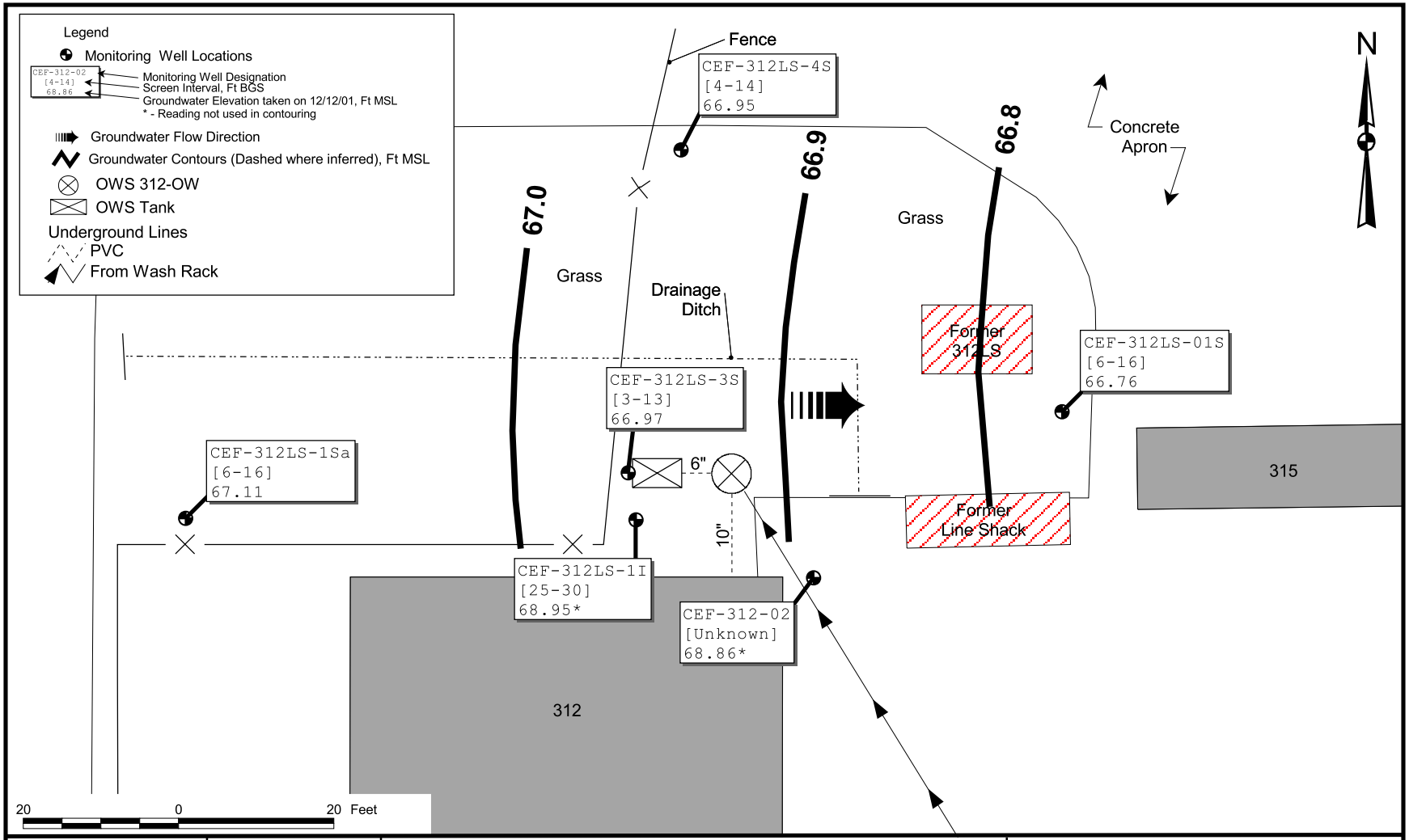

DRAWN BY MJJ	DATE 11Oct01	GROUNDWATER FLOW MAP (12/12/01) SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-6 / REV 0

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(December 2001 data) and Figure 3-7 (January 2002 data). The figures indicate that groundwater flow appears to be moving easterly.

On January 11, 2002 SPECAP testing of three shallow wells (CEF-312LS-01S, CEF-312LS-1Sa, and CEF-312LS-4S) was conducted. These wells were selected because they are evenly spread across the site and the analytical results for those wells indicated no petroleum contaminants were present to interfere with the test.

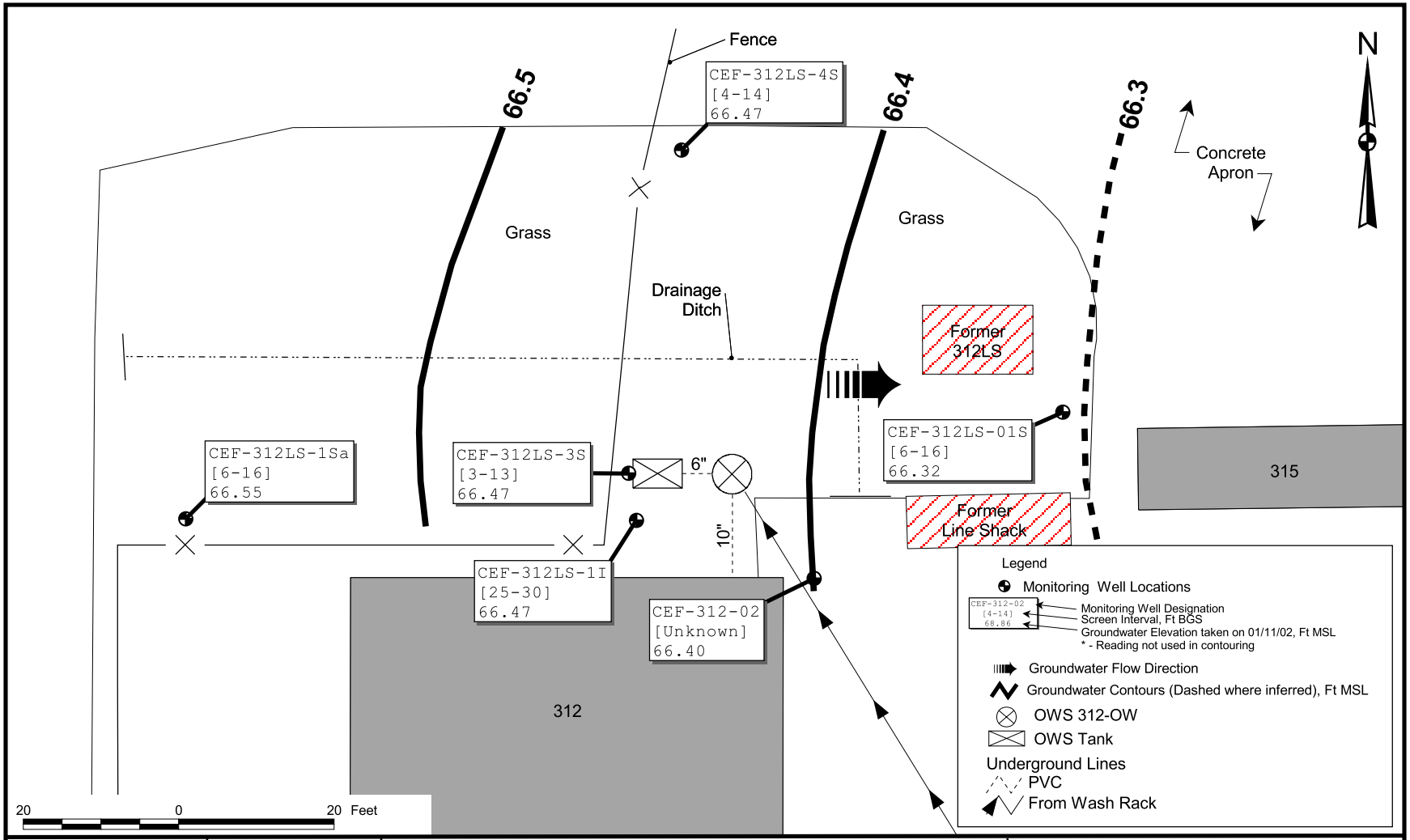
Using a computer program by Bradbury and Rothschild (1985), the input data and variables for each well were run to generate SPECAP, hydraulic conductivity (K), and transmissivity (T). Both the input and output data are shown in Appendix K of this report. The SPECAP, K, and T values are summarized on Table 3-6. In unconfined aquifers, the Storage Coefficient (S) is the same as the specific yield (S_y) of the aquifer. The storage coefficient used was estimated to be 0.15, which was based on referenced information published by Fetter (1980) and it was compared to the S_y used by Halford (1998). Fetter indicated that the minimum S_y for gravel and coarse-grain sand formations equal 0.20 and the minimum S_y for fine-grain sand formations equal 0.10. Halford used a S_y value of 0.2. Since the majority of the soil underlying this site consists of very fine grain sand to silty sand, Halford's estimate for S_y was decreased to 0.15 to better represent the site-specific soils.

TABLE 3-6
AQUIFER PROPERTIES BASED ON ANALYSIS OF SPECAP

BUILDING 312, OWS 312-OW
NAS CECIL FIELD
JACKSONVILLE, FLORIDA

Well Number	Specific Capacity (SPECAP)	Transmissivity (T)	Hydraulic Conductivity (K) (ft/day)
CEF-312LS-01S	0.1039 gpm/ft	1.60×10^{-3} ft^2/sec or 1036.27 gpd/ft	1.44 ft/day
CEF-312LS-01Sa	0.2697gpm/ft	4.34×10^{-3} ft^2/sec or 2802.49 gpd/ft	3.90 ft/day
CEF-312-04S	0.6611 gpm/ft	1.06×10^{-2} ft^2/sec or 6877.19 gpd/ft	9.58 ft/day

Notes:
gpm = gallons-per-minute sec = seconds gpd = gallons-per-day



DRAWN BY MJJ	DATE 11Oct01	GROUNDWATER FLOW MAP (01/11/02) SITE ASSESSMENT REPORT BUILDING 312, OWS 312-OW NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 3996
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-7 / REV 0

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Halford indicated that several wells from the same zone were tested in his study and their K value ranged from 0.6 to 5 feet-per-day. The average K value for this site is about 4.97 feet-per-day, which closely approximates Halford's upper estimate.

Using the average K value just presented, the velocity of groundwater flow through the materials underlying the site was estimated using a modified form of Darcy's equation:

$V_h = K_h \times I/n_e$

Where,
V_h = average horizontal velocity, feet-per-day
K_h = average horizontal hydraulic conductivity, feet-per-day
I = hydraulic gradient, feet-per-foot
n_e = effective porosity, dimensionless

The value for "I" was calculated from water level data and groundwater contours collected in December 2001 and January 2002. The approximate averaged value is 0.0029 feet-per-foot. The effective porosity was approximated at 0.15 for fine sands (TtNUS, 1999).

Using these values, the average V_h is estimated to be 0.096 feet-per-day or 35.04 feet-per-year in the water table zone for this site. Groundwater velocities will vary depending on lateral and vertical aquifer permeability differences and seasonal fluctuations in the hydraulic gradient, and contaminant velocities will be further affected by the change in groundwater density.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

4.1.1 Soil Conclusions

TtNUS' assessment of the soil at select soil boring locations using an OVA-FID indicated that no contaminated soil exists on site. However, review of the mobile laboratory analyses and fixed based laboratory analyses, and the sediment data indicates that hydrocarbon constituents remain in soils above regulatory criteria at four locations (CEF-312-SB-001, CEF-312-SB-002, CEF-312-SB-004, and C001). As Figure 3-2 indicates two of the four locations (SB-002 and C001) are outside the RAC excavation limits. SB-001 is very close to the approximate edge of the excavation. As indicated by Figure 2-1, SB-004 was collected near the location of a pipe that connects the OWS and the OWS tank, and this sample exhibited the highest concentrations of COCs.

4.1.2 Groundwater Conclusions

TtNUS' assessment of the groundwater at select DPT locations indicated that BTEX compounds were detected in the groundwater samples collected from borings 007 and 008 in excess of their respective GCTLs for benzene and total xylenes. However, fixed-based laboratory results indicated that concentrations of petroleum products, COCs, in groundwater were below the GCTLs in the monitoring wells that were sampled for this investigation. In addition, no free product was encountered during this investigation.

4.2 RECOMMENDATIONS

4.2.1 Soil Recommendations

Based on the results of the SA, contaminated soil has been identified at Building 312, OWS 312-OW. No elevated soil OVA responses were observed during the DPT, however, fixed-based laboratory analytical results indicate that petroleum impacted soil is present at the site. It appears that traditional methods of visual inspection and OVA-FID screening protocol are not sufficient to delineate the soil contamination at the site. Therefore, a source removal should be conducted, outside the SRR excavation limits beginning in the areas (to the north and east) identified by this SAR, to remove the impacted soil. Prior to initiating the additional source removal, TtNUS recommends that additional soil samples should be collected, and sent to a fixed-based laboratory, to delineate the extent of petroleum impacted soil remaining at Building 312, OWS 312-OW. TtNUS also recommends removal and/or replacement of the existing OWS system with soil sampling around it to determine if it has leaked since the time of the SRR (CCI, 2000).

4.2.2 Groundwater Recommendations

TtNUS recommends a post excavation groundwater-sampling event to confirm that COCs remain below their respective GCTLs. Following the post-excavation sampling event, if COCs remain below GCTLs and the site's soil is remediated below SCTLs, then TtNUS recommends No Further Action without conditions or restrictions be implemented for Building 312, OWS 312-OW.

REFERENCES

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APPENDIX A

HLA CONFIRMATORY SAMPLING REPORT FOR BUILDING 312 OWS

CONFIRMATORY SAMPLING REPORT

BUILDING 312, OIL-WATER SEPARATOR 312-OW

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/149

Prepared by:

Harding Lawson Associates
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

June 1999

Revision 0.0

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/149 are complete and accurate and comply with all requirements of this contract.

DATE: June 18, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Naval Air Station Cecil Field
Jacksonville, Florida

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Building 312, Oil-Water Separator 312-OW
Naval Air Station Cecil Field
Jacksonville, Florida

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GLOSSARY

bls	below land surface
FDEP	Florida Department of Environmental Protection
OVA	organic vapor analyzer
ppm	parts per million
TRPH	total recoverable petroleum hydrocarbons

1.0 INTRODUCTION

Harding Lawson Associates, under contract to the Southern Division, Naval Facilities Engineering Command, has completed the site assessment for oil-water separator 312-OW at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations.

Oil-water separator 312-OW is located on the north side of Building 312, a corrosion control hangar (ABB Environmental Services, Inc., 1994) (Figure 1). The oil-water separator was installed in 1988 and has a 900 gallon capacity.

2.0 FIELD INVESTIGATION

The confirmatory sampling for oil-water separator 312-OW was initiated in July, 1998 and included

- the advancement of four soil borings to the water table,
- collection and analysis of one groundwater sample and one subsurface soil sample, and
- collection and analysis of four additional subsurface soil samples to delineate the extent of contaminated soil above cleanup target levels.

Soil samples were collected from each boring at depth intervals of 1 foot below land surface (bls) and every 2 feet thereafter to the water table. These samples were screened for hydrocarbon vapors with an organic vapor analyzer (OVA).

One subsurface soil sample was collected on October 13, 1998 and analyzed for the Used Oil Group parameters. Sample CEF-312-SB4 was collected from 5 feet bls at the location of soil screening boring SB4 which had the highest OVA concentration (1,350 parts per million [ppm]).

Four subsurface soil samples, CEF-312-SB5, CEF-312-SB6, CEF-312-SB7, and CEF-312-SB8 were collected on February 4, 1999 and analyzed for volatile organic compounds and total recoverable petroleum hydrocarbons (TRPH) to delineate the extent of contaminated soil. The samples were collected just above the water table at 3.5 feet bls.

One monitoring well, CEF-312-12S, which was previously installed by NAS Cecil Field as a compliance well was selected as a downgradient well and sampled during the confirmatory sampling . The downgradient location was selected based on the groundwater flow direction at the Day Tank 1 site just to the north. A general site plan indicating the location of the soil borings and monitoring wells is presented on Figure 1.

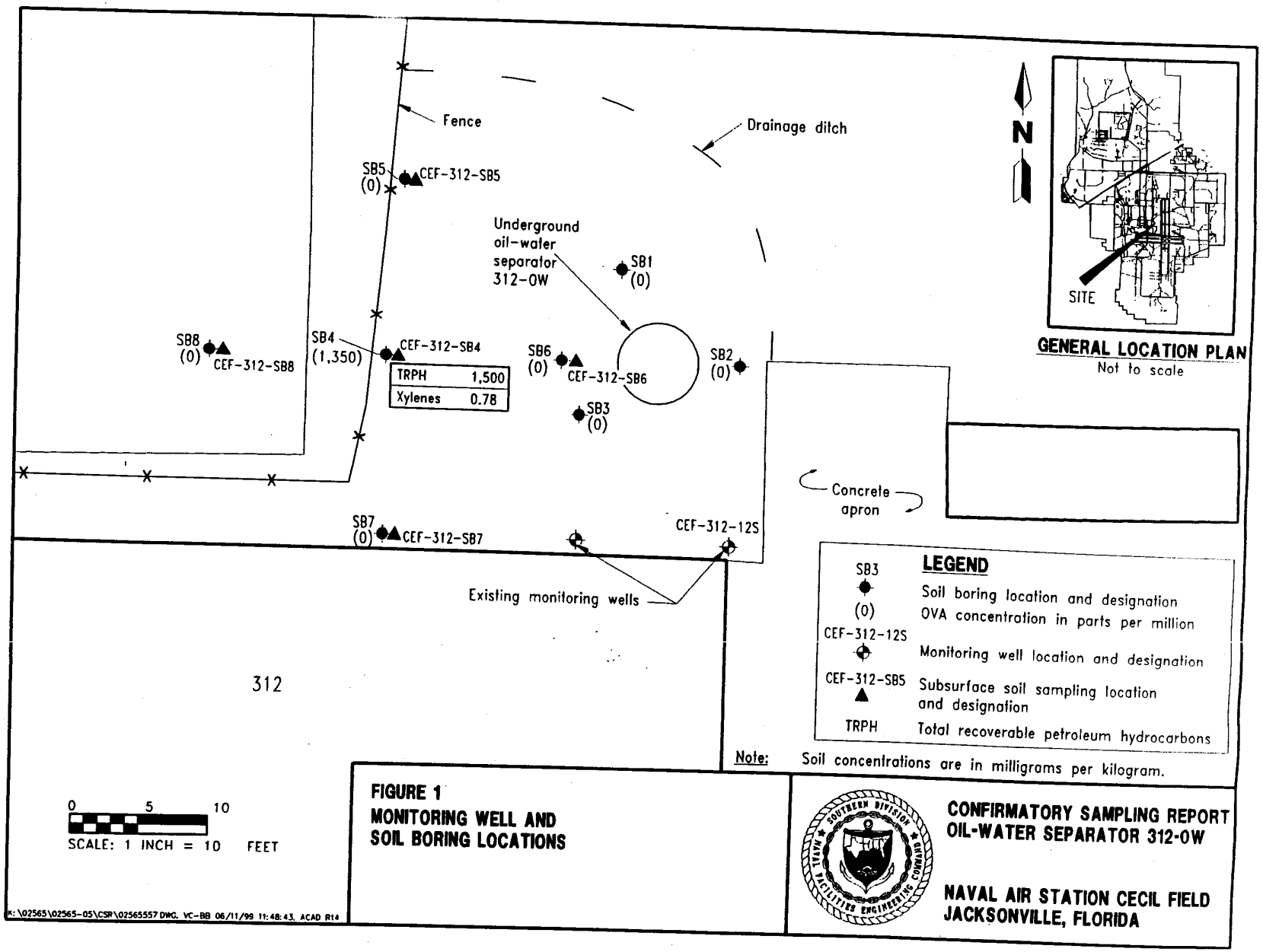


FIGURE 1
MONITORING WELL AND SOIL BORING LOCATIONS

CONFIRMATORY SAMPLING REPORT
OIL-WATER SEPARATOR 312-OW

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil (greater than 50 ppm on an OVA) was detected in one of the 8 soil borings advanced during the confirmatory sampling. Soil boring SB4 had the highest OVA concentration (1,350 ppm) at a depth of 5 feet bls. The soil OVA data are summarized in Table 1 and presented on Figure 1.

Total xylenes and TRPH were the only contaminants detected above Florida Department of Environmental Protection (FDEP) soil cleanup target levels in the subsurface soil samples collected for used oil analysis. Trichloroethene was detected in sample CEF-312-SB6 at a concentration above the leachability cleanup target level (0.03 mg/kg) identified in Chapter 62-777, FAC. However, the sample location was resampled and trichloroethene was not detected. Subsurface soil analytical results are summarized in Table 2 and presented in Appendix A. No contaminants were detected above FDEP groundwater cleanup target levels in the groundwater sample collected from monitoring well CEF-312-12S during the confirmatory sampling. A summary of the groundwater analytical results is presented in Table 3. The complete analytical data set is presented in Appendix A.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling of oil-water separator 312-OW indicated the presence of soil contamination at levels above cleanup target levels. The extent of soil contamination has been delineated at the site. No contaminants were detected in groundwater sample CEF-312-12S.

It is recommended that no further action take place at the oil-water separator site until it is removed at which time contaminated soil should be delineated and removed.

Table 1
Soil Screening Results

Confirmatory Sampling Report
Building 312, Oil-Water Separator 312-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB1	1	0	0	0
	3	0	0	170
	5 (wet)	450	0	450
SB2	1	0	0	0
	3	0	0	0
	5 (wet)	120	0	120
SB3	1	0	0	0
	3	0	0	0
	5 (wet)	2,300	0	2,300
	1	0	--	0
	3	0	--	0
	5 (moist)	1,350	0	1,350
	7 (wet)	1,800	0	1,800

Notes: Soil samples were filtered with carbon to determine the methane concentration.

OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
refusal = subsurface obstruction encountered during boring advancement; no further samples collected at this location.
wet = soil sample was completely saturated when analyzed.
moist = soil sample was partially saturated when analyzed.
-- = filtered readings were not collected.

Table 2
Summary of Subsurface Soil Analytical Detections

Confirmatory Sampling Report
Building 312, Oil-Water Separator 312-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-312-SB4 (5 feet bls; OVA = 170 ppm)	CEF-312-SB5 (3.5 feet bls; OVA = 0 ppm)	CEF-312-SB6 (3.5 feet bls; OVA = 0 ppm)	0CEF-312-SB7 (3.5 feet bls; OVA = 0 ppm)	CEF-312-SB8 (3.5 feet bls; OVA = 0 ppm)	Soil Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 8020) (mg/kg)						
Xylenes	**0.780**	ND	ND	ND	ND	290/0.3
Trichloroethene	ND	0.013	0.046/ND[2]	0.008	0.0063	NA
Polynuclear Aromatic Hydrocarbons (USEPA Method 8310) (mg/kg)						
Naphthalene	0.6	NS	NS	NS	NS	1,000/1
2-Methylnaphthalene	1.4	NS	NS	NS	NS	NA
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/kg)						
TRPH	**1,500**	ND	38	ND	ND	350/340
Inorganic Analytes (mg/kg)						
Arsenic	0.6 J	NS	NS	NS	NS	0.8/TCLP
Chromium	10	NS	NS	NS	NS	290/TCLP
Lead	10 J	NS	NS	NS	NS	500/TCLP

[1] Chapter 62-770, Florida Administrative Code: Direct Exposure I/Leachability, Table V.
[2] Sample location CEF-312-SB6 was resampled due to the presence of trichloroethene above the cleanup target level.

USEPA = U.S. Environmental Protection Agency.
mg/kg = milligrams per kilogram.
ND = not detected.
NS = not sampled.
NA = not available.
FL-PRO = Florida-Petroleum Residual Organics.
TCLP = toxicity characteristic leaching procedure.

Table 3
Summary of Groundwater Analytical Results

Confirmatory Sampling Report
Building 312, Oil-Water Separator 312-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-312-12S	Groundwater Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 601/602) (µg/ℓ)		
Not detected.		
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270) (µg/ℓ)		
Not detected.		
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)		
Not detected		
Inorganic Analytes (µg/ℓ)		
Not detected.		

[1] Chapter 62-770, Florida Administrative Code.

USEPA = U.S. Environmental Protection Agency.
µg/ℓ = micrograms per liter.
FL-PRO = Florida Petroleum Residual Organics.
mg/ℓ = milligrams per liter.

REFERENCE

ABB Environmental Services, Inc. (ABB-ES). 1994. *Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station Cecil Field, Jacksonville, Florida.* Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

APPENDIX A

ANALYTICAL DATA

NAS CECIL FIELD -- OIL/WAT EPARATOR AT FACILITY 312
SUBSURFACE SOIL -- VOLATILES REPORT REQUEST NO. 11119

Lab Sample Number:	JR36658				JR52916				JR52917				JR66726			
Site	UST GREY				UST GREY				UST GREY				UST GREY			
Locator	CEF-312-SB4				CEF-312-SB5				CEF-312-SB6				CEF-312-SB6			
Collect Date:	13-OCT-98				04-FEB-99				04-FEB-99				11-MAY-99			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
RAC VOLATILES																
1,1,1-Trichloroethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
1,1,2,2-Tetrachloroethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
1,1,2-Trichloroethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
1,1-Dichloroethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
1,1-Dichloroethene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
1,2-Dichloroethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
1,2-Dichloropropane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Benzene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Bromodichloromethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Bromoform	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Bromomethane	120	U	ug/kg	120	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Carbon tetrachloride	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Chlorobenzene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Chloroethane	120	U	ug/kg	120	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
Chloroform	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Chloromethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Dibromochloromethane	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Ethyl benzene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Methylene chloride	120	U	ug/kg	120	29	U	ug/kg	29	28	U	ug/kg	28	26	U	ug/kg	26
Tetrachloroethene	120	U	ug/kg	120	17	U	ug/kg	17	17	U	ug/kg	17	16	U	ug/kg	16
Toluene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
Trichloroethene	120	U	ug/kg	120	13		ug/kg	6	46		ug/kg	6	5	U	ug/kg	5
Vinyl chloride	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
cis-1,3-Dichloropropene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
m,p-Xylene	360	J	ug/kg	120	12	U	ug/kg	12	11	U	ug/kg	11	11	U	ug/kg	11
o-Xylene	420		ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
trans-1,2-Dichloroethene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5
trans-1,3-Dichloropropene	120	U	ug/kg	120	6	U	ug/kg	6	6	U	ug/kg	6	5	U	ug/kg	5

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT FACILITY 31
SUBSURFACE SOIL -- VOLATILES -- REPORT REQUEST NO. 1111

Lab Sample Number:	JR52918				JR52914			
Site	UST GREY				UST GREY			
Locator	CEF-312-SB7				CEF-312-SB8			
Collect Date:	04-FEB-99				03-FEB-99			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BRAC VOLATILES								
1,1,1-Trichloroethane	6	U	ug/kg	6	5	U	ug/kg	5
1,1,2,2-Tetrachloroethane	6	U	ug/kg	6	5	U	ug/kg	5
1,1,2-Trichloroethane	6	U	ug/kg	6	5	U	ug/kg	5
1,1-Dichloroethane	6	U	ug/kg	6	5	U	ug/kg	5
1,1-Dichloroethene	6	U	ug/kg	6	5	U	ug/kg	5
1,2-Dichloroethane	6	U	ug/kg	6	5	U	ug/kg	5
1,2-Dichloropropane	6	U	ug/kg	6	5	U	ug/kg	5
Benzene	6	U	ug/kg	6	5	U	ug/kg	5
Bromodichloromethane	6	U	ug/kg	6	5	U	ug/kg	5
Bromoform	6	U	ug/kg	6	5	U	ug/kg	5
Bromomethane	12	U	ug/kg	12	11	U	ug/kg	11
Carbon tetrachloride	6	U	ug/kg	6	5	U	ug/kg	5
Chlorobenzene	6	U	ug/kg	6	5	U	ug/kg	5
Chloroethane	12	U	ug/kg	12	11	U	ug/kg	11
Chloroform	6	U	ug/kg	6	5	U	ug/kg	5
Chloromethane	6	U	ug/kg	6	5	U	ug/kg	5
Dibromochloromethane	6	U	ug/kg	6	5	U	ug/kg	5
Ethyl benzene	6	U	ug/kg	6	5	U	ug/kg	5
Methylene chloride	29	U	ug/kg	29	27	U	ug/kg	27
Tetrachloroethene	18	U	ug/kg	18	16	U	ug/kg	16
Toluene	6	U	ug/kg	6	5	U	ug/kg	5
Trichloroethene	8		ug/kg	6	6.3		ug/kg	5
Vinyl chloride	6	U	ug/kg	6	5	U	ug/kg	5
cis-1,3-Dichloropropene	6	U	ug/kg	6	5	U	ug/kg	5
m,p-Xylene	12	U	ug/kg	12	11	U	ug/kg	11
o-Xylene	6	U	ug/kg	6	5	U	ug/kg	5
trans-1,2-Dichloroethene	6	U	ug/kg	6	5	U	ug/kg	5
trans-1,3-Dichloropropene	6	U	ug/kg	6	5	U	ug/kg	5

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OIL/WAT[illegible]EPARATOR AT FACILITY 312
SUBSURFACE SOIL -- SEMIVOLATIL[illegible] - REPORT REQUEST NO. 11120

Lab Sample Number:		JR36658		
Site		UST GREY		
Locator		CEF-312-SB4		
Collect Date:		13-OCT-98		
	VALUE	QUAL	UNITS	DL
AC SEMIVOLATILES				
Phenol	400	U	ug/kg	400
bis(2-Chloroethyl)ether	400	U	ug/kg	400
1,3-Dichlorobenzene	400	U	ug/kg	400
1,4-Dichlorobenzene	400	U	ug/kg	400
1,2-Dichlorobenzene	400	U	ug/kg	400
N-Nitroso-di-n-propylamine	400	U	ug/kg	400
Nitrobenzene	400	U	ug/kg	400
Isophorone	400	U	ug/kg	400
2-Methylphenol	400	U	ug/kg	400
2-Nitrophenol	400	U	ug/kg	400
2,4-Dimethylphenol	400	U	ug/kg	400
bis(2-Chloroethoxy) methane	400	U	ug/kg	400
2,4-Dichlorophenol	400	U	ug/kg	400
1,2,4-Trichlorobenzene	400	U	ug/kg	400
Naphthalene	600		ug/kg	400
Hexachlorobutadiene	400	U	ug/kg	400
Hexachlorocyclopentadiene	400	U	ug/kg	400
Hexachloroethane	400	U	ug/kg	400
4-Chloro-3-methylphenol	400	U	ug/kg	400
2-Methylnaphthalene	1400		ug/kg	400
2,4,6-Trichlorophenol	400	U	ug/kg	400
2-Chloronaphthalene	400	U	ug/kg	400
Dimethylphthalate	400	U	ug/kg	400
Acenaphthylene	400	U	ug/kg	400
2,4-Dinitrophenol	2000	U	ug/kg	2000
3- & 4-Methylphenol (2)	400	U	ug/kg	400
4-Nitrophenol	400	U	ug/kg	400
2,4-Dinitrotoluene	400	U	ug/kg	400
Diethylphthalate	400	U	ug/kg	400
4-Chlorophenyl-phenylether	400	U	ug/kg	400
Fluorene	400	U	ug/kg	400
4,6-Dinitro-2-methylphenol	1200	U	ug/kg	1200
4-Bromophenyl-phenylether	400	U	ug/kg	400
Hexachlorobenzene	400	U	ug/kg	400
Pentachlorophenol	400	U	ug/kg	400
Phenanthrene	400	U	ug/kg	400
Pyrene	400	U	ug/kg	400
Anthracene	400	U	ug/kg	400
Acenaphthene	400	U	ug/kg	400
Di-n-butylphthalate	400	U	ug/kg	400
Fluoranthene	400	U	ug/kg	400
3,3-Dichlorobenzidine	800	U	ug/kg	800
Benzo (a) anthracene	400	U	ug/kg	400
Carbazole	400	U	ug/kg	400
Chrysene	400	U	ug/kg	400
bis(2-Ethylhexyl) phthalate	400	U	ug/kg	400
Di-n-octylphthalate	400	U	ug/kg	400
Benzo (b) fluoranthene	400	U	ug/kg	400
Benzo (k) fluoranthene	400	U	ug/kg	400
Benzo (a) pyrene	400	U	ug/kg	400

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT FACILI
SUBSURFACE SOIL -- SEMIVOLATILES -- REPORT REQUEST N

Lab Sample Number:	JR36658
Site	UST GREY
Locator	CEF-312-SB4
Collect Date:	13-OCT-98

	VALUE	QUAL	UNITS	DL
Indeno (1,2,3-cd) pyrene	400	U	ug/kg	400
Dibenzo (a,h) anthracene	400	U	ug/kg	400
Benzo (g,h,i) perylene	400	U	ug/kg	400
2,6-Dinitrotoluene	400	U	ug/kg	400
4-Chloroaniline	400	U	ug/kg	400
2-Nitroaniline	400	U	ug/kg	400
3-Nitroaniline	400	U	ug/kg	400
4-Nitroaniline	400	U	ug/kg	400

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

CECIL FIELD -- OIL/WAT EPARATOR AT FACILITY 312
URFACE SOIL -- INORGANICS REPORT REQUEST NO. 11122

Lab Sample Number:	JR36658			
Site	UST GREY			
Locator	CEF-312-SB4			
Collect Date:	13-OCT-98			
	VALUE	QUAL	UNITS	DL
RA 8				
Arsenic	.6	J	mg/kg	.6
Barium	24	U	mg/kg	24
Cadmium	1	U	mg/kg	1
Chromium	10		mg/kg	1
Lead	10	J	mg/kg	8
Mercury	.01	U	mg/kg	.01
Selenium	2	U	mg/kg	2
Silver	2	U	mg/kg	2

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT FACILITY 3
SUBSURFACE SOIL -- TRPH -- REPORT REQUEST NO. 1112

Lab Sample Number:	JR[illegible]58			JR52916			[illegible]			JR52918		
Site	UST GREY			UST GREY			[illegible]			UST GREY		
Locator	CEF-312-SB4			CEF-312-SB5			SB6			CEF-312-SB7		
Collect Date:	13-OCT-98			04-FEB-99			[illegible]-99			04-FEB-99		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
FLA PRO																
TPH C8-C40	1500		mg/kg	40	7.7	U	mg/kg	7.7	38		mg/kg	7.3	7.8	U	mg/kg	7.8

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- OIL/WA[illegible]EPARATOR AT FACILITY 312
SUBSURFACE SOIL -- TRPH -- REPORT REQUEST NO. 11121

Lab Sample Number:	JR52914			
Site	UST GREY			
Locator	CEF-312-SB8			
Collect Date:	03-FEB-99			
	VALUE	QUAL	UNITS	DL
LA PRO				
TPH C8-C40	7.1	U	mg/kg	7.1

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- CEF-312-SB6
SUBSURFACE SOIL -- ANALTYICAL DATA -- REPORT REQUEST NO. 3

Lab Sample Number:	[illegible]26			
Site	US[illegible]EY			
Locator	CEF-[illegible]-SB6			
Collect Date:	11-MA[illegible]-99			
	VALUE	QUAL	UNITS	DL
Trichloroethene	5	U	ug/kg	5

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

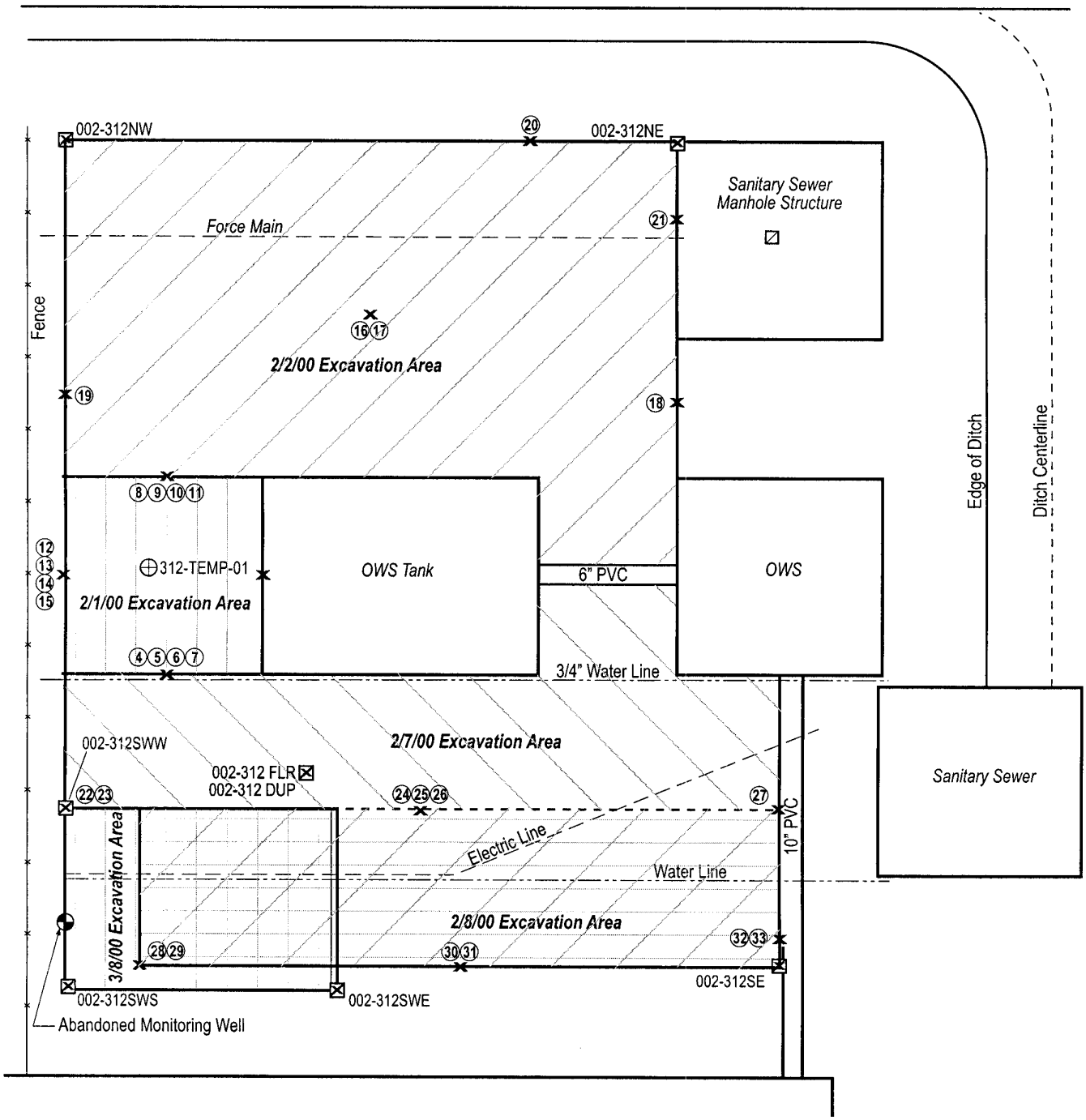
NAS CECIL FIELD -- OIL/WATE PARTATOR AT FACILTIY 312
GROUNDWATER -- ANALYTICAL DATA -- REPORT REQUEST NO. 1057

Lab Sample Number:	JR42201		
Site	UST GREY		
Locator	CEF-312-12S		
Collect Date:	20-NOV-98		
	VALUE QUAL	UNITS	DL
TX AND DICHLOROBENZENES			
Benzene	1 U	ug/l	1
Ethylbenzene	1 U	ug/l	1
Toluene	1 U	ug/l	1
Xylenes (total)	-		
Chlorobenzene	1 U	ug/l	1
1,2-Dichlorobenzene	1 U	ug/l	1
1,3-Dichlorobenzene	1 U	ug/l	1
1,4-Dichlorobenzene	1 U	ug/l	1
AHs			
Acenaphthene	.5 U	ug/l	.5
Acenaphthylene	1 U	ug/l	1
Anthracene	.05 U	ug/l	.05
Benzo (a) anthracene	.05 U	ug/l	.05
Benzo (b) fluoranthene	.1 U	ug/l	.1
Benzo (k) fluoranthene	.05 U	ug/l	.05
Benzo (a) pyrene	.05 U	ug/l	.05
Chrysene	.05 U	ug/l	.05
Dibenzo (a,h) anthracene	.1 U	ug/l	.1
Fluoranthene	.1 U	ug/l	.1
Fluorene	.1 U	ug/l	.1
Indeno (1,2,3-cd) pyrene	.05 U	ug/l	.05
Benzo (g,h,i) perylene	.1 U	ug/l	.1
Naphthalene	.5 U	ug/l	.5
Phenanthrene	.05 U	ug/l	.05
Pyrene	.05 U	ug/l	.05
1-Methylnaphthalene	.5 U	ug/l	.5
2-Methylnaphthalene	.5 U	ug/l	.5
FLA PRO			
TPH C8-C40	.2 U	mg/l	.2
RCRA 8			
Arsenic	.01 U	mg/l	.01
Barium	.1 U	mg/l	.1
Cadmium	.001 U	mg/l	.001
Chromium	.01 U	mg/l	.01
Lead	.005 U	mg/l	.005
Mercury	.0002 U	mg/l	.0002
Selenium	.01 U	mg/l	.01
Silver	.01 U	mg/l	.01

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

APPENDIX B

SRR AREA OF EXCAVATION MAP AND FDEP LETTER



LEGEND

002-312SWE ☒ Confirmatory Laboratory Soil Sample Location and Designation

(31) ✕ OVA Screening Location and Designation

◔ Monitoring Well Location

312-TEMP-01 ⊕ Temporary Well Location and Designation

NOTES

Wall Samples collected 6 ft bls
Floor samples collected 7-8 ft bls

N Scale: 1"= 4'

Figure 2-1
Sample Locations
Building 312 OWS
NAS Cecil Field, Jacksonville, Florida

CH2MHILL

A022000004ATL\lk 008.FH8

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

April 5, 2001

Mr. Nick Ugolini
Code 1843 (UST RPM)
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

RE: Source Removal Report, Soil Excavation Adjacent to Oil/Water Separator at Building 312, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Ugolini:

I have completed the review of the Source Removal Report, Soil Excavation Adjacent to Oil/Water Separator at Building 312, Naval Air Station Cecil Field, dated November 2000 (received November 17, 2000), prepared and submitted by CH2M Hill Constructors, Inc. A total of 99.7 tons of soil were excavated and properly disposed. As contaminated soil and groundwater were detected during source removal activities, a Site Assessment in accordance with Chapter 62-770, F.A.C., is required.

If I can be of any further assistance with this matter, please contact me at (850) 488-3693.

Sincerely,

David P. Grabka
Remedial Project Manager

cc: Scott Glass, Southern Division
Debbie Vaughn-Wright, USEPA Region 4
Mark Speranza, TetraTech NUS, Pittsburgh
Sam Ross, CH2M Hill Constructors, Inc.
Mike Fitzsimmons, FDEP Northeast District

TJB _____ JJC _____ ESN _____

APPENDIX C

SOIL BORING LOGS WITH UNFILTERED AND FILTERED OVA RESULTS

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY:
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB1
DATE: 9/7/01
GEOLOGIST: J. Bourgeois
DRILLER:

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**
	0						Brown, clayey sand		Unfiltered/filtered				
							with some pebbles						
	1		100%						0/0	0	0	0	0
	1						Orange/Gray		Unfiltered/filtered				
							Clayey sand with						
							small pebbles						
	2		100%						0/0	0	0	0	0
	2						Brown/gray, clayey		Unfiltered/filtered				
							sand with small						
							pebbles and black		Sample collected				
							clay balls		at 0845				
	3		100%				some moisture		0/0	0	0	0	0
	3								Obstruction!				
							*note:						
							soil boring resampled on September 11, 2001						
	4						with few changes						

* 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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB1
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						Brown, clayey sand		Unfiltered/filtered				
							with some pebbles						
	1		100%						0/0	0	0	0	0
	1						Orange/Gray		Unfiltered/filtered				
							Clayey sand with						
							small pebbles						
	2		100%						0/0	0	0	0	0
	2						sandy, brown slightly		Unfiltered/filtered				
							gray						
	3		100%						0/0	0	0	0	0
	3						sandy, brown slightly		Unfiltered/filtered				
							gray						
									Sample collected				
									at 00925				
	4								0/0	0	0	0	0
							*note:						
							redo soil borning location						

* 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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY:
DRILLING RIG: DPT

BORING NUMI CEF-312-SB2
DATE: 9/7/01
GEOLOGIST: J. Bourgeois
DRILLER:

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**
	0						Brown clayey		Unfiltered/Filtered				
							sand with some						
							pebbles						
	1		100%						0/0	0	0	0	0
	1						Orange with gray		Unfiltered/Filtered				
							clayey sand with						
							small pebbles						
	2		100%						0/0	0	0	0	0
	2						Brown/grey clayey		Unfiltered/Filtered				
							sand with small						
							pebbles and black clay						
							balls, some mositure						
	3		100%						0/0	0	0	0	0
	3						Gray, clayey sand		Unfiltered/Filtered				
							wth some pebbles						
									Sample collected				
									at 0930				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY:
DRILLING RIG: DPT

BORING NUM: CEF-312-SB3
DATE: 9/7/01
GEOLOGIST: J. Bourgeois
DRILLER:

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**
	0						gray, sand clay		Unfiltered/Filtered				
							w/small						
							pebbles						
							no moisture						
	1		100%						0/0	0	0	0	0
	1						orange/gray		Unfiltered/Filtered				
							snady clay						
							clay balls						
							no moisture						
	2		100%						0/0	0	0	0	0
	2						gray/white		Unfiltered/Filtered				
							sand with gray clay balls						
							no moisture						
	3		100%						0/0	0	0	0	0
	3						orange/white clay		Unfiltered/Filtered				
							no moisture		sample collected				
									at 1025				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY:
DRILLING RIG: DPT

BORING NUMI CEF-312-SB4
DATE: 9/7/01
GEOLOGIST: J. Bourgeois
DRILLER:

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**
	0						Black, clayey		Unfiltered/Filtered				
							sand w/no moisture						
	1		100%						0/0	0	0	0	0
	1						As above w/some		Unfiltered/Filtered				
							moisture						
									sample collected				
									at 1110				
	2		100%						0/0	0	0	0	0
	2								Obstruction!				
							*note:						
	3						soil boring resampled on September 11, 2001						
	3						with few changes						
	4												

* 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.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUM: CEF-312-SB4
DATE: 9/7/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**	Drillor BZ**
	0						Black, clayey		Unfiltered/Filtered				
							sand with no moisture						
	1		100%						0/0	0	0	0	0
	1						Black clayey sand with		Unfiltered/Filtered				
							some moisture						
	2		100%						0/0	0	0	0	0
	2						Brown medium sand		Unfiltered/Filtered				
	3		100%						0/0	0	0	0	0
	3						Brown medium sand		Unfiltered/Filtered				
									sample collected				
									at 1005				
	4		100%						0/0	0	0	0	0
							*note:						
							redo soil borning location						

* 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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB5
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						Concrete						
	1												
	1						Tan fine to medium silty		Filtered/Unfiltered				
							sand						
	2								0/0	0	0	0	0
	2						Tan fine to medium silty		Filtered/Unfiltered				
							sand						
	3								0/0	0	0	0	0
	3						Tan clay sand medium		Filtered/Unfiltered				
							with orange stains						
									sample collected				
									at 1250				
	4								0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB6
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						Black organic silty sand		Filter/Unfilter				
	1		100%						0/0	0	0	0	0
	1						Brown sitly sand with		Filter/Unfilter				
							white pebbles						
	2		100%						0/0	0	0	0	0
	2						Brown silty sand with		Filter/Unfilter				
							white pebbles						
	3		100%						0/0	0	0	0	0
	3						Brown clay sand		Filter/Unfilter				
									sample collected				
									at 1240				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB7
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						light gray sugar sand		Filtered/Unfiltered				
	1		100%						0/0	0	0	0	0
	1						clay sand red mottles		Filtered/Unfiltered				
	2		100%						0/0	0	0	0	0
	2						gray sugar sand		Filtered/Unfiltered				
	3		100%						0/0	0	0	0	0
	3						gray sugar sand		Filtered/Unfiltered				
									sample collected				
									at 1318				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB8
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						Brown Silty Sand		Filtered/Unfiltered				
	1		100%						0/0	0	0	0	0
	1						Brown Silty Sand		Filtered/Unfiltered				
	2		100%						0/0	0	0	0	0
	2						Brown Silty Sand		Filtered/Unfiltered				
	3		100%						0/0	0	0	0	0
	3						Dark gray silty sand		Filtered/Unfiltered				
									sample collected				
									at 1329				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB9
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						brown silty sand		Filtered/Unfiltered				
	1		100%						0/0	0	0	0	0
	1						brown silty sand		Filtered/Unfiltered				
	2		100%						0/0	0	0	0	0
	2						brown silty sand		Filtered/Unfiltered				
	3		100%						0/0	0	0	0	0
	3						brown silty sand		Filtered/Unfiltered				
									Sample collected				
									at 1346				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB10
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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**
	0						organic medium sand		Filtered/Unfiltered				
	1		100%						0/0	0	0	0	0
	1						brown medium sand		Filtered/Unfiltered				
	2		100%						0/0	0	0	0	0
	2						light tan medium sand		Filtered/Unfiltered				
	3		100%						0/0	0	0	0	0
	3						brown medium sand		Filtered/Unfiltered				
									Sample collected				
									at 1535				
	4		100%						0/0	0	0	0	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.

Page ___ of ___

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N3396
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: DPT

BORING NUMBER: CEF-312-SB11
DATE: 9/11/01
GEOLOGIST: D. Siefken/M. Dale
DRILLER: Bob Evans

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 *	PID/FID Reading (ppm): Remarks	Sample	Sampler BZ	Borehole**	Driller BZ**
	0						sandy, organic brown		Filtered/Unfiltered				
	1		100%						0/0	0	0	0	0
	1						light tan sand with orange		Filtered/Unfiltered				
	2		100%						0/0	0	0	0	0
	2						light tan sand with orange		Filtered/Unfiltered				
	3		100%						0/0	0	0	0	0
	3						clayey sand, gray with		Filtered/Unfiltered				
							orange spots						
									sampled collected				
									at 1550				
	4		100%						0/0	0	0	0	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. #: _____

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-312LS-3S
Site Name: Bldg. 312 LS
Date Installed: 12-7-01
Project Name: Bldg. 312LS SAR

Site Geologist: LOUIS KNIGHT
Drilling Company: TRANSAMERICAN
Driller: D. HEARNE
Project Number: N 3996

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	NO
Well Screen	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	
End Cap	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	
Drilling Fluid	N/A	N/A	
Drilling Fluid Additives	N/A	N/A	
Backfill Material	N/A	N/A	
Annular Filter Pack	STANDARD / 20/30 SILICA SAND	STANDARD SAND CO.	
~~Bentonite Seal~~ CHOKESAND	STANDARD / 30-65 SILICA SAND	STANDARD SAND CO.	
Annular Grout	TARMAC - TYPE I PORTLAND CEMENT	FLORIDA IRRIGATION	
Surface Cement	QUIKRETE - CONCRETE	FLORIDA IRRIGATION	
Protective Casing	N/A	N/A	
Paint	N/A	N/A	
Rod Lubricant	N/A	N/A	
Compressor Oil	N/A	N/A	
MANHOLE (8" DIAM)	PETROLEUM EQUIPMENT MANUFACTURING CO (PEMCO)	TONEY DRILLING SUPPLIES / ORLANDO, FL	

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: Louis Knight

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF. ~~80~~ 312LS-3S 4S
Site Name: Bldg. 312LS
Date Installed: 12-7-01
Project Name: Bldg. 312LS - SAR

Site Geologist: LOUIS KNIGHT
Drilling Company: TRANSAMERICAN
Driller: D. HEARNE
Project Number: N3996

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	NO
Well Screen	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	
End Cap	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	
Drilling Fluid	N/A	N/A	
Drilling Fluid Additives	N/A	N/A	
Backfill Material	N/A	N/A	
Annular Filter Pack	STANDARD / 20/30 SILICA SAND	STANDARD SAND CO.	
~~Bentonite Seal~~ CHORE SAND	STANDARD / 30-65 SILICA SAND	STANDARD SAND CO.	
Annular Grout	TARMAC - TYPE I PORTLAND CEMENT	FLORIDA IRRIGATION	
Surface Cement	QUIKRETE - CONCRETE	FLORIDA IRRIGATION	
Protective Casing	N/A	N/A	
Paint	N/A	N/A	
Rod Lubricant	N/A	N/A	
Compressor Oil	N/A	N/A	
MANHOLE (8" DIAM)	PETROLEUM EQUIPMENT MANUFACTURING CO (PEMCO)	TONEY DRILLING SUPPLIES / ORLANDO, FL	✓

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: Louis Knight

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF-312LS-1I
Site Name: BLDG 312 (LS)
Date Installed: 12·6·01 & 12·7·01
Project Name: BLDG 312LS-SAR

Site Geologist: LOUIS KNIGHT
Drilling Company: TRANSAMERICAN
Driller: DEAN BOHN
Project Number: 3996

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing / SURFACE CASING	2" SCH40 PVC / 6" SCH40 PVC	TONEY DRILLING SUPPLIES / ORLANDO FL	NO
Well Screen	2" SCH40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	
End Cap	2" SCH 40 PVC	TONEY DRILLING SUPPLIES / ORLANDO, FL	
Drilling Fluid	H_2O		
Drilling Fluid Additives	WYO-BEN, INC – ENVIROPLUG MEDIUM (bentonite)	TONEY DRILLING SUPPLIES / ORLANDO, FL	
Backfill Material	N/A	N/A	
Annular Filter Pack	STANDARD / 20/30 SILICA SAND	STANDARD SAND CO.	
Bentonite Seal	N/A	N/A	
Annular Grout	TARMAC - TYPE I PORTLAND CEMENT	FLORIDA IRRIGATION	
Surface Cement	QUIKRETE - CONCRETE	FLORIDA IRRIGATION	
Protective Casing	N/A	N/A	
Paint	N/A	N/A	
Rod Lubricant	N/A	N/A	
Compressor Oil	N/A	N/A	
MANHOLE (12")	PETROLEUM EQUIPMENT MANUFACTURING CO (PEMCO)	TONEY DRILLING SUPPLIES / ORLANDO, FL	

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: Louis Knight

BLDG312_17dec01

TETRA TECH NUS
CECIL FIELD BUILDING 312
EXISTING WELL LOCATIONS
SURVEY DATE 12/17/2001
ARC JOB No. 00-10-09

DESCRIPTION	NORTHING(Y)	EASTING(X)	ELEVATION	
CEF-312-LS-1I	2142974.12	377493.97	TOP OF CASING	74.66
			CONCRETE	74.91
			GROUND	74.9
CEF-312-LS-01S	2142988.07	377548.84	TOP OF CASING	74.32
			CONCRETE	74.80
			GROUND	74.7
CEF-312-LS-02	2142966.67	377516.83	TOP OF CASING	74.77
			CONCRETE	74.94
			GROUND	74.8
CEF-312-LS-3S	2142980.20	377492.96	TOP OF CASING	74.89
			CONCRETE	75.17
			GROUND	75.1
CEF-312-LS-4S	2143021.81	377499.75	TOP OF CASING	76.57
			CONCRETE	76.85
			GROUND	76.8
CEF-312-LS-15A	2142974.30	377435.98	TOP OF CASING	75.25
			CONCRETE	75.64
			GROUND	75.5

APPENDIX D

MONITORING WELL COMPLETION LOGS AND SURVEY DATA

Tetra Tech NUS, Inc.

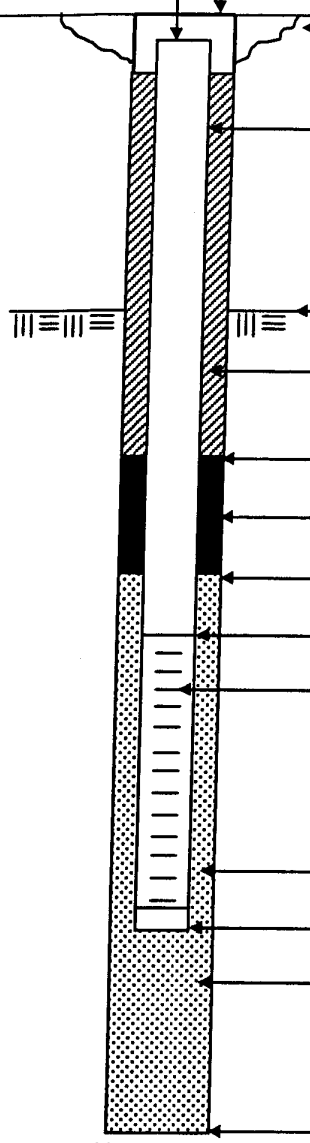
WELL No.: CEF-312LS-3S

MONITORING WELL SHEET

PROJECT:	Bldg 312 (LS)	DRILLING Co.:	TRANSAMERICAN	BORING No.:	CEF-312LS-3S
PROJECT No.:	N3996	DRILLER:	D. HEARNE	DATE COMPLETED:	12-7-01
SITE:	Bldg 312 (NORTH)	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	L. KNIGHT	DEV. METHOD:	PERISTALTIC	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:	1
Elevation / Height of Top of Surface Casing:	1
I.D. of Surface Casing:	8"
Type of Surface Casing:	Steel
Type of Surface Seal:	QUIKRETE CONCRETE
I.D. of Riser:	2"
Type of Riser:	PVC
Borehole Diameter:	8"
Elevation / Depth Top of Rock:	N/A
Type of Backfill:	TYPE I PORTLAND CEMENT
Elevation / Depth of Seal:	11.0
Type of Seal:	30/65 Sand
Elevation / Depth of Top of Filter Pack:	12.0
Elevation / Depth of Top of Screen:	13.0
Type of Screen:	PVC
Slot Size x Length:	0.010" x 10'
I.D. of Screen:	2"
Type of Filter Pack:	20/30 SILICA SAND
Elevation / Depth of Bottom of Screen:	13.0
Elevation / Depth of Bottom of Filter Pack:	13.5
Type of Backfill Below Well:	
Elevation / Total Depth of Borehole:	13.5

Tetra Tech NUS, Inc.

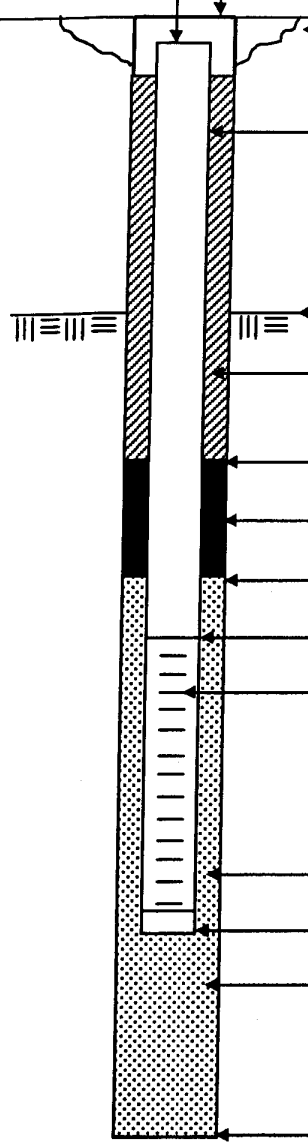
WELL No.: CEF-3125-45

MONITORING WELL SHEET

PROJECT:	Bldg.312 (LS)	DRILLING Co.:	TRANSAMERICAN	BORING No.:	CEF-3125-45
PROJECT No.:	N3996	DRILLER:	D. HEARNE	DATE COMPLETED:	12-7-01
SITE:	BLDG 312	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	L. KNIGHT	DEV. METHOD:	PERISTALTIC	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser:	1
Elevation / Height of Top of Surface Casing:	1
I.D. of Surface Casing:	8"
Type of Surface Casing:	Steel
Type of Surface Seal:	QUIKRETE CONCRETE
I.D. of Riser:	2"
Type of Riser:	PVC
Borehole Diameter:	8"
Elevation / Depth Top of Rock:	1 N/A
Type of Backfill:	TYPE I PORTLAND CEMENT
Elevation / Depth of Seal:	11.5
Type of Seal:	30/65 Sand
Elevation / Depth of Top of Filter Pack:	12.5
Elevation / Depth of Top of Screen:	14.0
Type of Screen:	PVC
Slot Size x Length:	0.010" x 10'
I.D. of Screen:	2"
Type of Filter Pack:	20/30 SILICA SAND
Elevation / Depth of Bottom of Screen:	14.0
Elevation / Depth of Bottom of Filter Pack:	14.5
Type of Backfill Below Well:	
Elevation / Total Depth of Borehole:	14.5

Tetra Tech NUS, Inc.

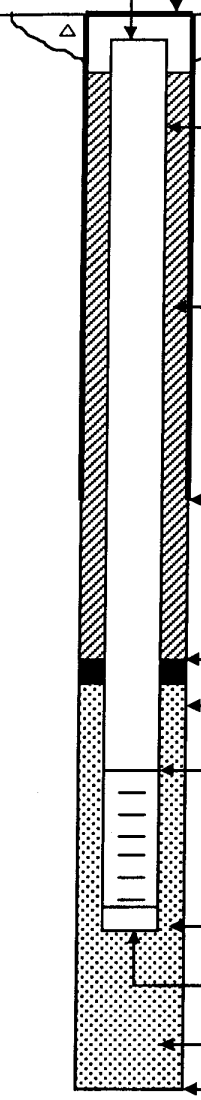
WELL No.: CEF-312LS-1I

DOUBLE CASED MONITORING WELL SHEET

PROJECT:	BLDG 312LS	DRILLING Co.:	TRANSAMERICAN	BORING No.:	CEF-312LS-1I
PROJECT No.:	N3996	DRILLER:	D. BOHN	DATE COMPLETED:	12-7-01
SITE:	312LS-1I	DRILLING METHOD:	HSA / MR	NORTHING:	
GEOLOGIST:	L. KNIGHT	DEV. METHOD:	PERISTALTIC	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1-0.5

Elevation / Height of Top of Surface Casing: 1-0.5'

I.D. of Surface Casing: 6"

Type of Surface Casing: SCH 40 PVC

Type of Surface Seal: QUIKRETE CONCRETE

I.D. of Riser: 2"

Type of Riser: SCH 40 PVC

Borehole Diameter: 14"

Type of Backfill: TYPE I PORTLAND CEMENT

Elevation / Depth of Bottom of Surface Casing: 120.0

Elevation / Depth of Seal: 121.0

Type of Seal: BENTONITE CHIPS (21-21.5) 30/65 SAND (21.5-23.0)

Elevation / Depth of Top of Filter Pack: 123.0

Elevation / Depth of Top of Screen: 125.0

Type of Screen: SCH 40 PVC

Slot Size x Length: 0.010" x 5'

I.D. of Screen: 2.0"

Type of Filter Pack: 20/30 SILICA SAND

Elevation / Depth of Bottom of Screen: 130.0

Elevation / Depth of Bottom of Filter Pack: 1

Elevation / Total Depth of Borehole: 131.0

BLDG312_17dec01

TETRA TECH NUS
CECIL FIELD BUILDING 312
EXISTING WELL LOCATIONS
SURVEY DATE 12/17/2001
ARC JOB No. 00-10-09

DESCRIPTION	NORTHING(Y)	EASTING(X)	ELEVATION	
CEF-312-LS-1I	2142974.12	377493.97	TOP OF CASING	74.66
			CONCRETE	74.91
			GROUND	74.9
CEF-312-LS-01S	2142988.07	377548.84	TOP OF CASING	74.32
			CONCRETE	74.80
			GROUND	74.7
CEF-312-LS-02	2142966.67	377516.83	TOP OF CASING	74.77
			CONCRETE	74.94
			GROUND	74.8
CEF-312-LS-3S	2142980.20	377492.96	TOP OF CASING	74.89
			CONCRETE	75.17
			GROUND	75.1
CEF-312-LS-4S	2143021.81	377499.75	TOP OF CASING	76.57
			CONCRETE	76.85
			GROUND	76.8
CEF-312-LS-15A	2142974.30	377435.98	TOP OF CASING	75.25
			CONCRETE	75.64
			GROUND	75.5

APPENDIX E

FIELD SAMPLING DATA SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Building 312 OW
Project No.: N3996.JG0050145

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

Sample ID No.: CEF-312-GW-015-01
Sample Location: CEF-312-15
Sampled By: M. O'Neill
C.O.C. No.: 312-121201 A
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 12/12/01 Time: 1454	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	Other
Method: Low Flow Peristaltic	CLR	6.87	0.433	24.38	1.0	0.42	-103	

PURGE DATA

Date: 12/12/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO		ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2 In.								
Well Casing Material:PVC								
Total Well Depth (TD): 15.58								
Static Water Level (WL): 7.52								
One Casing Volume(gal/L): 1.3/4.9								
Start Purge (hrs): 1400								
End Purge (hrs): 1452								
Total Purge Time (min): 52								
Total Vol. Purged (gal/L) 15								

15.58
- 7.52
8.06

See Low Flow Purge Sheet

24.9
x 3
14.7

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
PPVO w/Tics	SW846 8260B	HCL	3-40 ml vials	no
PPEO w/Tics	SW846 8270C	None	2 - 1liter glass ambers	no
TRPH	FL-PRO	H2SO4	2 - 1liter glass ambers	no
Total Metals*	SW846 6010B	HNO3	1 - 500 ml HDPE	no
* Arsenic, Cadmium, Chromiium and Lead				

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
None	None	[signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Building 312 OW
PROJECT NUMBER: N3996.JG0050145

WELL ID.: CEF-312LS-01S-01
DATE: 12/12/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	(L) Volume	Comments
1400	Start 7.52	1405		7.65	Flow	300	1407	7.65		cloudy
1410	7.65	300	6.95	0.463	12.7	1.18	24.26	-51	3 clear	
1420	7.65	300	6.92	0.450	8.6	0.52	24.26	-74	6	clear
1425	7.65	300	6.91	0.444	4.4	0.39	24.31	-85	7.5	
1430	7.65	300	6.89	0.439	4.6	0.32	24.34	-94	9.0	
1435	7.65	300	6.88	0.438	2.2	0.31	24.35	-97	10.5	
1440	7.64	300	6.88	0.433	0.0	0.32	24.42	-100	12.0	
1445	7.64	300	6.88	0.431	0.0	0.36	24.40	-102	13.5	
1450	7.64	300	6.87	0.433	1.0	0.42	24.38	-103	15.0	
1452	end purge									
1454	begin sampling									

300 × 5 = 1500

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	Building 312 OW	Sample ID No.:	CEF-312-GW-LS-1SG-01
Project No.:	N3996.JG0050145	Sample Location:	CEF-312-1SG-01
		Sampled By:	D-S
[ ] Domestic Well Data		C.O.C. No.:	312-121201 A
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 12-12-01 Time: 1500	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	Other
Method: Low Flow Peristaltic	CL	6.91	0.189	24.4	0.4	1.55	86	

PURGE DATA

Date: 12-12-01	Time	pH	S.C.	Temp (°C)	Turbidity	DO		ORP
Method: Low Flow Peristaltic	See Low Flow Purge Sheet							
Monitor Reading (ppm): 0								
Well Casing Diameter: 2 In.								
Well Casing Material:PVC								
Total Well Depth (TD): 15.94								
Static Water Level (WL): 8.13								
One Casing Volume(gal/L): 3.8								
Start Purge (hrs): 1415								
End Purge (hrs): 1445								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): 9								

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
PPVO w/Tics	SW846 8260B	HCL	3-40 ml vials	DS
PPEO w/Tics	SW846 8270C	None	2 - 1liter glass ambers	DS
TRPH	FL-PRO	H2SO4	2 - 1liter glass ambers	DS
Total Metals*	SW846 6010B	HNO3	1 - 500 ml HDPE	DS
* Arsenic, Cadmium, Chromiium and Lead				

OBSERVATIONS / NOTES

6.02 ft of H2O
3.8 x 3 = 11.4 l

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

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Building 312 OW
PROJECT NUMBER: N3996.JG0050145

WELL ID.: CEF-312LS-GW-1Sa-01
DATE: 12-12-01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
1415	8.13	300			4.1				
1425	8.25	300	6.84	.187	4.1	18.00	24.3	112	
1435	8.26	300	6.89	.188	0	2.11	24.4	93	
1445	8.24	300	6.91	.189	0.4	1.55	24.4	86	

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	Building 312 OW	Sample ID No.:	CEF-312~~G~~LS-W-11-01
Project No.:	N3996.JG0050145	Sample Location:	CEF-312LS-11
		Sampled By:	M. O'Neill
[ ] Domestic Well Data		C.O.C. No.:	312-121201B
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 12/12/01 Time: 1318	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	Other
Method: Low Flow Peristaltic	CLR	7.60	0.290	24.55	0.5	0.15	26	

PURGE DATA

Date: 12/12/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO		ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0.0								
Well Casing Diameter: 2 In.								
Well Casing Material: PVC								
Total Well Depth (TD): 30.27	See Low Flow Purge Sheet							
Static Water Level (WL): 5.71								
One ~~Casing~~ Screen Volume(gal/L): 0.8/3.1								
Start Purge (hrs): 1214								
End Purge (hrs): 1318								
Total Purge Time (min): 62								
Total Vol. Purged (gal/L): 16.0L								

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
PPVO w/Tics	SW846 8260B	HCL	3-40 ml vials	✓
PPEO w/Tics	SW846 8270C	None	2 - 1liter glass ambers	✓
TRPH	FL-PRO	H2SO4	2 - 1liter glass ambers	✓
Total Metals*	SW846 6010B	HNO3	1 - 500 ml HDPE	✓
* Arsenic, Cadmium, Chromiium and Lead				

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD None	Duplicate ID No.: None	[signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Building 312 OW
PROJECT NUMBER: N3996.JG0050145

WELL ID.: CEF-312LS-1I
DATE: 12/12/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments Volume	
1214	8.24	1217	8.39	1218	8.41	FLOW	300	1222 8.41	CLR	NO ODOR
1224	8.34	300	9.05	0.301	8.8	2.05	24.41	82	2	
1229	8.36	300	9.01	0.295	9.0	0.31	24.59	79	3.5	
1234	8.38	300	8.75	0.295	7.1	0.40	24.58	71	5.0	
1239	8.38	300	8.66	0.298	5.8	0.61	24.54	72	6.5	
1244	8.38	300	8.24	0.294	3.3	0.50	24.55	69	8.0	
1249	8.38	300	7.99	0.292	2.8	0.51	24.61	60	9.5	
1254	8.37	300	7.85	0.291	0.1	0.43	24.54	53	10.0	
1259	8.37	300	7.80	0.291	1.3	0.44	24.55	47	11.5	
1304	8.37	300	7.70	0.290	0.8	0.29	24.54	42	13.0	
1309	8.38	300	7.66	0.290	1.0	0.29	24.53	32	14.5	
1314	8.38	300	7.60	0.290	0.5	0.15	24.55	26	16.0	
1316	End Purge									
1318	sample									

300
x5
1.5

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	Building 312 OW	Sample ID No.:	CEF-312-GW- 02 DS 01
Project No.:	N3996.JG0050145	Sample Location:	CEF-312- 02
		Sampled By:	D.S
[ ] Domestic Well Data		C.O.C. No.:	312-121201 D
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 12-12-01	Color Visual	pH Standard	S.C. mS/cm MD	Temp. °C	Turbidity NTU	DO mg/l MD	ORP MD	Other
Time: 1140								
Method: Low Flow Peristaltic	CL	6.97	.662	21.8	1.8	1.05	-77.8	

PURGE DATA

Date: 12-12-01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	MD	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2 In.								
Well Casing Material:PVC								
Total Well Depth (TD): 13.03								
Static Water Level (WL): 5.91								
One Casing Volume(gal/D): 4.5								
Start Purge (hrs): 0925								
End Purge (hrs): 1185								
Total Purge Time (min): 110								
Total Vol. Purged (gal/D): 13.75								

7.12 ft of H2O

See Low Flow Purge Sheet

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
PPVO w/Tics	SW846 8260B	HCL	3-40 ml vials	DS
PPEO w/Tics	SW846 8270C	None	2 - 1liter glass ambers	DS
TRPH	FL-PRO	H2SO4	2 - 1liter glass ambers	DS
Total Metals*	SW846 6010B	HNO3	1 - 500 ml HDPE	DS
* Arsenic, Cadmium, Chromium and Lead				

OBSERVATIONS / NOTES

13.5 for 3 well volumes

Circle if Applicable:		Signature(s):
MS/MSD None	Duplicate ID No.: None	

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Building 312 OW
PROJECT NUMBER: N3996.JG0050145

WELL ID.: CEF-312-GW-02-01
DATE: 12-12-01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
0925	5.91	250							
0930	~~6.98~~ 7.98	250	6.70	.702	90.3	3.23	21.80	-30	
0940	~~6.95~~ 7:95	150	6.85	.675	52	6.31	21.7	-69	LETTING RECHARGE
0950	7.94	100	6.93	.678	10	2.67	21.6	-83	* PUMPING AS SLOW AS POSSIBLE *
1005	7.96	100	6.93	.672	4.6	2.08	21.6	-79	
1020	7.92	100	6.93	.671	3.5	2.22	21.5	-79	
1030	7.94	100	6.94	.667	4.0	1.38	21.7	-79	
1040	7.96	100	6.92	.664	2.7	1.17	21.7	-78	
1050	7.96	100	6.94	.662	2.4	1.08	21.8	-77	
1100	7.98	100	6.94	.662	3.1	1.06	21.8	-78	
1110	7.97	100	6.93	.661	2.0	1.08	21.9	-77	
1125	7.96	100	6.93	.662	1.8	1.02	21.8	-77	
1135	7.96	100	6.94	.661	1.0	1.05	21.8	-78	
1140	SAMPLE								

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Building 312 OW
Project No.: N3996.JG0050145

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

Sample ID No.: CEF-312LS-GW-3.5-01
Sample Location: CEF-312LS-3.5
Sampled By: M. O'Neill
C.O.C. No.: 312-121201 B
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	Other
Date: 12/12/01 Time: 1025								
Method: Low Flow Peristaltic	CLR	6.62	0.173	23.08	8.5	0.52	-82	

PURGE DATA

Date: 12/12/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO		ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 152								
Well Casing Diameter: 2 In.								
Well Casing Material:PVC								
Total Well Depth (TD): 12.96								
Static Water Level (WL): 7.92								
One Casing Volume(gal/L): 08/3.1								
Start Purge (hrs): 0923								
End Purge (hrs): 1023								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 15.52								

See Low Flow Purge Sheet

12.96
- 7.92
5.04

3.1
x 3
9.3

5.5 x 3 = 16.5

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
PPVO w/Tics	SW846 8260B	HCL	3-40 ml vials	MO
PPEO w/Tics	SW846 8270C	None	2 - 1liter glass ambers	MO
TRPH	FL-PRO	H2SO4	2 - 1liter glass ambers	MO
Total Metals*	SW846 6010B	HNO3	1 - 500 ml HDPE	MO
* Arsenic, Cadmium, Chromiium and Lead				

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.: CEF-312LS-DUOL-GW-01

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Building 312 OW
PROJECT NUMBER: N3996.JG0050145

WELL ID.: CEF-312LS-35
DATE: 12/12/01

250 × 6 = 1500

250 × 5 = 1250

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	(L) Volume	Comments
0923	7.92									
0926	8.26	0927	8.15		FLOW	250	0929	8.15	1.5	clR/slst odor
0936	8.14	250	6.16	0.179	26.4	1.65	22.85	31	4.0	
0941	8.14	250	6.34	0.170	22.1	0.81	22.90	-3	5.25	
0946	8.14	250	6.42	0.168	18.6	0.72	22.96	-28	6.50	
0951	8.14	250	6.50	0.169	16.3	0.56	23.00	-47	7.75	
0956	8.14	250	6.56	0.171	12.0	0.48	23.03	-61	9.00	
1001	8.15	250	6.57	0.171	10.0	0.49	23.07	-69	10.25	
1006	8.14	250	6.61	0.172	7.6	0.71	23.11	-73	11.50	
1011	8.14	250	6.61	0.172	7.4	0.52	23.10	-75	12.75	
1016	8.14	250	6.64	0.173	8.4	0.69	23.09	-80	14.00	
1021	8.14	250	6.63	0.173	8.8	0.58	23.08	-81	15.25	
1022	8.14	250	6.62	0.173	8.5	0.52	23.08	-82	15.50	
1023	end purge									
1025	sample									

SIGNATURE(S):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	Building 312 OW	Sample ID No.:	CEF-312-GW-LS-01
Project No.:	N3996.JG0050145	Sample Location:	CEF-312-01
		Sampled By:	D.S
[ ] Domestic Well Data		C.O.C. No.:	312-121201 C
[X] Monitoring Well Data		Type of Sample:	
[ ] Other Well Type:		[X] Low Concentration	
[ ] QA Sample Type:		[ ] High Concentration	

SAMPLING DATA

Date: 12-12-01	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	Other
Time: 1245								
Method: Low Flow Peristaltic	clear	5.83	0.140	24.9	0	4.53	175	

PURGE DATA

Date: 12-12-01	Time	pH	S.C.	Temp (°C)	Turbidity	DO		ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0								
Well Casing Diameter: 2 In.								
Well Casing Material: PVC								
Total Well Depth (TD): 14.04								
Static Water Level (WL): 9.62								
One Casing Volume(gal/L): 3.0								
Start Purge (hrs): 11:55								
End Purge (hrs): 1235								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 12								

14.04
9.62
4.42
TOTAL = 9
~~13.26~~ L

See Low Flow Purge Sheet

SAMPLE COLLECTION INFORMATION

Analysis		Preservative	Container Requirements	Collected
PPVO w/Tics	SW846 8260B	HCL	3-40 ml vials	DS
PPEO w/Tics	SW846 8270C	None	2 - 1liter glass ambers	DS
TRPH	FL-PRO	H2SO4	2 - 1liter glass ambers	DS
Total Metals*	SW846 6010B	HNO3	1 - 500 ml HDPE	DS
* Arsenic, Cadmium, Chromiium and Lead				

OBSERVATIONS / NOTES

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.: None	[signature]

CEF-312LS-MD01-GW-01

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Building 312 OW
PROJECT NUMBER: N3996.JG0050145

WELL ID.: CEF-312-LS-GW-45-01
DATE: 12-12-01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Comments
11:55	9.62	300							
1205	9.76	300	6.00	0.129	0	4.81	24.6	150	CLEAR
1215	9.77	300	5.82	0.137	2.3	4.77	24.8	171	
1225	9.77	300	5.83	0.140	1.0	4.56	24.9	174	
1235	9.77	300	5.83	0.140	0	4.53	24.9	175	

SIGNATURE(S):

PAGE 2 OF 2

MS/MSD

APPENDIX F

DRAWDOWN AND RECOVERY GRAPHS (SPECAP)

In-Situ Inc. Hermit 3000

Report generated: 03/15/02 10:27:12
Report from file: C:\Win-Situ\Data\SN45799 2002-01-11 103839 REC-312LS-1S.bin
DataMgr Version 3.70

Serial number: 00045799
Firmware Version 7.10
Unit name: HERMIT 3000

DR MD

Test name: ~~REC~~-312LS-1S

Test defined on: 01/11/02 06:59:21
Test started on: 01/11/02 10:38:39
Test stopped on: 01/11/02 10:39:55
Test extracted on: 01/11/02 14:51:36

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 53

TOTAL DATA SAMPLES 53

Channel number [1]
Measurement type: Pressure
Channel name: Probe #1
Linearity: 0.3594000
Scale: 30.2978000
Offset: -0.0542000
Warmup: 50
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 0.905 Meters H2O

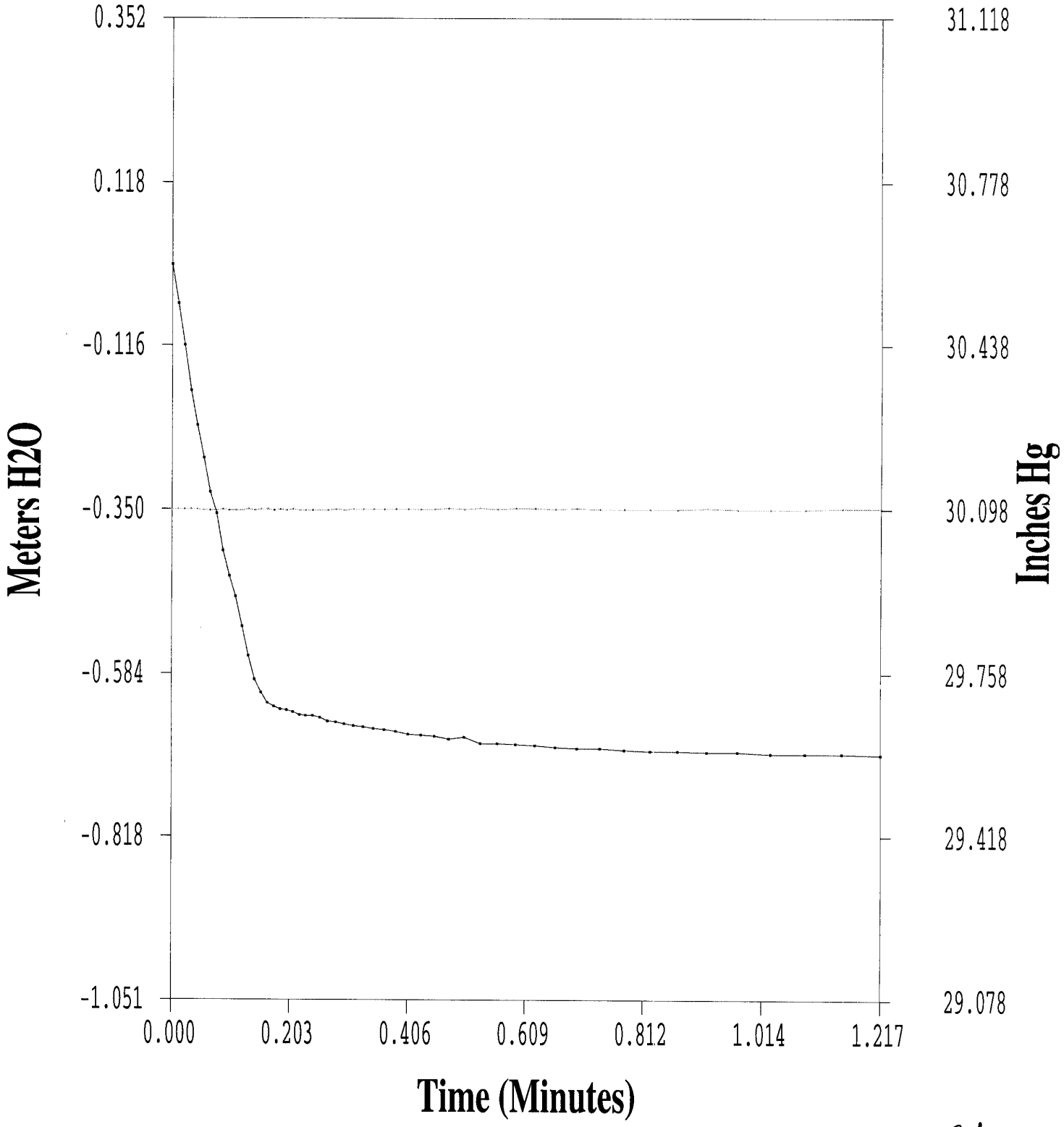
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[1] Meters H2O	Chan[0] Inches Hg
01/11/02	10:38:39	0.0000	0.000	30.098
01/11/02	10:38:39	0.0110	-0.056	30.098
01/11/02	10:38:40	0.0220	-0.116	30.098
01/11/02	10:38:40	0.0330	-0.180	30.098
01/11/02	10:38:41	0.0440	-0.229	30.098
01/11/02	10:38:42	0.0550	-0.276	30.096
01/11/02	10:38:42	0.0660	-0.325	30.096
01/11/02	10:38:43	0.0770	-0.356	30.096
01/11/02	10:38:44	0.0880	-0.409	30.098
01/11/02	10:38:44	0.0990	-0.445	30.096
01/11/02	10:38:45	0.1100	-0.475	30.096
01/11/02	10:38:46	0.1210	-0.517	30.096
01/11/02	10:38:46	0.1320	-0.559	30.098
01/11/02	10:38:47	0.1430	-0.592	30.096
01/11/02	10:38:48	0.1540	-0.611	30.098
01/11/02	10:38:48	0.1650	-0.625	30.098
01/11/02	10:38:49	0.1760	-0.631	30.096
01/11/02	10:38:50	0.1870	-0.635	30.098
01/11/02	10:38:50	0.1980	-0.636	30.096
01/11/02	10:38:51	0.2090	-0.639	30.098
01/11/02	10:38:52	0.2200	-0.643	30.096

01/11/02	10:38:52	0.2310	-0.644	30.096
01/11/02	10:38:53	0.2427	-0.644	30.096
01/11/02	10:38:54	0.2552	-0.647	30.096
01/11/02	10:38:55	0.2683	-0.652	30.096
01/11/02	10:38:55	0.2823	-0.653	30.098
01/11/02	10:38:56	0.2972	-0.656	30.096
01/11/02	10:38:57	0.3128	-0.659	30.098
01/11/02	10:38:58	0.3295	-0.660	30.098
01/11/02	10:38:59	0.3472	-0.663	30.098
01/11/02	10:39:00	0.3658	-0.664	30.098
01/11/02	10:39:02	0.3857	-0.667	30.098
01/11/02	10:39:03	0.4067	-0.671	30.098
01/11/02	10:39:04	0.4288	-0.672	30.098
01/11/02	10:39:06	0.4523	-0.673	30.098
01/11/02	10:39:07	0.4772	-0.677	30.100
01/11/02	10:39:09	0.5035	-0.675	30.098
01/11/02	10:39:10	0.5315	-0.684	30.100
01/11/02	10:39:12	0.5612	-0.684	30.098
01/11/02	10:39:14	0.5925	-0.685	30.100
01/11/02	10:39:16	0.6257	-0.687	30.100
01/11/02	10:39:18	0.6608	-0.689	30.098
01/11/02	10:39:20	0.6982	-0.691	30.100
01/11/02	10:39:23	0.7377	-0.691	30.098
01/11/02	10:39:25	0.7795	-0.693	30.098
01/11/02	10:39:28	0.8238	-0.695	30.098
01/11/02	10:39:31	0.8708	-0.695	30.098
01/11/02	10:39:34	0.9207	-0.696	30.100
01/11/02	10:39:37	0.9733	-0.696	30.098
01/11/02	10:39:40	1.0292	-0.699	30.098
01/11/02	10:39:44	1.0883	-0.699	30.098
01/11/02	10:39:48	1.1510	-0.699	30.100
01/11/02	10:39:52	1.2173	-0.700	30.100

DR ~~REC~~-312LS-1S

MWA



[1] - Probe #1 [0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 03/15/02 10:26:50
Report from file: C:\Win-Situ\Data\SN45799 2002-01-11 103504 DR-312LS-1S.bin
DataMgr Version 3.70

Serial number: 00045799
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: ~~DR~~ REC MP-312LS-1S

Test defined on: 01/11/02 06:58:12
Test started on: 01/11/02 10:35:04
Test stopped on: 01/11/02 10:38:11
Test extracted on: 01/11/02 14:50:57

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 69

TOTAL DATA SAMPLES 69

Channel number [1]
Measurement type: Pressure
Channel name: Probe #1
Linearity: 0.3594000
Scale: 30.2978000
Offset: -0.0542000
Warmup: 50
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 1.470 Meters H2O

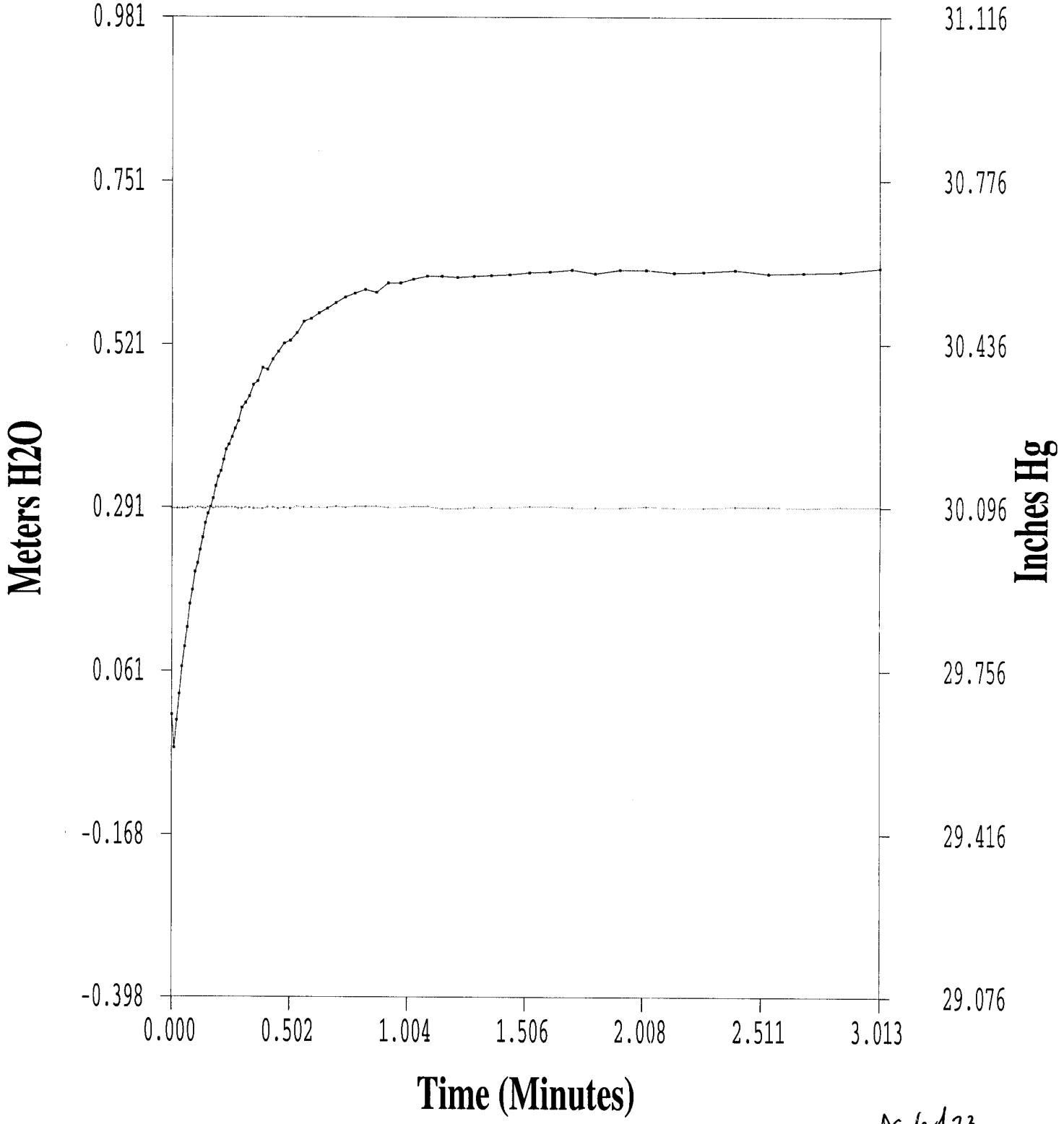
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[1] Meters H2O	Chan[0] Inches Hg
01/11/02	10:35:04	0.0000	0.000	30.094
01/11/02	10:35:04	0.0110	-0.047	30.094
01/11/02	10:35:05	0.0220	-0.008	30.094
01/11/02	10:35:05	0.0330	0.029	30.094
01/11/02	10:35:06	0.0440	0.068	30.094
01/11/02	10:35:07	0.0550	0.096	30.094
01/11/02	10:35:07	0.0660	0.123	30.094
01/11/02	10:35:08	0.0770	0.156	30.096
01/11/02	10:35:09	0.0880	0.176	30.096
01/11/02	10:35:09	0.0990	0.201	30.094
01/11/02	10:35:10	0.1100	0.213	30.096
01/11/02	10:35:11	0.1210	0.232	30.096
01/11/02	10:35:11	0.1320	0.249	30.094
01/11/02	10:35:12	0.1430	0.269	30.094
01/11/02	10:35:13	0.1540	0.283	30.096
01/11/02	10:35:13	0.1650	0.292	30.096
01/11/02	10:35:14	0.1760	0.304	30.094
01/11/02	10:35:15	0.1870	0.321	30.096
01/11/02	10:35:15	0.1980	0.335	30.096
01/11/02	10:35:16	0.2090	0.343	30.096
01/11/02	10:35:17	0.2200	0.359	30.096

01/11/02	10:35:17	0.2310	0.373	30.096
01/11/02	10:35:18	0.2427	0.380	30.096
01/11/02	10:35:19	0.2552	0.391	30.096
01/11/02	10:35:20	0.2683	0.403	30.096
01/11/02	10:35:20	0.2823	0.413	30.094
01/11/02	10:35:21	0.2972	0.432	30.094
01/11/02	10:35:22	0.3128	0.439	30.096
01/11/02	10:35:23	0.3295	0.448	30.096
01/11/02	10:35:24	0.3472	0.464	30.094
01/11/02	10:35:25	0.3658	0.469	30.094
01/11/02	10:35:27	0.3857	0.488	30.094
01/11/02	10:35:28	0.4067	0.485	30.096
01/11/02	10:35:29	0.4288	0.500	30.096
01/11/02	10:35:31	0.4523	0.511	30.094
01/11/02	10:35:32	0.4772	0.523	30.096
01/11/02	10:35:34	0.5035	0.527	30.094
01/11/02	10:35:35	0.5315	0.537	30.098
01/11/02	10:35:37	0.5612	0.553	30.096
01/11/02	10:35:39	0.5925	0.557	30.096
01/11/02	10:35:41	0.6257	0.565	30.096
01/11/02	10:35:43	0.6608	0.572	30.096
01/11/02	10:35:45	0.6982	0.580	30.098
01/11/02	10:35:48	0.7377	0.588	30.096
01/11/02	10:35:50	0.7795	0.593	30.098
01/11/02	10:35:53	0.8238	0.599	30.098
01/11/02	10:35:56	0.8708	0.595	30.098
01/11/02	10:35:59	0.9207	0.608	30.096
01/11/02	10:36:02	0.9733	0.608	30.096
01/11/02	10:36:05	1.0292	0.613	30.098
01/11/02	10:36:09	1.0883	0.617	30.098
01/11/02	10:36:13	1.1510	0.617	30.094
01/11/02	10:36:17	1.2173	0.616	30.094
01/11/02	10:36:21	1.2877	0.617	30.096
01/11/02	10:36:25	1.3622	0.619	30.096
01/11/02	10:36:30	1.4412	0.620	30.096
01/11/02	10:36:35	1.5248	0.623	30.098
01/11/02	10:36:40	1.6133	0.624	30.098
01/11/02	10:36:46	1.7072	0.627	30.096
01/11/02	10:36:52	1.8065	0.621	30.096
01/11/02	10:36:58	1.9118	0.627	30.096
01/11/02	10:37:05	2.0233	0.627	30.098
01/11/02	10:37:12	2.1415	0.623	30.096
01/11/02	10:37:20	2.2667	0.624	30.096
01/11/02	10:37:27	2.3992	0.627	30.098
01/11/02	10:37:36	2.5397	0.621	30.098
01/11/02	10:37:45	2.6885	0.623	30.096
01/11/02	10:37:54	2.8460	0.624	30.098
01/11/02	10:38:04	3.0127	0.629	30.098

REC ~~DR~~-312LS-1S

MD



Pg. 6 of 23

[1] - Probe #1

[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 03/15/02 10:27:54
Report from file: C:\Win-Situ\Data\SN45799 2002-01-11 111749 REC-312LS-1Sa.bin
DataMgr Version 3.70

Serial number: 00045799
Firmware Version 7.10
Unit name: HERMIT 3000

DR MWD

Test name: ~~REC-~~312LS-1Sa

Test defined on: 01/11/02 06:55:13
Test started on: 01/11/02 11:17:49
Test stopped on: 01/11/02 11:33:15
Test extracted on: 01/11/02 14:49:04

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 143

TOTAL DATA SAMPLES 143

Channel number [1]
Measurement type: Pressure
Channel name: Probe #1
Linearity: 0.3594000
Scale: 30.2978000
Offset: -0.0542000
Warmup: 50
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 0.597 Meters H2O

Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

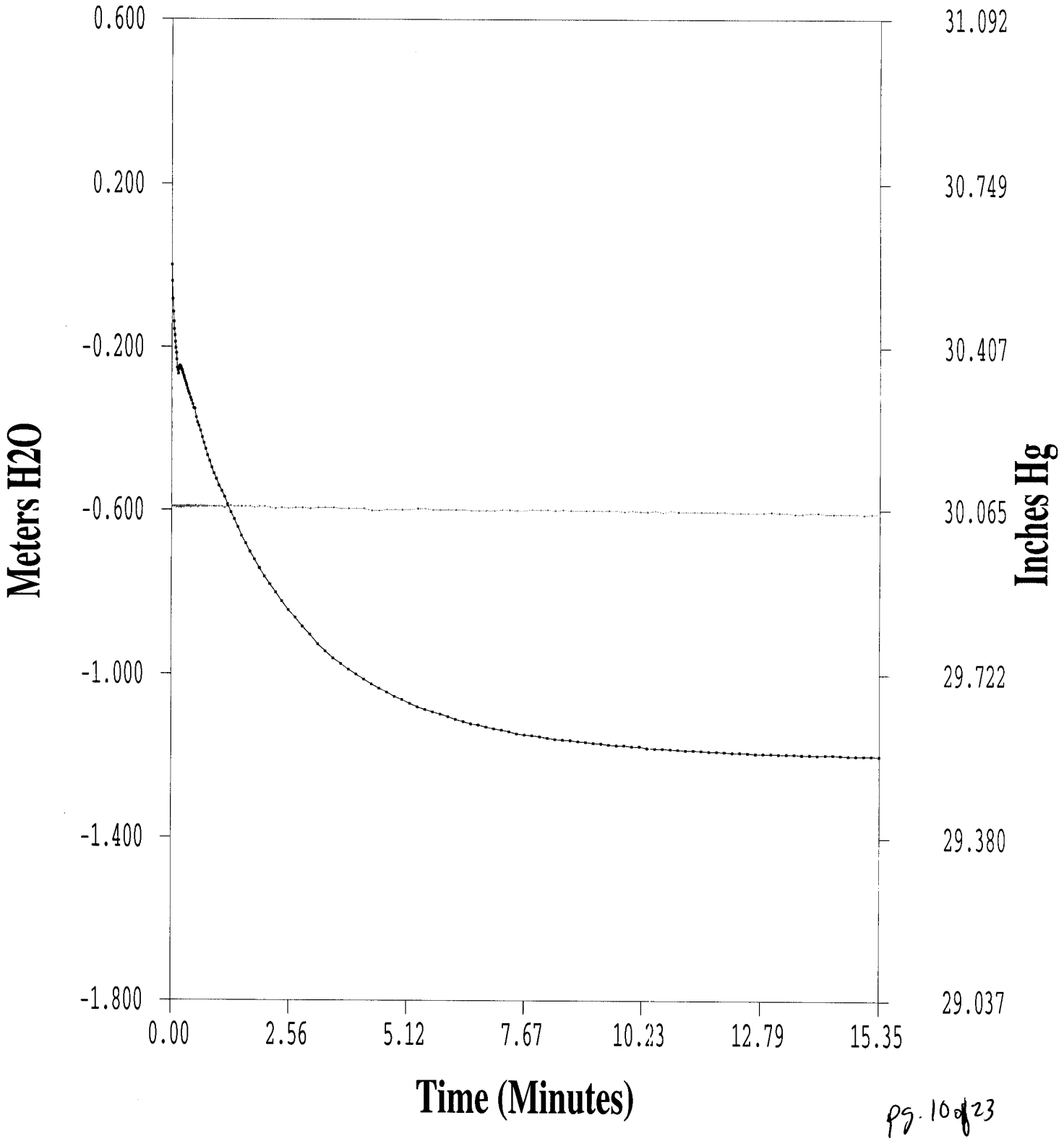
Date	Time	ET (min)	Chan[1] Meters H2O	Chan[0] Inches Hg
01/11/02	11:17:49	0.0000	0.000	30.072
01/11/02	11:17:49	0.0110	-0.040	30.072
01/11/02	11:17:50	0.0220	-0.083	30.072
01/11/02	11:17:50	0.0330	-0.115	30.072
01/11/02	11:17:51	0.0440	-0.139	30.072
01/11/02	11:17:52	0.0550	-0.157	30.072
01/11/02	11:17:52	0.0660	-0.172	30.072
01/11/02	11:17:53	0.0770	-0.188	30.072
01/11/02	11:17:54	0.0880	-0.203	30.072
01/11/02	11:17:54	0.0990	-0.215	30.070
01/11/02	11:17:55	0.1100	-0.231	30.072
01/11/02	11:17:56	0.1210	-0.251	30.072
01/11/02	11:17:56	0.1320	-0.257	30.072
01/11/02	11:17:57	0.1430	-0.265	30.072
01/11/02	11:17:58	0.1540	-0.255	30.070
01/11/02	11:17:58	0.1650	-0.247	30.070
01/11/02	11:17:59	0.1760	-0.245	30.072
01/11/02	11:18:00	0.1870	-0.247	30.072
01/11/02	11:18:00	0.1980	-0.248	30.072
01/11/02	11:18:01	0.2090	-0.253	30.070
01/11/02	11:18:02	0.2200	-0.257	30.072

01/11/02	11:18:02	0.2310	-0.257	30.072
01/11/02	11:18:03	0.2427	-0.264	30.072
01/11/02	11:18:04	0.2552	-0.269	30.070
01/11/02	11:18:05	0.2683	-0.273	30.072
01/11/02	11:18:05	0.2823	-0.278	30.072
01/11/02	11:18:06	0.2972	-0.284	30.072
01/11/02	11:18:07	0.3128	-0.289	30.072
01/11/02	11:18:08	0.3295	-0.294	30.072
01/11/02	11:18:09	0.3472	-0.302	30.074
01/11/02	11:18:10	0.3658	-0.309	30.072
01/11/02	11:18:12	0.3857	-0.314	30.074
01/11/02	11:18:13	0.4067	-0.324	30.070
01/11/02	11:18:14	0.4288	-0.330	30.072
01/11/02	11:18:16	0.4523	-0.340	30.072
01/11/02	11:18:17	0.4772	-0.349	30.072
01/11/02	11:18:19	0.5035	-0.350	30.072
01/11/02	11:18:20	0.5315	-0.372	30.074
01/11/02	11:18:22	0.5612	-0.385	30.070
01/11/02	11:18:24	0.5925	-0.393	30.072
01/11/02	11:18:26	0.6257	-0.405	30.074
01/11/02	11:18:28	0.6608	-0.421	30.072
01/11/02	11:18:30	0.6982	-0.436	30.072
01/11/02	11:18:33	0.7377	-0.450	30.072
01/11/02	11:18:35	0.7795	-0.466	30.072
01/11/02	11:18:38	0.8238	-0.480	30.072
01/11/02	11:18:41	0.8708	-0.496	30.072
01/11/02	11:18:44	0.9207	-0.510	30.072
01/11/02	11:18:47	0.9733	-0.524	30.072
01/11/02	11:18:50	1.0292	-0.540	30.072
01/11/02	11:18:54	1.0883	-0.553	30.072
01/11/02	11:18:58	1.1510	-0.568	30.070
01/11/02	11:19:02	1.2173	-0.586	30.072
01/11/02	11:19:06	1.2877	-0.605	30.074
01/11/02	11:19:10	1.3622	-0.622	30.072
01/11/02	11:19:15	1.4412	-0.641	30.072
01/11/02	11:19:20	1.5248	-0.662	30.072
01/11/02	11:19:25	1.6133	-0.681	30.072
01/11/02	11:19:31	1.7072	-0.701	30.072
01/11/02	11:19:37	1.8065	-0.720	30.070
01/11/02	11:19:43	1.9118	-0.741	30.072
01/11/02	11:19:50	2.0233	-0.761	30.072
01/11/02	11:19:57	2.1415	-0.780	30.070
01/11/02	11:20:05	2.2667	-0.800	30.068
01/11/02	11:20:12	2.3992	-0.821	30.070
01/11/02	11:20:21	2.5397	-0.842	30.068
01/11/02	11:20:30	2.6885	-0.861	30.070
01/11/02	11:20:39	2.8460	-0.882	30.070
01/11/02	11:20:49	3.0127	-0.902	30.068
01/11/02	11:20:59	3.1793	-0.925	30.070
01/11/02	11:21:09	3.3460	-0.942	30.070
01/11/02	11:21:19	3.5127	-0.960	30.070
01/11/02	11:21:29	3.6793	-0.973	30.068
01/11/02	11:21:39	3.8460	-0.988	30.068
01/11/02	11:21:49	4.0127	-1.000	30.068
01/11/02	11:21:59	4.1793	-1.012	30.068
01/11/02	11:22:09	4.3460	-1.024	30.064
01/11/02	11:22:19	4.5127	-1.034	30.064
01/11/02	11:22:29	4.6793	-1.044	30.066
01/11/02	11:22:39	4.8460	-1.054	30.066
01/11/02	11:22:49	5.0127	-1.062	30.066
01/11/02	11:22:59	5.1793	-1.072	30.066
01/11/02	11:23:09	5.3460	-1.080	30.068
01/11/02	11:23:19	5.5127	-1.086	30.068
01/11/02	11:23:29	5.6793	-1.092	30.066
01/11/02	11:23:39	5.8460	-1.097	30.066
01/11/02	11:23:49	6.0127	-1.104	30.066
01/11/02	11:23:59	6.1793	-1.110	30.066
01/11/02	11:24:09	6.3460	-1.116	30.066
01/11/02	11:24:19	6.5127	-1.121	30.064
01/11/02	11:24:29	6.6793	-1.124	30.064

01/11/02	11:24:39	6.8460	-1.129	30.064
01/11/02	11:24:49	7.0127	-1.133	30.064
01/11/02	11:24:59	7.1793	-1.136	30.066
01/11/02	11:25:09	7.3460	-1.140	30.066
01/11/02	11:25:19	7.5127	-1.145	30.064
01/11/02	11:25:29	7.6793	-1.148	30.064
01/11/02	11:25:39	7.8460	-1.149	30.066
01/11/02	11:25:49	8.0127	-1.152	30.066
01/11/02	11:25:59	8.1793	-1.156	30.066
01/11/02	11:26:09	8.3460	-1.158	30.064
01/11/02	11:26:19	8.5127	-1.160	30.066
01/11/02	11:26:29	8.6793	-1.161	30.064
01/11/02	11:26:39	8.8460	-1.164	30.064
01/11/02	11:26:49	9.0127	-1.165	30.064
01/11/02	11:26:59	9.1793	-1.168	30.064
01/11/02	11:27:09	9.3460	-1.169	30.064
01/11/02	11:27:19	9.5127	-1.172	30.064
01/11/02	11:27:29	9.6793	-1.173	30.064
01/11/02	11:27:39	9.8460	-1.173	30.062
01/11/02	11:27:49	10.0127	-1.176	30.064
01/11/02	11:27:59	10.1793	-1.176	30.062
01/11/02	11:28:09	10.3460	-1.180	30.062
01/11/02	11:28:19	10.5127	-1.181	30.064
01/11/02	11:28:29	10.6793	-1.181	30.060
01/11/02	11:28:39	10.8460	-1.183	30.064
01/11/02	11:28:49	11.0127	-1.184	30.062
01/11/02	11:28:59	11.1793	-1.185	30.062
01/11/02	11:29:09	11.3460	-1.185	30.062
01/11/02	11:29:19	11.5127	-1.187	30.062
01/11/02	11:29:29	11.6793	-1.188	30.062
01/11/02	11:29:39	11.8460	-1.188	30.062
01/11/02	11:29:49	12.0127	-1.189	30.062
01/11/02	11:29:59	12.1793	-1.191	30.060
01/11/02	11:30:09	12.3460	-1.191	30.060
01/11/02	11:30:19	12.5127	-1.192	30.060
01/11/02	11:30:29	12.6793	-1.193	30.060
01/11/02	11:30:39	12.8460	-1.193	30.060
01/11/02	11:30:49	13.0127	-1.193	30.062
01/11/02	11:30:59	13.1793	-1.195	30.060
01/11/02	11:31:09	13.3460	-1.195	30.060
01/11/02	11:31:19	13.5127	-1.195	30.057
01/11/02	11:31:29	13.6793	-1.196	30.057
01/11/02	11:31:39	13.8460	-1.196	30.060
01/11/02	11:31:49	14.0127	-1.197	30.060
01/11/02	11:31:59	14.1793	-1.196	30.057
01/11/02	11:32:09	14.3460	-1.196	30.057
01/11/02	11:32:19	14.5127	-1.197	30.057
01/11/02	11:32:29	14.6793	-1.199	30.057
01/11/02	11:32:39	14.8460	-1.199	30.057
01/11/02	11:32:49	15.0127	-1.199	30.055
01/11/02	11:32:59	15.1793	-1.199	30.057
01/11/02	11:33:09	15.3460	-1.200	30.057

DR ~~REC~~-312LS-1Sa

MWD



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[1] - Probe #1

[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 03/15/02 10:27:34
Report from file: C:\Win-Situ\Data\SN45799 2002-01-11 105833 DR-312LS-1Sa.bin
DataMgr Version 3.70

Serial number: 00045799
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: ~~DR~~ REC 312LS-1Sa MD

Test defined on: 01/11/02 06:54:13
Test started on: 01/11/02 10:58:33
Test stopped on: 01/11/02 11:17:33
Test extracted on: 01/11/02 14:48:28

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 163

TOTAL DATA SAMPLES 163

Channel number [1]
Measurement type: Pressure
Channel name: Probe #1
Linearity: 0.3594000
Scale: 30.2978000
Offset: -0.0542000
Warmup: 50
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 1.660 Meters H2O

Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

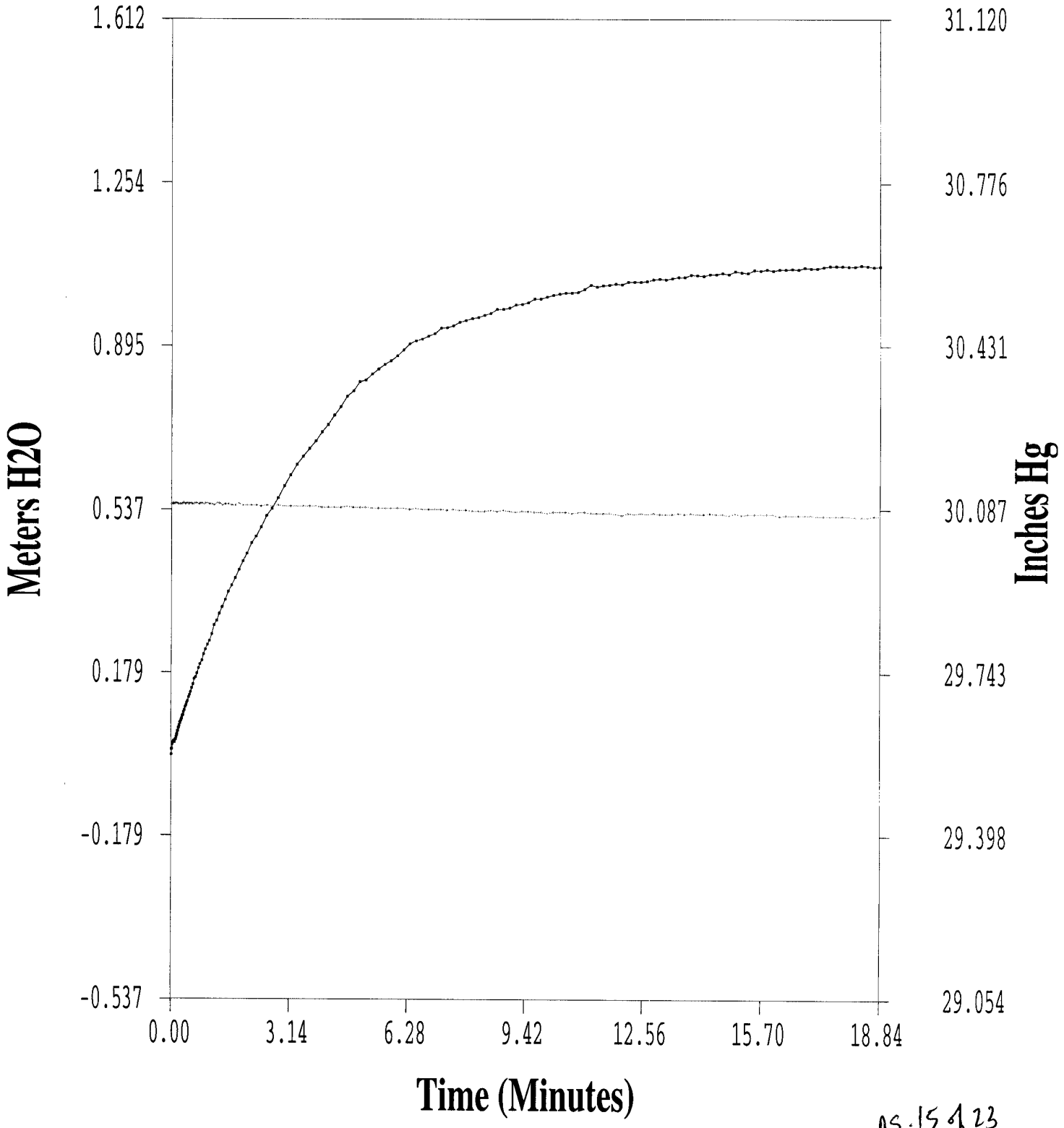
Date	Time	ET (min)	Chan[1] Meters H2O	Chan[0] Inches Hg
01/11/02	10:58:33	0.0000	0.000	30.098
01/11/02	10:58:33	0.0112	0.012	30.098
01/11/02	10:58:34	0.0223	0.012	30.098
01/11/02	10:58:35	0.0335	0.023	30.098
01/11/02	10:58:35	0.0447	0.025	30.100
01/11/02	10:58:36	0.0558	0.028	30.100
01/11/02	10:58:37	0.0670	0.029	30.098
01/11/02	10:58:37	0.0782	0.028	30.098
01/11/02	10:58:38	0.0893	0.027	30.100
01/11/02	10:58:39	0.1005	0.032	30.100
01/11/02	10:58:39	0.1117	0.033	30.100
01/11/02	10:58:40	0.1228	0.033	30.100
01/11/02	10:58:41	0.1340	0.039	30.100
01/11/02	10:58:41	0.1452	0.044	30.100
01/11/02	10:58:42	0.1563	0.043	30.100
01/11/02	10:58:43	0.1675	0.047	30.098
01/11/02	10:58:43	0.1787	0.052	30.100
01/11/02	10:58:44	0.1898	0.052	30.098
01/11/02	10:58:45	0.2010	0.059	30.098
01/11/02	10:58:45	0.2122	0.060	30.098
01/11/02	10:58:46	0.2233	0.064	30.098

01/11/02	10:58:47	0.2350	0.071	30.098
01/11/02	10:58:47	0.2475	0.069	30.098
01/11/02	10:58:48	0.2607	0.075	30.098
01/11/02	10:58:49	0.2747	0.077	30.098
01/11/02	10:58:50	0.2895	0.080	30.100
01/11/02	10:58:51	0.3052	0.085	30.098
01/11/02	10:58:52	0.3218	0.087	30.102
01/11/02	10:58:53	0.3395	0.093	30.100
01/11/02	10:58:54	0.3582	0.097	30.100
01/11/02	10:58:55	0.3780	0.104	30.098
01/11/02	10:58:56	0.3990	0.108	30.100
01/11/02	10:58:58	0.4212	0.113	30.100
01/11/02	10:58:59	0.4447	0.117	30.100
01/11/02	10:59:01	0.4695	0.125	30.098
01/11/02	10:59:02	0.4958	0.131	30.100
01/11/02	10:59:04	0.5238	0.137	30.100
01/11/02	10:59:06	0.5535	0.145	30.098
01/11/02	10:59:08	0.5848	0.153	30.098
01/11/02	10:59:10	0.6180	0.165	30.100
01/11/02	10:59:12	0.6532	0.169	30.100
01/11/02	10:59:14	0.6905	0.177	30.100
01/11/02	10:59:16	0.7300	0.188	30.098
01/11/02	10:59:19	0.7718	0.197	30.100
01/11/02	10:59:21	0.8162	0.205	30.100
01/11/02	10:59:24	0.8632	0.219	30.098
01/11/02	10:59:27	0.9130	0.229	30.100
01/11/02	10:59:30	0.9657	0.240	30.100
01/11/02	10:59:34	1.0215	0.248	30.098
01/11/02	10:59:37	1.0807	0.263	30.098
01/11/02	10:59:41	1.1433	0.283	30.096
01/11/02	10:59:45	1.2097	0.292	30.100
01/11/02	10:59:49	1.2800	0.308	30.100
01/11/02	10:59:54	1.3545	0.323	30.096
01/11/02	10:59:59	1.4335	0.339	30.098
01/11/02	11:00:04	1.5172	0.356	30.098
01/11/02	11:00:09	1.6057	0.371	30.096
01/11/02	11:00:14	1.6995	0.387	30.096
01/11/02	11:00:20	1.7988	0.405	30.100
01/11/02	11:00:27	1.9042	0.424	30.096
01/11/02	11:00:33	2.0157	0.441	30.096
01/11/02	11:00:41	2.1338	0.464	30.096
01/11/02	11:00:48	2.2590	0.479	30.096
01/11/02	11:00:56	2.3915	0.499	30.094
01/11/02	11:01:04	2.5320	0.524	30.096
01/11/02	11:01:13	2.6808	0.540	30.094
01/11/02	11:01:23	2.8383	0.563	30.096
01/11/02	11:01:33	3.0050	0.589	30.094
01/11/02	11:01:43	3.1717	0.613	30.094
01/11/02	11:01:53	3.3383	0.636	30.094
01/11/02	11:02:03	3.5050	0.653	30.094
01/11/02	11:02:13	3.6717	0.671	30.094
01/11/02	11:02:23	3.8383	0.687	30.094
01/11/02	11:02:33	4.0050	0.707	30.092
01/11/02	11:02:43	4.1717	0.723	30.092
01/11/02	11:02:53	4.3383	0.743	30.092
01/11/02	11:03:03	4.5050	0.761	30.092
01/11/02	11:03:13	4.6717	0.784	30.094
01/11/02	11:03:23	4.8383	0.796	30.092
01/11/02	11:03:33	5.0050	0.816	30.092
01/11/02	11:03:43	5.1717	0.820	30.092
01/11/02	11:03:53	5.3383	0.833	30.090
01/11/02	11:04:03	5.5050	0.844	30.090
01/11/02	11:04:13	5.6717	0.855	30.090
01/11/02	11:04:23	5.8383	0.863	30.090
01/11/02	11:04:33	6.0050	0.873	30.090
01/11/02	11:04:43	6.1717	0.887	30.090
01/11/02	11:04:53	6.3383	0.900	30.088
01/11/02	11:05:03	6.5050	0.907	30.090
01/11/02	11:05:13	6.6717	0.911	30.088
01/11/02	11:05:23	6.8383	0.917	30.088

01/11/02	11:05:33	7.0050	0.923	30.088
01/11/02	11:05:43	7.1717	0.935	30.088
01/11/02	11:05:53	7.3383	0.936	30.086
01/11/02	11:06:03	7.5050	0.940	30.088
01/11/02	11:06:13	7.6717	0.948	30.086
01/11/02	11:06:23	7.8383	0.952	30.086
01/11/02	11:06:33	8.0050	0.956	30.084
01/11/02	11:06:43	8.1717	0.959	30.084
01/11/02	11:06:53	8.3383	0.964	30.084
01/11/02	11:07:03	8.5050	0.968	30.086
01/11/02	11:07:13	8.6717	0.977	30.084
01/11/02	11:07:23	8.8383	0.977	30.086
01/11/02	11:07:33	9.0050	0.980	30.084
01/11/02	11:07:43	9.1717	0.987	30.082
01/11/02	11:07:53	9.3383	0.988	30.084
01/11/02	11:08:03	9.5050	0.992	30.084
01/11/02	11:08:13	9.6717	1.000	30.082
01/11/02	11:08:23	9.8383	1.000	30.082
01/11/02	11:08:33	10.0050	1.004	30.080
01/11/02	11:08:43	10.1717	1.008	30.082
01/11/02	11:08:53	10.3383	1.010	30.082
01/11/02	11:09:03	10.5050	1.013	30.082
01/11/02	11:09:13	10.6717	1.013	30.080
01/11/02	11:09:23	10.8383	1.014	30.082
01/11/02	11:09:33	11.0050	1.021	30.082
01/11/02	11:09:43	11.1717	1.030	30.080
01/11/02	11:09:53	11.3383	1.026	30.080
01/11/02	11:10:03	11.5050	1.029	30.080
01/11/02	11:10:13	11.6717	1.030	30.080
01/11/02	11:10:23	11.8383	1.033	30.078
01/11/02	11:10:33	12.0050	1.032	30.076
01/11/02	11:10:43	12.1717	1.037	30.080
01/11/02	11:10:53	12.3383	1.037	30.078
01/11/02	11:11:03	12.5050	1.037	30.080
01/11/02	11:11:13	12.6717	1.038	30.078
01/11/02	11:11:23	12.8383	1.042	30.080
01/11/02	11:11:33	13.0050	1.044	30.078
01/11/02	11:11:43	13.1717	1.042	30.078
01/11/02	11:11:53	13.3383	1.045	30.078
01/11/02	11:12:03	13.5050	1.048	30.080
01/11/02	11:12:13	13.6717	1.048	30.078
01/11/02	11:12:23	13.8383	1.053	30.080
01/11/02	11:12:33	14.0050	1.052	30.078
01/11/02	11:12:43	14.1717	1.050	30.078
01/11/02	11:12:53	14.3383	1.054	30.080
01/11/02	11:13:03	14.5050	1.054	30.078
01/11/02	11:13:13	14.6717	1.057	30.078
01/11/02	11:13:23	14.8383	1.054	30.076
01/11/02	11:13:33	15.0050	1.061	30.080
01/11/02	11:13:43	15.1717	1.058	30.076
01/11/02	11:13:53	15.3383	1.057	30.078
01/11/02	11:14:03	15.5050	1.064	30.078
01/11/02	11:14:13	15.6717	1.062	30.078
01/11/02	11:14:23	15.8383	1.065	30.078
01/11/02	11:14:33	16.0050	1.062	30.078
01/11/02	11:14:43	16.1717	1.065	30.074
01/11/02	11:14:53	16.3383	1.065	30.076
01/11/02	11:15:03	16.5050	1.066	30.076
01/11/02	11:15:13	16.6717	1.065	30.076
01/11/02	11:15:23	16.8383	1.069	30.076
01/11/02	11:15:33	17.0050	1.068	30.076
01/11/02	11:15:43	17.1717	1.068	30.074
01/11/02	11:15:53	17.3383	1.070	30.074
01/11/02	11:16:03	17.5050	1.073	30.074
01/11/02	11:16:13	17.6717	1.073	30.074
01/11/02	11:16:23	17.8383	1.073	30.074
01/11/02	11:16:33	18.0050	1.072	30.074
01/11/02	11:16:43	18.1717	1.072	30.072
01/11/02	11:16:53	18.3383	1.074	30.072
01/11/02	11:17:03	18.5050	1.073	30.072

01/11/02	11:17:13	18.6717	1.070	30.074
01/11/02	11:17:23	18.8383	1.072	30.074

REC ~~DR~~-312LS-1Sa



PS. 15 of 23

[1] - Probe #1

[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 03/15/02 10:24:14
Report from file: C:\Win-Situ\Data\SN45799 2002-01-11 100610 REC-312LS-4S.bin
DataMgr Version 3.70

Serial number: 00045799
Firmware Version 7.10
Unit name: HERMIT 3000

DR MD

Test name: ~~REC~~-312LS-4S

Test defined on: 01/11/02 06:57:22
Test started on: 01/11/02 10:06:10
Test stopped on: 01/11/02 10:13:23
Test extracted on: 01/11/02 14:50:21

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 93

TOTAL DATA SAMPLES 93

Channel number [1]
Measurement type: Pressure
Channel name: Probe #1
Linearity: 0.3594000
Scale: 30.2978000
Offset: -0.0542000
Warmup: 50
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 0.732 Meters H2O

Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

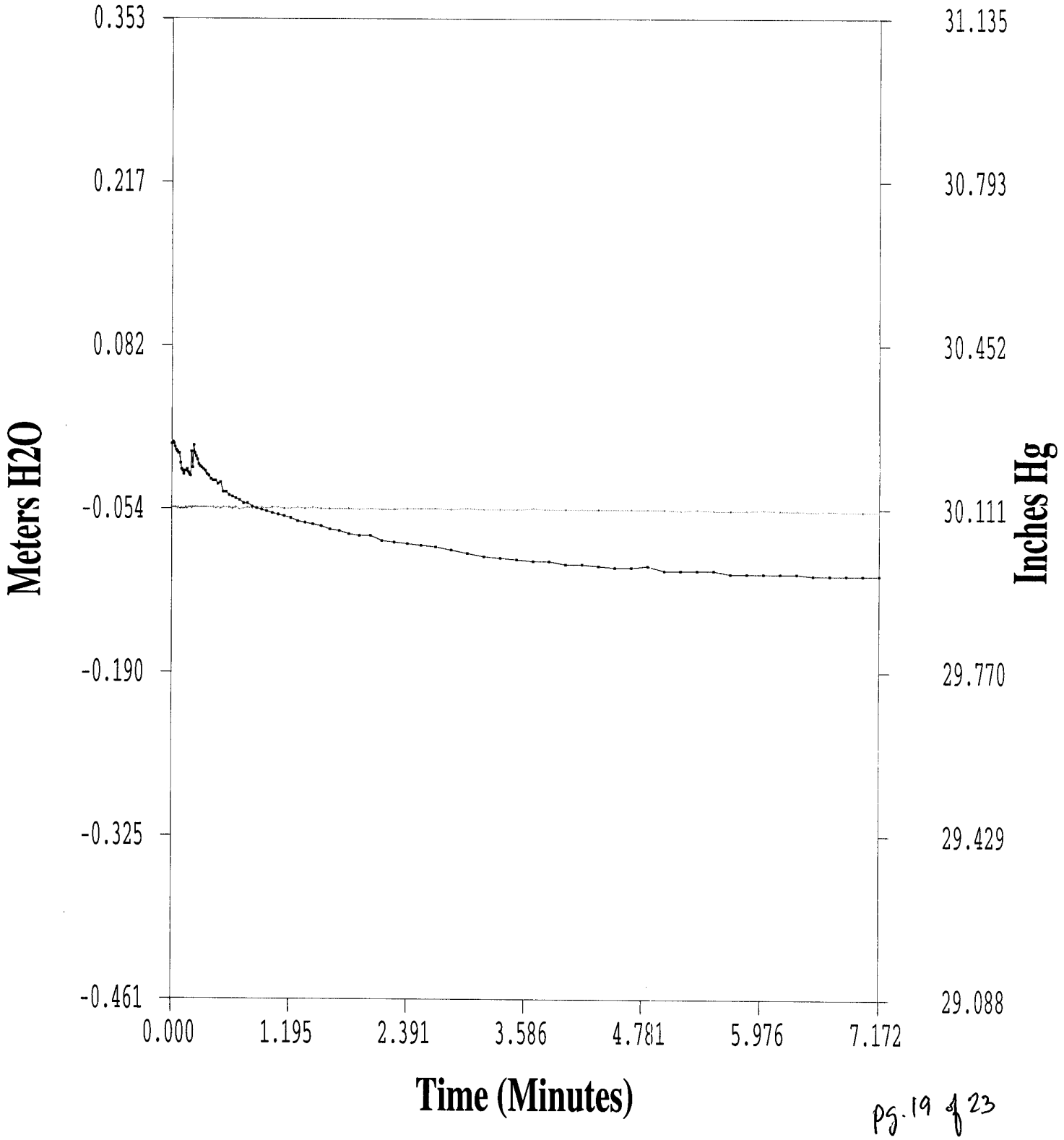
Date	Time	ET (min)	Chan[1] Meters H2O	Chan[0] Inches Hg
01/11/02	10:06:10	0.0000	0.000	30.114
01/11/02	10:06:10	0.0112	0.001	30.114
01/11/02	10:06:11	0.0223	0.000	30.114
01/11/02	10:06:12	0.0335	-0.003	30.114
01/11/02	10:06:12	0.0447	-0.005	30.114
01/11/02	10:06:13	0.0558	-0.007	30.112
01/11/02	10:06:14	0.0670	-0.008	30.114
01/11/02	10:06:14	0.0782	-0.008	30.112
01/11/02	10:06:15	0.0893	-0.016	30.112
01/11/02	10:06:16	0.1005	-0.021	30.112
01/11/02	10:06:16	0.1117	-0.023	30.112
01/11/02	10:06:17	0.1228	-0.025	30.112
01/11/02	10:06:18	0.1340	-0.023	30.112
01/11/02	10:06:18	0.1452	-0.023	30.114
01/11/02	10:06:19	0.1563	-0.021	30.112
01/11/02	10:06:20	0.1675	-0.024	30.114
01/11/02	10:06:20	0.1787	-0.025	30.114
01/11/02	10:06:21	0.1898	-0.027	30.114
01/11/02	10:06:22	0.2010	-0.007	30.112
01/11/02	10:06:22	0.2122	-0.020	30.114
01/11/02	10:06:23	0.2233	-0.001	30.114

01/11/02	10:06:24	0.2350	-0.008	30.114
01/11/02	10:06:24	0.2475	-0.011	30.117
01/11/02	10:06:25	0.2607	-0.013	30.114
01/11/02	10:06:26	0.2747	-0.017	30.114
01/11/02	10:06:27	0.2895	-0.019	30.114
01/11/02	10:06:28	0.3052	-0.020	30.114
01/11/02	10:06:29	0.3218	-0.021	30.114
01/11/02	10:06:30	0.3395	-0.023	30.114
01/11/02	10:06:31	0.3582	-0.025	30.114
01/11/02	10:06:32	0.3780	-0.027	30.114
01/11/02	10:06:33	0.3990	-0.029	30.114
01/11/02	10:06:35	0.4212	-0.031	30.114
01/11/02	10:06:36	0.4447	-0.031	30.112
01/11/02	10:06:38	0.4695	-0.033	30.114
01/11/02	10:06:39	0.4958	-0.032	30.112
01/11/02	10:06:41	0.5238	-0.040	30.114
01/11/02	10:06:43	0.5535	-0.040	30.114
01/11/02	10:06:45	0.5848	-0.043	30.114
01/11/02	10:06:47	0.6180	-0.044	30.112
01/11/02	10:06:49	0.6532	-0.045	30.114
01/11/02	10:06:51	0.6905	-0.047	30.110
01/11/02	10:06:53	0.7300	-0.049	30.112
01/11/02	10:06:56	0.7718	-0.049	30.114
01/11/02	10:06:58	0.8162	-0.052	30.112
01/11/02	10:07:01	0.8632	-0.053	30.114
01/11/02	10:07:04	0.9130	-0.055	30.114
01/11/02	10:07:07	0.9657	-0.056	30.112
01/11/02	10:07:11	1.0215	-0.057	30.114
01/11/02	10:07:14	1.0807	-0.059	30.114
01/11/02	10:07:18	1.1433	-0.060	30.112
01/11/02	10:07:22	1.2097	-0.061	30.112
01/11/02	10:07:26	1.2800	-0.064	30.114
01/11/02	10:07:31	1.3545	-0.065	30.112
01/11/02	10:07:36	1.4335	-0.067	30.114
01/11/02	10:07:41	1.5172	-0.068	30.112
01/11/02	10:07:46	1.6057	-0.071	30.112
01/11/02	10:07:51	1.6995	-0.072	30.112
01/11/02	10:07:57	1.7988	-0.075	30.112
01/11/02	10:08:04	1.9042	-0.076	30.110
01/11/02	10:08:10	2.0157	-0.076	30.112
01/11/02	10:08:18	2.1338	-0.080	30.110
01/11/02	10:08:25	2.2590	-0.081	30.110
01/11/02	10:08:33	2.3915	-0.083	30.112
01/11/02	10:08:41	2.5320	-0.084	30.112
01/11/02	10:08:50	2.6808	-0.085	30.112
01/11/02	10:09:00	2.8383	-0.088	30.110
01/11/02	10:09:10	3.0050	-0.091	30.112
01/11/02	10:09:20	3.1717	-0.093	30.110
01/11/02	10:09:30	3.3383	-0.095	30.110
01/11/02	10:09:40	3.5050	-0.096	30.110
01/11/02	10:09:50	3.6717	-0.097	30.112
01/11/02	10:10:00	3.8383	-0.097	30.110
01/11/02	10:10:10	4.0050	-0.100	30.110
01/11/02	10:10:20	4.1717	-0.100	30.110
01/11/02	10:10:30	4.3383	-0.101	30.110
01/11/02	10:10:40	4.5050	-0.103	30.110
01/11/02	10:10:50	4.6717	-0.103	30.110
01/11/02	10:11:00	4.8383	-0.101	30.110
01/11/02	10:11:10	5.0050	-0.105	30.110
01/11/02	10:11:20	5.1717	-0.105	30.108
01/11/02	10:11:30	5.3383	-0.105	30.110
01/11/02	10:11:40	5.5050	-0.105	30.108
01/11/02	10:11:50	5.6717	-0.108	30.108
01/11/02	10:12:00	5.8383	-0.108	30.108
01/11/02	10:12:10	6.0050	-0.108	30.110
01/11/02	10:12:20	6.1717	-0.108	30.108
01/11/02	10:12:30	6.3383	-0.108	30.108
01/11/02	10:12:40	6.5050	-0.109	30.106
01/11/02	10:12:50	6.6717	-0.109	30.108
01/11/02	10:13:00	6.8383	-0.109	30.106

01/11/02	10:13:10	7.0050	-0.109	30.106
01/11/02	10:13:20	7.1717	-0.109	30.106

DR ~~REC~~-312LS-4S

MD



pg. 19 of 23

[1] - Probe #1

[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 03/15/02 10:22:06
Report from file: C:\Win-Situ\Data\SN45799 2002-01-11 095701 DR-312LS-4S.bin
DataMgr Version 3.70

Serial number: 00045799
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: ~~DR~~ REC MD -312LS-4S

Test defined on: 01/11/02 06:56:22
Test started on: 01/11/02 09:57:01
Test stopped on: 01/11/02 10:05:39
Test extracted on: 01/11/02 14:49:38

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 102

TOTAL DATA SAMPLES 102

Channel number [1]
Measurement type: Pressure
Channel name: Probe #1
Linearity: 0.3594000
Scale: 30.2978000
Offset: -0.0542000
Warmup: 50
Specific gravity: 1.000
Mode: TOC
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 0.837 Meters H2O

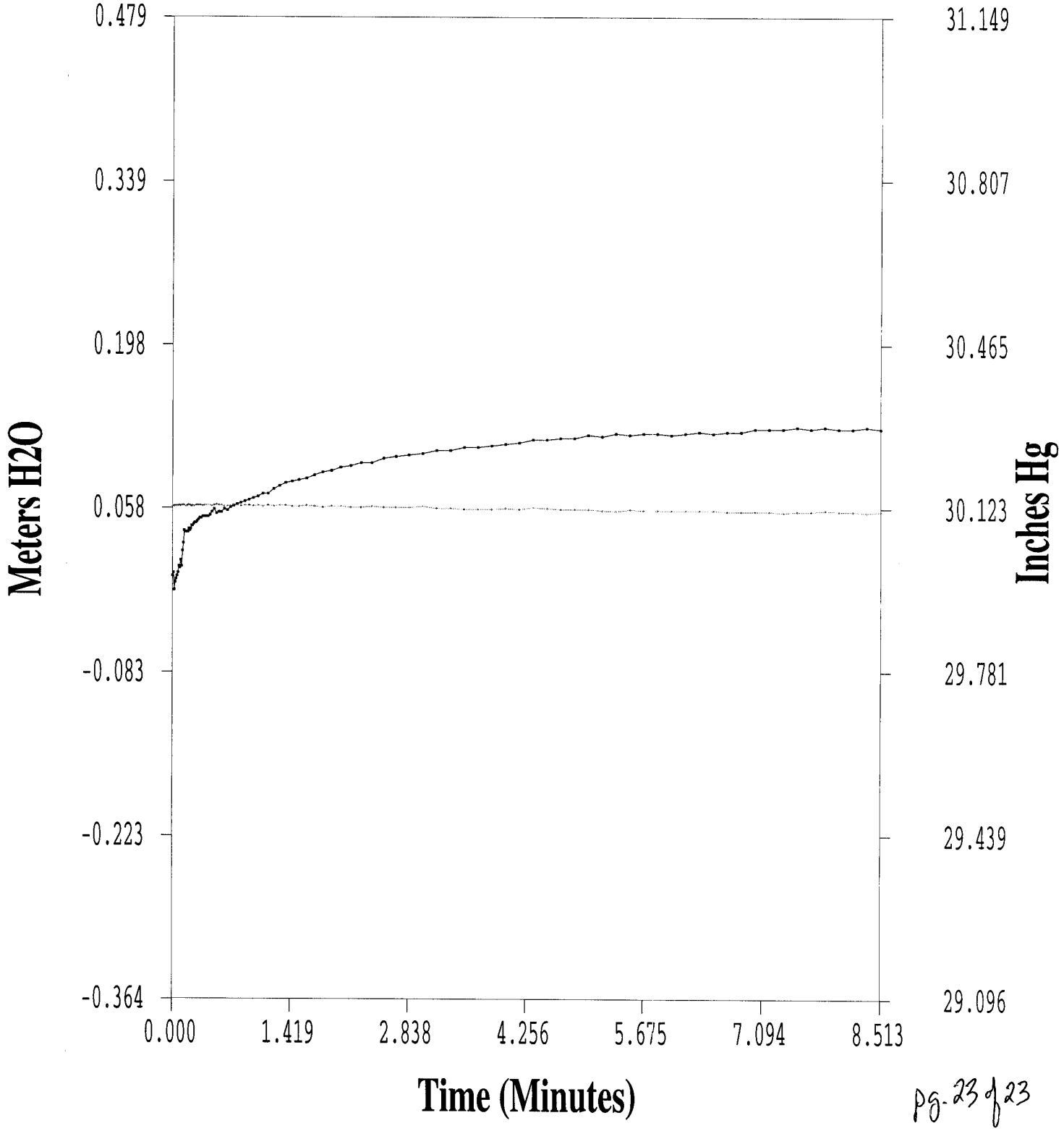
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[1] Meters H2O	Chan[0] Inches Hg
01/11/02	09:57:01	0.0000	0.000	30.127
01/11/02	09:57:01	0.0110	0.003	30.127
01/11/02	09:57:02	0.0220	-0.012	30.127
01/11/02	09:57:02	0.0330	-0.005	30.129
01/11/02	09:57:03	0.0440	-0.003	30.127
01/11/02	09:57:04	0.0550	0.000	30.129
01/11/02	09:57:04	0.0660	0.003	30.127
01/11/02	09:57:05	0.0770	0.008	30.129
01/11/02	09:57:06	0.0880	0.007	30.129
01/11/02	09:57:06	0.0990	0.013	30.127
01/11/02	09:57:07	0.1100	0.008	30.129
01/11/02	09:57:08	0.1210	0.021	30.129
01/11/02	09:57:08	0.1320	0.028	30.129
01/11/02	09:57:09	0.1430	0.039	30.129
01/11/02	09:57:10	0.1540	0.037	30.127
01/11/02	09:57:10	0.1650	0.037	30.127
01/11/02	09:57:11	0.1760	0.037	30.127
01/11/02	09:57:12	0.1870	0.037	30.129
01/11/02	09:57:12	0.1980	0.040	30.129
01/11/02	09:57:13	0.2090	0.039	30.129
01/11/02	09:57:14	0.2200	0.040	30.127

01/11/02	09:57:14	0.2310	0.043	30.127
01/11/02	09:57:15	0.2427	0.043	30.127
01/11/02	09:57:16	0.2552	0.044	30.127
01/11/02	09:57:17	0.2683	0.045	30.127
01/11/02	09:57:17	0.2823	0.045	30.129
01/11/02	09:57:18	0.2972	0.047	30.129
01/11/02	09:57:19	0.3128	0.048	30.129
01/11/02	09:57:20	0.3295	0.049	30.129
01/11/02	09:57:21	0.3472	0.049	30.129
01/11/02	09:57:22	0.3658	0.051	30.127
01/11/02	09:57:24	0.3857	0.051	30.129
01/11/02	09:57:25	0.4067	0.051	30.129
01/11/02	09:57:26	0.4288	0.051	30.129
01/11/02	09:57:28	0.4523	0.052	30.129
01/11/02	09:57:29	0.4772	0.055	30.127
01/11/02	09:57:31	0.5035	0.057	30.129
01/11/02	09:57:32	0.5315	0.053	30.131
01/11/02	09:57:34	0.5612	0.055	30.129
01/11/02	09:57:36	0.5925	0.055	30.129
01/11/02	09:57:38	0.6257	0.057	30.127
01/11/02	09:57:40	0.6608	0.056	30.127
01/11/02	09:57:42	0.6982	0.059	30.127
01/11/02	09:57:45	0.7377	0.060	30.129
01/11/02	09:57:47	0.7795	0.061	30.129
01/11/02	09:57:50	0.8238	0.063	30.127
01/11/02	09:57:53	0.8708	0.064	30.129
01/11/02	09:57:56	0.9207	0.065	30.129
01/11/02	09:57:59	0.9733	0.067	30.127
01/11/02	09:58:02	1.0292	0.068	30.129
01/11/02	09:58:06	1.0883	0.071	30.127
01/11/02	09:58:10	1.1510	0.071	30.129
01/11/02	09:58:14	1.2173	0.075	30.127
01/11/02	09:58:18	1.2877	0.077	30.129
01/11/02	09:58:22	1.3622	0.080	30.129
01/11/02	09:58:27	1.4412	0.081	30.127
01/11/02	09:58:32	1.5248	0.083	30.127
01/11/02	09:58:37	1.6133	0.084	30.129
01/11/02	09:58:43	1.7072	0.087	30.127
01/11/02	09:58:49	1.8065	0.089	30.125
01/11/02	09:58:55	1.9118	0.091	30.127
01/11/02	09:59:02	2.0233	0.093	30.127
01/11/02	09:59:09	2.1415	0.095	30.125
01/11/02	09:59:17	2.2667	0.097	30.125
01/11/02	09:59:24	2.3992	0.097	30.127
01/11/02	09:59:33	2.5397	0.101	30.125
01/11/02	09:59:42	2.6885	0.103	30.125
01/11/02	09:59:51	2.8460	0.104	30.125
01/11/02	10:00:01	3.0127	0.105	30.127
01/11/02	10:00:11	3.1793	0.108	30.123
01/11/02	10:00:21	3.3460	0.108	30.123
01/11/02	10:00:31	3.5127	0.111	30.121
01/11/02	10:00:41	3.6793	0.111	30.121
01/11/02	10:00:51	3.8460	0.112	30.121
01/11/02	10:01:01	4.0127	0.113	30.123
01/11/02	10:01:11	4.1793	0.115	30.121
01/11/02	10:01:21	4.3460	0.117	30.125
01/11/02	10:01:31	4.5127	0.117	30.123
01/11/02	10:01:41	4.6793	0.119	30.121
01/11/02	10:01:51	4.8460	0.119	30.121
01/11/02	10:02:01	5.0127	0.121	30.121
01/11/02	10:02:11	5.1793	0.120	30.119
01/11/02	10:02:21	5.3460	0.123	30.117
01/11/02	10:02:31	5.5127	0.121	30.121
01/11/02	10:02:41	5.6793	0.123	30.119
01/11/02	10:02:51	5.8460	0.123	30.119
01/11/02	10:03:01	6.0127	0.121	30.119
01/11/02	10:03:11	6.1793	0.123	30.119
01/11/02	10:03:21	6.3460	0.124	30.119
01/11/02	10:03:31	6.5127	0.123	30.119
01/11/02	10:03:41	6.6793	0.124	30.117

01/11/02	10:03:51	6.8460	0.124	30.117
01/11/02	10:04:01	7.0127	0.127	30.117
01/11/02	10:04:11	7.1793	0.127	30.117
01/11/02	10:04:21	7.3460	0.127	30.114
01/11/02	10:04:31	7.5127	0.128	30.117
01/11/02	10:04:41	7.6793	0.127	30.117
01/11/02	10:04:51	7.8460	0.128	30.119
01/11/02	10:05:01	8.0127	0.127	30.117
01/11/02	10:05:11	8.1793	0.127	30.117
01/11/02	10:05:21	8.3460	0.128	30.114
01/11/02	10:05:31	8.5127	0.127	30.117

REC ~~DR~~ MD -312LS-4S



[1] - Probe #1

[0] - Barometric

APPENDIX G

MOBILE LABORATORY DATA SHEETS

KB LABS, INC.

Final Data Report
Cecil Field CEF 312

Prepared for: Tetra Tech NUS

Well ID	Matrix	Date Sampled	Benzene	Toluene	Ethylbenzene	o-Xylene	m- & p-Xylene	DRO	Naphthalene
C001-01	Soil	9/5/01	<7.1	<7.1	<7.1	<7.1	**8.5**	<20	<2.5
C002-01	Soil	9/5/01	<4.2	<4.2	<4.2	**5.4**	**5.0**	<20	<2.5
B001-03	Soil	9/7/01	**69.9**	**34.2**	<10	<10	**13.6**	<20	<2.5
B002-04	Soil	9/7/01	**68.6**	**63.7**	<10	<10	**14.2**	<20	<2.5
B003-04	Soil	9/7/01	<10	<10	**15.7**	<10	**17.4**	<20	<2.5
B004-02	Soil	9/7/01	**46**	**23.0**	<10	**12.5**	**33.8**	<20	<2.5
GW3 -8'	Water	9/11/01	<1	<1	<1	<1	<1	<1	<20
GW3 -30'	Water	9/11/01	<1	<1	<1	<1	<1	<1	<20
GW4 -8'	Water	9/11/01	<1	**1.1**	**1.8**	**1.4**	**2.6**	<1	<20
GW1 -7'	Water	9/11/01	<1	<1	<1	<1	<1	<1	<20
GW2 -8'	Water	9/11/01	<1	<1	<1	<1	**1.4**	<1	<20
GW 5-8'	Water	9/11/01	<1	**1.5**	<1	<1	**1.0**	<1	<20
GW 6-8'	Water	9/11/01	<1	<1	<1	<1	<1	<1	<20
GW7-8'	Water	9/11/01	**1100**	<100	<100	**1600**	**8000**	<1	**99**
GW 8- 8'	Water	9/11/01	**3.7**	<1	<1	**2.5**	**16.4**	<1	<20
GW9 -8'	Water	9/11/01	<1	**1.8**	<1	<1	**2.2**	<1	<20
GW10-8	Water	9/11/01	<1	<1	<1	<1	<1	<1	<20
GW11-8'	Water	9/11/01	<1	**1.4**	<1	<1	<1	<1	<20
S0 1-4	Soil	9/11/01	<4.5	<4.5	<4.5	<4.5	<4.5	<20	<2.5
S0-5-4	Soil	9/11/01	<4.5	<4.5	<4.5	<4.5	<4.5	<20	<2.5
SO-6-4	Soil	9/11/01	<5	**11**	<5	<5	**7.2**	<20	<2.5
SO-7-4	Soil	9/11/01	<4.2	<4.2	<4.2	<4.2	<4.2	<20	<2.5
SO-8-4	Soil	9/11/01	<2.6	**8.6**	<2.6	**3.8**	**8.3**	<20	<2.5
SO-9-4	Soil	9/11/01	<5	**5.7**	<5	<5	<5	<20	<2.5
SO-10-4	Soil	9/11/01	<5	**8.4**	<5	**6.9**	**8.8**	<20	<2.5
SO-11-4	Soil	9/11/01	<5	**7.3**	<5	**5.1**	**6.3**	<20	<2.5

Reporting units for waters: DRO mg/L; all other analytes ug/L.
Reporting units for soils: DRO and naphthalene mg/kg; BTEX ug/kg.

Well ID (KB Labs)	Location ID (TtNUS)
C001-01	C001
C002-01	C002
B001-03	001
B002-04	002
B003-04	003
B004-02	004
GW3 -8'	003
GW3 -30'	003
GW4 -8'	004
GW1 -7'	001
GW2 -8'	002
GW 5-8'	005
GW 6-8'	006
GW7-8'	007
GW 8- 8'	008
GW9 -8'	009
GW10-8	010
GW11-8'	011
S0 1-4	001
S0-5-4	005
SO-6-4	006
SO-7-4	007
SO-8-4	008
SO-9-4	009
SO-10-4	010
SO-11-4	011

Note: Numbers shown after hyphen in KB Labs column indicate depth of sample collection in feet below land surface.

APPENDIX H

FIXED-BASED LABORATORY SOIL DATA SHEETS

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Paul Calligan

DATE: December 10, 2001

FROM: Suzanne I. Smith

CC: File

SUBJECT: Organic and Inorganic Data Validation – VOC, SVOCs, TPH, and select Metals
CTO168 – NAS Cecil Field
SDG F11114

SAMPLES: 2/Soil

CEF-312-SB-B002-04 CEF-824-SB-B003-03

OVERVIEW

The sample set for CTO201 SDG F11114, Naval Air Station Cecil Field, Jacksonville, Florida consists of two (2) soil environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), Total Petroleum Hydrocarbons (TPH), and select metals.

The samples were collected by Tetra Tech NUS on October 4, 2001 and analyzed by Accutest Laboratories Southeast. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 Method 8260B (VOCs), SW-846 Method 8270C (SVOCs), FDEP FL-PRO (TPH), and SW-846 6010B (select metals) analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

Volatiles Fraction

All quality control criteria were met for this fraction.

Polycyclic Aromatic Hydrocarbons Fraction

All quality control criteria were met for this fraction.

Total Petroleum Hydrocarbon Fraction

All quality control criteria were met for this fraction.

Lead Fraction

All quality control criteria were met for this fraction.

Executive Summary

Laboratory performance: None.

Other factors affecting data quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

Suzanne J. Smith

Suzanne J. Smith
Project Chemist
Tetra Tech NUS, Inc.

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F11114

SAMPLE NUMBER:	CEF-312-SB-B002-04			CEF-824-SB-B003-03								
SAMPLE DATE:	10/04/01			10/04/01			/ /			/ /		
LABORATORY ID:	F11114-1			F11114-2								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	90.8 %			94.5 %			100.0 %			100.0 %		
UNITS:	MG/KG			MG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	0.42	J	P	0.33	U							
CADMIUM	0.36	J	P	0.09	J	P						
CHROMIUM	7.5			3.3								
LEAD	11.7			6.1	J	P						

CTO 036 CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F11114

SAMPLE NUMBER:	CEF-312-SB-B002-04	CEF-824-SB-B003-03		
SAMPLE DATE:	10/04/01	10/04/01	/ /	/ /
LABORATORY ID:	F11114-1	F11114-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	94.5 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	360	U		350	U							
1,2-DICHLOROBENZENE	360	U		350	U							
1,2-DIPHENYLHYDRAZINE	360	U		350	U							
1,3-DICHLOROBENZENE	360	U		350	U							
1,4-DICHLOROBENZENE	360	U		350	U							
2,2'-OXYBIS(1-CHLOROPROPANE)	360	U		350	U							
2,4,6-TRICHLOROPHENOL	360	U		350	U							
2,4-DICHLOROPHENOL	360	U		350	U							
2,4-DIMETHYLPHENOL	910	U		880	U							
2,4-DINITROPHENOL	910	U		880	U							
2,4-DINITROTOLUENE	360	U		350	U							
2,6-DINITROTOLUENE	360	U		350	U							
2-CHLORONAPHTHALENE	360	U		350	U							
2-CHLOROPHENOL	360	U		350	U							
2-NITROPHENOL	360	U		350	U							
3,3'-DICHLOROBENZIDINE	730	U		700	U							
4,6-DINITRO-2-METHYLPHENOL	730	U		700	U							
4-BROMOPHENYL PHENYL ETHER	360	U		350	U							
4-CHLORO-3-METHYLPHENOL	360	U		350	U							
4-CHLOROANILINE	360	U		350	U							
4-CHLOROPHENYL PHENYL ETHER	360	U		350	U							
4-NITROPHENOL	910	U		880	U							
ACENAPHTHENE	360	U		350	U							
ACENAPHTHYLENE	360	U		350	U							
ANTHRACENE	360	U		350	U							
BENZIDINE	910	U		880	U							
BENZO(A)ANTHRACENE	360	U		350	U							
BENZO(A)PYRENE	360	U		350	U							
BENZO(B)FLUORANTHENE	360	U		350	U							
BENZO(G,H,I)PERYLENE	360	U		350	U							
BENZO(K)FLUORANTHENE	360	U		350	U							
BIS(2-CHLOROETHOXY)METHANE	360	U		350	U							

SOIL DATA
Accutest, NJ
SDG: F11114

SAMPLE NUMBER:	CEF-312-SB-B002-04	CEF-824-SB-B003-03		
SAMPLE DATE:	10/04/01	10/04/01	/ /	/ /
LABORATORY ID:	F11114-1	F11114-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	94.5 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
BIS(2-CHLOROETHYL)ETHER	360	U		350	U							
BIS(2-ETHYLHEXYL)PHTHALATE	360	U		350	U							
BUTYL BENZYL PHTHALATE	235	J	P	350	U							
CHRYSENE	360	U		350	U							
DI-N-BUTYL PHTHALATE	360	U		350	U							
DI-N-OCTYL PHTHALATE	360	U		350	U							
DIBENZO(A,H)ANTHRACENE	360	U		350	U							
DIETHYL PHTHALATE	360	U		350	U							
DIMETHYL PHTHALATE	360	U		350	U							
FLUORANTHENE	360	U		350	U							
FLUORENE	360	U		350	U							
HEXACHLOROBENZENE	360	U		350	U							
HEXACHLOROBUTADIENE	360	U		350	U							
HEXACHLOROCYCLOPENTADIENE	360	U		350	U							
HEXACHLOROETHANE	360	U		350	U							
INDENO(1,2,3-CD)PYRENE	360	U		350	U							
ISOPHORONE	360	U		350	U							
N-NITROSO-DI-N-PROPYLAMINE	360	U		350	U							
N-NITROSODIMETHYLAMINE	360	U		350	U							
N-NITROSODIPHENYLAMINE	360	U		350	U							
NAPHTHALENE	360	U		350	U							
NITROBENZENE	360	U		350	U							
PENTACHLOROPHENOL	910	U		880	U							
PHENANTHRENE	360	U		350	U							
PHENOL	360	U		350	U							
PYRENE	360	U		350	U							

CTO168-NAS CECIL FIELD

SOIL DATA
Accutest, NJ
SDG: F11114

SAMPLE NUMBER:	CEF-312-SB-B002-04			CEF-824-SB-B003-03			/ /			/ /	
SAMPLE DATE:	10/04/01			10/04/01							
LABORATORY ID:	F11114-1			F11114-2							
QC_TYPE:	NORMAL			NORMAL							
% SOLIDS:	90.8 %			94.5 %			100.0 %			100.0 %	
UNITS:	MG/KG			MG/KG							
FIELD DUPLICATE OF:											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	549			43.1								

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F11114

SAMPLE NUMBER:	CEF-312-SB-B002-04	CEF-824-SB-B003-03		
SAMPLE DATE:	10/04/01	10/04/01	/ /	/ /
LABORATORY ID:	F11114-1	F11114-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	94.5 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	5.7	U		6.2	U							
1,1,2,2-TETRACHLOROETHANE	5.7	U		6.2	U							
1,1,2-TRICHLOROETHANE	5.7	U		6.2	U							
1,1-DICHLOROETHANE	5.7	U		6.2	U							
1,1-DICHLOROETHENE	5.7	U		6.2	U							
1,2-DICHLOROBENZENE	5.7	U		6.2	U							
1,2-DICHLOROETHANE	5.7	U		6.2	U							
1,2-DICHLOROPROPANE	5.7	U		6.2	U							
1,3-DICHLOROBENZENE	5.7	U		6.2	U							
1,4-DICHLOROBENZENE	5.7	U		6.2	U							
2-CHLOROETHYL VINYL ETHER	11	U		12	U							
ACROLEIN	11	U		12	U							
ACRYLONITRILE	11	U		12	U							
BENZENE	5.7	U		6.2	U							
BROMODICHLOROMETHANE	5.7	U		6.2	U							
BROMOFORM	5.7	U		6.2	U							
BROMOMETHANE	5.7	U		6.2	U							
CARBON TETRACHLORIDE	5.7	U		6.2	U							
CHLOROBENZENE	5.7	U		6.2	U							
CHLORODIBROMOMETHANE	5.7	U		6.2	U							
CHLORODIBROMOMETHANE	5.7	U		6.2	U							
CHLOROETHANE	5.7	U		6.2	U							
CHLOROFORM	5.7	U		6.2	U							
CHLOROMETHANE	5.7	U		6.2	U							
CIS-1,3-DICHLOROPROPENE	5.7	U		6.2	U							
ETHYLBENZENE	5.7	U		6.2	U							
METHYLENE CHLORIDE	11	U		12	U							
TETRACHLOROETHENE	5.7	U		6.2	U							
TOLUENE	5.7	U		6.2	U							
TOTAL XYLENES	17	U		19	U							
TRANS-1,2-DICHLOROETHENE	5.7	U		6.2	U							
TRANS-1,3-DICHLOROPROPENE	5.7	U		6.2	U							

SAMPLE NUMBER:	CEF-312-SB-B002-04	CEF-824-SB-B003-03		
SAMPLE DATE:	10/04/01	10/04/01	/ /	/ /
LABORATORY ID:	F11114-1	F11114-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	90.8 %	94.5 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRICHLOROETHENE	5.7	U		6.2	U							
TRICHLOROFLUOROMETHANE	5.7	U		6.2	U							
VINYL CHLORIDE	5.7	U		6.2	U							

F11114

HOLDING TIME
11/16/01

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/KG	CEF-312-SB-B002-04	F11114-1	NORMAL	F11114	M	10/04/01	10/09/01	10/09/01	5 ✓	0	5
MG/KG	CEF-824-SB-B003-03	F11114-2	NORMAL	F11114	M	10/04/01	10/09/01	10/09/01	5	0 ✓	5
UG/KG	CEF-312-SB-B002-04	F11114-1	NORMAL	F11114	OS	10/04/01	10/09/01	10/11/01	5	2 ✓	7
UG/KG	CEF-824-SB-B003-03	F11114-2	NORMAL	F11114	OS	10/04/01	10/09/01	10/11/01	5	2	7
UG/KG	CEF-312-SB-B002-04	F11114-1	NORMAL	F11114	OV	10/04/01	/ /	10/17/01	0 ✓	0 ✓	13
UG/KG	CEF-824-SB-B003-03	F11114-2	NORMAL	F11114	OV	10/04/01	/ /	10/17/01	0	0	13
MG/KG	CEF-312-SB-B002-04	F11114-1	NORMAL	F11114	TPH	10/04/01	10/11/01	10/15/01	7 ✓	4 ✓	11
MG/KG	CEF-824-SB-B003-03	F11114-2	NORMAL	F11114	TPH	10/04/01	10/11/01	10/12/01	7	1 ✓	8

Southeast
ACCUTEST

10/31/01

Technical Report for

Tetra Tech, NUS

Cecil Field CTO168

WORK RELEASE 168CF-4

Accutest Job Number: F11114

Report to:

Tetra Tech NUS, Inc.
Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15520

ATTN: Amy Thomson

Total number of pages in report: 436

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Accutest Laboratories Southeast, Inc.
Analytical Narrative

Client:	Tetra Tech, NUS
Site:	Cecil Field CTO168
Project No.:	WORK RELEASE 168CF-4
Job No.:	F11114
Report Date:	October 31, 2001

2 samples were collected on October 04, 2001 and received on October 05, 2001. No trip Blank accompanied the shipment, although VOC analysis was requested. A listing of the samples and analyses requested is presented in the Internal Sample Tracking Chronicle. Samples were properly cooled and intact. A listing of the Laboratory Sample ID, Client Sample ID, and dates of collection are presented in the Results Summary section of this report.

All method specified holding times, calibrations and quality control performance criteria were met with the following exceptions:

VOC/EPA 8260:

- Bromomethane (Methyl Bromide) in the Initial Calibration yielded high %RSD. Grand Mean of entire calibration passed method requirements, Bromomethane not detected in the samples, data acceptable.

Base-Neutral Extractables/EPA 8270C:

- Samples analyzed on the day of the initial calibration.

TPH/FL-PRO:

- MS/MSD OP3981 failed recovery criteria due to high initial concentration of analyte. Blank Spike passed, Method Blank free of interference, data acceptable.

Metals/EPA 6010B:

- Sample duplicate and MS/MSD failed acceptance criteria. Blank Spike passed, Method Blank free of interference, data acceptable.
- Serial Dilution data indicated possible matrix interference. Blank Spike passed, Method Blank free of interference, data acceptable.

Accutest Laboratories Southeast, Inc. certifies that this report meets the project requirements for analytical data produced for the samples as received at the Accutest Laboratories Southeast location as stated in the Analytical Task Order and the COC. In addition, Accutest Laboratories Southeast, Inc. certifies that data as reported meet the Data Quality Objectives for precision, accuracy and completeness as specified in the Accutest Laboratories Southeast, Inc. Quality Manual for other that conditions detailed above. It is recommended by Accutest Laboratories Southeast, Inc. that this report is to be used in its entirety. Accutest Laboratories Southeast, Inc. is not responsible for any assumptions of data quality if partial data packages are used to interpret data. The Accutest Laboratories Southeast, Inc. Laboratory Director as verified by the signature on the front page has authorized release of this report.

Narrative prepared by:

Svetlana Izosimova, Ph.D., QA Officer

Date: October 31, 2001

001

Accutest Laboratories

Internal Sample Tracking Chronicle

Tetra Tech, NUS

Job No: F11114

Cecil Field CTO168
Project No: WORK RELEASE 168CF-4

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
F11114-1 Collected: 04-OCT-01 12:09 By: MWD Received: 05-OCT-01 By: SMG CEF-312-SB-B002-04						
F11114-1	EPA 160.3 M	09-OCT-01	EP			%SOL
F11114-1	SW846 6010B	09-OCT-01 16:50	JK	09-OCT-01	JK	AS,CD,CR,PB
F11114-1	SW846 8270C	11-OCT-01 20:48	ME	09-OCT-01	NJ	AB8270PPL+
F11114-1	FLORIDA-PRO	15-OCT-01 22:24	ME	11-OCT-01	NJ	FLPRO
F11114-1	SW846 8260B	17-OCT-01 18:22	NAF			V8260PPL+
F11114-2 Collected: 04-OCT-01 13:15 By: MWD Received: 05-OCT-01 By: SMG CEF-824-SB-B003-03						
F11114-2	EPA 160.3 M	09-OCT-01	EP			%SOL
F11114-2	SW846 6010B	09-OCT-01 17:22	JK	09-OCT-01	JK	AS,CD,CR,PB
F11114-2	SW846 8270C	11-OCT-01 21:19	ME	09-OCT-01	NJ	AB8270PPL+
F11114-2	FLORIDA-PRO	12-OCT-01 22:56	ME	11-OCT-01	NJ	FLPRO
F11114-2	SW846 8260B	17-OCT-01 19:07	NAF			V8260PPL+

QA Signature

TABLE OF CONTENTS
FULL LABORATORY DATA DELIVERABLES

1. **TITLE / COVER PAGE**

2. **CASE NARRATIVE**

3. **TABLE OF CONTENTS**

4. **RESULTS SUMMARY**

5. **CUSTODY DOCUMENTATION**

6. **GC/MS SUPPORT DATA (SW846- METHOD 8260)**

6.1	Sample Result Summary	VOC.01
6.2	Surrogate Recoveries Summary	VOC.02
6.3	Matrix Spike / Matrix Spike Duplicate / Blank Spike Summary	VOC.03
6.4	Method Blank Summary	VOC.04
6.5	Tune Summary	VOC.05
6.6	Initial Calibration Summary	VOC.06
6.7	Continuing Calibration Summary	VOC.07
6.8	Internal Standard / RT Summary	VOC.08
6.9	Sequence Log Summary	VOC.09

7. **GC/MS SUPPORT DATA (SW846- METHOD 8270)**

7.1	Sample Result Summary	SVOC.01
7.2	Surrogate Recoveries Summary	SVOC.02
7.3	Matrix Spike / Matrix Spike Duplicate / Blank Spike Summary	SVOC.03
7.4	Method Blank Summary	SVOC.04
7.5	Tune Summary	SVOC.05
7.6	Initial Calibration Summary	SVOC.06
7.7	Continuing Calibration Summary	SVOC.07
7.8	Internal Standard / RT Summary	SVOC.08
7.9	Sequence Log Summary	SVOC.09

8. **GC SUPPORT DATA (Method FL PRO)**

8.1	Sample Result Summary	SGC.01
8.2	Surrogate Recoveries Summary	SGC.02
8.3	Matrix Spike / Matrix Spike Duplicate / Blank Spike Summary	SGC.03
8.4	Method Blank Summary	SGC.04
8.5	Initial Calibration Summary	SGC.05
8.6	Continuing Calibration Summary	SGC.06
8.7	Sequence Log Summary	SGC.07

9. **Metals SUPPORT DATA**

9.1	Sample Result Summary	MET.01

9.2	Initial Calibration	MET.02
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9.4	Initial and Continuing Calibration	MET.04
9.5	Prep. Blank Summary	MET.05
9.6	ICP Interference Check	MET.06
9.7	Spike Sample Recovery	MET.07
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9.10	Laboratory Control Sample Summary	MET.10
9.11	Prep. Log Summary	MET.11
9.12	Sequence Run Log Summary	MET.12
9.13	Raw Data	MET.13

Accutest Laboratories

Sample Summary

Tetra Tech, NUS

Job No: F11114

Cecil Field CTO168
Project No: WORK RELEASE 168CF-4

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F11114-1	10/04/01	12:09 MWD	10/05/01	SO	Soil	CEF-312-SB-B002-04
F11114-2	10/04/01	13:15 MWD	10/05/01	SO	Soil	CEF-824-SB-B003-03

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
Method:	SW846 8260B	**Percent Solids:**	90.8
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K007034.D	1	10/17/01	NAF	n/a	n/a	VK235
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	11	ug/kg	
107-13-1	Acrylonitrile	ND	11	ug/kg	
71-43-2	Benzene	ND	5.7	ug/kg	
75-27-4	Bromodichloromethane	ND	5.7	ug/kg	
75-25-2	Bromoform	ND	5.7	ug/kg	
108-90-7	Chlorobenzene	ND	5.7	ug/kg	
75-00-3	Chloroethane	ND	5.7	ug/kg	
67-66-3	Chloroform	ND	5.7	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	11	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.7	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.7	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.7	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.7	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.7	ug/kg	
124-48-1	Dibromochloromethane	ND	5.7	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.7	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.7	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.7	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.7	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.7	ug/kg	
100-41-4	Ethylbenzene	ND	5.7	ug/kg	
74-83-9	Methyl bromide	ND	5.7	ug/kg	
74-87-3	Methyl chloride	ND	5.7	ug/kg	
75-09-2	Methylene chloride	ND	11	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.7	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.7	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.7	ug/kg	
108-88-3	Toluene	ND	5.7	ug/kg	
79-01-6	Trichloroethylene	ND	5.7	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.7	ug/kg	
75-01-4	Vinyl chloride	ND	5.7	ug/kg	
1330-20-7	Xylene (total)	ND	17	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
Method:	SW846 8260B	**Percent Solids:**	90.8
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-125%
2037-26-5	Toluene-D8	97%		75-125%
460-00-4	4-Bromofluorobenzene	97%		72-137%
17060-07-0	1,2-Dichloroethane-D4	107%		68-125%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	90.8
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L009152.D	1	10/11/01	ME	10/09/01	OP3976	SL522
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	360	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	360	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	360	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	910	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	910	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	730	ug/kg	
88-75-5	2-Nitrophenol	ND	360	ug/kg	
100-02-7	4-Nitrophenol	ND	910	ug/kg	
87-86-5	Pentachlorophenol	ND	910	ug/kg	
108-95-2	Phenol	ND	360	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	360	ug/kg	
83-32-9	Acenaphthene	ND	360	ug/kg	
208-96-8	Acenaphthylene	ND	360	ug/kg	
120-12-7	Anthracene	ND	360	ug/kg	
92-87-5	Benzidine	ND	910	ug/kg	
56-55-3	Benzo(a)anthracene	ND	360	ug/kg	
50-32-8	Benzo(a)pyrene	ND	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	360	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	360	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	360	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	360	ug/kg	
85-68-7	Butyl benzyl phthalate	235	360	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	360	ug/kg	
106-47-8	4-Chloroaniline	ND	360	ug/kg	
218-01-9	Chrysene	ND	360	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	360	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	360	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	360	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	360	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	360	ug/kg	
122-66-7	1,2-Diphenylhydrazine	ND	360	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	360	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	360	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	360	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	360	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	730	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	90.8
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	360	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	360	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	360	ug/kg	
84-66-2	Diethyl phthalate	ND	360	ug/kg	
131-11-3	Dimethyl phthalate	ND	360	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	360	ug/kg	
206-44-0	Fluoranthene	ND	360	ug/kg	
86-73-7	Fluorene	ND	360	ug/kg	
118-74-1	Hexachlorobenzene	ND	360	ug/kg	
87-68-3	Hexachlorobutadiene	ND	360	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	ug/kg	
67-72-1	Hexachloroethane	ND	360	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	360	ug/kg	
78-59-1	Isophorone	ND	360	ug/kg	
91-20-3	Naphthalene	ND	360	ug/kg	
98-95-3	Nitrobenzene	ND	360	ug/kg	
62-75-9	N-Nitrosodimethylamine	ND	360	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	360	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	360	ug/kg	
85-01-8	Phenanthrene	ND	360	ug/kg	
129-00-0	Pyrene	ND	360	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	360	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		37-125%
4165-62-2	Phenol-d5	75%		42-125%
118-79-6	2,4,6-Tribromophenol	90%		52-125%
4165-60-0	Nitrobenzene-d5	76%		40-125%
321-60-8	2-Fluorobiphenyl	79%		42-125%
1718-51-0	Terphenyl-d14	91%		45-135%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
62238-37-3	3-Penten-1-ol, 2-methyl-	3.15	1300	ug/kg	JN
4127-45-1	Cyclopropane, 1,1,2-trimethyl-	3.52	1300	ug/kg	JN
294-62-2	Cyclododecane	10.99	460	ug/kg	JN
2437-56-1	1-Tridecene	11.81	520	ug/kg	JN
1120-36-1	1-Tetradecene	12.59	480	ug/kg	JN
	unknown hydrocarbon	17.07	760	ug/kg	J

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	90.8
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
3386-33-2	Octadecane, 1-chloro-	17.16	3000	ug/kg	JN
	unknown	17.26	4600	ug/kg	J
630-07-9	Pentatriacontane	17.31	1700	ug/kg	JN
54833-48-6	Heptadecane, 2,6,10,15-tetramethyl-	17.39	930	ug/kg	JN
7098-22-8	Tetratetracontane	17.52	9200	ug/kg	JN
638-67-5	Tricosane	17.62	3100	ug/kg	JN
7098-21-7	Tritetracontane	17.83	12000	ug/kg	JN
629-97-0	Docosane	17.97	570	ug/kg	JN
	Total TIC, Semi-Volatile		39920	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	90.8
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	OP17550.D	20	10/15/01	ME	10/11/01	OP3981	GOP674
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	549	180	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		66-130%

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-SB-B002-04		
Lab Sample ID:	F11114-1	**Date Sampled:**	10/04/01
Matrix:	SO - Soil	**Date Received:**	10/05/01
		Percent Solids:	90.8
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.42 B	0.55	0.35	mg/kg	1	10/09/01	10/09/01	JK	SW846 6010B
Cadmium	0.36 B	0.44	0.030	mg/kg	1	10/09/01	10/09/01	JK	SW846 6010B
Chromium	7.5	1.1	0.039	mg/kg	1	10/09/01	10/09/01	JK	SW846 6010B
Lead	11.7	11	0.13	mg/kg	1	10/09/01	10/09/01	JK	SW846 6010B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

TETRA TECH NUS, INC. CHAIN OF CUSTODY NUMBER F168 - 100401 PAGE 1 OF 1

PROJECT NO: N3996	SITE NAME: B.312 OWS / B.824 OWS
SAMPLERS (SIGNATURE)	Mervin W. Dale
PROJECT MANAGER AND PHONE NUMBER	PAUL CALLIGAN 850 385 9899
FIELD OPERATIONS LEADER AND PHONE NUMBER	MERV DALE 904 281 0400
CARRIER/WAYBILL NUMBER	Fedex 8287 2074 0730
LABORATORY NAME AND CONTACT:	ACCUTEST LINDA WILLIAMS
ADDRESS	4405 VINELAND RD Ste C-15
CITY, STATE	ORLANDO FL 32811

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

	DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	PPVOC W/ TICS SW846 8260B	TPH FL-PRO	PAHs SW846 8270C	PAHs SW846 8310	TOTAL METALS* SW846 6010B				COMMENTS
			CONTAINER TYPE PLASTIC (P) or GLASS (G)				P	G	G	G	G				
			PRESERVATIVE USED				None	None	None	None	None				
1)	10/4	1209	CEF-312-SB-B002-04	SO	G	6	3	1	1	~~1~~	1				Cool to 4°C
2)	10/4	1315	CEF-824-SB-B003-03	SO	G	6	3	1	1	~~1~~	1				
										MW					WR 168CF-4
															* As, Cd, Cr, Pb
															Note: PAHs deleted by MW Dale

1. RELINQUISHED BY Mervin W. Dale	DATE 10/4/01	TIME 1600	1. RECEIVED BY Fedex	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY Thomas Bullard	DATE 10/5/01	TIME 1000
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS 3.2°

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

023

APPENDIX I

FIXED-BASED LABORATORY SEDIMENT DATA SHEETS

Tetra Tech NUS, Inc. **Internal Correspondence**

TO: **Mr. Paul Calligan** **DATE: October 9, 2001**

FROM: **Suzanne I. Smith** **CC: File**

SUBJECT: **Organic Data Validation – VOC, SVOC, TPH, and select Metals**
CTO168 – NAS Cecil Field
SDG F10810

SAMPLES: **2/Soil**

CEF312SDC00101 **CEF312SDC00201**

OVERVIEW

The sample set for CTO168 SDG F10810; Naval Air Station Cecil Field, Jacksonville, Florida consists of two (2) soil environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), Total Petroleum Hydrocarbons (TPH), and select Metals.

The samples were collected by Tetra Tech NUS on September 5, 2001 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 Method 8260B (VOCs), SW-846 8270C (SVOCs), FDEP FL-PRO (TPH), and SW-846 6010B (Metals) analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
  • Laboratory method/field quality control blank results
  • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

Note: Both samples had to be diluted for SVOC and TPH analysis due to matrix interference so some detection limits may be elevated.

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Volatile Fraction

All quality control criteria were met for this fraction.

Semivolatile Fraction

All quality control criteria were met for this fraction.

TPH Fraction

All quality control criteria were met for this fraction.

Metal Fraction

All quality control criteria were met for this fraction.

Blank Analysis

Analyte	Maximum Concentration (mg/kg)	Action Level (mg/kg)
Cadmium	0.062	0.31
Chromium	0.13	0.65

No action was taken due to blank contamination.

Executive Summary

Laboratory performance: No factors affected data quality.

Other factors affecting data quality: No other factors affected data quality.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

Suzanne J. Smith

Suzanne J. Smith

Project Chemist
Tetra Tech NUS, Inc.

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10810

SAMPLE NUMBER:	CEF312SDC00101	CEF312SDC00201		
SAMPLE DATE:	09/05/01	09/05/01	/ /	/ /
LABORATORY ID:	F10810-1	F10810-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	80.0 %	72.9 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	4.1			0.97								
CADMIUM	0.71			1.9								
CHROMIUM	8.8			13.6								
LEAD	25.7			48.6								

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10810

SAMPLE NUMBER:	CEF312SDC00101	CEF312SDC00201		
SAMPLE DATE:	09/05/01	09/05/01	/ /	/ /
LABORATORY ID:	F10810-1	F10810-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	80.0 %	72.9 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	1700	U		1800	U							
1,2-DICHLOROBENZENE	1700	U		1800	U							
1,3-DICHLOROBENZENE	1700	U		1800	U							
1,4-DICHLOROBENZENE	1700	U		1800	U							
2,2'-OXYBIS(1-CHLOROPROPANE)	1700	U		1800	U							
2,4,6-TRICHLOROPHENOL	1700	U		1800	U							
2,4-DICHLOROPHENOL	1700	U		1800	U							
2,4-DIMETHYLPHENOL	4200	U		4500	U							
2,4-DINITROPHENOL	4200	U		4500	U							
2,4-DINITROTOLUENE	1700	U		1800	U							
2,6-DINITROTOLUENE	1700	U		1800	U							
2-CHLORONAPHTHALENE	1700	U		1800	U							
2-CHLOROPHENOL	1700	U		1800	U							
2-NITROPHENOL	1700	U		1800	U							
4,6-DINITRO-2-METHYLPHENOL	3400	U		3600	U							
4-BROMOPHENYL PHENYL ETHER	1700	U		1800	U							
4-CHLORO-3-METHYLPHENOL	1700	U		1800	U							
4-CHLOROANILINE	1700	U		1800	U							
4-CHLOROPHENYL PHENYL ETHER	1700	U		1800	U							
4-NITROPHENOL	4200	U		4500	U							
ACENAPHTHENE	6470			1800	U							
ACENAPHTHYLENE	1700	U		1800	U							
ANTHRACENE	10800			1800	U							
BENZO(A)ANTHRACENE	20000			1800	U							
BENZO(A)PYRENE	17200			1800	U							
BENZO(B)FLUORANTHENE	22100			828	J	P						
BENZO(G,H,I)PERYLENE	16800			967	J	P						
BENZO(K)FLUORANTHENE	7080			1800	U							
BIS(2-CHLOROETHOXY)METHANE	1700	U		1800	U							
BIS(2-CHLOROETHYL)ETHER	1700	U		1800	U							
BIS(2-ETHYLHEXYL)PHTHALATE	1700	U		1800	U							
BUTYL BENZYL PHTHALATE	1700	U		1800	U							

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10810

SAMPLE NUMBER:	CEF312SDC00101	CEF312SDC00201		
SAMPLE DATE:	09/05/01	09/05/01	/ /	/ /
LABORATORY ID:	F10810-1	F10810-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	80.0 %	72.9 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
CHRYSENE	17800			1800	U							
DI-N-BUTYL PHTHALATE	1700	U		1800	U							
DI-N-OCTYL PHTHALATE	1700	U		1800	U							
DIBENZO(A,H)ANTHRACENE	3250			1800	U							
DIETHYL PHTHALATE	1700	U		1800	U							
DIMETHYL PHTHALATE	1700	U		1800	U							
FLUORANTHENE	47500			1800	U							
FLUORENE	5830			1800	U							
HEXACHLOROBENZENE	1700	U		1800	U							
HEXACHLOROBUTADIENE	1700	U		1800	U							
HEXACHLOROCYCLOPENTADIENE	1700	U		1800	U							
HEXACHLOROETHANE	1700	U		1800	U							
INDENO(1,2,3-CD)PYRENE	18300			719	J	P						
ISOPHORONE	1700	U		1800	U							
N-NITROSO-DI-N-PROPYLAMINE	1700	U		1800	U							
N-NITROSODIMETHYLAMINE	1700	U		1800	U							
N-NITROSODIPHENYLAMINE	1700	U		1800	U							
NAPHTHALENE	3960			1800	U							
NITROBENZENE	1700	U		1800	U							
PENTACHLOROPHENOL	4200	U		4500	U							
PHENANTHRENE	38900			1800	U							
PHENOL	1700	U		1800	U							
PYRENE	30900			1800	U							

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10810

SAMPLE NUMBER:	CEF312SDC00101	CEF312SDC00201		
SAMPLE DATE:	09/05/01	09/05/01	/ /	/ /
LABORATORY ID:	F10810-1	F10810-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	80.0 %	72.9 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	786			152								

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10810

SAMPLE NUMBER:	CEF312SDC00101	CEF312SDC00201		
SAMPLE DATE:	09/05/01	09/05/01	/ /	/ /
LABORATORY ID:	F10810-1	F10810-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	80.0 %	72.9 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	5.7	U		6.3	U							
1,1,2,2-TETRACHLOROETHANE	5.7	U		6.3	U							
1,1,2-TRICHLOROETHANE	5.7	U		6.3	U							
1,1-DICHLOROETHANE	5.7	U		6.3	U							
1,1-DICHLOROETHENE	5.7	U		6.3	U							
1,2-DICHLOROBENZENE	5.7	U		6.3	U							
1,2-DICHLOROETHANE	5.7	U		6.3	U							
1,2-DICHLOROPROPANE	5.7	U		6.3	U							
1,3-DICHLOROBENZENE	5.7	U		6.3	U							
1,4-DICHLOROBENZENE	5.7	U		6.3	U							
2-CHLOROETHYL VINYL ETHER	11	U		13	U							
ACROLEIN	11	U		13	U							
ACRYLONITRILE	11	U		13	U							
BENZENE	5.7	U		6.3	U							
BROMODICHLOROMETHANE	5.7	U		6.3	U							
BROMOFORM	5.7	U		6.3	U							
BROMOMETHANE	5.7	U		6.3	U							
CARBON TETRACHLORIDE	5.7	U		6.3	U							
CHLOROBENZENE	5.7	U		6.3	U							
CHLORODIBROMOMETHANE	5.7	U		6.3	U							
CHLOROETHANE	5.7	U		6.3	U							
CHLOROFORM	5.7	U		6.3	U							
CHLOROMETHANE	5.7	U		6.3	U							
CIS-1,3-DICHLOROPROPENE	5.7	U		6.3	U							
ETHYLBENZENE	5.7	U		6.3	U							
METHYLENE CHLORIDE	11	U		13	U							
TETRACHLOROETHENE	5.7	U		6.3	U							
TOLUENE	5.7	U		6.3	U							
TOTAL XYLENES	17	U		19	U							
TRANS-1,2-DICHLOROETHENE	5.7	U		6.3	U							
TRANS-1,3-DICHLOROPROPENE	5.7	U		6.3	U							
TRICHLOROETHENE	5.7	U		6.3	U							

CTO168-NAS CECIL FIELD
SOIL DATA
Accutest, NJ
SDG: F10810

SAMPLE NUMBER:	CEF312SDC00101	CEF312SDC00201		
SAMPLE DATE:	09/05/01	09/05/01	/ /	/ /
LABORATORY ID:	F10810-1	F10810-2		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	80.0 %	72.9 %	100.0 %	100.0 %
UNITS:	UG/KG	UG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRICHLOROFLUOROMETHANE	5.7	U		6.3	U							
VINYL CHLORIDE	5.7	U		6.3	U							

Accutest Laboratories

Sample Summary

Tetra Tech, NUS

Job No: F10810

Cecil Field CTO168
Project No: WORK RELEASE 168CF-4

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F10810-1	09/05/01	13:25 JZ	09/06/01	SO	Soil	CEF312SDC00101
F10810-2	09/05/01	13:15 JZ	09/06/01	SO	Soil	CEF312SDC00201

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8260B	**Percent Solids:**	80.0
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K006678.D	1	09/13/01	NAF	n/a	n/a	VK214
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	11	ug/kg	
107-13-1	Acrylonitrile	ND	11	ug/kg	
71-43-2	Benzene	ND	5.7	ug/kg	
75-27-4	Bromodichloromethane	ND	5.7	ug/kg	
75-25-2	Bromoform	ND	5.7	ug/kg	
108-90-7	Chlorobenzene	ND	5.7	ug/kg	
75-00-3	Chloroethane	ND	5.7	ug/kg	
67-66-3	Chloroform	ND	5.7	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	11	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.7	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.7	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.7	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.7	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.7	ug/kg	
124-48-1	Dibromochloromethane	ND	5.7	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.7	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.7	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.7	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.7	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.7	ug/kg	
100-41-4	Ethylbenzene	ND	5.7	ug/kg	
74-83-9	Methyl bromide	ND	5.7	ug/kg	
74-87-3	Methyl chloride	ND	5.7	ug/kg	
75-09-2	Methylene chloride	ND	11	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.7	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.7	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.7	ug/kg	
108-88-3	Toluene	ND	5.7	ug/kg	
79-01-6	Trichloroethylene	ND	5.7	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.7	ug/kg	
75-01-4	Vinyl chloride	ND	5.7	ug/kg	
1330-20-7	Xylene (total)	ND	17	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8260B	**Percent Solids:**	80.0
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-125%
2037-26-5	Toluene-D8	97%		75-125%
460-00-4	4-Bromofluorobenzene	100%		72-137%
17060-07-0	1,2-Dichloroethane-D4	110%		68-125%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	80.0
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W006615.D	4	09/18/01	ME	09/10/01	OP3820	SW358
Run #2	L009032.D	20	09/19/01	ME	09/10/01	OP3820	SL516

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	1700	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1700	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1700	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	4200	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	4200	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	3400	ug/kg	
88-75-5	2-Nitrophenol	ND	1700	ug/kg	
100-02-7	4-Nitrophenol	ND	4200	ug/kg	
87-86-5	Pentachlorophenol	ND	4200	ug/kg	
108-95-2	Phenol	ND	1700	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1700	ug/kg	
83-32-9	Acenaphthene	6470	1700	ug/kg	
208-96-8	Acenaphthylene	ND	1700	ug/kg	
120-12-7	Anthracene	10800	1700	ug/kg	
56-55-3	Benzo(a)anthracene	20000	1700	ug/kg	
50-32-8	Benzo(a)pyrene	17200	1700	ug/kg	
205-99-2	Benzo(b)fluoranthene	22100 [a]	8500	ug/kg	
191-24-2	Benzo(g,h,i)perylene	16800	1700	ug/kg	
207-08-9	Benzo(k)fluoranthene	7080	1700	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	1700	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	1700	ug/kg	
91-58-7	2-Chloronaphthalene	ND	1700	ug/kg	
106-47-8	4-Chloroaniline	ND	1700	ug/kg	
218-01-9	Chrysene	17800	1700	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	1700	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	1700	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	1700	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1700	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1700	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1700	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1700	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	1700	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	1700	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	3250	1700	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	1700	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	1700	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	80.0
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
84-66-2	Diethyl phthalate	ND	1700	ug/kg	
131-11-3	Dimethyl phthalate	ND	1700	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1700	ug/kg	
206-44-0	Fluoranthene	47500 [a]	8500	ug/kg	
86-73-7	Fluorene	5830	1700	ug/kg	
118-74-1	Hexachlorobenzene	ND	1700	ug/kg	
87-68-3	Hexachlorobutadiene	ND	1700	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	1700	ug/kg	
67-72-1	Hexachloroethane	ND	1700	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	18300	1700	ug/kg	
78-59-1	Isophorone	ND	1700	ug/kg	
91-20-3	Naphthalene	3960	1700	ug/kg	
98-95-3	Nitrobenzene	ND	1700	ug/kg	
62-75-9	N-Nitrosodimethylamine	ND	1700	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	1700	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1700	ug/kg	
85-01-8	Phenanthrene	38900 [a]	8500	ug/kg	
129-00-0	Pyrene	30900 [a]	8500	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	71%	68%	37-125%
4165-62-2	Phenol-d5	81%	84%	42-125%
118-79-6	2,4,6-Tribromophenol	87%	74%	52-125%
4165-60-0	Nitrobenzene-d5	74%	71%	40-125%
321-60-8	2-Fluorobiphenyl	83%	80%	42-125%
1718-51-0	Terphenyl-d14	94%	82%	45-135%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
132-65-0	Dibenzothiophene	10.77	2500	ug/kg	JN
832-69-9	Phenanthrene, 1-methyl-	11.89	2500	ug/kg	JN
832-64-4	Phenanthrene, 4-methyl-	11.94	3600	ug/kg	JN
203-64-5	4H-Cyclopenta[def]phenanthrene	12.06	5000	ug/kg	JN
84-65-1	9,10-Anthracenedione	12.47	3700	ug/kg	JN
243-17-4	11H-Benzo[b]fluorene	14.24	2[illegible]00	ug/kg	JN
1090-13-7	5,12-Naphthacenedione	17.21	2300	ug/kg	JN
205-82-3	Benzo[j]fluoranthene	17.92	4400	ug/kg	JN
198-55-0	Perylene	18.20	13000	ug/kg	JN

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	80.0
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
3343-10-0	Benz[j]aceanthrylene, 3-methyl-	18.66	2100	ug/kg	JN
	unknown	19.04	2200	ug/kg	J
191-26-4	Dibenzo[def,mno]chrysene	19.81	4700	ug/kg	JN
215-58-7	Benzo[b]triphenylene	20.13	3700	ug/kg	JN
	1,2:7,8-Dibenzphenanthrene	20.16	2200	ug/kg	J
	1,12-Benzperylene	20.47	4900	ug/kg	J
	Total TIC, Semi-Volatile		58900	ug/kg	

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	80.0
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP17037.D	40	09/12/01	SKW	09/10/01	OP3819	GOP658
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	786	400	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	0% [a]		66-130%

(a) Outside control limits due to dilution.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00101		
Lab Sample ID:	F10810-1	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
		Percent Solids:	80.0
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method
Arsenic	4.1	0.61	0.38	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B
Cadmium	0.71	0.48	0.033	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B
Chromium	8.8	1.2	0.043	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B
Lead	25.7	12	0.14	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00201		
Lab Sample ID:	F10810-2	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8260B	**Percent Solids:**	72.9
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K006679.D	1	09/13/01	NAF	n/a	n/a	VK214
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	13	ug/kg	
107-13-1	Acrylonitrile	ND	13	ug/kg	
71-43-2	Benzene	ND	6.3	ug/kg	
75-27-4	Bromodichloromethane	ND	6.3	ug/kg	
75-25-2	Bromoform	ND	6.3	ug/kg	
108-90-7	Chlorobenzene	ND	6.3	ug/kg	
75-00-3	Chloroethane	ND	6.3	ug/kg	
67-66-3	Chloroform	ND	6.3	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	13	ug/kg	
56-23-5	Carbon tetrachloride	ND	6.3	ug/kg	
75-34-3	1,1-Dichloroethane	ND	6.3	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	6.3	ug/kg	
107-06-2	1,2-Dichloroethane	ND	6.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	6.3	ug/kg	
124-48-1	Dibromochloromethane	ND	6.3	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	6.3	ug/kg	
541-73-1	m-Dichlorobenzene	ND	6.3	ug/kg	
95-50-1	o-Dichlorobenzene	ND	6.3	ug/kg	
106-46-7	p-Dichlorobenzene	ND	6.3	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	6.3	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	6.3	ug/kg	
100-41-4	Ethylbenzene	ND	6.3	ug/kg	
74-83-9	Methyl bromide	ND	6.3	ug/kg	
74-87-3	Methyl chloride	ND	6.3	ug/kg	
75-09-2	Methylene chloride	ND	13	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	6.3	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.3	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	6.3	ug/kg	
127-18-4	Tetrachloroethylene	ND	6.3	ug/kg	
108-88-3	Toluene	ND	6.3	ug/kg	
79-01-6	Trichloroethylene	ND	6.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.3	ug/kg	
75-01-4	Vinyl chloride	ND	6.3	ug/kg	
1330-20-7	Xylene (total)	ND	19	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00201		
Lab Sample ID:	F10810-2	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8260B	**Percent Solids:**	72.9
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-125%
2037-26-5	Toluene-D8	97%		75-125%
460-00-4	4-Bromofluorobenzene	101%		72-137%
17060-07-0	1,2-Dichloroethane-D4	111%		68-125%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00201		
Lab Sample ID:	F10810-2	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	72.9
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	W006612.D	4	09/17/01	ME	09/10/01	OP3820	SW358
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	1800	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1800	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1800	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	4500	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	4500	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	3600	ug/kg	
88-75-5	2-Nitrophenol	ND	1800	ug/kg	
100-02-7	4-Nitrophenol	ND	4500	ug/kg	
87-86-5	Pentachlorophenol	ND	4500	ug/kg	
108-95-2	Phenol	ND	1800	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1800	ug/kg	
83-32-9	Acenaphthene	ND	1800	ug/kg	
208-96-8	Acenaphthylene	ND	1800	ug/kg	
120-12-7	Anthracene	ND	1800	ug/kg	
56-55-3	Benzo(a)anthracene	ND	1800	ug/kg	
50-32-8	Benzo(a)pyrene	ND	1800	ug/kg	
205-99-2	Benzo(b)fluoranthene	828	1800	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	967	1800	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	1800	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	1800	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	1800	ug/kg	
91-58-7	2-Chloronaphthalene	ND	1800	ug/kg	
106-47-8	4-Chloroaniline	ND	1800	ug/kg	
218-01-9	Chrysene	ND	1800	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	1800	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	1800	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	1800	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1800	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1800	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1800	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1800	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	1800	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	1800	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	1800	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	1800	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	1800	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00201		
Lab Sample ID:	F10810-2	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	72.9
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
84-66-2	Diethyl phthalate	ND	1800	ug/kg	
131-11-3	Dimethyl phthalate	ND	1800	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1800	ug/kg	
206-44-0	Fluoranthene	ND	1800	ug/kg	
86-73-7	Fluorene	ND	1800	ug/kg	
118-74-1	Hexachlorobenzene	ND	1800	ug/kg	
87-68-3	Hexachlorobutadiene	ND	1800	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	1800	ug/kg	
67-72-1	Hexachloroethane	ND	1800	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	719	1800	ug/kg	J
78-59-1	Isophorone	ND	1800	ug/kg	
91-20-3	Naphthalene	ND	1800	ug/kg	
98-95-3	Nitrobenzene	ND	1800	ug/kg	
62-75-9	N-Nitrosodimethylamine	ND	1800	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	1800	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1800	ug/kg	
85-01-8	Phenanthrene	ND	1800	ug/kg	
129-00-0	Pyrene	ND	1800	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1800	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		37-125%
4165-62-2	Phenol-d5	80%		42-125%
118-79-6	2,4,6-Tribromophenol	90%		52-125%
4165-60-0	Nitrobenzene-d5	70%		40-125%
321-60-8	2-Fluorobiphenyl	78%		42-125%
1718-51-0	Terphenyl-d14	98%		45-135%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
629-78-7	Heptadecane	17.21	4100	ug/kg	JN
112-95-8	Eicosane	17.52	6200	ug/kg	JN
	Total TIC, Semi-Volatile		10300	ug/kg	

(a) Dilution required due to matrix interference.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00201		
Lab Sample ID:	F10810-2	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
Method:	FLORIDA-PRO SW846 3550B	**Percent Solids:**	72.9
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP17038.D	4	09/12/01	SKW	09/10/01	OP3819	GOP658
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	152	46	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		65-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF312SDC00201		
Lab Sample ID:	F10810-2	**Date Sampled:**	09/05/01
Matrix:	SO - Soil	**Date Received:**	09/06/01
		Percent Solids:	72.9
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method
Arsenic	0.97	0.63	0.40	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B
Cadmium	1.9	0.50	0.034	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B
Chromium	13.6	1.2	0.044	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B
Lead	48.6	12	0.15	mg/kg	1	09/13/01	09/24/01	JK	SW846 6010B

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

DN34 6.4.6.01

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 1

PROJECT NO: 3996	SITE NAME: 312	PROJECT MANAGER AND PHONE NUMBER: P. Calligan 8503858899	LABORATORY NAME AND CONTACT: Accutest L. Williams
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: M. Dale 9042810400	ADDRESS: 4405 Vineland Rd C-15
		CARRIER/WAYBILL NUMBER	CITY, STATE: Orlando, FL

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)

PRESERVATIVE USED

DATE YEAR	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: 8260B	FL-PRO	8270C	6010B					COMMENTS
9/5/01	1325	CEF312SDC00101	Soil	G	7	3	1	1	2					
	1315	CEF312SDC00201	Soil	G	7	3	1	1	2					
														WR168CF-4

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	9/5/01	1700	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

APPENDIX J

FIXED-BASED LABORATORY WATER DATA SHEETS

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Paul Calligan

DATE: January 28, 2002

FROM: Michael T. Akers

CC: File

SUBJECT: Organic and Inorganic Data Validation – VOCs, SVOCs, TPH, and Select Metals
CTO168 – NAS Cecil Field
SDG F11771

SAMPLES: 7/Aqueous

CEF-312-GW-02-01	CEF-312LS-DU01-GW-01
CEF-312LS-GW-01S-01	CEF-312LS-GW-1SA-01
CEF-312LS-GW-4S-01	CEF-312LS-GW-3S-01
CEF-312LS-GW-11-01	

OVERVIEW

The sample set for CTO201 SDG F11771, Naval Air Station Cecil Field, Jacksonville, Florida consists of seven (7) aqueous environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), Total Petroleum Hydrocarbons (TPH), and select Metals. The samples were also analyzed for Volatile and Semivolatile Tentatively Identified Compounds (TICs). One set of duplicates was analyzed in conjunction with this SDG: CEF-312LS-DU01-GW-01 and CEF-312LS-GW-4S-01.

The samples were collected by Tetra Tech NUS on December 12, 2001 and analyzed by Accutest Laboratories Southeast. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to SW-846 Method 8260B (VOCs), SW-846 Method 8270C (SVOCs), FDEP FL-PRO (TPH), and SW-846 6010B (Metals) analytical and reporting protocols. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
  • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

RECEIVED
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JACKSONVILLE FL

Volatiles Fraction

All quality control criteria were met for this fraction. Some TICs were detected, see appropriate Form 1s.

Semivolatile Fraction

All quality control criteria were met for this fraction. Some TICs were detected, see appropriate Form 1s.

Total Petroleum Hydrocarbon Fraction

All quality control criteria were met for this fraction.

Metals Fraction

Laboratory Blank Analysis
Affected samples: CEF-312-GW-02-01; CEF-312LS-DU01-GW-01; CEF-312LS-GW-01S-01; CEF-312LS-DU01-GW-01

Analyte	Maximum Concentration (ug/L)	Action Level (ug/L)
Lead	2.3	11.5

The action level is set at 5x the maximum concentration found in the associated blanks. Any detections between the IDL and the AL are qualified "U" due to blank contamination.

All other quality control criteria were met for this fraction.

Field Duplicate Summary

Analyte	CEF-312LS-GW-3S-01 (ug/L)	CEF-312LS-DU01-GW-01 (ug/L)	RPD
Ethylbenzene	5.3	5.4	1.9
Total Xylenes	12.7	12.9	1.6
Naphthalene	19.1	ND	N/A
TPH	1.89(mg/L)	1.94(mg/L)	2.6

Executive Summary

Laboratory performance: Lead was qualified as a nondetect "U" in samples CEF-312-GW-02-01; CEF-312LS-DU01-GW-01; CEF-312LS-GW-01S-01; and CEF-312LS-DU01-GW-01. Naphthalene was qualified as estimated "J" in sample CEF-312LS-GW-3S-01 due to field duplicate imprecision.

Other factors affecting data quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October, 1999), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

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

Michael T. Akers
Project Chemist
Tetra Tech NUS, Inc.

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312-GW-02-01			CEF-312LS-DU01-GW-01			CEF-312LS-GW-01S-01			CEF-312LS-GW-1I-01		
SAMPLE DATE:	12/12/01			12/12/01			12/12/01			12/12/01		
LABORATORY ID:	F11771-1			F11771-2			F11771-3			F11771-7		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:				CEF-312LS-GW-4S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	3.2	U		3.2	U		3.2	U		3.2	U	
CADMIUM	0.27	U		0.27	U		0.27	U		0.27	U	
CHROMIUM	0.35	U		0.35	U		0.35	U		0.35	U	
LEAD	4.0	U	A	1.2	U	A	2.5	U	A	1.2	U	

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312LS-GW-1SA-01	CEF-312LS-GW-3S-01	CEF-312LS-GW-4S-01	
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	/ /
LABORATORY ID:	F11771-4	F11771-6	F11771-5	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
ARSENIC	3.2	U		3.2	U		3.2	U				
CADMIUM	0.27	U		0.27	U		0.27	U				
CHROMIUM	0.35	U		0.35	U		0.35	U				
LEAD	1.2	U		1.4	U	A	1.2	U				

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312-GW-02-01	CEF-312LS-DU01-GW-01	CEF-312LS-GW-01S-01	CEF-312LS-GW-1I-01
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	12/12/01
LABORATORY ID:	F11771-1	F11771-2	F11771-3	F11771-7
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:		CEF-312LS-GW-4S-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,2-DIPHENYLHYDRAZINE	5	U		5	U		5	U		5	U	
1,3-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
1,4-DICHLOROBENZENE	5	U		5	U		5	U		5	U	
2,2'-OXYBIS(1-CHLOROPROPANE)	5	U		5	U		5	U		5	U	
2,4,6-TRICHLOROPHENOL	5	U		5	U		5	U		5	U	
2,4-DICHLOROPHENOL	5	U		5	U		5	U		5	U	
2,4-DIMETHYLPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROPHENOL	25	U		25	U		25	U		25	U	
2,4-DINITROTOLUENE	5	U		5	U		5	U		5	U	
2,6-DINITROTOLUENE	5	U		5	U		5	U		5	U	
2-CHLORONAPHTHALENE	5	U		5	U		5	U		5	U	
2-CHLOROPHENOL	5	U		5	U		5	U		5	U	
2-NITROPHENOL	5	U		5	U		5	U		5	U	
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U		10	U	
4,6-DINITRO-2-METHYLPHENOL	10	U		10	U		10	U		10	U	
4-BROMOPHENYL PHENYL ETHER	5	U		5	U		5	U		5	U	
4-CHLORO-3-METHYLPHENOL	5	U		5	U		5	U		5	U	
4-CHLOROANILINE	5	U		5	U		5	U		5	U	
4-CHLOROPHENYL PHENYL ETHER	5	U		5	U		5	U		5	U	
4-NITROPHENOL	25	U		25	U		25	U		25	U	
ACENAPHTHENE	5	U		5	U		5	U		5	U	
ACENAPHTHYLENE	5	U		5	U		5	U		5	U	
ANTHRACENE	5	U		5	U		5	U		5	U	
BENZIDINE	25	U		25	U		25	U		25	U	
BENZO(A)ANTHRACENE	5	U		5	U		5	U		5	U	
BENZO(A)PYRENE	5	U		5	U		5	U		5	U	
BENZO(B)FLUORANTHENE	5	U		5	U		5	U		5	U	
BENZO(G,H,I)PERYLENE	5	U		5	U		5	U		5	U	
BENZO(K)FLUORANTHENE	5	U		5	U		5	U		5	U	
BIS(2-CHLOROETHOXY)METHANE	5	U		5	U		5	U		5	U	

SAMPLE NUMBER:	CEF-312-GW-02-01	CEF-312LS-DU01-GW-01	CEF-312LS-GW-01S-01	CEF-312LS-GW-1I-01
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	12/12/01
LABORATORY ID:	F11771-1	F11771-2	F11771-3	F11771-7
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:		CEF-312LS-GW-4S-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
BIS(2-CHLOROETHYL)ETHER	5	U		5	U		5	U		5	U	
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U		5	U	
BUTYL BENZYL PHTHALATE	5	U		5	U		5	U		5	U	
CHRYSENE	5	U		5	U		5	U		5	U	
DI-N-BUTYL PHTHALATE	5	U		5	U		5	U		5	U	
DI-N-OCTYL PHTHALATE	5	U		5	U		5	U		5	U	
DIBENZO(A,H)ANTHRACENE	5	U		5	U		5	U		5	U	
DIETHYL PHTHALATE	5	U		5	U		5	U		5	U	
DIMETHYL PHTHALATE	5	U		5	U		5	U		5	U	
FLUORANTHENE	5	U		5	U		5	U		5	U	
FLUORENE	5	U		5	U		5	U		5	U	
HEXACHLOROBENZENE	5	U		5	U		5	U		5	U	
HEXACHLOROBUTADIENE	5	U		5	U		5	U		5	U	
HEXACHLOROCYCLOPENTADIENE	5	U		5	U		5	U		5	U	
HEXACHLOROETHANE	5	U		5	U		5	U		5	U	
INDENO(1,2,3-CD)PYRENE	5	U		5	U		5	U		5	U	
ISOPHORONE	5	U		5	U		5	U		5	U	
N-NITROSO-DI-N-PROPYLAMINE	5	U		5	U		5	U		5	U	
N-NITROSODIMETHYLAMINE	5	U		5	U		5	U		5	U	
N-NITROSODIPHENYLAMINE	5	U		5	U		5	U		5	U	
NAPHTHALENE	5	U		5	U		5	U		5	U	
NITROBENZENE	5	U		5	U		5	U		5	U	
PENTACHLOROPHENOL	25	U		25	U		25	U		25	U	
PHENANTHRENE	5	U		5	U		5	U		5	U	
PHENOL	5	U		5	U		5	U		5	U	
PYRENE	5	U		5	U		5	U		5	U	

SAMPLE NUMBER:	CEF-312LS-GW-1SA-01	CEF-312LS-GW-3S-01	CEF-312LS-GW-4S-01	/ /
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	
LABORATORY ID:	F11771-4	F11771-6	F11771-5	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	5	U		5	U		5	U				
1,2-DICHLOROBENZENE	5	U		5	U		5	U				
1,2-DIPHENYLHYDRAZINE	5	U		5	U		5	U				
1,3-DICHLOROBENZENE	5	U		5	U		5	U				
1,4-DICHLOROBENZENE	5	U		5	U		5	U				
2,2'-OXYBIS(1-CHLOROPROPANE)	5	U		5	U		5	U				
2,4,6-TRICHLOROPHENOL	5	U		5	U		5	U				
2,4-DICHLOROPHENOL	5	U		5	U		5	U				
2,4-DIMETHYLPHENOL	25	U		25	U		25	U				
2,4-DINITROPHENOL	25	U		25	U		25	U				
2,4-DINITROTOLUENE	5	U		5	U		5	U				
2,6-DINITROTOLUENE	5	U		5	U		5	U				
2-CHLORONAPHTHALENE	5	U		5	U		5	U				
2-CHLOROPHENOL	5	U		5	U		5	U				
2-NITROPHENOL	5	U		5	U		5	U				
3,3'-DICHLOROBENZIDINE	10	U		10	U		10	U				
4,6-DINITRO-2-METHYLPHENOL	10	U		10	U		10	U				
4-BROMOPHENYL PHENYL ETHER	5	U		5	U		5	U				
4-CHLORO-3-METHYLPHENOL	5	U		5	U		5	U				
4-CHLOROANILINE	5	U		5	U		5	U				
4-CHLOROPHENYL PHENYL ETHER	5	U		5	U		5	U				
4-NITROPHENOL	25	U		25	U		25	U				
ACENAPHTHENE	5	U		5	U		5	U				
ACENAPHTHYLENE	5	U		5	U		5	U				
ANTHRACENE	5	U		5	U		5	U				
BENZIDINE	25	U		25	U		25	U				
BENZO(A)ANTHRACENE	5	U		5	U		5	U				
BENZO(A)PYRENE	5	U		5	U		5	U				
BENZO(B)FLUORANTHENE	5	U		5	U		5	U				
BENZO(G,H,I)PERYLENE	5	U		5	U		5	U				
BENZO(K)FLUORANTHENE	5	U		5	U		5	U				
BIS(2-CHLOROETHOXY)METHANE	5	U		5	U		5	U				

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312LS-GW-1SA-01	CEF-312LS-GW-3S-01	CEF-312LS-GW-4S-01	/ /
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	
LABORATORY ID:	F11771-4	F11771-6	F11771-5	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
SEMIVOLATILES												
BIS(2-CHLOROETHYL)ETHER	5	U		5	U		5	U				
BIS(2-ETHYLHEXYL)PHTHALATE	5	U		5	U		5	U				
BUTYL BENZYL PHTHALATE	5	U		5	U		5	U				
CHRYSENE	5	U		5	U		5	U				
DI-N-BUTYL PHTHALATE	5	U		5	U		5	U				
DI-N-OCTYL PHTHALATE	5	U		5	U		5	U				
DIBENZO(A,H)ANTHRACENE	5	U		5	U		5	U				
DIETHYL PHTHALATE	5	U		5	U		5	U				
DIMETHYL PHTHALATE	5	U		5	U		5	U				
FLUORANTHENE	5	U		5	U		5	U				
FLUORENE	5	U		5	U		5	U				
HEXACHLOROBENZENE	5	U		5	U		5	U				
HEXACHLOROBUTADIENE	5	U		5	U		5	U				
HEXACHLOROCYCLOPENTADIENE	5	U		5	U		5	U				
HEXACHLOROETHANE	5	U		5	U		5	U				
INDENO(1,2,3-CD)PYRENE	5	U		5	U		5	U				
ISOPHORONE	5	U		5	U		5	U				
N-NITROSO-DI-N-PROPYLAMINE	5	U		5	U		5	U				
N-NITROSODIMETHYLAMINE	5	U		5	U		5	U				
N-NITROSODIPHENYLAMINE	5	U		5	U		5	U				
NAPHTHALENE	5	U		19.1	J	G	5	U				
NITROBENZENE	5	U		5	U		5	U				
PENTACHLOROPHENOL	25	U		25	U		25	U				
PHENANTHRENE	5	U		5	U		5	U				
PHENOL	5	U		5	U		5	U				
PYRENE	5	U		5	U		5	U				

TOTAL-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312-GW-02-01	CEF-312LS-DU01-GW-01	CEF-312LS-GW-01S-01	CEF-312LS-GW-1I-01
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	12/12/01
LABORATORY ID:	F11771-1	F11771-2	F11771-3	F11771-7
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	MG/L	MG/L	MG/L	MG/L
FIELD DUPLICATE OF:		CEF-312LS-GW-4S-01		

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	1.2			1.94			0.28	U		0.28	U	

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312LS-GW-1SA-01			CEF-312LS-GW-3S-01			CEF-312LS-GW-4S-01				
SAMPLE DATE:	12/12/01			12/12/01			12/12/01			/ /	
LABORATORY ID:	F11771-4			F11771-6			F11771-5				
QC_TYPE:	NORMAL			NORMAL			NORMAL				
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %	
UNITS:	MG/L			MG/L			MG/L				
FIELD DUPLICATE OF:											
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	0.28	U		1.89			0.28	U				

58-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312-GW-02-01			CEF-312LS-DU01-GW-01			CEF-312LS-GW-01S-01			CEF-312LS-GW-1I-01		
SAMPLE DATE:	12/12/01			12/12/01			12/12/01			12/12/01		
LABORATORY ID:	F11771-1			F11771-2			F11771-3			F11771-7		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:				CEF-312LS-GW-4S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	2	U		2	U		2	U		2	U	
1,1,2,2-TETRACHLOROETHANE	2	U		2	U		2	U		2	U	
1,1,2-TRICHLOROETHANE	2	U		2	U		2	U		2	U	
1,1-DICHLOROETHANE	2	U		2	U		2	U		2	U	
1,1-DICHLOROETHENE	2	U		2	U		2	U		2	U	
1,2-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,2-DICHLOROETHANE	2	U		2	U		2	U		2	U	
1,2-DICHLOROPROPANE	2	U		2	U		2	U		2	U	
1,3-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,4-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
2-CHLOROETHYL VINYL ETHER	5	U		5	U		5	U		5	U	
ACROLEIN	10	U		10	U		10	U		10	U	
ACRYLONITRILE	10	U		10	U		10	U		10	U	
BENZENE	1	U		1	U		1	U		1	U	
BROMODICHLOROMETHANE	2	U		2	U		2	U		2	U	
BROMOFORM	2	U		2	U		2	U		2	U	
BROMOMETHANE	5	U		5	U		5	U		5	U	
CARBON TETRACHLORIDE	2	U		2	U		2	U		2	U	
CHLOROBENZENE	2	U		2	U		2	U		2	U	
CHLORODIBROMOMETHANE	2	U		2	U		2	U		2	U	
CHLORODIBROMOMETHANE	2	U		2	U		2	U		2	U	
CHLOROETHANE	5	U		5	U		5	U		5	U	
CHLOROFORM	2	U		2	U		2	U		2	U	
CHLOROMETHANE	5	U		5	U		5	U		5	U	
CIS-1,2-DICHLOROETHENE	2	U		2	U		2	U		2	U	
CIS-1,3-DICHLOROPROPENE	2	U		2	U		2	U		2	U	
DICHLORODIFLUOROMETHANE	5	U		5	U		5	U		5	U	
ETHYLBENZENE	2	U		5.4			2	U		2	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	2	U		2	U		2	U		2	U	
TOLUENE	2	U		2	U		2	U		2	U	
TOTAL XYLENES	6	U		12.9			6	U		6	U	

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312-GW-02-01			CEF-312LS-DU01-GW-01			CEF-312LS-GW-01S-01			CEF-312LS-GW-1I-01		
SAMPLE DATE:	12/12/01			12/12/01			12/12/01			12/12/01		
LABORATORY ID:	F11771-1			F11771-2			F11771-3			F11771-7		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:				CEF-312LS-GW-4S-01								
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRANS-1,2-DICHLOROETHENE	2	U		2	U		2	U		2	U	
TRANS-1,3-DICHLOROPROPENE	2	U		2	U		2	U		2	U	
TRICHLOROETHENE	2	U		2	U		2	U		2	U	
TRICHLOROFLUOROMETHANE	5	U		5	U		5	U		5	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	

CTO168-NAS CECIL FIELD
WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312LS-GW-1SA-01	CEF-312LS-GW-3S-01	CEF-312LS-GW-4S-01	
SAMPLE DATE:	12/12/01	12/12/01	12/12/01	/ /
LABORATORY ID:	F11771-4	F11771-6	F11771-5	
QC_TYPE:	NORMAL	NORMAL	NORMAL	
% SOLIDS:	0.0 %	0.0 %	0.0 %	100.0 %
UNITS:	UG/L	UG/L	UG/L	
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	2	U		2	U		2	U				
1,1,2,2-TETRACHLOROETHANE	2	U		2	U		2	U				
1,1,2-TRICHLOROETHANE	2	U		2	U		2	U				
1,1-DICHLOROETHANE	2	U		2	U		2	U				
1,1-DICHLOROETHENE	2	U		2	U		2	U				
1,2-DICHLOROBENZENE	2	U		2	U		2	U				
1,2-DICHLOROETHANE	2	U		2	U		2	U				
1,2-DICHLOROPROPANE	2	U		2	U		2	U				
1,3-DICHLOROBENZENE	2	U		2	U		2	U				
1,4-DICHLOROBENZENE	2	U		2	U		2	U				
2-CHLOROETHYL VINYL ETHER	5	U		5	U		5	U				
ACROLEIN	10	U		10	U		10	U				
ACRYLONITRILE	10	U		10	U		10	U				
BENZENE	1	U		1	U		1	U				
BROMODICHLOROMETHANE	2	U		2	U		2	U				
BROMOFORM	2	U		2	U		2	U				
BROMOMETHANE	5	U		5	U		5	U				
CARBON TETRACHLORIDE	2	U		2	U		2	U				
CHLOROBENZENE	2	U		2	U		2	U				
CHLORODIBROMOMETHANE	2	U		2	U		2	U				
CHLORODIBROMOMETHANE	2	U		2	U		2	U				
CHLOROETHANE	5	U		5	U		5	U				
CHLOROFORM	2	U		2	U		2	U				
CHLOROMETHANE	5	U		5	U		5	U				
CIS-1,2-DICHLOROETHENE	2	U		2	U		2	U				
CIS-1,3-DICHLOROPROPENE	2	U		2	U		2	U				
DICHLORODIFLUOROMETHANE	5	U		5	U		5	U				
ETHYLBENZENE	2	U		5.3			2	U				
METHYLENE CHLORIDE	5	U		5	U		5	U				
TETRACHLOROETHENE	2	U		2	U		2	U				
TOLUENE	2	U		2	U		2	U				
TOTAL XYLENES	6	U		12.7			6	U				

CTO168-NAS CECIL FIELD

WATER DATA
Accutest, NJ
SDG: F11771

SAMPLE NUMBER:	CEF-312LS-GW-1SA-01			CEF-312LS-GW-3S-01			CEF-312LS-GW-4S-01					
SAMPLE DATE:	12/12/01			12/12/01			12/12/01			/ /		
LABORATORY ID:	F11771-4			F11771-6			F11771-5					
QC_TYPE:	NORMAL			NORMAL			NORMAL					
% SOLIDS:	0.0 %			0.0 %			0.0 %			100.0 %		
UNITS:	UG/L			UG/L			UG/L					
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRANS-1,2-DICHLOROETHENE	2	U		2	U		2	U				
TRANS-1,3-DICHLOROPROPENE	2	U		2	U		2	U				
TRICHLOROETHENE	2	U		2	U		2	U				
TRICHLOROFLUOROMETHANE	5	U		5	U		5	U				
VINYL CHLORIDE	1	U		1	U		1	U				

F11771

HOLDING TIME
01/15/02

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	CEF-312-GW-02-01	F11771-1	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312LS-DU01-GW-01	F11771-2	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312LS-GW-01S-01	F11771-3	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312LS-GW-1I-01	F11771-7	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312LS-GW-1SA-01	F11771-4	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312LS-GW-3S-01	F11771-6	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312LS-GW-4S-01	F11771-5	NORMAL	F11771	M	12/12/01	12/19/01	12/20/01	7	1	8
UG/L	CEF-312-GW-02-01	F11771-1	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312LS-DU01-GW-01	F11771-2	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312LS-GW-01S-01	F11771-3	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312LS-GW-1I-01	F11771-7	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312LS-GW-1SA-01	F11771-4	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312LS-GW-3S-01	F11771-6	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312LS-GW-4S-01	F11771-5	NORMAL	F11771	OS	12/12/01	12/19/01	12/26/01	7	7	14
UG/L	CEF-312-GW-02-01	F11771-1	NORMAL	F11771	OV	12/12/01	/ /	12/24/01	0	0	12
UG/L	CEF-312LS-DU01-GW-01	F11771-2	NORMAL	F11771	OV	12/12/01	/ /	12/24/01	0	0	12
UG/L	CEF-312LS-GW-01S-01	F11771-3	NORMAL	F11771	OV	12/12/01	/ /	12/23/01	0	0	11
UG/L	CEF-312LS-GW-1I-01	F11771-7	NORMAL	F11771	OV	12/12/01	/ /	12/23/01	0	0	11
UG/L	CEF-312LS-GW-1SA-01	F11771-4	NORMAL	F11771	OV	12/12/01	/ /	12/24/01	0	0	12
UG/L	CEF-312LS-GW-3S-01	F11771-6	NORMAL	F11771	OV	12/12/01	/ /	12/24/01	0	0	12
UG/L	CEF-312LS-GW-4S-01	F11771-5	NORMAL	F11771	OV	12/12/01	/ /	12/23/01	0	0	11
MG/L	CEF-312-GW-02-01	F11771-1	NORMAL	F11771	TPH	12/12/01	12/18/01	12/19/01	6	1	7
MG/L	CEF-312LS-DU01-GW-01	F11771-2	NORMAL	F11771	TPH	12/12/01	12/18/01	12/19/01	6	1	7
MG/L	CEF-312LS-GW-01S-01	F11771-3	NORMAL	F11771	TPH	12/12/01	12/18/01	12/19/01	6	1	7

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
MG/L	CEF-312LS-GW-1I-01	F11771-7	NORMAL	F11771	TPH	12/12/01	12/18/01	12/20/01	6	2 ✓	8
MG/L	CEF-312LS-GW-1SA-01	F11771-4	NORMAL	F11771	TPH	12/12/01	12/18/01	12/19/01	6	1	7
MG/L	CEF-312LS-GW-3S-01	F11771-6	NORMAL	F11771	TPH	12/12/01	12/18/01	12/20/01	6	2	8
MG/L	CEF-312LS-GW-4S-01	F11771-5	NORMAL	F11771	TPH	12/12/01	12/18/01	12/20/01	6	2	8

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-GW-02-01		
Lab Sample ID:	F11771-1	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007466.D	1	12/24/01	JG	n/a	n/a	VC347
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-GW-02-01		
Lab Sample ID:	F11771-1	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		80-120%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	106%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
496-11-7	Indane	16.86	20	ug/l	JN
824-22-6	1H-Indene, 2,3-dihydro-4-methyl-	18.36	30	ug/l	JN
	Total TIC, Volatile		50	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-GW-02-01		
Lab Sample ID:	F11771-1	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007833.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-GW-02-01		
Lab Sample ID:	F11771-1	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		20-125%
4165-62-2	Phenol-d5	43%		10-125%
118-79-6	2,4,6-Tribromophenol	100%		35-140%
4165-60-0	Nitrobenzene-d5	94%		46-125%
321-60-8	2-Fluorobiphenyl	86%		46-125%
1718-51-0	Terphenyl-d14	96%		49-126%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-GW-02-01		
Lab Sample ID:	F11771-1	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18877.D	1	12/19/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1.20	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		55-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312-GW-02-01		
Lab Sample ID:	F11771-1	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
		Percent Solids:	n/a
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	4.0 B	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-DU01-GW-01		
Lab Sample ID:	F11771-2	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007467.D	1	12/24/01	JG	n/a	n/a	VC347
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	5.4	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	12.9	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-DU01-GW-01		
Lab Sample ID:	F11771-2	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		80-120%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
611-14-3	Benzene, 1-ethyl-2-methyl-	15.58	23	ug/l	JN
1074-55-1	Benzene, 1-methyl-4-propyl-	16.77	19	ug/l	JN
1758-88-9	Benzene, 2-ethyl-1,4-dimethyl-	16.82	30	ug/l	JN
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	17.14	27	ug/l	JN
527-84-4	Benzene, 1-methyl-2-(1-methylethyl	17.18	31	ug/l	JN
99-87-6	Benzene, 1-methyl-4-(1-methylethyl	17.25	48	ug/l	JN
768-49-0	Benzene, (2-methyl-1-propenyl)-	17.47	31	ug/l	JN
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	17.63	25	ug/l	JN
488-23-3	Benzene, 1,2,3,4-tetramethyl-	17.71	30	ug/l	JN
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	17.78	53	ug/l	JN
824-22-6	1H-Indene, 2,3-dihydro-4-methyl-	18.15	26	ug/l	JN
874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	18.30	47	ug/l	JN
767-58-8	Indan, 1-methyl-	18.36	48	ug/l	JN
119-64-2	Naphthalene, 1,2,3,4-tetrahydro-	18.59	40	ug/l	JN
2050-24-0	Benzene, 1,3-diethyl-5-methyl-	18.71	21	ug/l	JN
	Total TIC, Volatile		499	ug/l	

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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-DU01-GW-01		
Lab Sample ID:	F11771-2	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007834.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-DU01-GW-01		
Lab Sample ID:	F11771-2	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		20-125%
4165-62-2	Phenol-d5	38%		10-125%
118-79-6	2,4,6-Tribromophenol	94%		35-140%
4165-60-0	Nitrobenzene-d5	88%		46-125%
321-60-8	2-Fluorobiphenyl	83%		46-125%
1718-51-0	Terphenyl-d14	91%		49-126%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-DU01-GW-01		
Lab Sample ID:	F11771-2	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18878.D	1	12/19/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1.94	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		55-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: CEF-312LS-DU01-GW-01
Lab Sample ID: F11771-2
Matrix: AQ - Ground Water
Project: Cecil Field CTO168

Date Sampled: 12/12/01
Date Received: 12/13/01
Percent Solids: n/a

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	1.2 B	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-01S-01		
Lab Sample ID:	F11771-3	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007436.D	1	12/23/01	JG	n/a	n/a	VC345
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-01S-01		
Lab Sample ID:	F11771-3	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		80-120%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	95%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile [a]		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-01S-01		
Lab Sample ID:	F11771-3	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007835.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

ND = Not detected
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B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-01S-01		
Lab Sample ID:	F11771-3	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%		20-125%
4165-62-2	Phenol-d5	36%		10-125%
118-79-6	2,4,6-Tribromophenol	92%		35-140%
4165-60-0	Nitrobenzene-d5	83%		46-125%
321-60-8	2-Fluorobiphenyl	79%		46-125%
1718-51-0	Terphenyl-d14	92%		49-126%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-01S-01		
Lab Sample ID:	F11771-3	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18879.D	1	12/19/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	91%		55-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-01S-01		
Lab Sample ID:	F11771-3	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
		Percent Solids:	n/a
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	2.5 B	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1SA-01		
Lab Sample ID:	F11771-4	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007468.D	1	12/24/01	JG	n/a	n/a	VC347
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1SA-01		
Lab Sample ID:	F11771-4	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		80-120%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	121%		80-120%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1SA-01		
Lab Sample ID:	F11771-4	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007836.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1SA-01		
Lab Sample ID:	F11771-4	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%		20-125%
4165-62-2	Phenol-d5	39%		10-125%
118-79-6	2,4,6-Tribromophenol	92%		35-140%
4165-60-0	Nitrobenzene-d5	93%		46-125%
321-60-8	2-Fluorobiphenyl	86%		46-125%
1718-51-0	Terphenyl-d14	97%		49-126%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1SA-01		
Lab Sample ID:	F11771-4	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18880.D	1	12/19/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		55-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1SA-01		
Lab Sample ID:	F11771-4	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
		Percent Solids:	n/a
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	1.2 U	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-4S-01		
Lab Sample ID:	F11771-5	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007437.D	1	12/23/01	JG	n/a	n/a	VC345
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-4S-01		
Lab Sample ID:	F11771-5	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		80-120%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	96%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile [a]		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-4S-01		
Lab Sample ID:	F11771-5	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007837.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

ND = Not detected
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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-4S-01		
Lab Sample ID:	F11771-5	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%		20-125%
4165-62-2	Phenol-d5	34%		10-125%
118-79-6	2,4,6-Tribromophenol	88%		35-140%
4165-60-0	Nitrobenzene-d5	87%		46-125%
321-60-8	2-Fluorobiphenyl	82%		46-125%
1718-51-0	Terphenyl-d14	93%		49-126%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-4S-01		
Lab Sample ID:	F11771-5	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18881.D	1	12/20/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		55-130%

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N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-4S-01		
Lab Sample ID:	F11771-5	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
		Percent Solids:	n/a
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	1.2 U	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007469.D	1	12/24/01	JG	n/a	n/a	VC347
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	5.3	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	12.7	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		80-120%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	115%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
611-14-3	Benzene, 1-ethyl-2-methyl-	15.58	24	ug/l	JN
1074-43-7	Benzene, 1-methyl-3-propyl-	16.77	19	ug/l	JN
2870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	16.82	29	ug/l	JN
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	17.14	26	ug/l	JN
99-87-6	Benzene, 1-methyl-4-(1-methylethyl	17.18	30	ug/l	JN
527-84-4	Benzene, 1-methyl-2-(1-methylethyl	17.25	46	ug/l	JN
3290-53-7	Benzene, (2-methyl-2-propenyl)-	17.47	30	ug/l	JN
535-77-3	Benzene, 1-methyl-3-(1-methylethyl	17.63	23	ug/l	JN
95-93-2	Benzene, 1,2,4,5-tetramethyl-	17.71	25	ug/l	JN
488-23-3	Benzene, 1,2,3,4-tetramethyl-	17.78	42	ug/l	JN
824-22-6	1H-Indene, 2,3-dihydro-4-methyl-	18.15	24	ug/l	JN
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	18.30	42	ug/l	JN
874-35-1	1H-Indene, 2,3-dihydro-5-methyl-	18.36	44	ug/l	JN
119-64-2	Naphthalene, 1,2,3,4-tetrahydro-	18.60	36	ug/l	JN
25155-15-1	Benzene, methyl(1-methylethyl)-	18.71	18	ug/l	JN
	Total TIC, Volatile		458	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007838.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	19.1	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		20-125%
4165-62-2	Phenol-d5	39%		10-125%
118-79-6	2,4,6-Tribromophenol	95%		35-140%
4165-60-0	Nitrobenzene-d5	91%		46-125%
321-60-8	2-Fluorobiphenyl	86%		46-125%
1718-51-0	Terphenyl-d14	94%		49-126%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
611-14-3	Benzene, 1-ethyl-2-methyl-	4.41	22	ug/l	JN
95-63-6	Benzene, 1,2,4-trimethyl-	4.64	65	ug/l	JN
496-11-7	Indane	4.93	20	ug/l	JN
135-01-3	Benzene, 1,2-diethyl-	4.99	16	ug/l	JN
1074-43-7	Benzene, 1-methyl-3-propyl-	5.01	19	ug/l	JN
934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	5.05	52	ug/l	JN

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
1074-17-5	Benzene, 1-methyl-2-propyl-	5.11	16	ug/l	JN
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.18	29	ug/l	JN
99-87-6	Benzene, 1-methyl-4-(1-methylethyl)-	5.19	35	ug/l	JN
933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	5.37	18	ug/l	JN
95-93-2	Benzene, 1,2,4,5-tetramethyl-	5.44	25	ug/l	JN
527-53-7	Benzene, 1,2,3,5-tetramethyl-	5.47	41	ug/l	JN
	unknown	5.61	29	ug/l	J
767-99-7	Benzene, (1-methyl-1-propenyl)-, (Z)-	5.68	74	ug/l	JN
119-64-2	Naphthalene, 1,2,3,4-tetrahydro-	5.78	22	ug/l	JN
	Total TIC, Semi-Volatile		483	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18882.D	1	12/20/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1.89	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		55-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-3S-01		
Lab Sample ID:	F11771-6	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
		Percent Solids:	n/a
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	1.4 B	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1I-01		
Lab Sample ID:	F11771-7	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C0007438.D	1	12/23/01	JG	n/a	n/a	VC345
Run #2							

VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
107-02-8	Acrolein	ND	10	ug/l	
107-13-1	Acrylonitrile	ND	10	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	ug/l	
75-25-2	Bromoform	ND	2.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
75-00-3	Chloroethane	ND	5.0	ug/l	
67-66-3	Chloroform	ND	2.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
74-83-9	Methyl bromide	ND	5.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
79-01-6	Trichloroethylene	ND	2.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1I-01		
Lab Sample ID:	F11771-7	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	93%		80-120%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	95%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile [a]		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1I-01		
Lab Sample ID:	F11771-7	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W007839.D	1	12/26/01	ME	12/19/01	OP4403	SW430
Run #2							

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	25	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	ug/l	
87-86-5	Pentachlorophenol	ND	25	ug/l	
108-95-2	Phenol	ND	5.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	ug/l	
120-12-7	Anthracene	ND	5.0	ug/l	
92-87-5	Benzidine	ND	25	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	ug/l	
218-01-9	Chrysene	ND	5.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ug/l	
122-66-7	1,2-Diphenylhydrazine	ND	5.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	ug/l	

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Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1I-01		
Lab Sample ID:	F11771-7	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	SW846 8270C SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

ABN PPL List

CAS No.	Compound	Result	RL	Units	Q
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	ug/l	
206-44-0	Fluoranthene	ND	5.0	ug/l	
86-73-7	Fluorene	ND	5.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	ug/l	
78-59-1	Isophorone	ND	5.0	ug/l	
91-20-3	Naphthalene	ND	5.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	ug/l	
62-75-9	N-Nitrosodimethylamine	ND	5.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	ug/l	
129-00-0	Pyrene	ND	5.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		20-125%
4165-62-2	Phenol-d5	41%		10-125%
118-79-6	2,4,6-Tribromophenol	96%		35-140%
4165-60-0	Nitrobenzene-d5	95%		46-125%
321-60-8	2-Fluorobiphenyl	87%		46-125%
1718-51-0	Terphenyl-d14	96%		49-126%

CAS No.	Tentatively Identified Compounds [a]	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/l	

(a) No TICs detected.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1I-01		
Lab Sample ID:	F11771-7	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	Cecil Field CTO168		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP18883.D	1	12/20/01	SKW	12/18/01	OP4393	GOP704
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		55-130%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-312LS-GW-1I-01		
Lab Sample ID:	F11771-7	**Date Sampled:**	12/12/01
Matrix:	AQ - Ground Water	**Date Received:**	12/13/01
		Percent Solids:	n/a
Project:	Cecil Field CTO168		

Metals Analysis

Analyte	Result	RL	IDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.2 U	10	3.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Cadmium	0.27 U	5.0	0.27	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Chromium	0.35 U	10	0.35	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A
Lead	1.2 U	5.0	1.2	ug/l	1	12/19/01	12/20/01	DM	SW846 6010B	SW846 3010A

RL = Reporting Limit
IDL = Instrument Detection Limit

U = Indicates a result < IDL
B = Indicates a result >= IDL but < RL

DN3996:4.6:49

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 312-121201A | PAGE 1 OF 1

PROJECT NO: N3996	SITE NAME: BLDG. 312 OW	PROJECT MANAGER AND PHONE NUMBER: PAUL CALLAGAN 850 385 9077	LABORATORY NAME AND CONTACT: ACCUTEST L. WILLIAMS
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: MERVIN W. DALE 904 2810400	ADDRESS: 4405 Vineland Rd., Suite C-15
		CARRIER/WAYBILL NUMBER: Fedex 8311 6072 8192	CITY, STATE: ORLANDO, FL 32811

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	PPVO w/TCS SW846 8260B	PPEO w/TCS SW846 8270C	TRPH	TOTAL METALS* SW846 6010B					COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	P					
PRESERVATIVE USED						HCL	None	H_2SO_4	HNO_3					
12/12	1454	CEF-312LS-GW-01s-01	GW	G	8	3	2	2	1					Cool to 4°C
12/12	1500	CEF-312LS-GW-1sa-01	GW	G	8	3	2	2	1					
														Work Release 168CF-4
														* Arsenic, Cadmium, Chromium, Lead

1. RELINQUISHED BY	DATE 12/12/01	TIME 1700	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 312-121201B | PAGE 1 OF 1

PROJECT NO: N3996
SITE NAME: B.312 OW
PROJECT MANAGER AND PHONE NUMBER: PAUL CALLIGAN 850 385 9899
LABORATORY NAME AND CONTACT: ACCUTEST L. WILLIAMS
SAMPLERS (SIGNATURE):
FIELD OPERATIONS LEADER AND PHONE NUMBER: METV DALE 904 281-0400
ADDRESS: 4405 VINELAND RD C-15
CARRIER/WAYBILL NUMBER: FEDEX 8311 6072 8181
CITY, STATE: ORLANDO, FL

STANDARD TAT ☒
RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	PPWO WITICS SW846 8260B	PPEO WITICS SW846 8270C	1,2,4 TCB	TOTAL METALS* SW846 6010B					COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	P					
PRESERVATIVE USED						HCl	None		H_2SO_4	HNO_3				
12/12	1025	CEF-312LS-GW-3S-01	GW	G	8	3	2	2	1					COOL TO 4°C
12/12	1318	CEF-312LS-GW-1F-01	GW	G	8	3	2	2	1					
														WORK RELEASE 168CF-4
														* ARSENIC
														CADMIUM
														CHROMIUM
														LEAD

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	12/12/01	1700	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 312-121801C | PAGE 1 OF 1

PROJECT NO: N3996	SITE NAME: B. 312 OW
PROJECT MANAGER AND PHONE NUMBER	PAUL CALLEGAN 850 385-9899
LABORATORY NAME AND CONTACT:	ACCUTEST L. WILLIAMS
SAMPLERS (SIGNATURE)	
FIELD OPERATIONS LEADER AND PHONE NUMBER	METRU DALE 904-281-0400
ADDRESS	4405 VINELAND RD C-15
CARRIER/WAYBILL NUMBER	FEDEX 8311 6072 8170
CITY, STATE	ORLANDO, FL

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	PPHO W/ TICS SW846 8260B	PPEO W/ TICS SW846 8270C	TRPH	FL PRO	TOTAL METALS* SW846 6010B				COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	P					
PRESERVATIVE USED						HCl	None	H_2SO_4	HNO_3					
12/12	1245	CEF-312 LS-MD01-GW-01	GW	G	8	3	2	2	1					COOL TO 4°C
12/12	1245	CEF-312 LS-GW-4S-01	GW	G	8	3	2	2	1					
														WORK RELEASE 168CF-4
														* ARSENIC CADMIUM CHROMIUM LEAD

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	12/12/01	1700	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER 312-121201 D

PAGE 1 OF 1

PROJECT NO: N3996

SITE NAME: B.312 OW

PROJECT MANAGER AND PHONE NUMBER: PAUL CALLIGAN 850 385-9899

LABORATORY NAME AND CONTACT: ACCUTEST L. WILLIAMS

SAMPLERS (SIGNATURE)

FIELD OPERATIONS LEADER AND PHONE NUMBER: METO DALE 904 281-0400

ADDRESS: 4405 VINELAND RD C-15

CARRIER/WAYBILL NUMBER: FED EX 8311 6072 8160

CITY, STATE: ORLANDO, FL

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G G P

PRESERVATIVE USED: HCl NONE H_2SO_4 HNO_3

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PPDO WITICS SW846 8260B	PPEO WITICS SW846 8270C	TPH FL PRO	TOTAL METALS * SW 846 6010B					COMMENTS
12/12	1140	CEF-312-GW-02-01	GW	G	8	3	2	2	1					
12/12	0000	CEF-312 LS-DU01-GW-01	GW	G	8	3	2	2	1					COOL TO 4°C

WORK RELEASE 168CF-4

* ARSENIC
CADMIUM
CHROMIUM
LEAD

1. RELINQUISHED BY	DATE 12/12/01	TIME 1700	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME
COMMENTS					

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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APPENDIX K

AQUIFER DATA

CEF-312LS-01S

Well diameter = 2 inches
Static water level = 8.0 feet
Drawdown = 0.699 meter at Elapsed time = 1.0292 minutes
Depth to water during test = Static water level + drawdown = 8.0 ft + 2.293 ft = 10.29 ft
Drawdown = 0.699 m x 3.281 ft/m = 2.293 ft
Length of test = 1.0292 min x 1 hour/60 min = 0.017 hour
Pumping rate = 900 ml/min = 0.238 gpm
900 ml/min = 900 cm^3/min x 3.531E-5 ft^3/1 cm^3 x 1 min/60 sec
x 4.488 E+2 gpm/1 ft^3/sec = 2.377E-1 gpm = 0.238 gpm
Thickness of aquifer = Depth to bedrock - average water level = 105 ft - 9 ft = 96 ft
Open interval = 10 ft
Storage coefficient = 0.15
Well loss coefficient = 1

****
DETERMINATION OF AQUIFER PROPERTIES BASED ON ANALYSIS OF
SPECIFIC CAPACITY TESTS
****

Copied from: Bradbury, K. R. and Rothschild, E. R., 1985. A computerized technique for estimating the hydraulic conductivity of aquifers from specific capacity data, Ground Water, 23(2), pp. 240-246.

WELL NUMBER CEF-312LS-01S

WELL DIAMETER (IN) =	2	
STATIC WATER LEVEL (FT) =	8	
DEPTH TO WATER DURING TEST (FT) =		10.29
THE LENGTH OF THE TEST (HR) =		.017
PUMPING RATE (GPM) =	.238	
THICKNESS OF AQUIFER (FT) =		96
OPEN INTERVAL (FT) =	10	
STORAGE COEFFICIENT =	.15	
WELL-LOSS COEFFICIENT =	1	

SPECIFIC CAPACITY (GPM/FT) = .1039301

TRANSMISSIVITY: (FT*FT/SEC) = 1.603349E-03
(FT*FT/DAY) = 138.5294
(GAL/DAY/FT) = 1036.269

$T = bK \quad K = T/b$

$$K = \frac{138.5294\ ft^2/day}{96\ ft} = 1.44\ ft/day$$

CEF-312LS-01Sa

Well diameter = 2 inches
Static water level = 8.7 feet
Drawdown = 1.199 meter at Elapsed time = 14.6793 minutes
Depth to water during test = Static water level + drawdown = 8.7 ft + 3.934 ft = 12.63 ft
Drawdown = 1.199 m x 3.281 ft/m = 3.934 ft
Length of test = 14.6793 min x 1 hour/60 min = 0.245 hour
Pumping rate = 4000 ml/min = 1.06 gpm
4000 ml/min = 4000 cm^3/min x 3.531E-5 ft^3/1 cm^3 x 1 min/60 sec
x 4.488 E+2 gpm/1 ft^3/sec = 1.06 gpm
Thickness of aquifer = Depth to bedrock - average water level = 105 ft - 9 ft = 96 ft
Open interval = 10 ft
Storage coefficient = 0.15
Well loss coefficient = 1

****
DETERMINATION OF AQUIFER PROPERTIES BASED ON ANALYSIS OF
SPECIFIC CAPACITY TESTS
****

Copied from: Bradbury, K. R. and Rothschild, E. R., 1985. A computerized technique for estimating the hydraulic conductivity of aquifers from specific capacity data, Ground Water, 23(2), pp. 240-246.

WELL NUMBER CEF-312LS-01Sa

WELL DIAMETER (IN) =	2	
STATIC WATER LEVEL (FT) =	8.7	
DEPTH TO WATER DURING TEST (FT) =		12.63
THE LENGTH OF THE TEST (HR) =		.245
PUMPING RATE (GPM) =	1.06	
THICKNESS OF AQUIFER (FT) =		96
OPEN INTERVAL (FT) =	10	
STORAGE COEFFICIENT =	.15	
WELL-LOSS COEFFICIENT =	1	

SPECIFIC CAPACITY (GPM/FT) = .2697205

TRANSMISSIVITY: (FT*FT/SEC) = 4.336102E-03
(FT*FT/DAY) = 374.6392
(GAL/DAY/FT) = 2802.488

$T = bK \quad K = T/b$

$$K = \frac{374.6392\ ft^2/day}{96\ ft} = 3.90\ ft/day$$

CEF-312LS-04S

Well diameter = 2 inches
Static water level = 10.11 feet
Drawdown = 0.109 meter at Elapsed time = 6.6717 minutes
Depth to water during test = Static water level + drawdown = 10.11 ft + 0.358 ft = 10.47 ft
Drawdown = 0.109 m x 3.281 ft/m = 0.358 ft
Length of test = 6.6717 min x 1 hour/60 min = 0.111 hour
Pumping rate = 900 ml/min = 0.238 gpm
900 ml/min = 900 cm^3/min x 3.531E-5 ft^3/1 cm^3 x 1 min/60 sec
x 4.488 E+2 gpm/1 ft^3/sec = 2.377E-1 gpm = 0.238 gpm
Thickness of aquifer = Depth to bedrock - average water level = 105 ft - 9 ft = 96 ft
Open interval = 10 ft
Storage coefficient = 0.15
Well loss coefficient = 1

****
DETERMINATION OF AQUIFER PROPERTIES BASED ON ANALYSIS OF
SPECIFIC CAPACITY TESTS
****

Copied from: Bradbury, K. R. and Rothschild, E. R., 1985. A computerized technique for estimating the hydraulic conductivity of aquifers from specific capacity data, Ground Water, 23(2), pp. 240-246.

WELL NUMBER CEF-312LS-04S

WELL DIAMETER (IN) =	2	
STATIC WATER LEVEL (FT) =	10.11	
DEPTH TO WATER DURING TEST (FT) =		10.47
THE LENGTH OF THE TEST (HR) =		.111
PUMPING RATE (GPM) =	.238	
THICKNESS OF AQUIFER (FT) =		96
OPEN INTERVAL (FT) =	10	
STORAGE COEFFICIENT =	.15	
WELL-LOSS COEFFICIENT =	1	

SPECIFIC CAPACITY (GPM/FT) = .6611106

TRANSMISSIVITY:	(FT*FT/SEC) =	1.064062E-02
	(FT*FT/DAY) =	919.3492
	(GAL/DAY/FT) =	6877.19

$T = bK \quad K = T/b$

$$K = \frac{919.3492\ ft^2/day}{96\ ft} = 9.58\ ft/day$$