N60200.AR.003324
NAS CECIL FIELD, FL
5090.3a

"SITE ASSESSMENT REPORT FOR BUILDING 271 TANKS 271 UL, 271 R, 271 SUL AND 271D BASE REALIGNMENT AND CLOSURE NAS CECIL FIELD FL"
5/3/2002
TETRA TECH NUS INC

Rev. 1
05/03/02

Site Assessment Report
for
Building 271, Tanks 271 UL, 271R, 271 SUL and 271 D

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 0121

May 2002

Rev. 1
05/03/02

SITE ASSESSMENT REPORT
FOR
BUILDING 271, TANKS 271 UL, 271 R, 271 SUL, AND 271 D
BASE REALIGNMENT AND CLOSURE

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0121

MAY 2002

PREPARED UNDER THE SUPERVISION OF:

FOR

PAUL CALLIGAN, P.G.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
TAMPA, FLORIDA

APPROVED FOR SUBMITTAL BY:

Debra M Wroblewski

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

TABLE OF CONTENTS

SECTION **PAGE**

CERTIFICATE OF TECHNICAL DATA CONFORMITY i

ACRONYMS iii

1.0 INTRODUCTION 1-1

1.1 LAND USE 1-1
1.2 HISTORICAL INFORMATION 1-1
1.3 WATER WELL INFORMATION 1-4

2.0 FIELD INVESTIGATION 2-1

2.1 PHASE 1 2-1
2.2 PHASE 2 2-3
2.3 PHASE 3 2-5

3.0 SITE ASSESSMENT RESULTS 3-1

3.1 PHASE 1 3-1
3.1.1 Rac Soil Work 3-1
3.1.2 RAC Groundwater Work 3-8
3.2 PHASE 2 3-8
3.3 PHASE 3 3-15

4.0 CONCLUSIONS AND RECOMMENDATIONS 4-1

4.1 PHASE 1 CONCLUSIONS 4-1
4.1.1 RAC Source Removal Conclusions 4-1
4.2 PHASE 2 CONCLUSIONS 4-1
4.3 PHASE 3 CONCLUSIONS 4-2
4.4 RECOMMENDATIONS 4-2

5.0 PROFESSIONAL REVIEW CERTIFICATION 5-1

REFERENCES R-1

APPENDICES

A TANK 271 D CLOSURE REPORT A-1
B FDEP APPROVAL LETTERS B-1
C MONITORING WELL CONSTRUCTION AND SOIL BORING LOGS C-1
D FIELD DATA SHEETS D-1
E PHASE 1 SOIL ANALYTICAL REPORT E-1
F PHASE 1 GROUNDWATER ANALYTICAL REPORT F-1
G PHASE 3 GROUNDWATER ANALYTICAL REPORT G-1
H AQUIFER DATA H-1

TABLES

NUMBER **PAGE**

2-1 Monitoring Well Construction and Water Elevation Data 2-8
3-1 Summary of Soil Screening Data, Phase 1 3-2
3-2 Soil Analytical Summary, Phase 1 3-3
3-3 Groundwater Sampling Positive Detection Results, Phase 1 3-5
3-4 Tank Closure Groundwater Analytical Summary 3-11
3-5 DPT Soil Screening Summary 3-12
3-6 Summary of Mobile Laboratory Results in Soils 3-14
3-7 Summary of Mobile Laboratory Positive Detections in Groundwater 3-17
3-8 Summary of Positive Detections in Groundwater 3-22
3-9 Aquifer Properties Based on Analysis of Specific Capacity Tests 3-29

FIGURES

NUMBER **PAGE**

1-1 Topographic Map 1-2
1-2 Land Use Map 1-3
1-3 Site Location Map 1-5
2-1 Phase 1 Soil OVA Data 2-2
2-2 Phase 1 Wells and SRR Piezometer Map 2-4
2-3 DPT Soil/Groundwater Sample Locations 2-6
3-1 Phase 1 Soil Analytical Data 3-4
3-2 Phase 1 Dissolved Hydrocarbon Concentrations 3-6
3-3 Groundwater Flow Map – 10/25/00 3-7
3-4 Phase 1 and SRR BTEX Groundwater Concentration Data 3-9
3-5 Phase 1 and SRR Select PAH Groundwater Concentration Data 3-10
3-6 Groundwater Flow Map – 05/07/01 3-16
3-7 Phase 2 BTEX Groundwater Screening Data 3-19
3-8 Phase 2 Naphthalene Groundwater Screening Data 3-20
3-9 Phase 3 Benzene Groundwater Laboratory Data 3-26
3-10 Phase 3 Naphthalene Groundwater Laboratory Data 3-27
3-11 Groundwater Flow Map – 10/31/01 3-28

ACRONYMS

AAL	Accura Analytical Laboratory
ABB-ES	ABB Environmental Services
bls	Below Land Surface
BTEX	Benzene, Toluene, Ethylbenzene, Total Xylenes
CCI	CH2M Hill Constructors, Inc.
CSR	Confirmatory Sampling Report
CTO	Contract Task Order
DPT	Direct Push Technology
DRO	Diesel Range Organics
EDB	1,2-dibromoethane
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida – Petroleum Range Organics
ft	Foot/feet
ft^2	Foot squared
GCTL	Groundwater Cleanup Target Level
GIR	General Information Report
gpd	Gallons-Per-Day
gpm	Gallons-Per-Minute
I	Hydraulic Gradient, feet-per-foot
K	Hydraulic Conductivity
HLA	Harding Lawson Associates
JEDC	Jacksonville Economic Development Commission
KAG	Kerosene Analytical Group
K_h	Average Horizontal Hydraulic Conductivity, feet-per-day
LCAR	Limited Closure Assessment Reports
µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
mg/L	Milligram per liter
mg/kg	Milligram per kilogram
MTBE	Methy-tert-butyl Ether
OD	Outside Diameter
OVA-FID	Organic Vapor Analyzer-Flame Ionization Detector
OWS	Oil-water Separator
NADSC	Natural Attenuation Default Source Concentration

ACRONYMS (CONTINUED)

NAS	Naval Air Station
n_e	Effective Porosity, Dimensionless
PAH	Polycyclic Aromatic Hydrocarbon
ppm	Part-per-million
PVC	Polyvinyl Chloride
RAC	Remedial Action Contractor
SA	Site Assessment
SAP	Site Assessment Plan
SAR	Site Assessment Report
SCTL	Soil Cleanup Target Level
Sec	Seconds
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SPECAP	Specific Capacity
SRR	Source Removal Report
S_y	Specific Yield
T	Transmissivity
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
V_h	Average Horizontal Velocity, feet-per-day
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) was authorized by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a site assessment (SA) at Building 271 on Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. Specifically, the SA applied to Underground Storage Tanks (UST) 271 UL (unleaded gasoline), 271 R (regular gasoline), 271 SUL (super unleaded gasoline), and 271 D (diesel). Figure 1-1 indicates the site's location on a portion of a United States Geologic Survey map.

This Site Assessment Report (SAR) summarizes the related field operations, results, conclusions, and recommendations of the SA. TtNUS field activities began in June 2000 and were completed in November 2001. The activities for this SA were performed in accordance with the planning documents for CTO 0121 and Chapter 62-770, Florida Administrative Code (FAC). The following paragraphs provide available background information for the site.

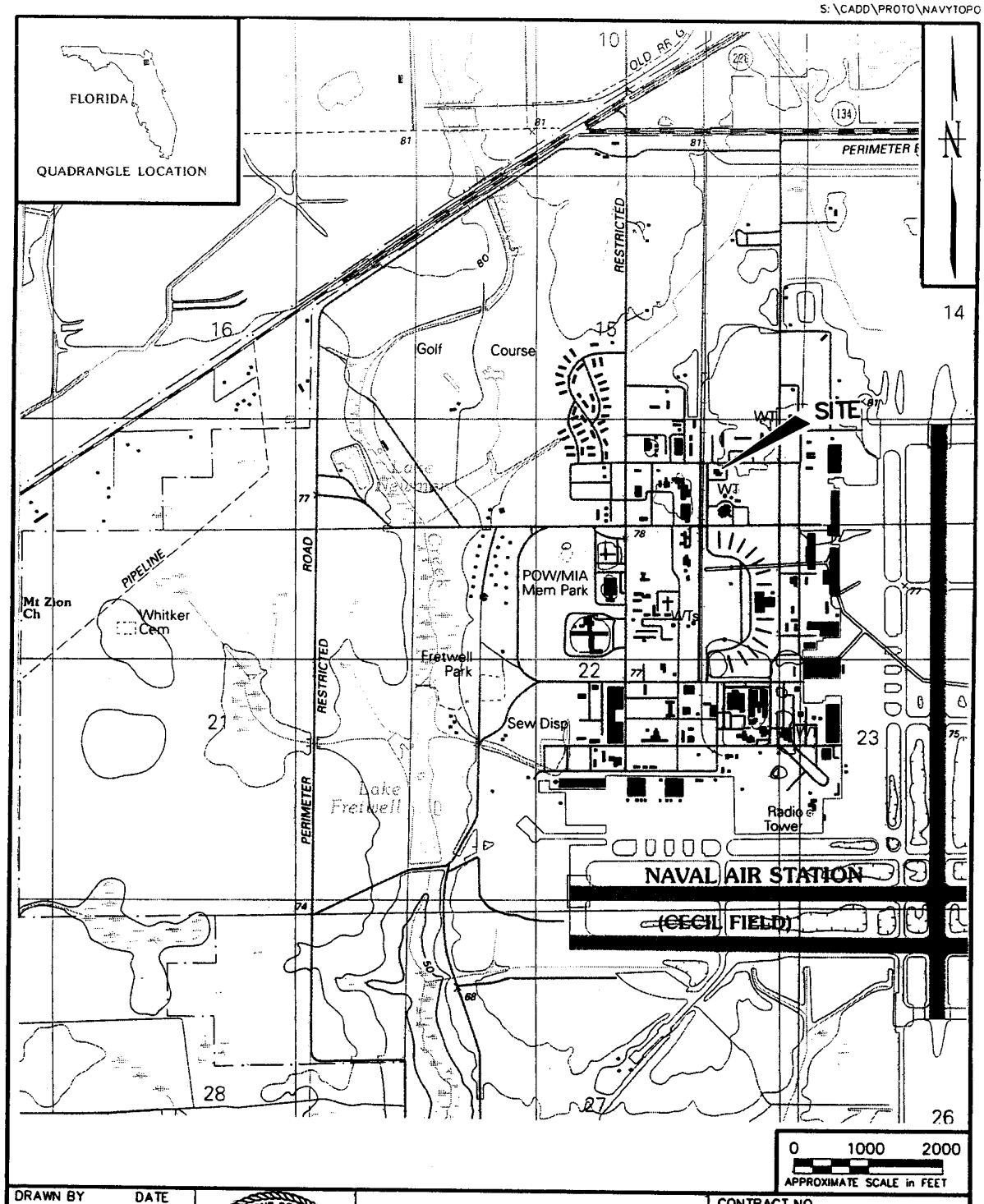
1.1 LAND USE

Several buildings as shown on Figure 1-2 surround Building 271. There are three dormitories to the north of the site that are currently not in use. These are not shown on the figure, but they are adjacent to parking lot shown north of Building 271. Building 201 to the northwest is currently being used by TtNUS to store drummed investigative wastes from various sites until characterized for disposal. Building 81, further west of Building 201, is not in use. Building 907 is the local Jacksonville Economic Development Commission (JEDC) office. Building 906 is now a local branch of the Jacksonville Navy Federal Credit Union. Facility 356 is being temporarily used by the Jacksonville Electric Authority (Roberts, 2002). Building 905 is partially occupied, but it will be demolished in November 2002 (Roberts, 2002). The JEDC plans to retain Building 498 as a gymnasium (Roberts, 2002). Buildings 220, 280, and 282 are not in use, and the JEDC plans to have them demolished (Roberts, 2002). The water tower (Facility 16D, south of Building 271) is still in use.

1.2 HISTORICAL INFORMATION

Building 271 is a former retail gasoline facility that maintained four USTs and two oil-water separators (OWS). The USTs were grouped in a tank pit located on the east side of Building 271, while the OWS were located on the west side of the building. Three of the USTs (UL, R and SUL) each had an

S:\CADD\PROTO\NAVYTOPO



DRAWN BY LLK	DATE 1/7/02	TOPOGRAPHIC MAP SITE ASSESSMENT REPORT BLDG. 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. 0486
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-1 REV. 0

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

DRAWN BY MJJ	DATE 08Jan02	LAND USE MAP SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY ____	DATE ____		APPROVED BY ___ DATE ___
COST/SCHEDULE-AREA			APPROVED BY ___ DATE ___
SCALE AS NOTED			DRAWING NO. FIGURE 1-2 / REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 09Jan02 MJJ Layout12

approximate capacity of 10,000-gallons. The fourth UST (D) had an approximate capacity of 6,000-gallons. Figure 1-3 indicates the location of the USTs and OWS (known as 271SE-OW and 271-S-OW) at the site.

According to UST closure records, Tank 271 D was removed on March 5, 1996. The closure report, attached as Appendix A, indicates that no soil or groundwater contamination was detected relative to Tank 271 D. The report also indicates that the tank and associated piping were removed from the site.

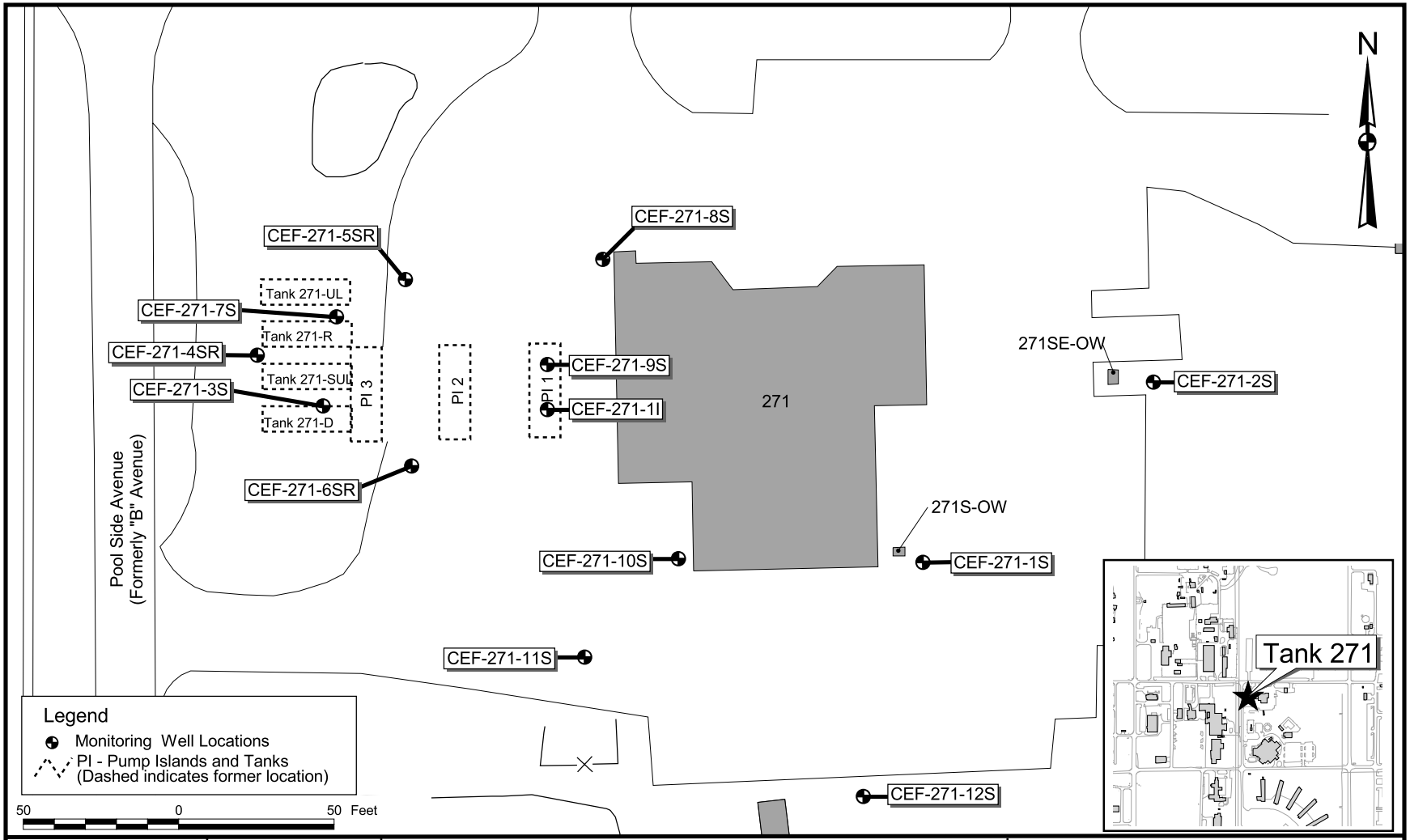
In July 1999, Harding and Lawson Associates (HLA) compiled the Confirmatory Sampling Report (CSR) for the tank site and two OWS also at the site. The CSR indicated that petroleum-impacted soil was encountered at two locations relative to the tank site. The CSR also reported that no Kerosene Analytical Group (KAG) (As defined by Chapter 62-770, FAC) constituents were detected in the groundwater sample from the monitoring well CEF-271-3S (Figure 1-3) installed for the tank investigation. HLA reported no soil or groundwater contamination relative to the OWS. Based on their finding of soil contamination, an SA was recommended for the UST site. A Site Assessment Plan (SAP) for the assessment of soil and groundwater at the UST site was prepared by TtNUS (2000) under Contract Task Order (CTO) 0121.

Following completion of the planned investigation in the SAP, the Remedial Action Contractor (RAC) removed the remaining three USTs and associated piping and distribution systems. The RAC's work on site addressed the soil contamination issues and indicated the existence of groundwater contamination. TtNUS proceeded to plan and execute a second investigation in a SAP Addendum (2001) to address the remaining site contamination in the groundwater.

The RAC also removed both OWS', and they submitted separate Limited Closure Assessment Reports (LCAR) for each OWS site in April 2001 to the Florida Department of Environmental Protection (FDEP). Both LCARS for the OWS' indicated that no petroleum contamination of the soil or groundwater existed relative to the OWS. On May 23, 2001, the FDEP issued separate letters agreeing with the RAC's findings. Appendix B contains copies of the FDEP's letters.

1.3 WATER WELL INFORMATION

Chapter 62-770.600, Florida Administrative Code (FAC) requires water well survey information relative to the site under investigation. The General Information Report (GIR) prepared by ABB Environmental Services (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.



DRAWN BY MJJ	DATE 02Nov01	SITE LOCATION MAP SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 1-3 / REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout01

2.0 FIELD INVESTIGATION

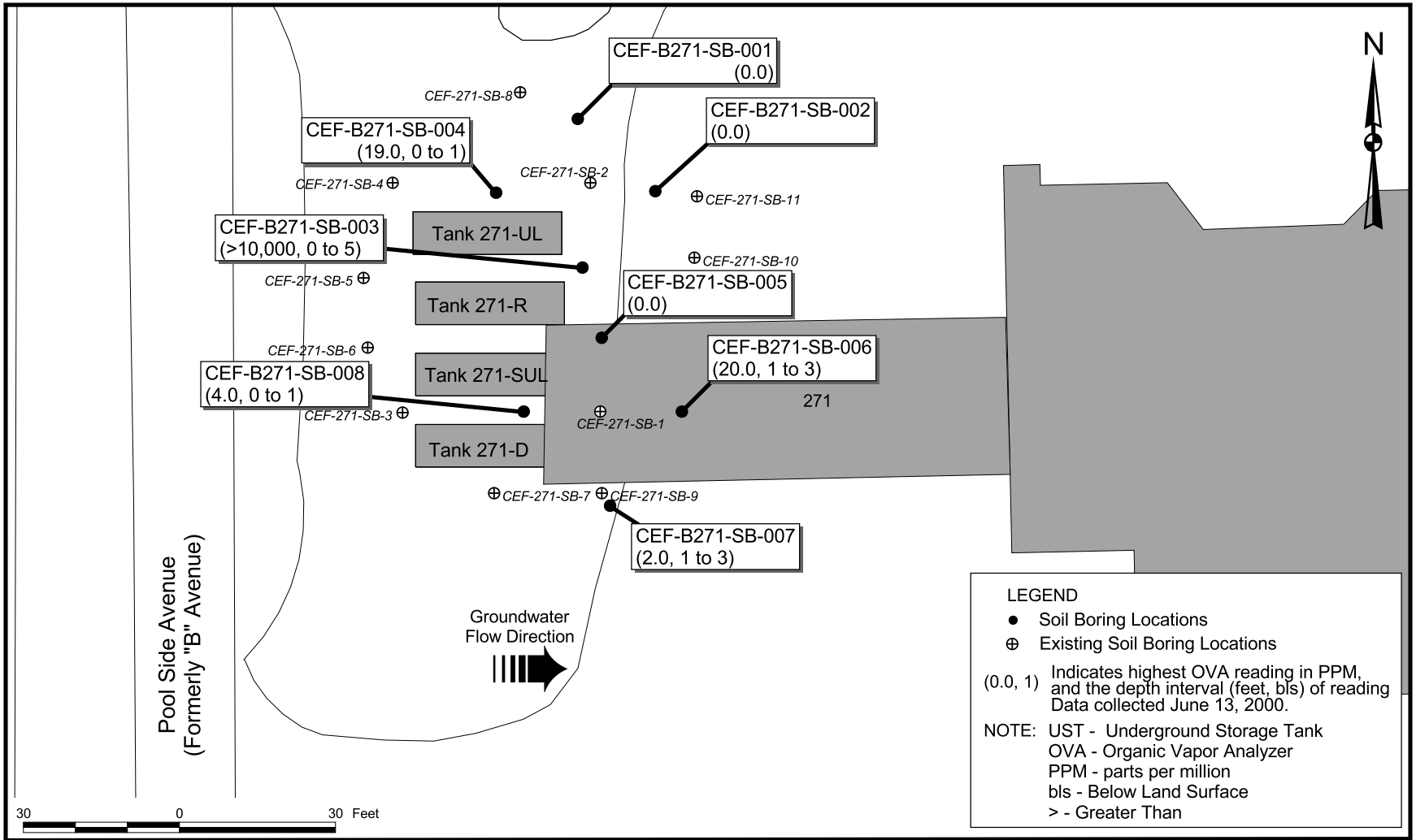
The field procedures and sampling activities described in this SAR were performed in general accord with the TtNUS Comprehensive Quality Assurance Plan Number 980038, which include the FDEP's Standard Operating Procedures for Laboratory Operations and Sample Collection Activities (DEP-QA-001/92). Soil and groundwater samples collected during our investigation for analyses by a fixed based laboratory were shipped on ice and under chain of custody to Accura Analytical Laboratory, Inc (AAL). AAL holds Florida Laboratory Certification E87429.

2.1 PHASE 1

Only two phases of work were originally planned in the SAP; however, following the tank closure by the RAC, a third phase was added to the investigation. Phase 1 began in June 2000 and consisted of the following events:

- Eight soil borings were advanced to the water table to delineate soil contamination.
- Three confirmatory soil samples were collected for KAG analyses.
- Groundwater samples were collected from three shallow monitoring wells and they were analyzed for KAG constituents.
- Relative survey of the top of the casing of each Phase 1 monitoring well and the three pre-existing monitoring wells was conducted using an assumed benchmark.

As mentioned in the introduction, HLA indicated in the CSR (HLA, 1999) that two of their soil borings, CEF-271-SB-1 and CEF-271-SB-2, were confirmed contaminated with petroleum compounds. On June 13, 2000, eight soil borings (CEF-B271-SB-001 through CEF-B271-SB-008) were advanced and screened at 2-foot intervals to 1-foot above the water table. Figure 2-1 shows that the TtNUS' soil borings were designed to surround HLA's only contaminated soil borings. At each of the eight locations, the vertical and horizontal extent of petroleum-impacted soil in the vadose zone was screened by soil head-space analysis using an organic vapor analyzer-flame ionization detector (OVA-FID). Headspace screening was performed in accordance with Rule 62-770.200 (12), FAC.



DRAWN BY MJJ	DATE 15Sept00	PHASE 1 SOIL OVA DATA SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-1 / REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 13Dec01 MJJ Layout02

On June 21, 2000, three confirmatory soil samples were collected on the basis of field screening data. The confirmatory soil samples were chosen to coincide with samples that exhibited high (SB-003), medium (SB-004) and low (SB-008) field screening results. The samples were analyzed for FAC Chapter 62-770 KAG constituents using United States Environmental Protection Agency (USEPA) and Florida-approved methods as follows: volatile organic compounds (VOC) by SW846 8260B, polycyclic aromatic hydrocarbons (PAH) by SW846 8270C, and total recoverable petroleum hydrocarbons (TRPH) by Florida-Petroleum Range Organics (FL-PRO).

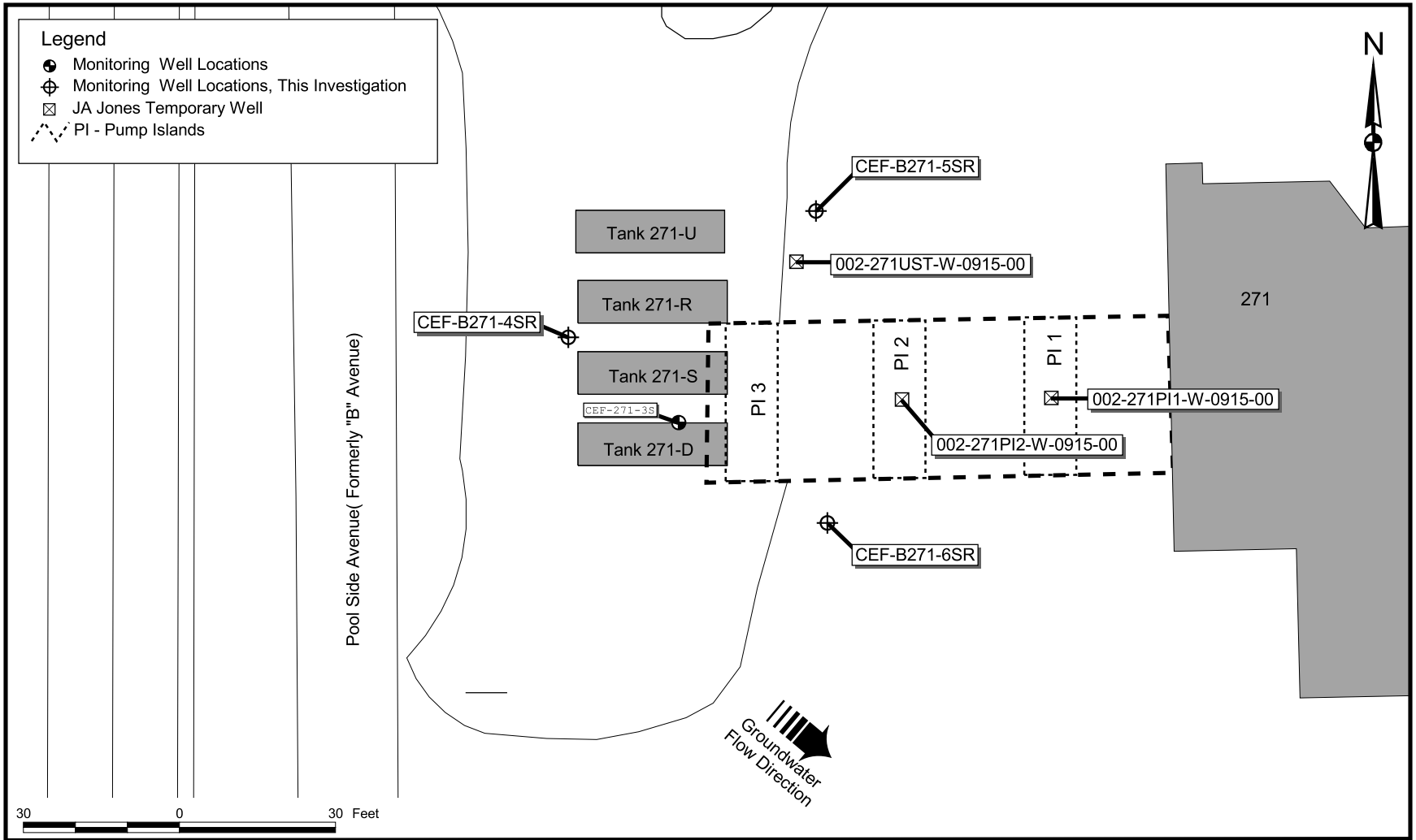
On June 29, 2000, a TtNUS representative supervised the drilling and installation of three monitoring wells (CEF-271-4S, CEF-271-5S, and CEF 271-6S). Based on hydrogeological data from HLA (1999), that indicated easterly groundwater flow, monitoring well CEF-271-4S was installed upgradient of the USTs and monitoring wells CEF-271-5S and CEF 271-6S were installed downgradient of the USTs.

These shallow monitoring wells were installed using the hollow-stem auger drilling method. Soil boring logs for the well locations and the monitoring well construction logs are presented in Appendix C. These monitoring wells were developed using a submersible pump. Field measurements of pH, temperature, and specific conductivity were collected from the water generated during development.

On July 17, 2000, groundwater samples were collected from the newly installed monitoring wells (CEF 271-GW-4S, CEF 271-GW-5S, and CEF 271-GW-6S) using the low flow technique. Appendix D contains the field data sheets from this sampling event. The samples were analyzed for KAG constituents as follows: VOCs by SW846 8260B, PAHs by SW846 8270C, total lead by SW846 6010B, 1,2-dibromoethane (EDB) by 504.1, and TRPH by FL-PRO. The soil and water generated during this phase were containerized for appropriate disposal at a later time. This completed the first phase of work.

2.2 PHASE 2

After evaluating the data from the source removal and discussing the results with the Navy and the FDEP, it was agreed that additional assessment would be conducted using DPT and a mobile laboratory to further assess the extent of soil and groundwater contamination at the site. TtNUS re-evaluated the SAP and decided on an alternate plan. Since the RAC reported excavating the contaminated soil at the site, this second phase of work would only screen soils outside the footprint of the RAC's excavation. Similarly, this phase was designed to provide a preliminary assessment of the extent of groundwater contamination downgradient of the RAC's temporary wells and to determine the optimum number and location of permanent monitoring wells. Figure 2-2 indicates the existing monitoring wells and the RAC's temporary piezometers. On May 7 and 8, 2001, TtNUS began the Phase 2 assessment activities. The following events were conducted during Phase 2.



DRAWN BY: MJJ	DATE: 04Feb01	PHASE 1 WELLS AND SRR PIEZOMETER MAP SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 121
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE: AS NOTED			DRAWING NO.: FIGURE 2-2 / REV: 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout03a

- Seventeen soil borings were advanced and soil samples from the vadose zone were screened with an OVA-FID. Soil boring logs from this work are contained in Appendix C.

- Six soil samples were collected for analysis by the on-site mobile laboratory.

- Following soil screening, a groundwater sample was collected from 16 of the soil borings at the water table interface for analysis by the mobile laboratory.

- Similarly, a groundwater sample was collected from the boring closest to the temporary well 002-271PI1-W-0914-00 at a depth of 26 to 30 feet below land surface (bls) to vertically delineate the groundwater contamination at the site. This location was chosen because it represented the most elevated contaminant concentrations reported for the site's groundwater to date.

- A groundwater sample was collected from permanent well CEF-271-1S to substitute for a DPT groundwater sampling location.

- The mobile laboratory screened each soil and water sample for the following compounds: benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl-tert-butyl ether (MTBE), naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and diesel range organics (DRO).

The existing wells and DPT sample locations are indicated on Figure 2-3. At the completion of Phase 2 activities, the results from the DPT investigation were submitted to the FDEP along with recommendations for additional assessment activities. No additional soil assessment was proposed. However, installation of additional monitoring wells was proposed to delineate the horizontal and vertical extent of groundwater contamination.

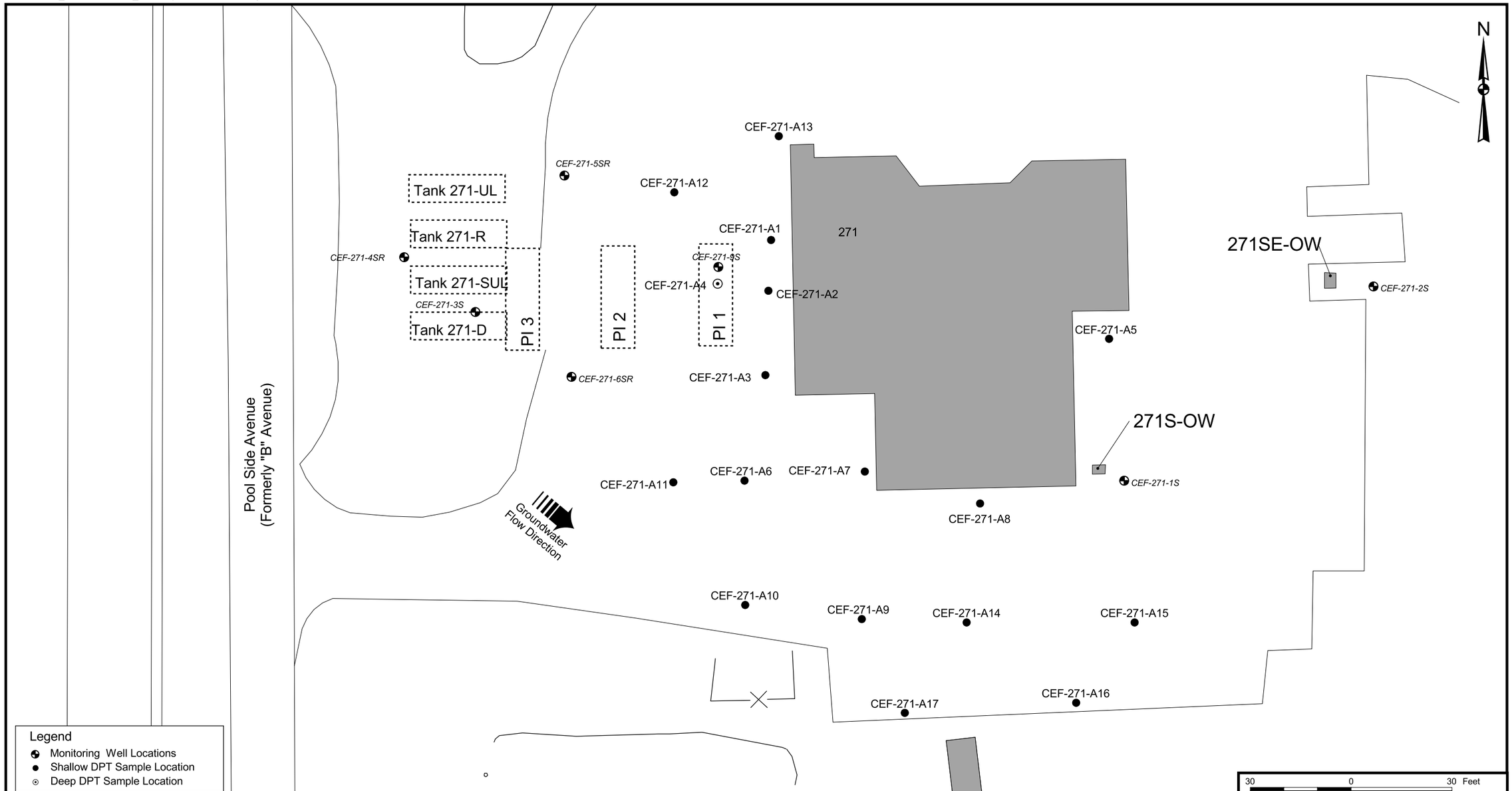
2.3 PHASE 3

On August 20, 2001, Phase 3 of the investigation included the following activities.

- Six shallow monitoring wells and one intermediate well were installed.

- Eleven shallow monitor wells and one intermediate well were sampled for KAG constituents.

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout11



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY MJJ	DATE 13Dec01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	

DPT SOIL/GROUNDWATER SAMPLE LOCATIONS
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2-3	REV. 0

- A relative survey was conducted to determine the elevations of the top of the casing of the newly installed wells.

- Specific capacity (SPECAP) testing of three shallow monitoring wells to determine hydrogeologic aquifer characteristics for the site's shallow aquifer.

On August 20 and 21, 2001, a TtNUS representative supervised the installation of the aforementioned monitoring wells. Monitor well CEF-271-7S was installed in the source area of the USTs to confirm the existence of petroleum contamination reported by the RAC. Monitoring well CEF-271-9S was installed in another source area, Pump Island 1 shown by Figure 1-3, to confirm the existence of petroleum contamination reported by the RAC. Monitoring wells CEF-271-8S and CEF-271-10S through CEF-271-12S were installed downgradient or crossgradient to the release. Since the RAC's groundwater analytical data indicated Pump Island 1 was the location of greatest petroleum contamination, TtNUS installed monitoring well CEF-271-1I there to assess the vertical extent of petroleum impacted groundwater.

The Phase 3 shallow monitoring wells were installed using the same general methods used to install the Phase 1 shallow monitoring wells. Since the reported concentrations of contaminants from the temporary well (002-271PI1-W-0914-00) exceeded Natural Attenuation Default Source Concentrations [(NADSC, Chapter 62-770, FAC], the intermediate well was double-cased to minimize carryover of petroleum contaminants to the screened zone of the well. The outer casing was set using hollow stem auger methods and the inner casing and screen was set using mud rotary methods. The soil boring logs for each well location and the monitoring well construction logs are presented in Appendix C. A summary of the construction details is presented in Table 2-1. These monitoring wells were developed using a submersible pump. Field measurements of pH, temperature, and specific conductivity were collected from the water generated during development.

On August 23 and 24, 2001, 11 shallow monitoring wells (CEF-271-1S and CEF-271-3S through CEF-271-12S) and one intermediate well (CEF-271-1I) were sampled for KAG constituents. Appendix D contains the field data sheets from this sampling event. Later, in October, SPECAP testing was conducted. The soils, drilling fluids, and waters that were generated during this phase were containerized for appropriate disposal at a later time.

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

Table 2-1
Monitoring Well Construction and Water Elevation Data

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification	Well Depth (feet, btoc)	Top-of-Casing Elevation (feet, msl)	October 25, 2000		May 7, 2001		October 31, 2001	
			Depth to Water (feet, btoc)	Water-Level Elevation (feet, msl)	Depth to Water (feet, btoc)	Water-Level Elevation (feet, msl)	Depth to Water (feet, btoc)	Water-Level Elevation (feet, msl)
CEF-271-1S	16.80	77.65	5.98	71.67	8.91	68.74	6.41	71.24
CEF-271-2S	16.50	76.93	5.21	71.72	8.20	68.73	5.64	71.29
CEF-271-3S	12.85	76.37	4.48	71.89	7.45	68.92	4.93	71.44
CEF-271-4SR	14.95	75.72	4.81	70.91	6.73	68.99	4.29	71.43
CEF-271-5SR	14.66	76.41	4.50	71.91	7.44	68.97	4.97	71.44
CEF-271-6S	15.85	77.07	5.24	71.83	8.15	68.92	5.69	71.38
CEF-271-7S	13.65	76.54	NM	NM	NM	NM	5.11	71.43
CEF-271-8S	13.05	77.39	NM	NM	NM	NM	5.95	71.44
CEF-271-9S	13.00	77.09	NM	NM	NM	NM	5.68	71.41
CEF-271-10S	13.15	77.76	NM	NM	NM	NM	6.43	71.33
CEF-271-11S	13.30	76.87	NM	NM	NM	NM	5.60	71.27
CEF-271-12S	13.40	76.75	NM	NM	NM	NM	5.60	71.15
CEF-271-1I	38.00	77.14	NM	NM	NM	NM	5.77	71.37

Notes:
msl = mean sea level
btoc = below top of casing
NM = not measured
TOC Elevations measured during a relative survey based on an assumed benchmark of 78.00 feet msl.
The benchmark elevation (shown on Figure 4) was interpolated from the nearest contour on the USGS 7.5 minute Topographic Quandrangle Map, Fiftone, Florida.

NAS Cecil Field, SPECAP tests were conducted to provide site-specific information for Building 271 for comparison to the published values. To complete the SPECAP tests, a 1.66-inch outside diameter (OD) polyvinyl chloride (PVC) electronic submersible pump (Whaler® Brand pump) was used to pump the well while the data was collected with an electronic datalogger. The aquifer parameters were calculated from the SPECAP test data using a computer program that was developed by Bradbury and Rothschild (1985). This work completed Phase 3 of the SA Investigation.

3.0 SITE ASSESSMENT RESULTS

3.1 PHASE 1

In June 2000, eight confirmatory soil borings (CEF-B271-SB-001 through CEF-B271-SB-008) were advanced to the water table to delineate soils around HLA's soil borings CEF-271-SB-1 and CEF-271-SB-2 (Figure 2-1). The water table was encountered at approximately 5 feet bls. The soil lithology encountered in these borings and during well installation was predominantly fine silty sand.

Of the eight sample locations, only the screened samples from soil boring CEF-B271-SB-003 exceeded FDEPs' diesel range action level of 50 parts-per-million (ppm) for excessively contaminated soil. Table 3-1 summarizes the OVA-FID data, and Figure 2-1 displays the data. Three confirmatory soil samples (CEF-B271-SB-003-03, CEF-B271-SB-004-01, and CEF-B271-SB-008-01) were collected and analyzed for KAG constituents. Table 3-2 summarizes the analytical soil data, and Figure 3-1 indicates the sample CEF-B271-SB-003 exceeded several Soil Cleanup Target Levels (SCTLs) for VOCs and PAHs. Appendix E contains the laboratory report for these soil analyses.

On July 17, 2000, TtNUS personnel collected groundwater samples from three monitoring wells, CEF-271-4S, CEF-271-5S, and CEF-271-6S, which were analyzed for KAG compounds. None of the Groundwater Cleanup Target Levels (GCTLs) for the KAG compounds were exceeded, and only two compounds (total xylenes and TRPH) were detected. A summary of those detected compounds is provided in Table 3-3, and it is illustrated on Figure 3-2. Appendix F contains the laboratory report for these groundwater analyses.

On October 25, 2000, water levels were collected from wells CEF-271-1S through CEF-271-6S. This data was used to calculate groundwater elevations and estimate groundwater flow direction. The data indicate that groundwater flow was to the southeast. Groundwater elevation data is summarized in Table 2-1 and depicted on Figure 3-3.

3.1.1 Rac Soil Work

During the months of August and September 2000, the RAC conducted a source removal of the remaining gasoline USTs, three dispensers, the associated piping, and a total of 511.54 tons of petroleum impacted soil. This field effort was documented in the Source Removal Report (SRR) [CH2M Hill

Table 3-1
Summary of Soil Screening Data, Phase 1

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA-FID Concentration (ppm)			
	Depth Interval (feet bls)	Unfiltered	Filtered	Corrected
CEF-B271-SB-001	0 to 1	0.0	0.0	0.0
	1 to 3	0.0	0.0	0.0
	3 to 5	0.0	0.0	0.0
CEF-B271-SB-002	0 to 1	0.0	0.0	0.0
	1 to 3	0.0	0.0	0.0
	3 to 5	0.0	0.0	0.0
CEF-B271-SB-003	0 to 1	>10,000	>10,000	>10,000
	1 to 3	>10,000	>10,000	>10,000
	3 to 5	>10,000	>10,000	>10,000
CEF-B271-SB-004	0 to 1	22.0	3.0	19.0
	1 to 3	0.0	0.0	0.0
	3 to 5	0.0	0.0	0.0
CEF-B271-SB-005	0 to 1	0.0	0.0	0.0
	1 to 3	0.0	0.0	0.0
	3 to 5	0.0	0.0	0.0
CEF-B271-SB-006	0 to 1	4.0	0.0	4.0
	1 to 3	20.0	0.0	20.0
	3 to 5	0.0	0.0	0.0
CEF-B271-SB-007	0 to 1	0.0	0.0	0.0
	1 to 3	2.0	0.0	2.0
	3 to 5	0.0	0.0	0.0
CEF-B271-SB-008	0 to 1	4.0	0.0	4.0
	1 to 3	0.0	0.0	0.0
	3 to 5	0.0	0.0	0.0

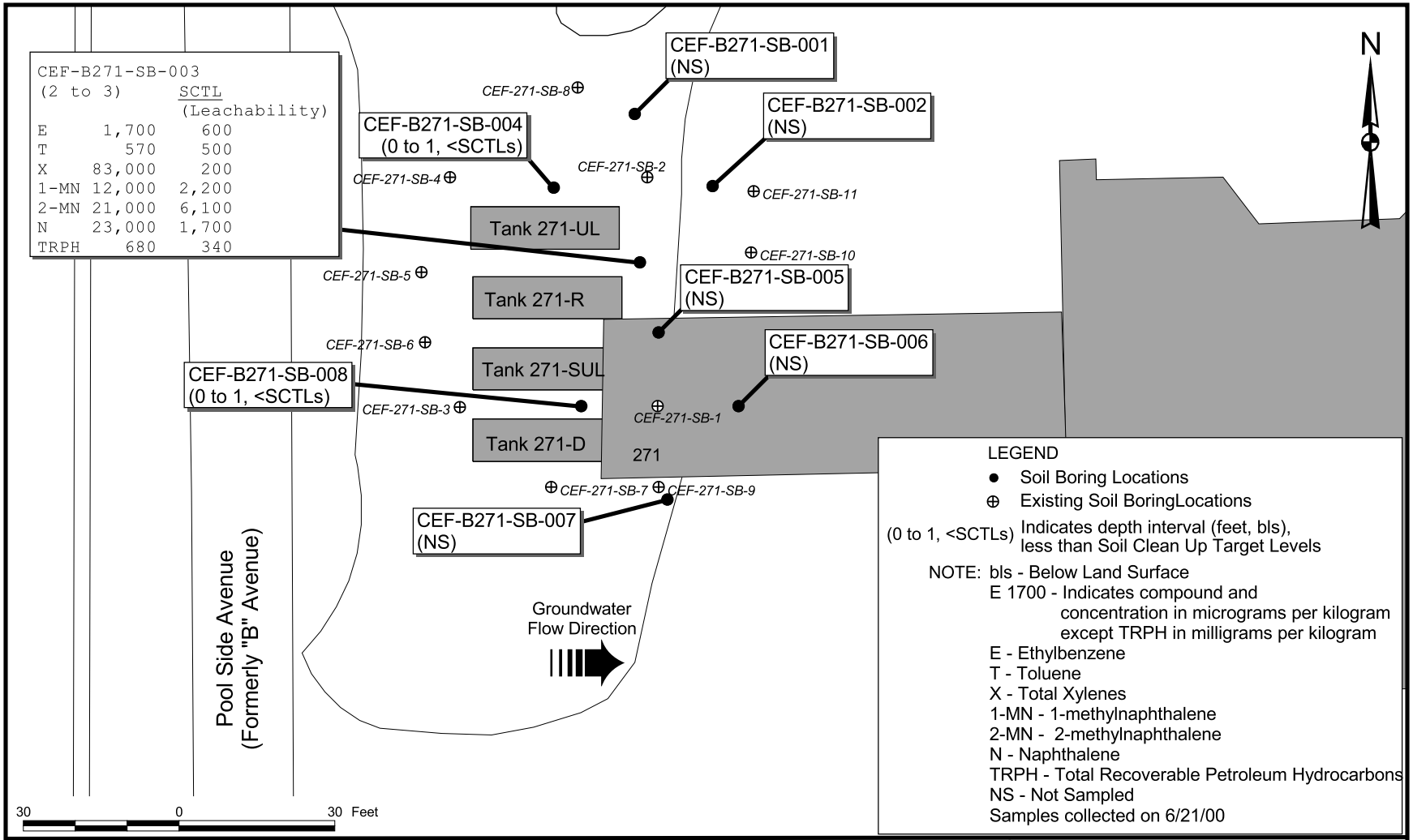
Notes:
The soil samples were collected on June 13, 2000.
Soil samples were filtered with carbon to determine the methane concentration.
The water table was encountered at 4.5 to 5 feet bls in CEF-B271-SB-001.
OVA-FID = organic vapor analyzer-flame ionization detector
ppm = parts per million
bls = below land surface

Table 3-2
Soil Analytical Summary, Phase 1

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Identification	CEF-B271-SB-003-03	CEF-B271-SB-004-01	CEF-B271-SB-008-01	CEF-B271-SB-DU01	SCTL (Leachability to Groundwater)	SCTL (Direct Exposure-Residential)
Date Sampled	6/21/2000	6/21/2000	6/21/2000	6/21/2000		
Depth Sampled (feet bls)	3	1	1	1		
Volatile Organic Compounds (USEPA Method 5035/8260B) (µg/Kg)						
Ethylbenzene	1700	6.8 U	5.8 U	2800	600	1,100,000
Toluene	570	6.8 U	5.8 U	1800	500	380,000
Xylenes, Total	83000	6.8 U	5.8 U	110000	200	5,900,000
Polynuclear Aromatic Compounds (USEPA Method 8270C) (µg/Kg)						
1-Methylnaphthalene	12000	84 U	69 U	14000	2200	68,000
2 - Methylnaphthalene	21000	84 U	7.6	25000	6100	80000
Acenaphthene	150	84 U	69 U	180	2100	1900000
Anthracene	49	84 U	69 U	110	2500000	18000000
Benzo (a) anthracene	70	20	69 U	74	3200	1400
Benzo (a) pyrene	42	32	69 U	44	8000	100
Benzo (b) fluoranthene	79	43	69 U	61	10000	1400
Benzo (g,h,i) perylene	370 U	37	69 U	370 U	32000000	2300000
Benzo (k) fluoranthene	88	16	69 U	370 U	25000	15000
Chrysene	46	19	69 U	56	77000	140000
Fluoranthene	120	26	69 U	150	1200000	2900000
Fluorene	200	84 U	69 U	260	1200000	2200000
Indeno (1,2,3-cd) pyrene	370 U	31	69 U	370 U	28000	1500
Naphthalene	23000	84 U	12	24000	1700	40000
Phenanthrene	280	8.4	69 U	350	250000	2000000
Pyrene	110	26	69 U	150	880000	2200000
Florida-Petroleum Range Organics (mg/Kg)						
TRPH	680	54	33	520	340	340

Notes:
mg/Kg = milligrams per kilogram.
µg/Kg = micrograms per kilogram.
SCTL = Soil Cleanup Target Levels.
U = not detected (number adjacent to letter indicates reporting limit).



DRAWN BY MJJ	DATE 15Sept00	PHASE 1 SOIL ANALYTICAL DATA SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-1 / REV 0

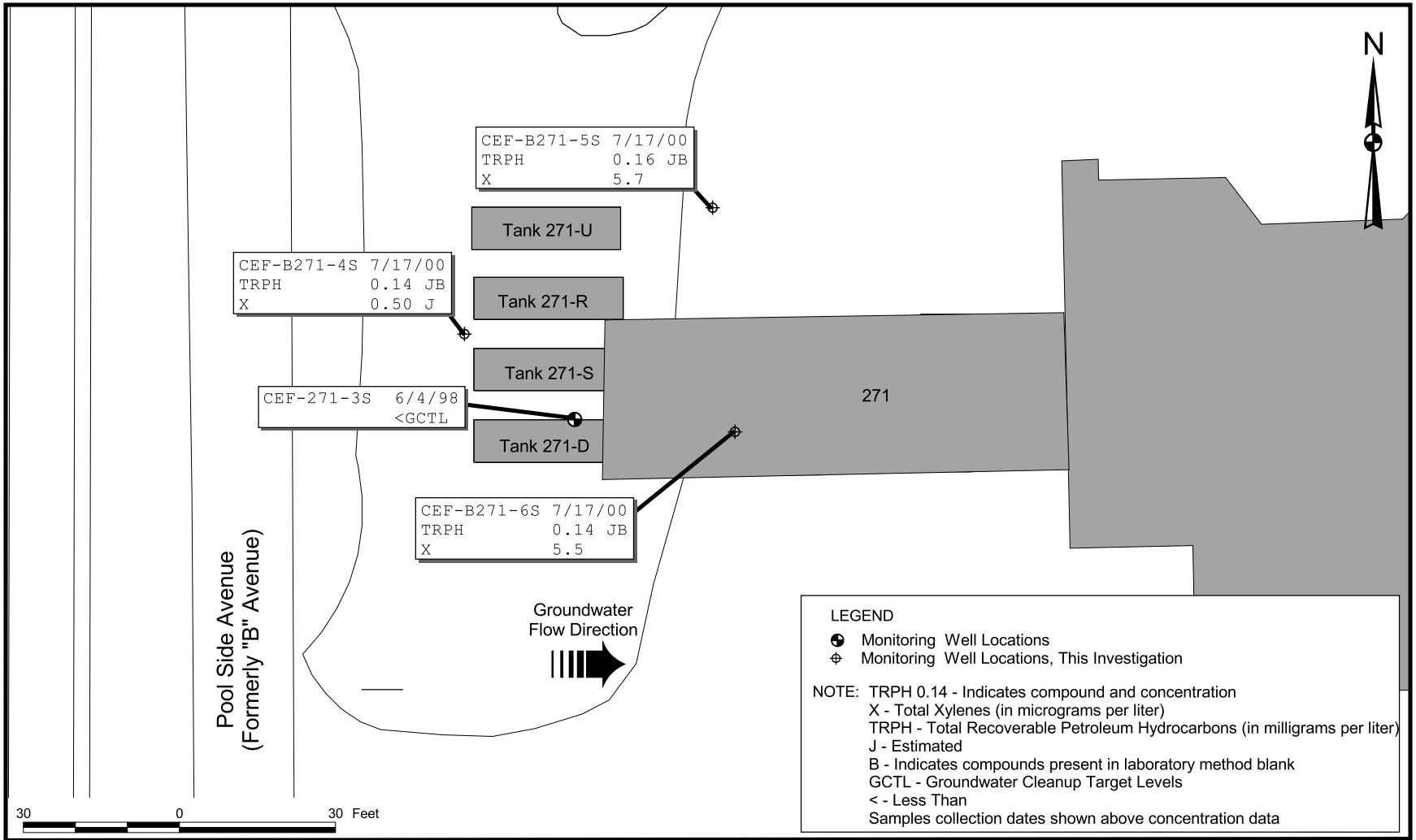
P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout03b

Table 3-3
Groundwater Sampling Positive Detection Results, Phase 1

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

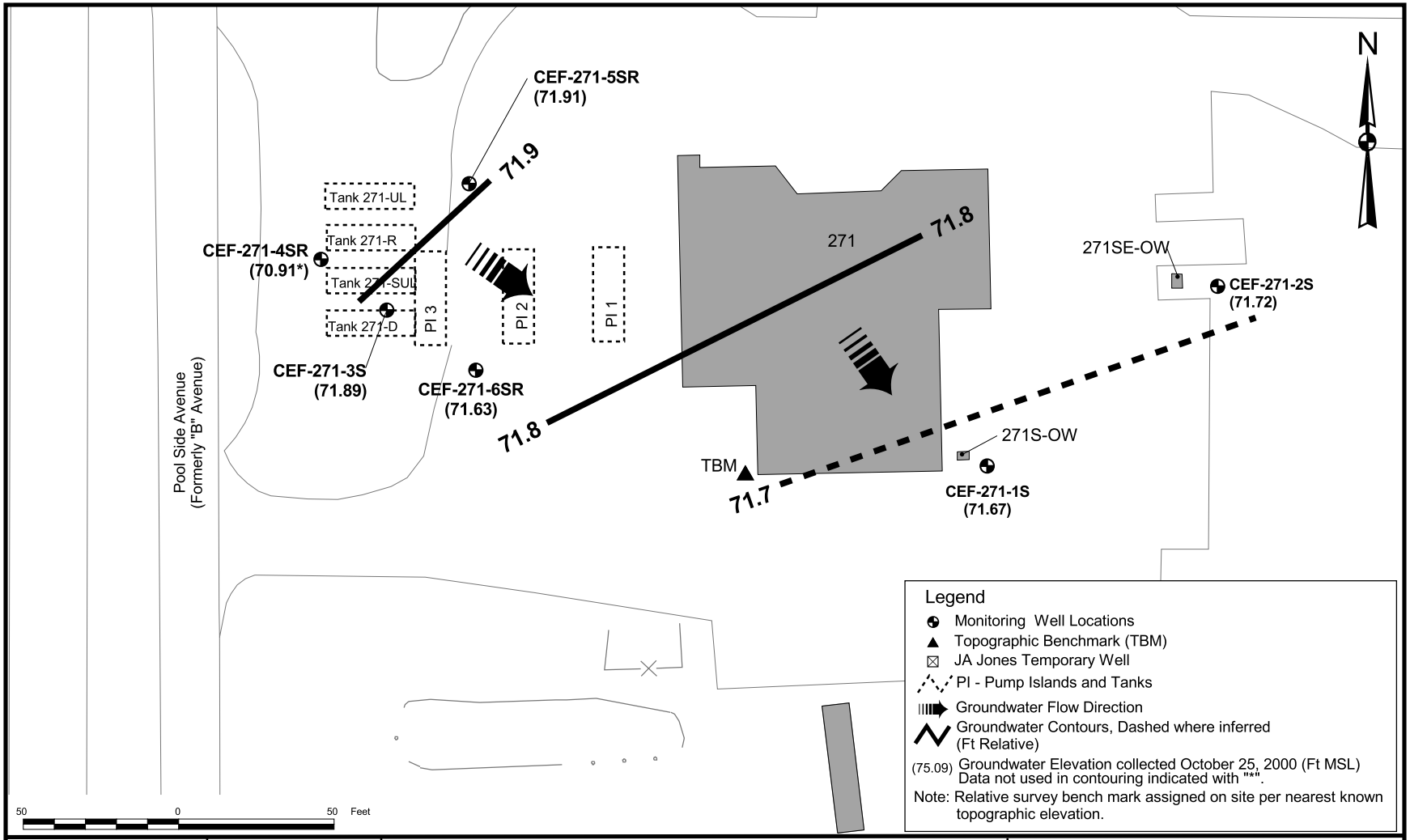
Monitoring Well Identification	**GCTL**	**CEF-B271-4S**	**CEF-B271-5S**	**CEF-B271-6S**
Sample Identification		**CEF-B271-GW-04-01**	**CEF-B271-GW-05-01**	**CEF-B271-GW-06-01**
Date Sampled		7/17/2000	7/17/2000	7/17/2000
Compounds				
TRPH (mg/L)	5	0.14JB	0.16JB	0.14JB
Xylenes, Total (µg/L)	20	0.50J	5.7	5.5

Notes:
µg/L = micrograms per liter
mg/L = milligrams per liter
GCTL = Groundwater Cleanup Target Level
TRPH = total recoverable petroleum hydrocarbons
B = indicates compounds present in method blank
J = estimated



DRAWN BY MJJ	DATE 15Sept00	PHASE 1 DISSOLVED HYDROCARBON CONCENTRATIONS SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-2 / REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout03c



DRAWN BY	DATE
MJJ	02Nov01
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE	AS NOTED

GROUNDWATER FLOW MAP, 10/25/00
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER	
121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-3	REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 13Dec01 MJJ Layout04

Constructors (CCI), 2001]. The soil removal included the contaminated soil previously identified by HLA and TtNUS at soil borings CEF-271-SB-2 and CEF-B271-SB-003, respectively. The SRR indicated that the soil excavation continued in the UST area and pump island areas until OVA-FID readings less than 10 ppm were encountered, and vertically to a maximum depth of 10.5 feet to extricate the USTs. The RAC also collected confirmatory soil samples from the walls of the excavation. The results for those confirmatory samples were reported below applicable SCTLs (CCI, 2001).

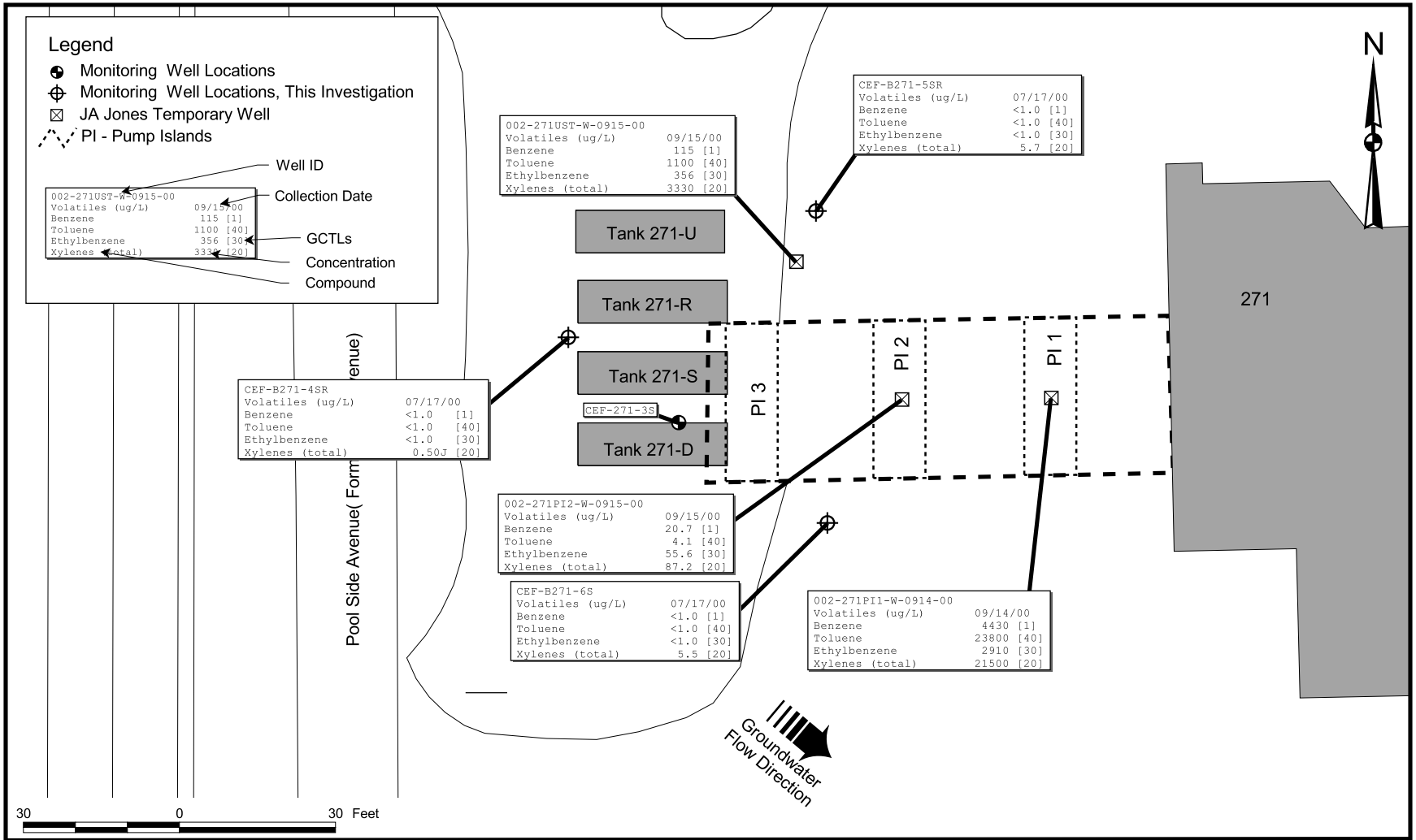
3.1.2 RAC Groundwater Work

CCI installed three temporary wells in September 2000 to screen the groundwater during their source removal. One temporary well was installed in the area of the tank pit (002-271-W-0915-00) and the other two temporary wells were installed at the former location of Pump Islands 1 and 2 (002-271PI1-W-0915-00 and 002-271PI2-W-0915-00, respectively). CCI's analytical data indicated that several GCTLs were exceeded by each sample collected from these temporary wells. Figure 3-4 shows the temporary well locations and the VOCs detected at each sample point. Similarly, Figure 3-5 shows the PAHs detected at each temporary well point. Table 3-4 summarizes the detected compounds for each temporary well and compares the data to the respective GCTLs.

During the UST removal and prior to TtNUS' groundwater level measuring activity in Phase 1, the RAC had to remove two of the permanent monitoring wells, CEF-271-4S and CEF-271-5S. The wells were properly abandoned and replaced as documented by CCI (2001). The replacement wells, CEF-271-4SR and CEF-271-5SR, were installed in approximately the same location and to the same specifications as the original wells.

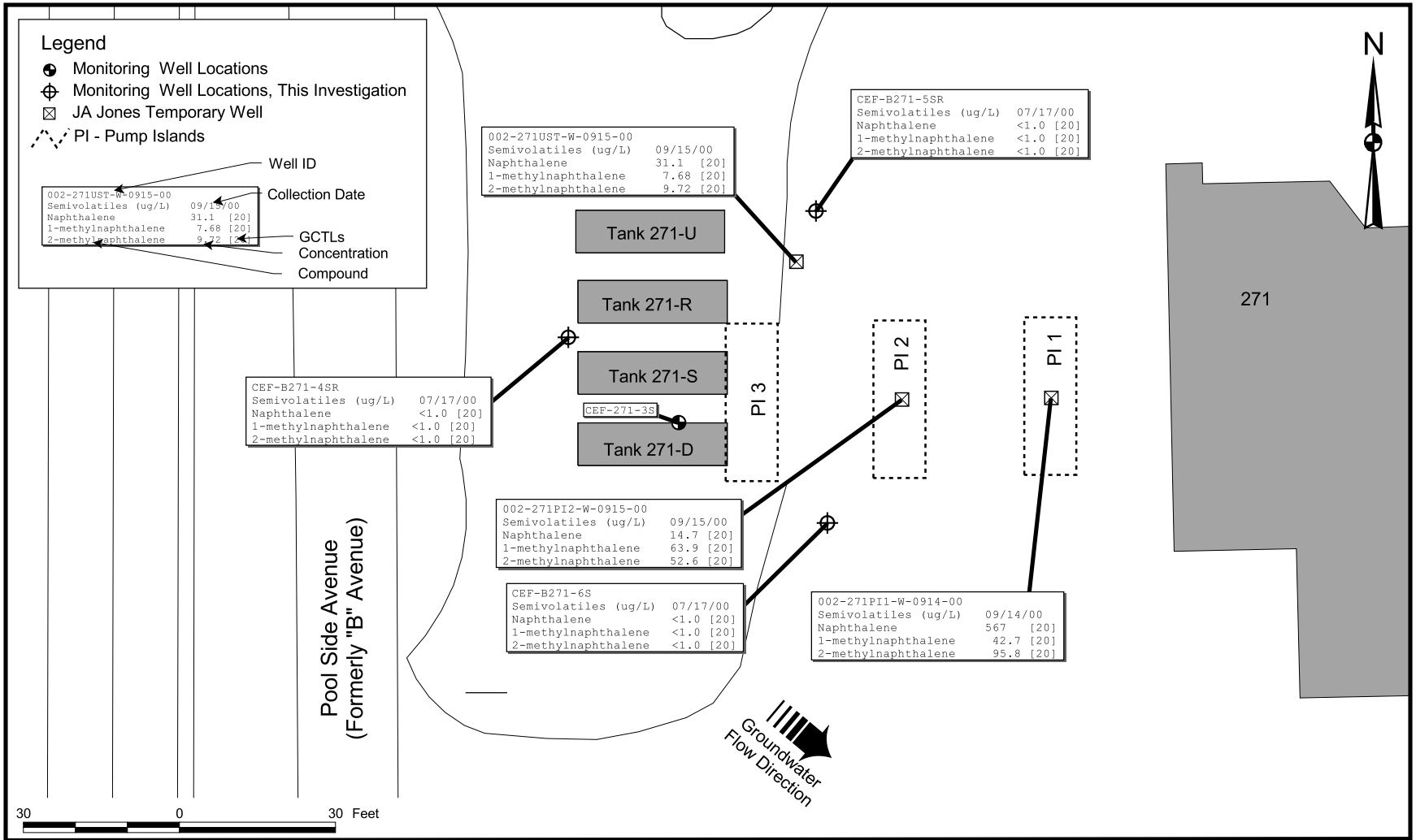
3.2 PHASE 2

On May 7 and 8, 2001, a DPT investigation of the vadose zone soils at Building 271 was conducted. The soil collection points (Figure 2-3) were outside the RAC's excavation area. The soils encountered during this phase consisted of fine silty sands to a depth of about 4.5 feet bls followed by a discontinuous fine clayey sand to about 8 feet bls. The water table was encountered at about 7 to 7.5 feet bls in these borings. Initial screening was accomplished using standard head-space vapor analysis. Table 3-5 indicates that none of the vapor measurements exceeded the 50-ppm action level for OVA-FID screening. In addition, seven soil samples were collected and screened by the mobile laboratory for BTEX, MTBE, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and DRO. Table 3-6 summarizes the mobile laboratory results and indicates that none of the compounds that were detected exceeded the FDEP SCTLs. This completed the soil investigation for the site and supported the RAC's conclusion that the



DRAWN BY MJJ	DATE 04Feb01	PHASE 1 AND SSR BTEX GROUNDWATER CONCENTRATION DATA SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-4 / REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout13



DRAWN BY	DATE
MJJ	04Feb01
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE	AS NOTED

PHASE 1 AND SSR SELECT PAH GROUNDWATER CONCENTRATION DATA

SITE ASSESSMENT REPORT

BUILDING 271, TANKS 271 UL/R/SUL/D

NAVAL AIR STATION CECIL FIELD

JACKSONVILLE, FLORIDA

CONTRACT NUMBER	
121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-5	REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout04b

Table 3-4
Tank Closure Groundwater Analytical Summary

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Identification	**GCTL**	**002-271PI1-W-0914-00**	**002-271PI2-W-0915-00**	**002-271UST-W-0915-00**
Date Sampled		9/14/2000	9/15/2000	9/15/2000
Compounds (units in µg/L)				
Benzene	1	**4430**	**20.7**	**115**
Ethylbenzene	30	**2910**	**55.6**	**356**
Isopropylbenzene	0.8	**131**	NR	NR
4 - Isopropyltoluene	N/A	7.5	NR	NR
n-Propylbenzene	N/A	306	NR	NR
Styrene	100	43.1	NR	NR
Toluene	40	**23800**	4.1	**1100**
1,2,4 - Trimethylbenzene	10	**3140**	NR	NR
1,3,5 - Trimethylbenzene	10	**788**	NR	NR
Xylenes (total)	20	**21500**	**87.2**	**3330**
Naphthalene	20	**567**	14.7	**31.1**
Fluorene	280	10.4U	7.61	0.63
Phenanthrene	210	13.3U	9.22	0.71U
1 - Methylnaphthalene	20	**42.7**	**63.9**	7.68
2 - Methylnaphthalene	20	**95.8**	**52.6**	9.72

Notes:
Analytical data compiled from CH2M Hill Constructors analytical reports of September 2000.
Concentrations that exceed respective GCTLs are shown in **bold**.
µg/L = micrograms per liter
GCTL = Groundwater Cleanup Target Level
U = not detected (number adjacent to letter indicates reporting limit)
NR = not reported
N/A = not available

Table 3-5
DPT Soil Screening Summary

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Soil Boring ID	**SB-A1**			**SB-A2**			**SB-A3**		
CEF-271-DP-	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected
Depth interval, feet bls									
0 to 1	0	0	0	0	0	0	0	0	0
1 to 3	0.5	0	0.5	0.5	0	0.5	0.5	0	0.5
3 to 5	0	0	0	0	0	0	0	0	0

Soil Boring ID	**SB-A4**			**SB-A5**			**SB-A6**		
CEF-271-DP-	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected
Depth interval, feet bls									
0 to 1	0	0	0	0	0	0	0	0	0
1 to 3	0	0	0	0	0	0	0	0	0
3 to 5	0	0	0	0	0	0	0	0	0

Soil Boring ID	**SB-A7**			**SB-A8**			**SB-A9**		
CEF-271-DP-	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected
Depth interval, feet bls									
0 to 1	0	0	0	0	0	0	0	0	0
1 to 3	0	0	0	0	0	0	0	0	0
3 to 5	0	0	0	0	0	0	0	0	0

Soil Boring ID	**SB-A10**			**SB-A11**			**SB-A12**		
CEF-271-DP-	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected
Depth interval, feet bls									
0 to 1	0	0	0	0	0	0	0	0	0
1 to 3	0	0	0	0	0	0	0.8	0	0.8
3 to 5	0	0	0	0	0	0	0	0	0

See notes at end of table.

Table 3-5 (Continued)
DPT Soil Screening Summary

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Soil Boring ID CEF-271-DP-	**SB-A13**			**SB-A14**			**SB-A15**		
	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected
Depth interval, feet bls									
0 to 1	0	0	0	0	0	0	0	0	0
1 to 3	0	0	0	0	0	0	0	0	0
3 to 5	0	0	0	0	0	0	0	0	0

Soil Boring ID CEF-271-DP-	**SB-A16**			**SB-A17**		
	Unfiltered	Filtered	Corrected	Unfiltered	Filtered	Corrected
Depth interval, feet bls						
0 to 1	0	0	0	0	0	0
1 to 3	0	0	0	0	0	0
3 to 5	0	0	0	0	0	0

Notes:
OVA-FID readings are in parts per million as measured by OVA-FID.
bls = below land surface
Sample date = May 7, 2001

Table 3-6
Summary of Mobile Laboratory Results in Soils

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Sample Identification	Reporting Limit (µg/kg)	CEF-271-DP-					
		SB-A1	SB-A2	SB-A3	SB-A4	SB-A5	SB-A6
Date Sampled		5/7/2001	5/7/2001	5/7/2001	5/7/2001	5/7/2001	5/7/2001
Volatile Organic Compounds (µg/kg)							
MTBE	10	<10	<10	<10	<10	<10	<10
Benzene	10	<10	<10	<10	<10	<10	<10
Toluene	10	16.3	<10	<10	<10	<10	<10
Ethylbenzene	10	<10	<10	<10	<10	<10	<10
m&p-Xylene	10	<10	<10	<10	<10	<10	<10
o-Xylene	10	<10	<10	<10	<10	<10	<10
Polynuclear Aramotic Hydrocarbons (µg/kg)							
Naphthalene	10	<10	<10	<10	<10	<10	<10
1-Methylnaphthalene	10	NA	NA	<10	<10	<10	<10
2-Methylnaphthalene	10	NA	NA	<10	<10	<10	<10
Diesel Range Organics (mg/kg)							
DRO (mg/kg)	20	<20	<20	<20	<20	<20	<20

contaminated soil at the site had been removed and no further action is warranted at the site with regard to soils (CCI, 2001).

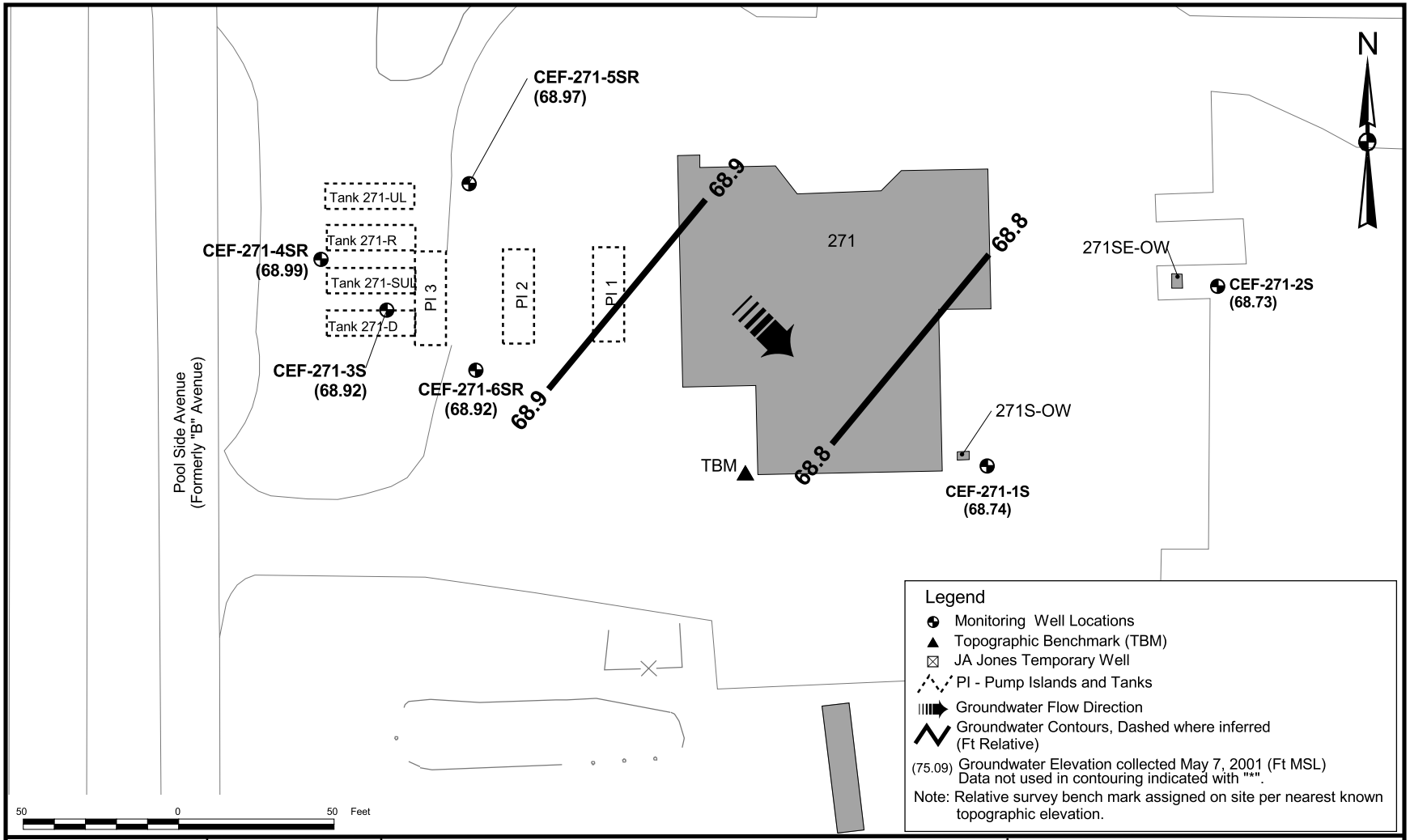
Groundwater levels were measured on May 7, 2001 at wells CEF-271-1S through CEF-271-6S. Average depth-to-water in the wells was about 7.5 feet. Groundwater elevation measurements were calculated from the field data (Table 2-1) and plotted on Figure 3-6. The figure indicates that groundwater flow continues to be toward the southeast.

Based on southeasterly groundwater flow, TtNUS personnel collected 17 DPT groundwater samples in that general direction to evaluate the extent of petroleum impacted groundwater and aid in the placement of permanent monitoring wells. The samples were screened for BTEX, MTBE, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and DRO. A summary of detected groundwater compounds as reported by the mobile laboratory is presented in Table 3-7. Seven of the groundwater samples (CEF-271-DP-GW-A1, CEF-271-DP-GW-A2, CEF-271-DP-GW-A3, CEF-271-DP-GW-A6, CEF-271-DP-GW-A7, CEF-271-DP-GW-A8 and CEF-271-DP-GW-14) exceeded the FDEP GCTLs. The vertical depth sample, CEF-271-DP-GW-A4, was reported with minor detections of VOCs and PAHs, but none of them exceeded a GCTL. Figure 3-7 indicates the BTEX compounds detected in each Phase 2 groundwater sample location, and Figure 3-8 indicates the naphthalene detected in each Phase 2 groundwater sample location.

3.3 PHASE 3

On August 20 and 21, 2001, TtNUS supervised installation of new wells CEF-271-7S through CEF-271-12S and CEF-271-1I. The lithology encountered in the borings consisted of very fine to medium sands to a depth of about 37 feet bls. Occasionally, a sand with some clay was encountered at approximately 3 to 5 feet bls. The soil lithology, encountered in Phases 1 through 3, is predominantly sand with no confining units between land surface and 37 feet bls. Due to the uniform lithology encountered at the site, a geologic cross section was not prepared for this report. The GIR (1998) contains a generalized stratigraphic column and descriptions of the geology and hydrogeology for NAS Cecil Field.

During August 23 and 24, 2001, TtNUS personnel collected samples from existing wells CEF-271-1S, CEF-271-3S, CEF-271-4SR, CEF-271-5SR, and CEF-271-6S; and from new wells CEF-271-7S through CEF-271-12S and CEF-271-1I. The groundwater samples were analyzed for KAG compounds. BTEX, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected at concentrations greater than GCTLs. Monitoring wells with groundwater concentrations in excess of one or more GCTLs included CEF-271-GW-7S, CEF-271-GW-9S, and CEF-271-GW-10S. The groundwater



DRAWN BY MJJ	DATE 02Nov01	GROUNDWATER FLOW MAP, 5/7/01 SITE ASSESSMENT REPORT BUILDING 271, TANKS 271 UL/R/SUL/D NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 121
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3-6 / REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 13Dec01 MJJ Layout05

Table 3-7
Summary of Mobile Laboratory Positive Detections in Groundwater

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Sample ID	GCTLs	CEF-271-DP								
		GW-A1	GW-A2	GW-A3	GW-A4	GW-A5	GW-A6	GW-A7	GW-A8	GW-A9
Volatile Organic Compounds (µg/L)										
MTBE	50	<1	<1	<1000	<1	<1	<100	<500	<1	<1
Benzene	1	13.6	5.7	1490	<1	<1	263	610	8.8	<1
Toluene	40	60.4	<1	4480	1.7	<1	<100	1620	<1	<1
Ethylbenzene	30	11.0	11.6	1030	<1	<1	247	<500	2.7	<1
m&p-Xylene	*	28.8	<1	2400	2.5	<1	131	965	<1	<1
o-Xylene	*	21.2	<1	1490	1.2	<1	<100	650	<1	<1
Polynuclear Aromatic Hydrocarbons (µg/L)										
Naphthalene	20	5.6	6.9	<1000	3.5	<1	136	<500	3.5	<1
1-Methylnaphthalene	20	NA	<1	<1000	9.0	NA	NA	<500	NA	NA
2-Methylnaphthalene	20	NA	<1	<1000	10.7	NA	NA	<500	NA	NA
Diesel Range Organics (mg/L)										
DRO	N/A	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:
< = less than
NA = not analyzed
µg/L = micrograms per liter
mg/L = milligrams per liter
MTBE = methyl-tert-butyl ether
GCTL = Groundwater Cleanup Target Level
* = GCTL for total xylenes = 20 µg/L

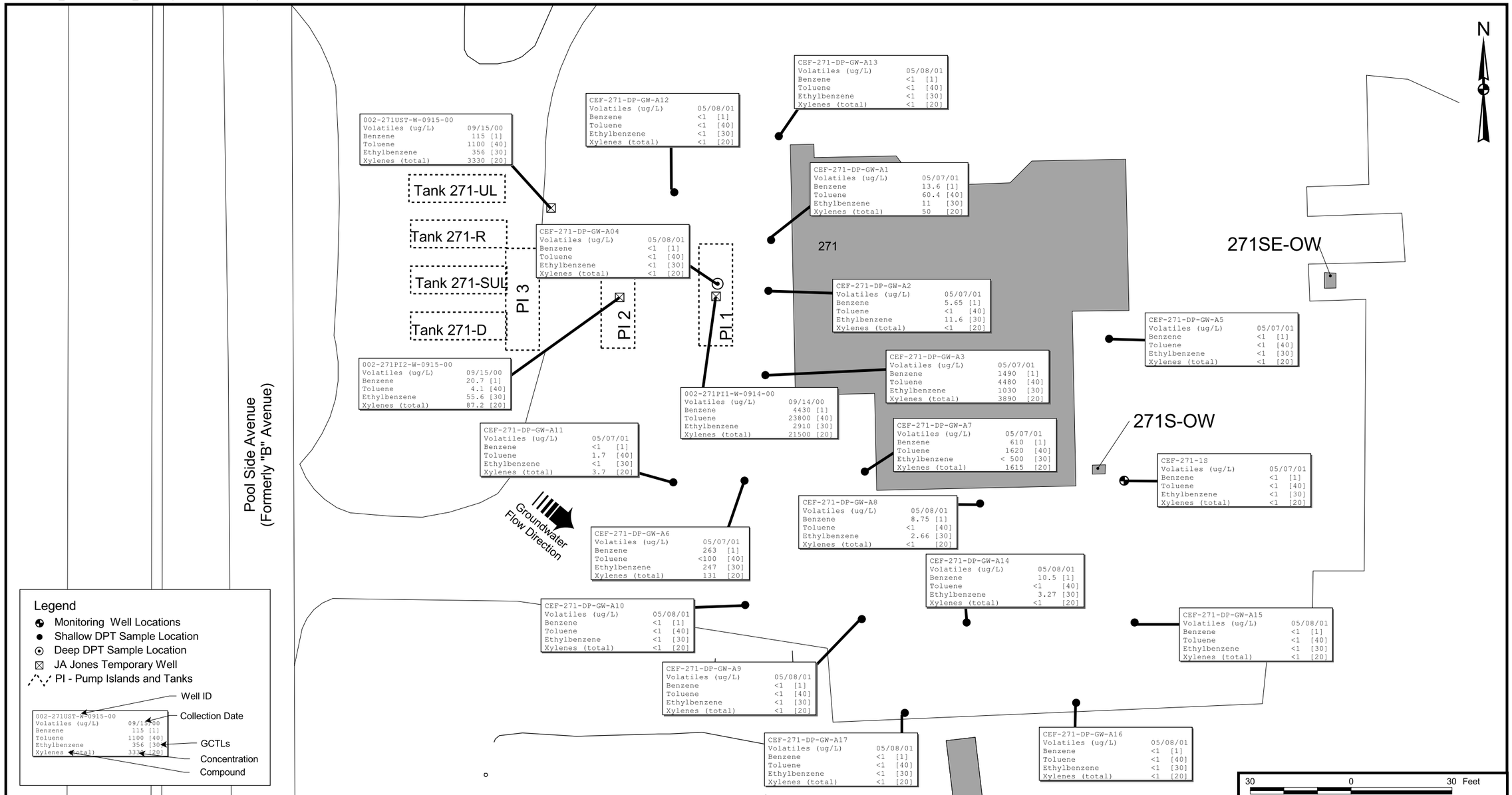
Table 3-7 (Continued)
Summary of Mobile Laboratory Positive Detections in Groundwater

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Sample ID	GCTLs	CEF-271-DP								
		GW-A10	GW-A11	GW-A12	GW-A13	GW-A14	GW-A15	GW-A16	GW-A17	MW-1S
Volatile Organic Compounds (µg/L)										
MTBE	50	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	1	<1	<1	<1	<1	10.5	<1	<1	<1	<1
Toluene	40	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	30	<1	<1	<1	<1	3.3	<1	<1	<1	<1
m&p-Xylene	*	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	*	<1	<1	<1	<1	<1	<1	<1	<1	<1
Polynuclear Aromatic Hydrocarbons (µg/L)										
Naphthalene	20	<1	<1	<1	<1	5.0	<1	<1	<1	<1
1-Methylnaphthalene	20	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	20	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel Range Organics (mg/L)										
DRO	N/A	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA

Notes:
< = less than
NA = not analyzed
µg/L = micrograms per liter
mg/L = miligrams per liter
MTBE = methy-tert-butyl ether
GCTL = Groundwater Cleanup Target Level
* = GCTL for total xylenes = 20 µg/L

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout07



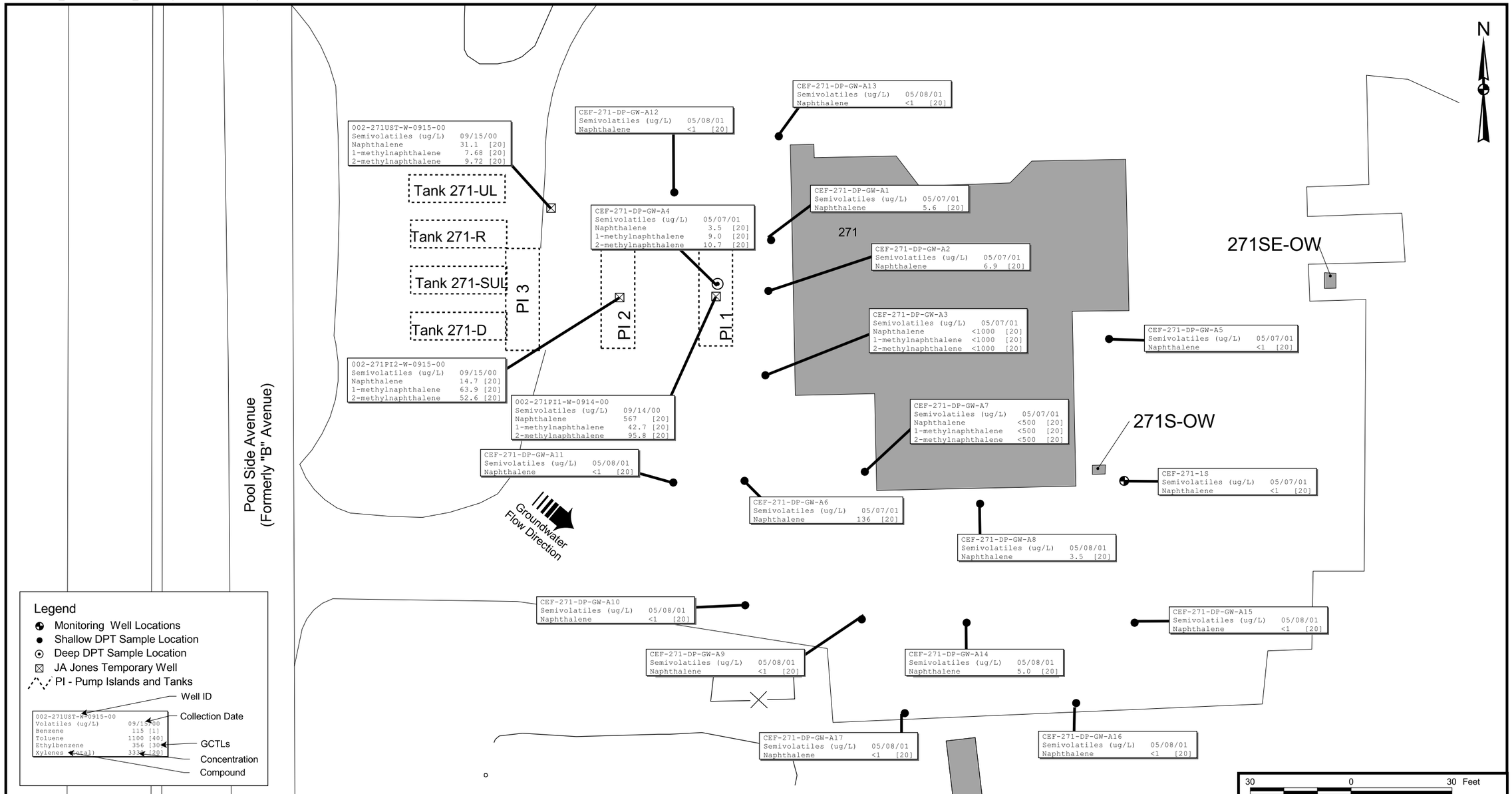
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
MJJ	17Sept01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	
AS NOTED	

PHASE 2 - BTEX GROUNDWATER
SCREENING DATA
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO.	
121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-7	REV. 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout08



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
MJJ	17Sept01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	
AS NOTED	

PHASE 2 - NAPHTHALENE GROUNDWATER SCREENING DATA
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO.	
121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-8	REV. 0

sample collected from monitoring well CEF-271-7S exceeded the NADSC for several VOCs and naphthalene, and the sample from well CEF-271-9S exceeded the NADSC for total xylenes. A summary of positive detections in those samples is provided in Table 3-8. An estimated outline of the benzene plume in groundwater is presented in Figure 3-9 and the estimated outline of the naphthalene plume in groundwater is presented in Figure 3-10. The analytical results for this groundwater-sampling event are included in Appendix G.

On October 31, 2001, groundwater levels were measured at wells CEF-271-1S through CEF-271-12S and CEF-271-1I. Average depth to water on site at this time was about 5.5 feet bls. Groundwater elevation measurements were calculated from the field data (Table 2-1) and plotted on Figure 3-11. The figure indicates that groundwater flow for the water table zone of the shallow aquifer continues to be toward the southeast.

On November 8 and 9, 2001, SPECAP testing of three shallow wells (CEF-271-1S, CEF-271-6S and CEF-271-11S) was conducted. These wells were selected because they are evenly spread across the site and also because 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 H of this report. The SPECAP, K and T values are summarized below in Table 3-9. 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 (1980) 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 3-8
Summary of Positive Detections in Groundwater

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Well ID	GCTLs	CEF-271-1I	CEF-271-1S	CEF-271-3S	CEF-271-4S	CEF-271-4SR	CEF-271-5S	NADSC
Sample Date		8/24/2001	8/23/2001	8/23/2001	7/17/2000	8/23/2001	7/17/2000	
Well Depth in Feet		38	16.8	12.85	15.55	14.95	15.55	
Volatile Organic Compounds (USEPA Method 8260B)(µg/L)								
Benzene	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100
Chloromethane	2.7	1.0 U	0.51 J	1.0 U	1.0 U	1.0 U	1.0 U	270
Ethylbenzene	30	0.77 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	300
MTBE	50	10 U	5.0 U	5.0 U	10 U	5.0 U	10 U	500
Toluene	40	3.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	400
Xylenes, Total	20	5.5	2.0 U	2.0 U	0.50J	2.0 U	5.7	200
EDB (USEPA Method 504.1)								
EDB	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270C)(µg/L)								
1-Methylnaphthalene	20	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	200
2-Methylnaphthalene	20	0.25 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	200
Acenaphthene	20	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	200
Anthracene	2100	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	21000
Benzo (a) anthracene	4.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	20
Fluoranthene	280	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2800
Fluorene	280	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2800
Naphthalene	20	0.71 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	200
Phenanthrene	210	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2100
Pyrene	210	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2100
Metal (USEPA Method 6010B) (mg/L)								
Total Lead	.015	0.01 U	0.05 U	0.05 U	0.01 U	0.05 U	0.01 U	0.15
FLORIDA-PRO (mg/L)								
TPH (C8-C40)	5	1.0 U *	1.0 U *	1.0 U *	0.14JB	1.0 U *	5.7	50

See notes at end of table.

Table 3-8 (Continued)
Summary of Positive Detections in Groundwater

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Well ID	GCTLs	CEF-271-5SR	CEF-271-6S	CEF-271-6S	CEF-271-7S	CEF-271-8S	CEF-271-9S	NADSC
Sample Date		8/23/2001	7/17/2000	8/23/2001	8/24/2001	8/24/2001	8/24/2001	
Well Depth in Feet		14.66	15.85	15.85	13.65	13.05	13	
Volatile Organic Compounds (USEPA Method 8260B)(µg/L)								
Benzene	1	1.0 U	1.0 U	1.0 U	**89**	1.0 U	**9.8**	100
Chloromethane	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	270
Ethylbenzene	30	1.0 U	1.0 U	1.0 U	**520**	1.0 U	**36**	300
MTBE	50	5.0 U	10 U	5.0 U	**11**	10 U	10 U	500
Toluene	40	1.0 U	1.0 U	1.0 U	**2900**	1.0 U	**270**	400
Xylenes, Total	20	2.0 U	5.5	2.0 U	**3300**	2.0 U	**1600**	200
EDB (USEPA Method 504.1)								
EDB	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270C)(µg/L)								
1-Methylnaphthalene	20	1.0 U	1.0 U	1.0 U	**35**	1.0 U	8.2	200
2-Methylnaphthalene	20	1.0 U	1.0 U	1.0 U	**55**	1.0 U	7.3	200
Acenaphthene	20	1.0 U	1.0 U	1.0 U	4.5	1.0 U	1.0 U	200
Anthracene	2100	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	21000
Benzo (a) anthracene	4.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	20
Fluoranthene	280	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	2800
Fluorene	280	1.0 U	1.0 U	1.0 U	4.1	1.0 U	0.43 J	2800
Naphthalene	20	1.0 U	1.0 U	1.0 U	**230**	1.0 U	7.4	200
Phenanthrene	210	1.0 U	1.0 U	1.0 U	7.0	1.0 U	1.0 U	2100
Pyrene	210	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	2100
Metal (USEPA Method 6010B) (mg/L)								
Total Lead	.015	0.05 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.15
FLORIDA-PRO (mg/L)								
TPH (C8-C40)	5	1.0 U *	5.5	1.0 U *	4.1 *	1.0 U *	1.6 *	50

See notes at end of table.

Table 3-8 (Continued)
Summary of Positive Detections in Groundwater

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

Well ID	GCTLs	CEF-271-10S	CEF-271-11S	CEF-271-12S	NADSC
Sample Date		8/24/2001	8/24/2001	8/23/2001	
Well Depth in Feet		13.15	13.3	13.4	
Volatile Organic Compounds (USEPA Method 8260B)(µg/L)					
Benzene	1	**1.8**	1.0 U	0.44 J	100
Chloromethane	2.7	1.0 U	1.0 U	0.53 J	270
Ethylbenzene	30	1.2	1.0 U	1.0 U	300
MTBE	50	10 U	10 U	10 U	500
Toluene	40	6.2	1.0 U	0.35 J	400
Xylenes, Total	20	8.0	2.0 U	2.0 U	200
EDB (USEPA Method 504.1)					
EDB	0.02	0.05 U	0.05 U	0.05 U	2
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270C)(µg/L)					
1-Methylnaphthalene	20	1.0 U	1.0 U	1.0 U	200
2-Methylnaphthalene	20	1.0 U	1.0 U	1.0 U	200
Acenaphthene	20	1.0 U	1.0 U	1.0 U	200
Anthracene	2100	1.0 U	1.0 U	1.0 U	21000
Benzo (a) anthracene	4.8	1.0 U	1.0 U	1.0 U	20
Fluoranthene	280	1.0 U	1.0 U	1.0 U	2800
Fluorene	280	1.0 U	1.0 U	1.0 U	2800
Naphthalene	20	0.47 J	1.0 U	1.0 U	200
Phenanthrene	210	1.0 U	1.0 U	1.0 U	2100
Pyrene	210	1.0 U	1.0 U	1.0 U	2100
Metal (USEPA Method 6010B) (mg/L)					
Total Lead	.015	0.01 U	0.01 U	0.05 U	0.15
FLORIDA-PRO (mg/L)					
TPH (C8-C40)	5	1.0 U *	1.0 U *	1.0 U *	50

See notes at end of table.

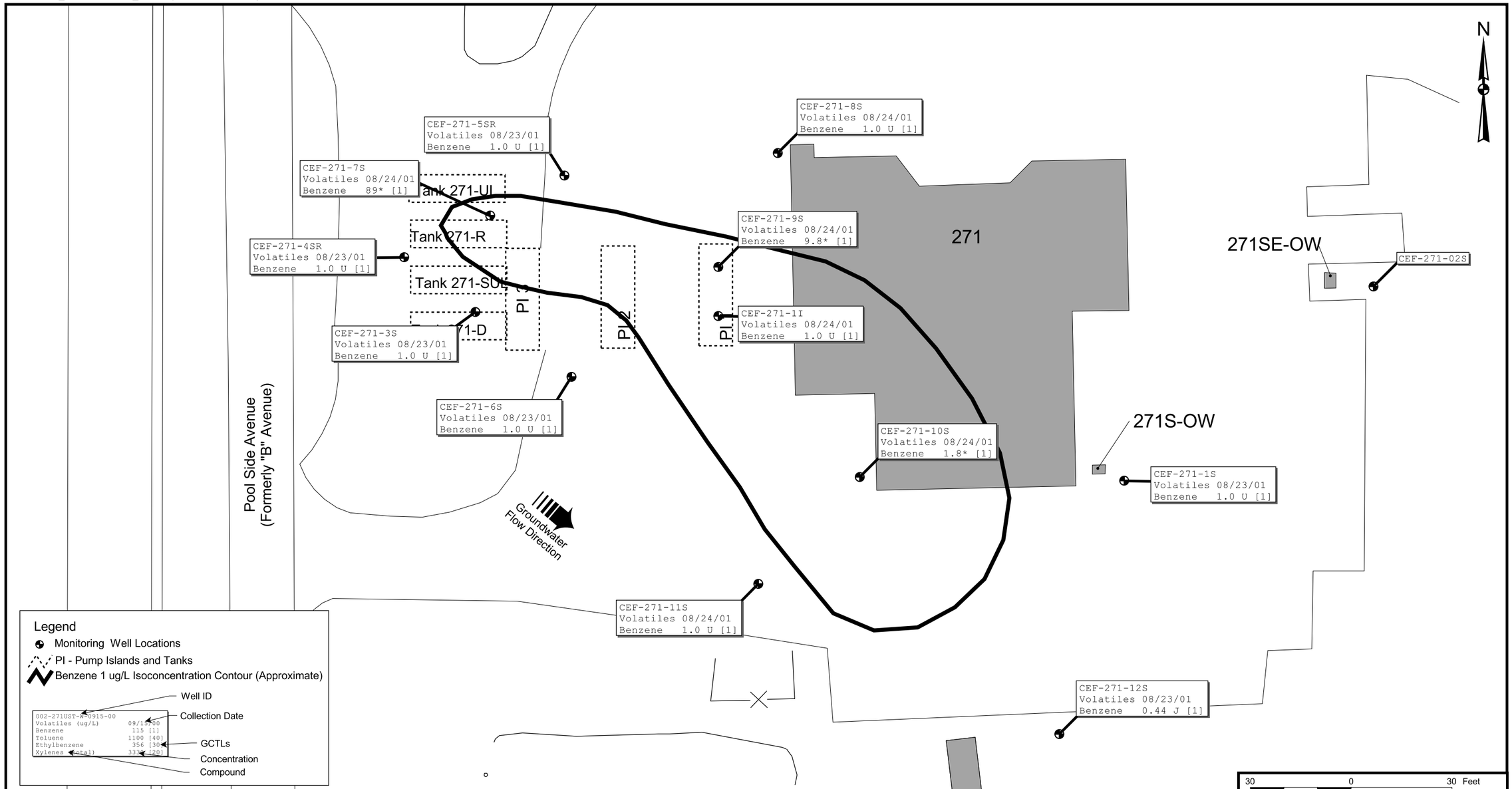
Table 3-8 (Continued)
Summary of Positive Detections in Groundwater

Site Assessment Report
Building 271, Tanks 271 UL/R/SUL/D
Naval Air Station Cecil Field
Jacksonville, Florida

NOTES:

EDB = 1,2 Dibromoethane
GCTLs = Groundwater Cleanup Target Levels
MTBE = Methyl-Tert-Butyl Ether
NADSC = Natural Attenuation Default Source Concentrations
PRO = Petroleum Range Organics
TPH = Total Petroleum Hydrocarbons
USEPA = United States Environmental Protection Agency
µg/L = micrograms per liter
mg/L = milligrams per liter
U = Indicates the constituent was not detected in excess of its method detection limit (represented by the value).
B = Indicates compounds present in method blank.
J = Estimated.
* = Estimated value due to elapsed holding time.
Bold denotes levels equaling or exceeding Floridal Department of Environmental Protection GCTLs.

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout09



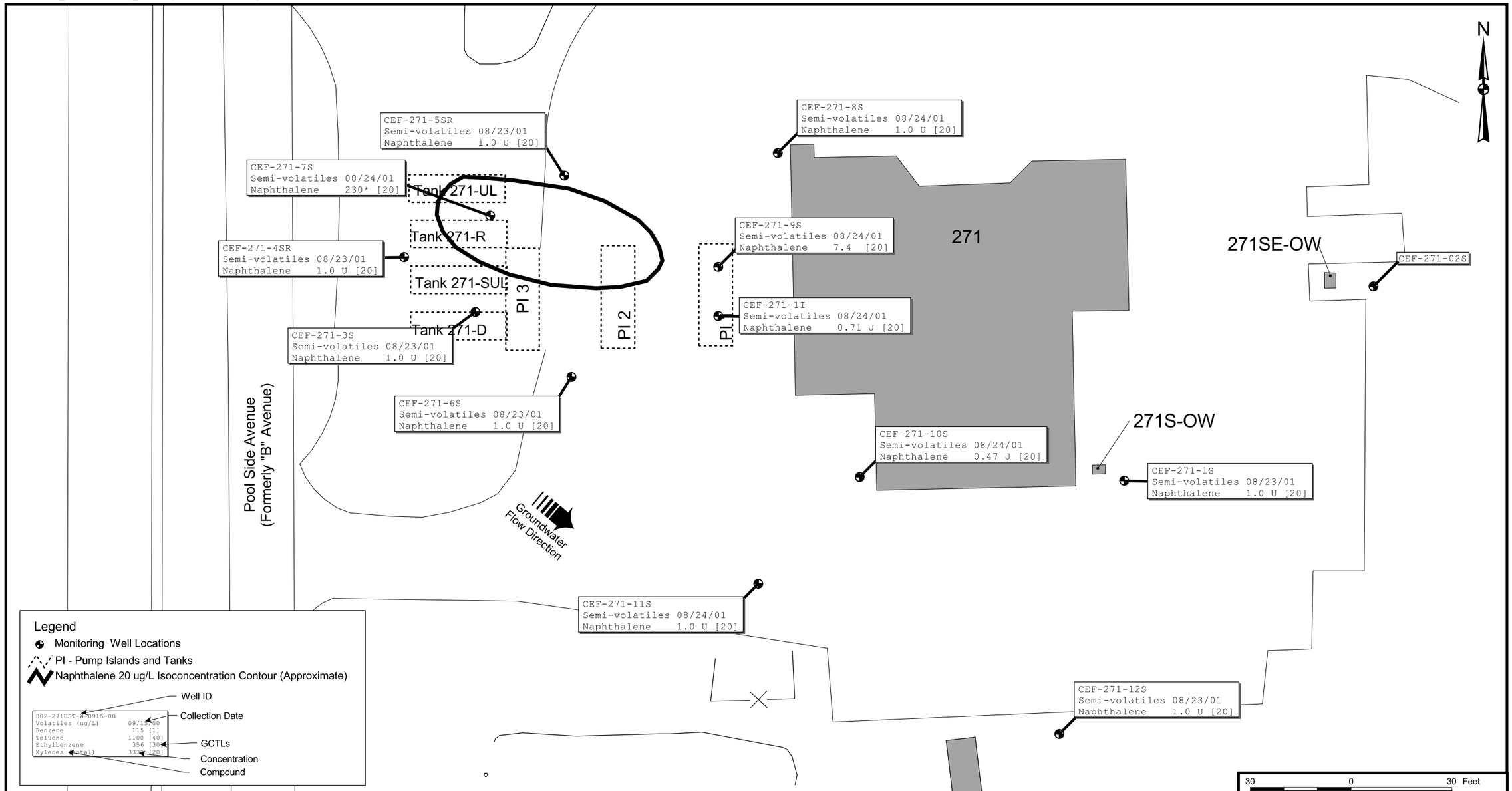
NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY MJJ	DATE 05Nov01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	

PHASE 3 - BENZENE GROUNDWATER
LABORATORY DATA
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-9	REV. 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 23Jan02 MJJ Layout10

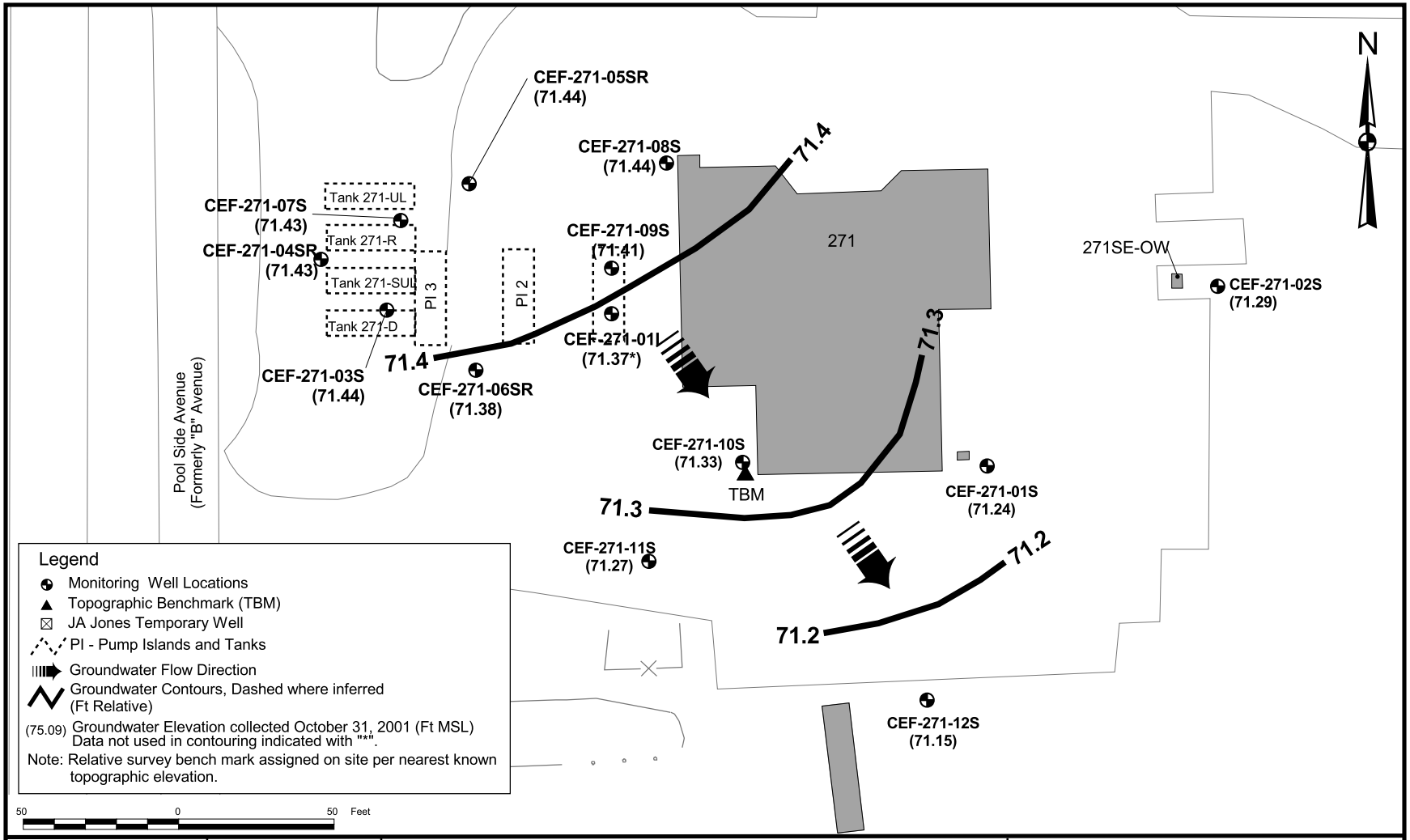


NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY MJJ	DATE 05Nov01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	

PHASE 3 - NAPHTHALENE GROUNDWATER
LABORATORY DATA
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. 121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-10	REV. 0



DRAWN BY	DATE
MJJ	02Nov01
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE	AS NOTED

GROUNDWATER FLOW MAP, 10/31/01
SITE ASSESSMENT REPORT
BUILDING 271, TANKS 271 UL/R/SUL/D
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NUMBER	
121	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3-11	REV 0

P:\GIS\NAS_CecilField\Tank_271-5.apr 14Dec01 MJJ Layout06

TABLE 3-9

Aquifer Properties Based on Analysis of Specific Capacity Tests

Well Number	Specific Capacity (SPECAP)	Transmissivity (T)	Hydraulic Conductivity (K) (ft/day) and (gpd/ft^2)
CEF-271-1S	0.1650 gpm/ft	2.17 x 10^{-3} ft^2/sec or 1405.36 gpd/ft	2.32 ft/day or 15.46 gpd/ ft^2
CEF-271-6S	0.5454 gpm/ft	7.29 x 10^{-3} ft^2/sec or 4716.24 gpd/ft	7.81 ft/day or 51.90 gpd/ ft^2
CEF-271-11S	0.2659 gpm/ft	3.53 x 10^{-3} ft^2/sec or 2284.58 gpd/ft	3.78 ft/day or 25.14 gpd/ ft^2

Notes:

gpm = gallons-per-minute

ft = feet

sec = seconds

gpd = gallons-per-day

Halford (1998) 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 4.63 feet-per-day, which closely approximates Halford's 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 October 2001 and shown on Figure 3-11. The approximate averaged value is 0.0018 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 0.055 feet-per-day or 20.2 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. Contaminant velocities will be further affected by changes in groundwater density, dispersion, and other factors that affect their flow.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 PHASE 1 CONCLUSIONS

The soil OVA-FID data coupled with the confirmatory analytical data indicated that excessively contaminated soil remained in the area of HLA's soil boring CEF-271-SB-2 and TtNUS' adjacent soil boring CEF-B271-SB-003. Thus, the need for a soil source removal was confirmed. The groundwater analytical data did not indicate the existence of groundwater contamination at that time.

4.1.1 RAC Source Removal Conclusions

During the removal of the remaining USTs, piping, and dispensers, the RAC removed the existing excessively contaminated soil at the site, which included the area previously mentioned in the Phase 1 conclusions. Additionally, the RAC removed the structures associated with the two OWS at the site. In that process, they determined there was no excessively contaminated soil associated with the OWS.

The RAC did determine that groundwater contamination existed, which apparently originated from the USTs and pump islands that were removed. Although the soil on site had been remediated, the groundwater petroleum contamination required further assessment.

4.2 PHASE 2 CONCLUSIONS

Soil OVA-FID screening and confirmatory mobile laboratory analyses of samples collected outside the footprint of the source removal conducted by the RAC confirmed that all of the petroleum-impacted soil had been removed and that no additional action was required regarding the soil at the site.

The Phase II investigation also provided adequate groundwater screening data to determine the optimum number and location of permanent monitoring wells. The groundwater screening results suggested that the groundwater contamination was likely limited to the shallow groundwater zone above approximately 26 feet bls.

4.3 PHASE 3 CONCLUSIONS

The additional monitoring wells installed during this phase confirmed the Phase 2 DPT investigation conclusions regarding the horizontal extent of the shallow groundwater contamination. The vertical extent well was screened from approximately 32 to 37 feet bls since the Phase 2 results indicated that this depth interval should ensure a relatively uncontaminated sample, and the analytical result affirmed that decision.

4.4 RECOMMENDATIONS

- Based on the results of the SRR submitted by the RAC and follow-up soil screening performed by TtNUS, the contaminated soil at the site has been removed and no further action is recommended regarding soils at Building 271.

- The extent of groundwater contamination has been delineated and is limited to the shallow groundwater zone. The vertical extent of the groundwater contamination does not extend below 32 feet bls.

- The results of shallow groundwater analyses indicate that the concentrations of constituents of concern are greater than the NADSC specified in FAC 62-770. Therefore, a Remedial Action Plan is recommended to address the shallow groundwater contamination associated with Building 271, Tanks 271 UL, 271R, 271 SUL, and 271 D.

5.0 PROFESSIONAL REVIEW CERTIFICATION

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 271, Tanks 271 UL, 271R, 271 SUL, and 271 D at the former NAS Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

Mervin W. Dale

Mervin Dale
Florida Professional Geologist
P.G. No. 0001917

MERVIN W. DALE
LICENSE
NO. 1917
STATE OF
FLORIDA
PROFESSIONAL GEOLOGIST

5/9/02

Date

REFERENCES

ABB-ES (ABB Environmental Services), 1998, revised. General Information Report for Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM. March.

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.

CCI (CH2M Hill Constructors, Inc.), 2001. Source Removal Report, UST Closure at Building 271 Tank Numbers 271R, 271UL and 271 SUL; Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM. March.

Fetter, Jr., C.W., 1980. Applied Hydrogeology, Charles E. Merrill Publishing Co., Columbus, Ohio.

Halford, K.J., 1998. Ground-Water Flow in the Surficial Aquifer System and Potential Movement of Contaminants from Selected Waste-Disposal Sites at Cecil Field Naval Air Station, Jacksonville, Florida, USGS Water-Resources Investigation Report 97-4278, Tallahassee, Florida.

HLA (Harding Lawson Associates), 1999. Confirmatory Sampling Report, Base Exchange Gas Station, Building 271. Prepared for SOUTHNAVFACENGCOM. April.

Roberts, Mark, 2002. E-mail correspondence dated January 14, 2002 from Mark Roberts (JEDC) to Mervin Dale (TtNUS) and Ralph Hogan (J. A. Jones Global Services) regarding building usage, Cecil Commerce Center, Jacksonville, Florida.

TtNUS (Tetra Tech NUS, Inc.), 1998. Base-wide Generic Work Plan, Volumes 1 and 2, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM. October.

TtNUS, 1999. Remedial Investigation Report, Sites 36 and 37, Volumes 1 through 3, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM. August.

TtNUS, 2000. Sampling and Analysis Plan for Site Assessment and Confirmatory Sampling at Various UST and AST Sites. Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM. March.

TtNUS, 2001. Sampling and Analysis Plan Addendum … Prepared for SOUTHNAVFACENGCOM.

USEPA (United States Environmental Protection Agency), 1997. Region 4 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), Athens, GA Revised. May.

APPENDIX A

TANK 271 D CLOSURE REPORT

DEPARTMENT OF THE NAVY
NAVAL AIR STATION
CECIL FIELD, FLORIDA 32215-5000

5090
18413
May 6, 1996

Certified Mail - Return Receipt Requested

Mr. Marshall Mott-Smith
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Fl 32399-2400

Dear Mr. Mott-Smith:

Enclosure (1) is the closure report for the underground storage vehicle diesel tank 271D, located at the Navy Exchange. We request a clean closure at this site, no contaminated soil or groundwater was found.

If you have any questions concerning this matter, the point of contact is Ms. Ursula Klimas (904) 778-6040.

Sincerely,

J. LLOYD CREWS
By direction of the
Commanding Officer

copy to:

Encl:
(1) Closure Report for Tank 271D

Copy to:
City of Jacksonville, Regulatory
and Environmental Service Department
State of Florida
Department of Environmental Protection
Northeast District

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

DER Form # 17-761.900(2)
Form Title Storage Tank Registration Form
Effective Date December 10, 1990
DER Application No. _____ (Filled in by DER)

Storage Tank Registration Form

Please Print or Type - Review Instructions Before Completing Form

1. DER Facility ID Number: 168507293 2. Facility Type: F
3. New Registration ☐ New Owner Data ☐ Facility Revision ☐ Tank(s) Revision ☒
4. County and Code of tank(s) location: Duval County /

5. Facility Name: Naval Air Station Cecil Field
Tank(s) Address:
City/State/Zip: Jacksonville, FL 32215
Contact Person: Ms. Ursula Klimas Telephone: (904) 778-6040
6. Financial Responsibility Type: Self-Insurance

7a. Tank(s) Owner: U. S. Navy
Owner Mailing Address: NAS Cecil Field
City/State/Zip: Jacksonville, FL 32215
Contact Person: Ms. Ursula Klimas Telephone: (904) 778-6040

7b. New Owner Signature/Change Date: N/A / / /

8. Location (optional) Latitude: 30 • 14 • 22 •• Longitude: 81 • 58 • 46 •• Section 15 Township 35 Range 24E

Complete One Line For Each Tank At This Facility (Use Codes - See Instructions)

Complete 9 - 16 for tanks in use; 9 - 19 for tanks out of use.

9	10	11	12	13	14	15	16	17	18	19
2710	6,000	D	1989	U	CNL	C	FDJ	B	Ø	3/5/96

20. Environmental Remediation Services Inc.
Certified Contractor*
DPR# PCC-048415
Department of Professional Regulation License Number*

*For new tank installation or tank removal

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

J. LLOYD CREWS
Print name & title of owner or authorized person

Signature

5/6/96
Date

Northwest District 160 Governmental Center | Northeast District 7825 Baymeadows Way, Suite B-200, Jacksonville 32256-7577 | Central District 3319 Maguire Blvd., Suite 232, Orlando 32803-3767 | Southwest District 7601 Highland Road, Suite 304, Tampa 33610-7347 | South District 2295 Victoria Avenue, Suite 364, Fort Myers 33901-3881 | Southeast District 1801 N.W. 25th Avenue, Suite 100, Miami 33125-5696

UNDERGROUND STORAGE TANK CLOSURE REPORT

Section 1. Owner: United States Navy
Address: Navy Public Works Center Jacksonville
Box 101, Cecil Field Zone
Naval Air Station Cecil Field
Jacksonville, Florida 32215-0101
Phone: Ms. Faye Taylor (904) 778-5560

Section 2. UST System Location

Naval Air Station - Cecil Field
Cecil Field Zone
Building 271, Navy Exchange
Jacksonville, Florida 32215

DER Facility ID Number: 168507293

Section 3. Local Area Geology and Hydrology:

Facility is located on a horazontal open plain at least 1/4 mile away from a major body of water.

Section 4. Site Map 1 - attached

Section 5,6. Tank Removal and Sample Analysis:

One (1) 6,000 gallon double walled steel UST was removed and disposed of in accordance with all FDEP and EPA regulations (Appendix A). The UST was cleaned and degreased in accordance with API 1604. There was no sign of visual contamination from this UST. The piping and other associated parts were removed from the site. The UST was cut and transported to a scrap metal facility for disposal (Appendix B).

Contractor: Environmental Remediation Services, Inc.
465 Tresca Road
Jacksonville, Florida 32225
(904) 721-7225
Charles M. Owens, President and Sr. Chemist

Sampling Procedures: On going soil sampling was conducted during excavation and from various depth intervals utilizing a 4-inch diameter mechanical auger. Site sampling data was recorded in accordance with the FDEP approved method as per 17-761.800. Organic vapors readings were recorded using a calibrated Photovac Microtip, Model HL20 with a photoionization detector (OVA/PID). The OVA/PID did not detect any prescence of organic vapors in the soil (Appendix c). Therefore no soil contamination was present.

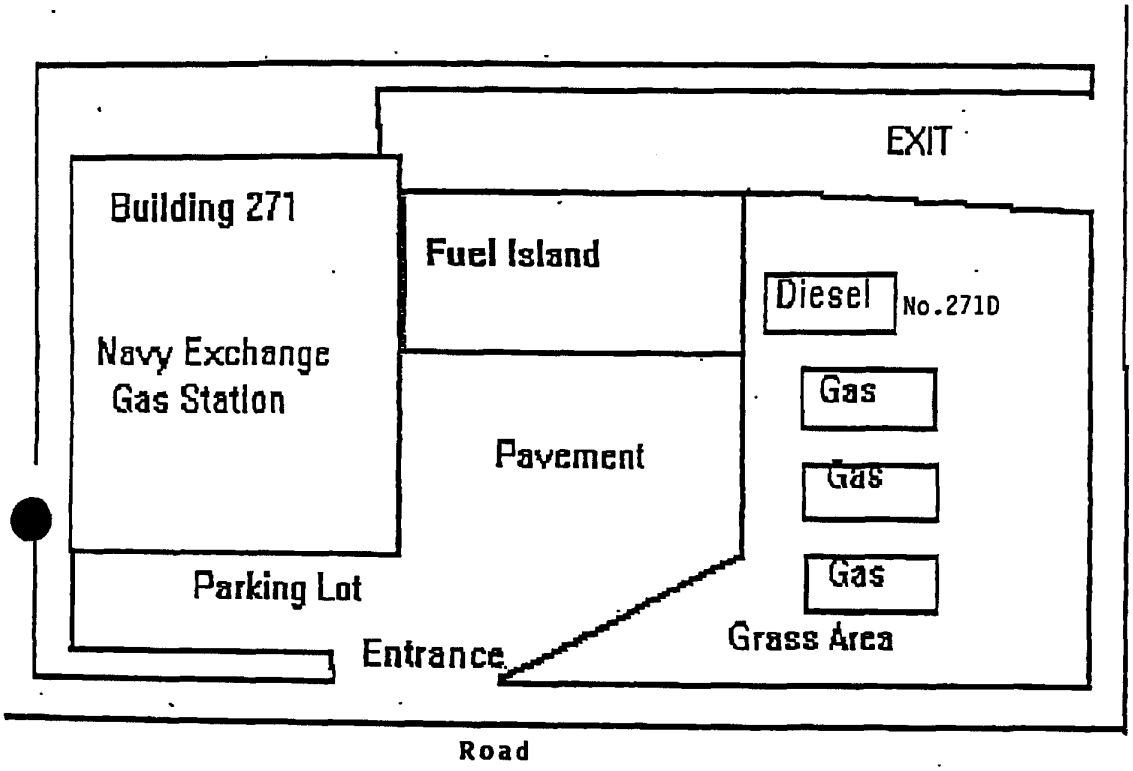
Groundwater sampling: One temporary monitoring well was installed (MW-01). One groundwater sample was obtained from the well and delivered to ENCO Laboritories in Jacksonville to be analyzed for EPA Method 610 (Appendix D).

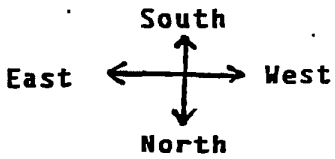
Section 7. Disposal of Waste:

One drum of tank bottom residue was collected during the tank cleaning process. The liquid inside the tank was sampled and taken to the lab for disposal analysis. The sample was analyzed for EPA Method TCLP8020, 1010, 5050/9252, and TCLP6010. The sample analytical reports are contained in Appendix E. ERS transported the drum of Non-Hazardous Petroleum Impacted Floor Dry to BMH Materials for disposal.

ENVIRONMENTAL REMEDIATION SERVICES, INC.

Naval Air Station Cecil Field





465 Tresca Road • Jacksonville, Florida 32225 • (904) 721-7225 • FAX (904) 721-5512

Florida Department of Environmental Regulation

Twin Towers Office Bldg • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DER Form: 17-761.900(5)
Form Title: Underground Storage Tank Installation & Removal Form for Certified Contractors
Effective Date: December 10, 1990
DER Application No.:

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: 168507293
2. Facility Name: Naval Air Station Cecil Field Telephone: (904) 778-5560
3. Street Address (physical location): Building 271, Naval Air Station, Cecil Field
   Navy Public Works Center Jacksonville, Box 101, Cecil Field Zone, Jax.,FL. 32215-0101
4. Owner Name: U.S. Navy Telephone: ( )
5. Owner Address:
6. Number of Tanks: a. Installed at this time ____ b. Removed at this time 1
7. Tank(s) Manufactured by: Unknown
8. Date Work Initiated: 3/4/96 9. Date Work Completed:

Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws. ☐
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications. ☐
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications. ☐
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications. ☐
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87. ☐
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.) ☐
7. Spill and overfill protection devices installed in accordance with Section 17-761.500, F.A.C. ☐
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C. ☐

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these institutions.

Underground Pollutant Tank Removal Checklist

1. Closure assessment performed in accordance with Section 17-761.800, F.A.C. ☐
2. Underground tank removed and disposed of as specified in API 1604 in acordance with Section 17-761.800, F.A.C. ☒

Northwest District
160 Governmental Center
Pensacola, Florida 32501-5794

Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Central District
3319 Maguire Blvd, Suite 232
Orlando, Florida 32803

Southwest District
4520 Oak Fair Blvd

South District
3301 Gun Club Rd

Southeast District

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

Closure Assessment Form

's of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage 1 closure assesment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incen- DI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

)ate: 4/23/96

)ER Facility ID Number: 168507293 3. County: Duval

Facility Name: Naval Air Station, Cecil Field

Facility Owner: U.S. Navy

Facility Address: Building 271, Naval Air Station, Cecil Field, Jacksonville, FL 32215

Mailing Address: N.P.W.C., Box 101, Cecil Field Zone, N.A.S. Cecil Field, Jax.,FL 32215-0101

Telephone Number: (904) 778-5560 9. Facility Operator: U.S. Navy

Are the Storage Tank(s): (Circle one or both) A. Aboveground or (B.) Underground

Ty[illegible] Product(s) Stored: Diesel Fuel

Were the Tank(s): (Circle one) A. Replaced (B.) Removed C. Closed in Place D. Upgraded (aboveground tanks only)

Number of Tanks Closed: One 14. Age of Tanks: Unknown

Facility Assessment Information

No	Not Applicable	
X		1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
X		2. Was a Discharge Reporting Form submitted to the Department? If yes, When: ____ Where: ____
		3. Is the depth to ground water less than 20 feet?
X		4. Are monitoring wells present around the storage system? If yes, specify type: ☐ Water monitoring ☐ Vapor monitoring
X		5. Is there free product present in the monitoring wells or within the excavation?
	X	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
X		7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
X		8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheets)
	X	9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
		10. Are any potable wells located within ¼ of a mile radius of the facility?
X		11. Is there a surface water body within ¼ mile radius of the site? If yes, indicate distance: ____

ENVIRONMENTAL REMEDIATION SERVICES, INC.

TANK CLEANING SERVICE ORDER

Job No.	1503	Tank No.	1
Customer	NAVY PUBLIC WORKS CENTER	Tank Type	STEEL, DOUBLE WALL, UST
Billing		Tank Capacity	6,000 gallon
Address	BUILDING 271	Pipe/Hose, size&length	N/A
Phone No		Last contained :	DIESEL

Pretreatment Procedure(s)		Clean outside tank	Scraped	
	Diesel Rinse	Clean Valves size&qty	N/A	
	Kerosene Rinse	Waste Water Generated	0	Gallons
	Solvent (_____) Rinse	Additional labor		
	Steam Heat	Squeege	1hr	
✓	Other (VENTED & PURGED)	Scrape	1hr	

Tank Cleaning Procedure(s)		Remarks
✓	Air Dry	- TANK WAS CLEANED USING ABSORBANT CLAY.
	Steam Clean	THE WALLS WERE SCRAPED & SQUEEGED CLEAN
	Water Rinse	ONE DRUM OF SOLID WASTE WASE
	Rinse and Steam	GENERATED.
	Detergent Wash	
	High Pressure Wash	- TANK TAKEN TO JOSEPH J. DAVID CO.
	Caustic Wash	FOR SCRAP METAL DISPOSAL.
✓	Other (DRY CLEANED W/ ABSORBANT)	

Date Finished		Tank Atmosphere Readings; Date & Time		
Time Finished		Parameter		
Cleaner Name	J. SMITH	% Oxygen	20%	3-11-96 1300
Cleaner Signature	Jayson Smith	% LEL	0%	3-11-96 1300
		Toxicity	0 ppm	3-11-96 1300

Safety + Quality = Success

465 Tresca Road • Jacksonville, Florida 32225 • (904) 721-7225 • FAX (904) 721-5512

Appendix C:

Soil Screening Analysis

Soil Headspace Analysis Results
OVA–PID Reading in Parts Per Million (PPM)
OVA–PID Reading Interval

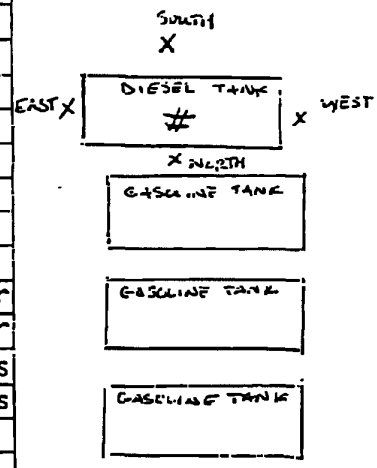
JOB#: 1503

Location: Building 271, N.A.S. Cecil Field

PLE TECHNICIAN: JAYSON SMITH

No.	Time	1.0ft	2.0ft	3.0ft	4.0ft	5.0ft	6.0ft	Location
#1	1120	0.0	0.0	0.0	0.0	0.0	0.0	East Wall
#2	1130	0.0	0.0	0.0	0.0	0.0	0.0	North Wall
#3	1140	0.0	0.0	0.0	0.0	0.0	0.0	West Wall
#4	1145	0.0	0.0	0.0	0.0	0.0	0.0	South Wall
#5	1150	0.0	0.0	0.0	0.0	0.0	0.0	Background
#6	1125	0.0						Excavated Soil
#7	1135	0.0						Excavated Soil
#8	1140	0.0						Excavated Soil
#9	1150	0.0						Excavated Soil
#10	1200	0.0						Excavated Soil Floor
#11	1230	0.0						Excavated Soil Floor
#12	1300	0.0						Excavated Soil Sides
#13	1330	0.0						Excavated Soil Sides
#14								
#15								
#16								
#17								
#18								
#19								
#20								
#21								
#22								
#23								
#24								
#25								
#26								
#27								
MW01								

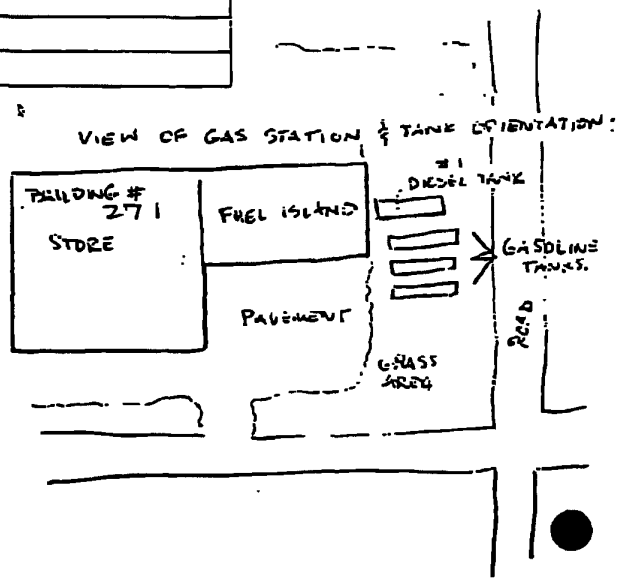
Diagram of TANK LOCATION



te Test Conducted: 3/4/95

gend
= Soil Sample Location/Depth
= Temporary Monitoring Well Location
ound Water Table @ 6'
'A/PID Calibrated @ 1030 AM/Temp. 75 degrees C.
tes:
* No apparent sign of contamination on groundwater

VIEW OF GAS STATION & TANK ORIENTATION:



Appendix D:

Groundwater Sampling Results

Environmental Conservation Labora[illegible]es
4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
904 / 296-3007
Fax 904 / 296-6210

ENCO Laboratories

DHRS Certification No. E82277, 82417

LIENT : Env. Remediation Services
DDRESS: 465 Tresca Road
Jacksonville, FL 32225

REPORT # : JR2039
DATE SUBMITTED: March 13, 1996
DATE REPORTED : March 18, 1996

RECEIVED MAR 20 1996

TTENTION: Jayson Smith

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: 1503

Navy Public Works Center

03/11/96

#1 - MW#1 @ 13:00

'ROJECT MANAGER Scott D Martin
Scott D. Martin

ENCO LABORATORIES
REPORT # : JR2039
DATE REPORTED: March 18, 1996
REFERENCE : 1503
PROJECT NAME : Navy Public Works Center

RESULTS OF ANALYSIS

'A METHOD 610 - ;LY AROMATIC HYDROCARBONS	MW#1	LAB BLANK	Units
;phthalene	10 U	10 U	µg/L
·Methylnaphthalene	10 U	10 U	µg/L
·Methylnaphthalene	10 U	10 U	µg/L
:enaphthylene	10 U	10 U	µg/L
:enaphthene	10 U	10 U	µg/L
.uorene	10 U	10 U	µg/L
ıenanthrene	10 U	10 U	µg/L
ıthracene	10 U	10 U	µg/L
:uoranthene	10 U	10 U	µg/L
'rene	10 U	10 U	µg/L
ırysene	10 U	10 U	µg/L
ɜr-ɔ(a)anthracene	10 U	10 U	µg/L
ɜ. (b,k)fluoranthene	10 U	10 U	µg/L
ɜnz(a)pyrene	10 U	10 U	µg/L
ıdeno(1,2,3-cd)pyrene	10 U	10 U	µg/L
ıbenzo(a,h)anthracene	10 U	10 U	µg/L
ɜnzo(g,h,i)perylene	10 U	10 U	µg/L
ırrogate:	% RECOV	% RECOV	LIMITS
-Fluorobiphenyl	84	61	30-146
ɜte Extracted	03/14/96	03/14/96	
ɜte Analyzed	03/14/96	03/14/96	

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

ENCO LABORATORIES
REPORT # : JR2039
DATE REPORTED: March 18, 1996
REFERENCE : 1503
PROJECT NAME : Navy Public Works Center

QUALITY CONTROL DATA

'arameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
:PA Method 610				
-Methylnaphthalene	106/109/101	21-137	3	29
.-Methylnaphthalene	104/106/ 96	20-149	2	29
ıcenaphthylene	97/100/ 96	27-147	3	21
'luorene	107/110/106	37-151	3	18
'yrene	113/116/114	44-168	3	20

Environmental Conservation Laboratories Comprehensive QA Plan #960038G

: = Less Than
IS = Matrix Spike
ISD = Matrix Spike Duplicate
.CS = Laboratory Control Standard
RPD = Relative Percent Difference

This report shall not be reproduced except in full, without the written approval of the laboratory.

SERVICES, INC.

CHAIN-OF-CUSTODY RECORD

Page 1 of

INVOICE TO	ADDRESS	CONTACT PHONE #	WORK ORDER #
Environmental Remediation Services	465 Tresca Road, Jacksonville, FL 32225	(904) 721-7225	P.O. 2282-2
REPORT TO	**ADDRESS**		
Environmental Remediation Services	465 Tresca Road, Jacksonville, FL 32225	(904) 721-7225	

CLIENT PROJECT NAME: NAVY PUBLIC WORKS CENTER, CECIL FIELD

JOB #: 1503

CLIENT PROJECT LOCATION: BUILDING 271

LAB USE ONLY	SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	WATER	SOIL	SAMPLE DESCRIPTION	NUMBER OF CONTAINERS	REQUESTED ANALYSIS: 610	REMARKS
	MW# 1	3-11-96	1300		X	X		Monitoring Well #1	1	X	STANDARD TURN AROUND

TRANSFER NUMBER	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE TIME
	Jayson Smith	3-13-96 1315	K. [illegible]	3-13-96 1315

ADDITIONAL REMARKS: JL2039

SAMPLER'S SIGNATURE: Jayson Smith

Original - Client Yellow - Office Pink - Laboratory

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

ENCO Laboratories

DHRS Certification No. E82277, 82417

CLIENT : Env. Remediation Services
ADDRESS: 465 Tresca Road
Jacksonville, FL 32225

REPORT # : JR1999
DATE SUBMITTED: March 8, 1996
DATE REPORTED : March 11, 1996

ATTENTION: Charles Owens

RECEIVED MAR 14 1996

SAMPLE IDENTIFICATION

Samples submitted and
identified by client as:

PROJECT #: 1503

NPWC Cecil

03/07/96

#1 - 1503 A @ 14:00

PROJECT MANAGER Scott D. Martin

ENCO LABORATORIES
REPORT # : JR1999
DATE REPORTED: March 11, 1996
REFERENCE : 1503
PROJECT NAME : NPWC Cecil

RESULTS OF ANALYSIS

CLP METALS	METHOD	1503 A	LAB BLANK	Units
CLP Arsenic	6010	2 U	2 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Barium	6010	10 U	10 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Cadmium	6010	0.5 U	0.5 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Chromium	6010	1 U	1 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Lead	6010	1 U	1 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Mercury	7470	0.05 U	0.05 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Selenium	6010	0.5 U	0.5 U	mg/L
ate Analyzed		03/11/96	03/11/96	
CLP Silver	6010	1 U	1 U	mg/L
ate Analyzed		03/11/96	03/11/96	

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

ENCO LABORATORIES
REPORT # : JR1999
DATE REPORTED: March 11, 1996
REFERENCE : 1503
PROJECT NAME : NPWC Cecil

RESULTS OF ANALYSIS

EPA METHOD TCLP8020 - VOLATILE AROMATICS	1503 A	LAB BLANK	Units
Benzene	10 U	1 U	µg/L
Surrogate:	**% RECOV**	**% RECOV**	**LIMITS**
Bromofluorobenzene	115	100	40-180
Date Analyzed	03/10/96	03/09/96	

MISCELLANEOUS	METHOD	1503 A	LAB BLANK	Units
Flashpoint	1010	168	NA	°F
Date Analyzed		03/11/96		
Total Halides	5050/9252	600 U	600 U	mg/Kg
Date Analyzed		03/11/96	03/11/96	

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

ENCO LABORATORIES
REPORT # : JR1999
DATE REPORTED: March 11, 1996
REFERENCE : 1503
PROJECT NAME : NPWC Cecil

QUALITY CONTROL DATA

Parameter	% RECOVERY MS/MSD/LCS	ACCEPT LIMITS	% RPD MS/MSD	ACCEPT LIMITS
VOLATILE AROMATICS				
Benzene	105/105/105	40-180	<1	25
TCLP Metals				
TCLP Arsenic, 6010	91/ 96/ 88	69-125	5	11
TCLP Barium, 6010	96/102/104	75-118	6	13
TCLP Cadmium, 6010	106/110/107	69-118	4	13
TCLP Chromium, 6010	102/106/104	76-119	4	11
TCLP Lead, 6010	105/112/103	69-122	6	18
TCLP Mercury, 7470	110/108/114	75-129	2	11
TCLP Selenium, 6010	100/109/ 98	68-129	9	9
TCLP Silver, 6010	102/107/104	69-118	5	13
Miscellaneous				
Total Halides, 5050/9252	93/ 93/101	61-131	<1	20

Environmental Conservation Laboratories Comprehensive QA Plan #960038G

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

This report shall not be reproduced except in full, without the written approval of the laboratory.

APPENDIX B

FDEP APPROVAL LETTERS

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 23, 2001

RECEIVED
JUL 26 2001
TETRA TECH NUS
JACKSONVILLE FL

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

RE: Limited Closure Assessment Report, Oil/Water Separator Removal at Building 271, Oil/Water Separator 271S-OW, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Ugolini:

I have completed the review of the Limited Closure Assessment Report, Oil/Water Separator Removal at Building 271, Oil/Water Separator 271S-OW, Naval Air Station Cecil Field, dated April 2001 (received May 2, 2001), prepared and submitted by CH2M Hill Constructors, Inc. The tank closure was conducted in accordance with Chapter 62-761, Florida Administrative Code. The report adequately documents that the site is not contaminated by petroleum products. Therefore, you are not required to conduct further site assessment in accordance with Chapter 62-770, Florida Administrative Code.

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 TB JJC JJC ESN ESN

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 23, 2001

RECEIVED
JUL 26 2001
TETRA TECH NUS
JACKSONVILLE FL

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

RE: Limited Closure Assessment Report, Oil/Water Separator Removal at Building 271, Oil/Water Separator 271SE-OW, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Ugolini:

I have completed the review of the Limited Closure Assessment Report, Oil/Water Separator Removal at Building 271, Oil/Water Separator 271SE-OW, Naval Air Station Cecil Field, dated April 2001 (received May 2, 2001), prepared and submitted by CH2M Hill Constructors, Inc. The tank closure was conducted in accordance with Chapter 62-761, Florida Administrative Code. The report adequately documents that the site is not contaminated by petroleum products. Therefore, you are not required to conduct further site assessment in accordance with Chapter 62-770, Florida Administrative Code.

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 B JJC JJC ESN ESN

APPENDIX C

MONITORING WELL CONSTRUCTION AND SOIL BORING LOGS

BORING LOG

PROJECT NAME: SAR - B. 271
PROJECT NUMBER: 0486
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: D120

BORING NUMBER: 001
DATE: 6/29/00
GEOLOGIST: M. Dale
DRILLER: Nick SMARRITO

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**
	0-3					Brn Gray	FINE SAND w/silt	SP					
	3-16					Yw GRAY	FINE SAND w/silt	SP	Wet at 5.5 FT. BLS.				
							EOB @ 16 FT. BLS.						

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes X No

Well I.D. #: CEF-271-MS

BORING LOG

PROJECT NAME: SAR - B. 271
PROJECT NUMBER: 0486
DRILLING COMPANY: Groundwater protection
DRILLING RIG: D120

BORING NUMBER: 002
DATE: 6/29/00
GEOLOGIST: M. Dale
DRILLER: Nick SMABRITO

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**
	0-0.1					blk	Asphalt		About 2 in. thick				
	0.1-0.5					wht	limerock roadbase		About 4 in. thick				
	0.5-3.5					Red Gray	Fine Sand w/silt	SP					
	3.5-16					Yew Gray	Fine Sand w/silt	SP	wet at 5.5 ft. BLS.				
							EOB @ 16 FT. BLS.						

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes X No

Well I.D. #: CEF - 271 - SS

BORING LOG

PROJECT NAME: SAR - B.271
PROJECT NUMBER: 0486
DRILLING COMPANY: Groundwater Protection
DRILLING RIG: D120

BORING NUMBER: 003
DATE: 6/29/00
GEOLOGIST: M. Dale
DRILLER: Nick SMARRITO

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**
	0-0.2						concrete						
	0.2-3					BRN GRAY	Fine sand w/silt	SP					
	3-16					VLW GRAY	Fine sand w/silt	SP	wet at ~5.5 ft b/s.				

* When rock coring, enter rock brokeness.

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

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes X No

Well I.D. #: CEF-271-6S

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486GH0050180
DRILLING COMPANY: Partridge Well Drilling
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-B271-75
DATE: 8-21-01
GEOLOGIST: Louis Knight
DRILLER: ~~Gary Oakes~~ ALAN KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0						SAND - - med. brown,						
							fine; FILL						
	4						SAND: v. fine						
							lt gray - - strong						
							HC odor						
	13												

* When rock co[illegible]er rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks:

Converted to Well: Yes ✓ No ____ Well I.D. #: CEF-B271-75

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
BORING NO.: CEF-~~B~~271- 8S
PROJECT NUMBER: N0486GH0050180
DATE: 8-20-01
DRILLING COMPANY: Partridge Well Drilling
GEOLOGIST: Louis Knight
DRILLING RIG: Hollow Stem Auger
DRILLER: ~~Gary Oakes~~ ALAN KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0						SAND · pale yellow.						
							H gray. · v. fine		ALL				
	1						HARD PAN · · v. dk		THIS				
							orange. brown · ·		LOOKS				
	1.5						SAND · · dk brown.		LIKE				
							gray · · very fine -		FILL				
							SOME rocks & wood gravel						
							SCATTERED ABOUT						
	3						SAND w/ trace		↑				
							clay · · lt to med						
							gray · v. fine						
	10						SAND · · v. fine						
							pale greenish · tan ·						
							very fine; no						
							odor						

* When rock co[illegible]r rock brokeness.

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

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes ✓ No _____ Well I.D. #: CEF-~~B~~271-8S

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486GH0050180
DRILLING COMPANY: Partridge Well Drilling
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-B271-95
DATE: 8-21-01
GEOLOGIST: Louis Knight
DRILLER: Gary Oakes

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						SAND - med. brown						
							fine - fill						
	25						SAND w/ trace clay;						
							med gray-brown						
							& light gray-yellow						
	30												

* When rock co[illegible]er rock brokeness.

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

Drilling Area Background (ppm):

Remarks:

Converted to Well: Yes ✓ No _____ Well I.D. #: CEF. B271-95

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486GH0050180
DRILLING COMPANY: Partridge Well Drilling
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-~~B~~271- 10S
DATE: 8·21·01
GEOLOGIST: Louis Knight
DRILLER: ~~Gary Oakes~~ ALAN KELLEY

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						SAND·· fine··						
							brown/gray·fill						
	3						SAND; med yellow·						
	13						gray						

* When rock co[illegible]er rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks: _____

Converted to Well: Yes ✓ No _____ Well I.D. #: CEF. 271· 10S

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486GH0050180
DRILLING COMPANY: Partridge Well Drilling
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-271-115
DATE: 8·21·01
GEOLOGIST: Louis Knight
DRILLER: ~~Gary Oakes~~ ALAN KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0						ASPHALT						
	0.1						LIMEROCK ROAD BASE						
	0.5						SAND. lt brown. gray						
	3.						fine; FILL						
	3.0						SAND. med brown.						
							v. fine						
	5.0						SAND w/ trace clay,						
							lt brown. yellow						
							v. fine.						
	13												

* When rock co[illegible]r rock brokeness.

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

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes ✓ No _____ Well I.D. #: CEF-271-115

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486GH0050180
DRILLING COMPANY: Partridge Well Drilling
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-~~B~~271- 12S
DATE: 8.21.01
GEOLOGIST: Louis Knight
DRILLER: ~~Gary Oakes~~ ALAN KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0						SAND·· brown·gray· orange·brown· fine· FILL						
	3						SAND·· lt gray brown to light yellow brown.						
	13												

* When rock co[illegible]r rock brokeness.

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

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes ✓ No _____ Well I.D. #: CEF.271.12S

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME: NAS CECIL FIELD
PROJECT NUMBER: N0486GH0050180
DRILLING COMPANY: Partridge Well Drilling
DRILLING RIG: Hollow Stem Auger

BORING NO.: CEF-~~B~~271-1I
DATE: 8.20.01
GEOLOGIST: Louis Knight
DRILLER: ~~Gary Oakes~~ ALAN KELLY

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0						SAND: dk brown;		No odor				
							v. fine						
	3						SAND w/ some CLAY						
							pale gray. lt brown.						
							yellow. Stong						
	8						HC odor						
	8						SAND; lt gray.						
8.20.01							brown. fine						
8.21.01	25						SAND. tan. fine						
	37												

* When rock c[illegible]r rock brokeness.

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

Drilling Area Background (ppm): [ ]

Remarks:

Converted to Well: Yes ✓ No ____ Well I.D. #: CEF. 271. 1I

Tetra Tech NUS, Inc.

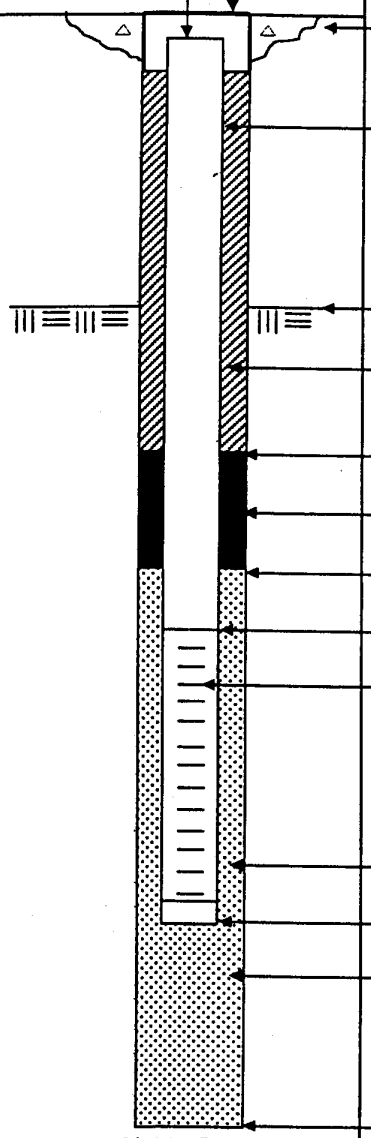
WELL No.: CEF-271-45

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Groundwater prot.	BORING No.:	~~6/29/00~~ 001
PROJECT No.:	~~0039~~ 0486	DRILLER:	Nick S.	DATE COMPLETED:	6/29/00
SITE:	Cecil Field	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	M. Dale	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1 ~~0~~ 2 inches MA

Elevation / Height of Top of Surface Casing: 1 0 FT.

I.D. of Surface Casing: 8 inch

Type of Surface Casing: bolt down steel manhole

Type of Surface Seal: Concrete

I.D. of Riser: 2 inch

Type of Riser: schedule 40 PVC

Borehole Diameter: 8 inch

Elevation / Depth Top of Rock: 1 Na

Type of Backfill: portland type one cement

Elevation / Depth of Seal: 12 feet

Type of Seal: 30/65 fine sand

Elevation / Depth of Top of Filter Pack: 14 feet

Elevation / Depth of Top of Screen: 15.5 feet

Type of Screen: Schedule 40 PVC

Slot Size x Length: 0.010 inch x 10 feet

I.D. of Screen: 2 inch

Type of Filter Pack: 20/30 Sand

Elevation / Depth of Bottom of Screen: 115.5 feet

Elevation / Depth of Bottom of Filter Pack: 116 feet

Type of Backfill Below Well: 20/30 sand

Elevation / Total Depth of Borehole: 116 feet

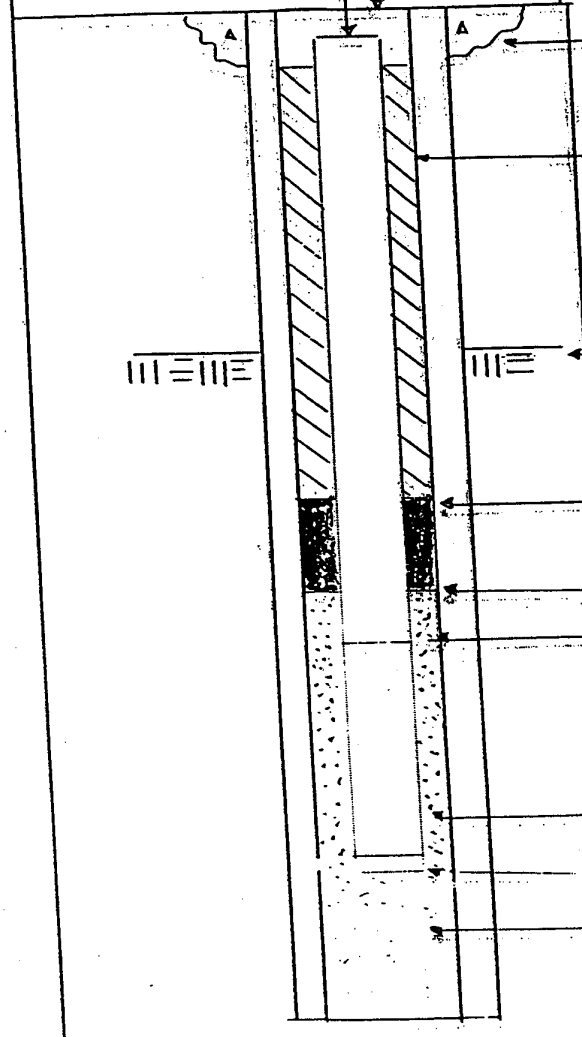
MONITORING WELL SHEET

WELL NUMBER CEF-271-4SR

Project Location: CECIL FIELD
Project Number: CTC-002
Site: BLDG-271
Geologist: B. Carlos

Drilling Co.: PRECISION DRILLING
Driller: RANDY CONRAD
Drill Method: AUGER
DEV Method: SUBMERSABLE

Boring Number:
Date Completed: 9-21-00
Northing: N/A
Easting: N/A



Elevation / Depth to Top of Riser: 12 IN.
Elevation / Height to Top of Surface Casing: 10 FT
I.D. of Surface Casing: 8 INCHES
Type of Surface Casing: BOLT DOWN STEEL MH
Type of Surface Seal: CONCRETE
I.D. of Riser: 2 INCH
Type of Riser: SCHEDULE 40 PVC
Borehole Diameter: 8 INCH
Elevation / Depth to Rock: N/A
Type of Backfill: PORTLAND TYPE ONE CEMENT
Elevation / Depth of Seal: 12 FEET
Type of Seal: 30/65 FINE SAND
Elevation / Depth to Top of Filter Pack: 1/4 FEET
Elevation / Depth to Top of Screen: 1/5.5 FT
Type of Screen: SCHEDULE 40 PVC
Slot Size and Length: 0.010 INCH X 10 FEET
I.D. of Screen: 2 INCH
Type pf Filter Pack: 20/30 SAND
Elevation / Depth of Bottom of Screen: 1/5.5 FT
Elevation / Depth of Bottom of Filter Pack: 1/16 FT
Type of Backfill Below Well: 20-30 SAND
Elevation / Total Depth of Borehole: 1/16 FT

NOT TO SCALE

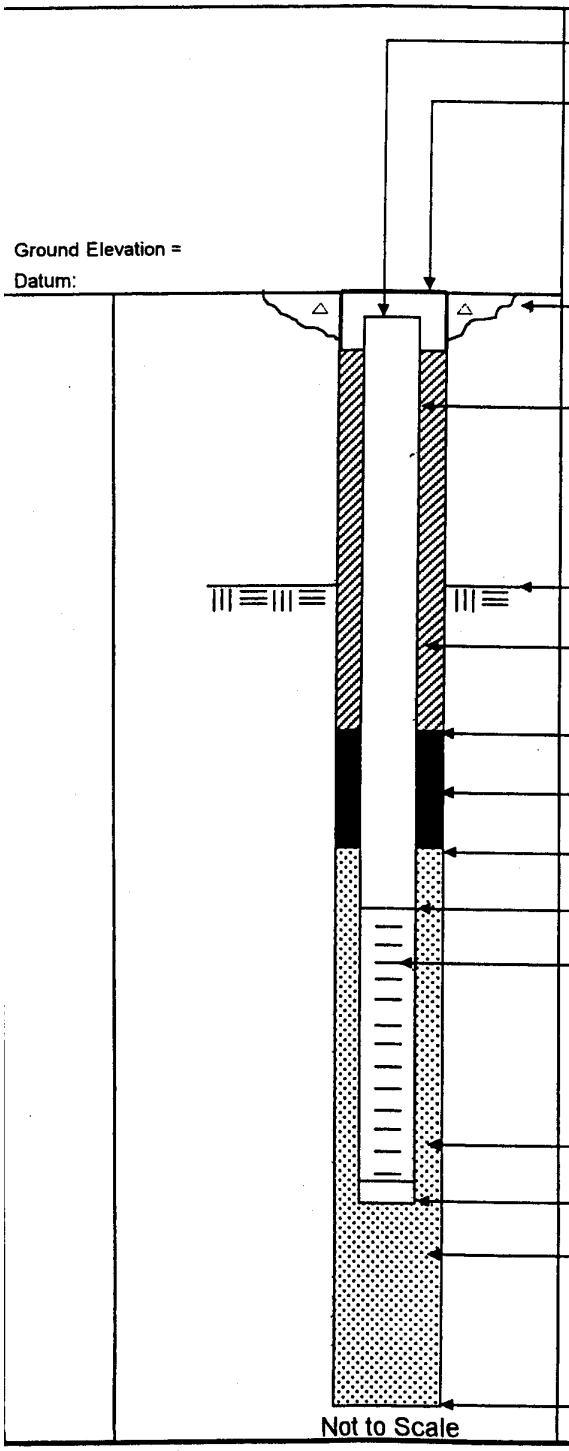
Tetra Tech NUS, Inc.

WELL No.: CEF-271-55

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Groundwater Prof.	BORING No.:	002
PROJECT No.:	~~0039~~ 0496	DRILLER:	Nick S.	DATE COMPLETED:	6/29/00
SITE:	Cecil Field	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	M. Dale	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =
Datum:



Elevation / Depth of Top of Riser: 12 inches

Elevation / Height of Top of Surface Casing: 1.0 FT.

I.D. of Surface Casing: 8 inch

Type of Surface Casing: bolt down steel manhole

Type of Surface Seal: Concrete

I.D. of Riser: 2 inch

Type of Riser: Schedule 40 PVC

Borehole Diameter: 8 inch

Elevation / Depth Top of Rock: 1 Na

Type of Backfill: Portland type one cement

Elevation / Depth of Seal: 12 feet

Type of Seal: 30/65 fine Sand

Elevation / Depth of Top of Filter Pack: 14 feet

Elevation / Depth of Top of Screen: 15.5 feet

Type of Screen: Schedule 40 PVC

Slot Size x Length: 0.010 inch x 10 feet

I.D. of Screen: 2 inch

Type of Filter Pack: 20/30 Sand

Elevation / Depth of Bottom of Screen: 115.5 feet

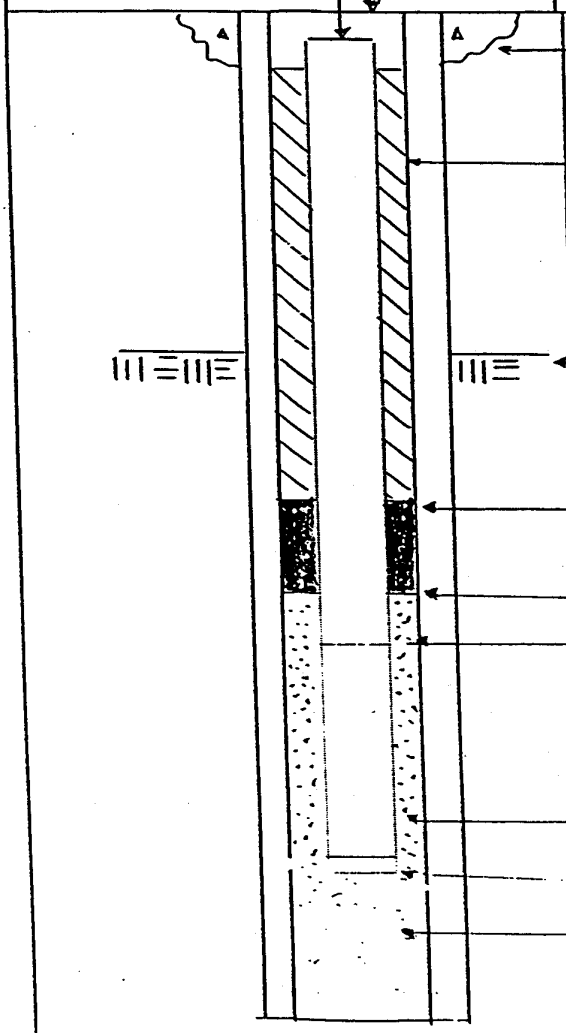
Elevation / Depth of Bottom of Filter Pack: 116 feet

Type of Backfill Below Well: 20/30 Sand

Elevation / Total Depth of Borehole: 116 feet

MONITORING WELL SHEET WELL NUMBER CEF-271-5SR

Project Location: CECIL FIELD	Drilling Co.: PRECISION DRILLING	Boring Number:
Project Number: CTC-002	Driller: RANDY CONRAD	Date Completed: 9-21-00
Site: BLDG-271	Drill Method: AUGER	Northing: N/A
Geologist: B. Carelos	DEV Method: SUBMERSABLE	Easting: N/A



Elevation / Depth to Top of Riser: 12 IN.

Elevation / Height to Top of Surface Casing: 10 FT

I.D. of Surface Casing: 8 INCHES

Type of Surface Casing: BOLT DOWN STEEL MH

Type of Surface Seal: CONCRETE

I.D. of Riser: 2 INCH

Type of Riser: SCHEDULE 40 PVC

Borehole Diameter: 8 INCH

Elevation / Depth to Rock: N/A

Type of Backfill: PORTLAND TYPE ONE CEMENT

Elevation / Depth of Seal: 12 FEET

Type of Seal: 30/65 FINE SAND

Elevation / Depth to Top of Filter Pack: 1/4 FEET

Elevation / Depth to Top of Screen: 1/5.5 FT

Type of Screen: SCHEDULE 40 PVC

Slot Size and Length: 0.010 INCH X 10 FEET

I.D. of Screen: 2 INCH

Type pf Filter Pack: 20/30 SAND

Elevation / Depth of Bottom of Screen: 1/5.5 FT

Elevation / Depth of Bottom of Filter Pack: 1/16 FT

Type of Backfill Below Well: 20-30 SAND

Elevation / Total Depth of Borehole: 1/16 FT

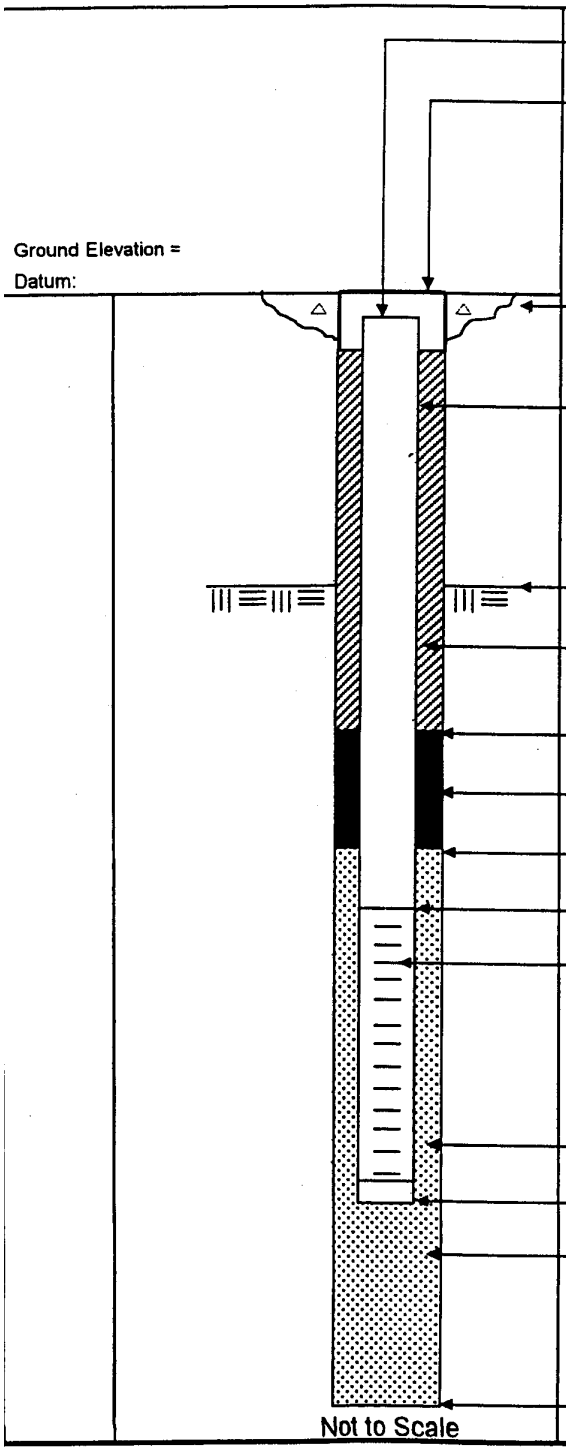
NOT TO SCALE

Tetra Tech NUS, Inc.

WELL No.: CEF-271-65

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Groundwater Prob.	BORING No.:	003
PROJECT No.:	~~0039~~ 0486	DRILLER:	Nick S.	DATE COMPLETED:	6/29/00
SITE:	Cecil Field	DRILLING METHOD:	HSA	NORTHING:	
GEOLOGIST:	M Dale	DEV. METHOD:		EASTING:	



Elevation / Depth of Top of Riser: 10 inches

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: 8 inch

Type of Surface Casing: bolt down steel manhole

Type of Surface Seal: Concrete

I.D. of Riser: 2 inch

Type of Riser: schedule 40 PVC

Borehole Diameter: 8 inch

Elevation / Depth Top of Rock: 1 na

Type of Backfill: Portland type one cement

Elevation / Depth of Seal: 12 feet

Type of Seal: 30/65 fine Sand

Elevation / Depth of Top of Filter Pack: 14 feet

Elevation / Depth of Top of Screen: 15.5 feet

Type of Screen: Schedule 40 PVC

Slot Size x Length: 0.010 inch x 10 feet

I.D. of Screen: 2 inch

Type of Filter Pack: 20/30 Sand

Elevation / Depth of Bottom of Screen: 25.5 feet

Elevation / Depth of Bottom of Filter Pack: 16.0 feet

Type of Backfill Below Well:

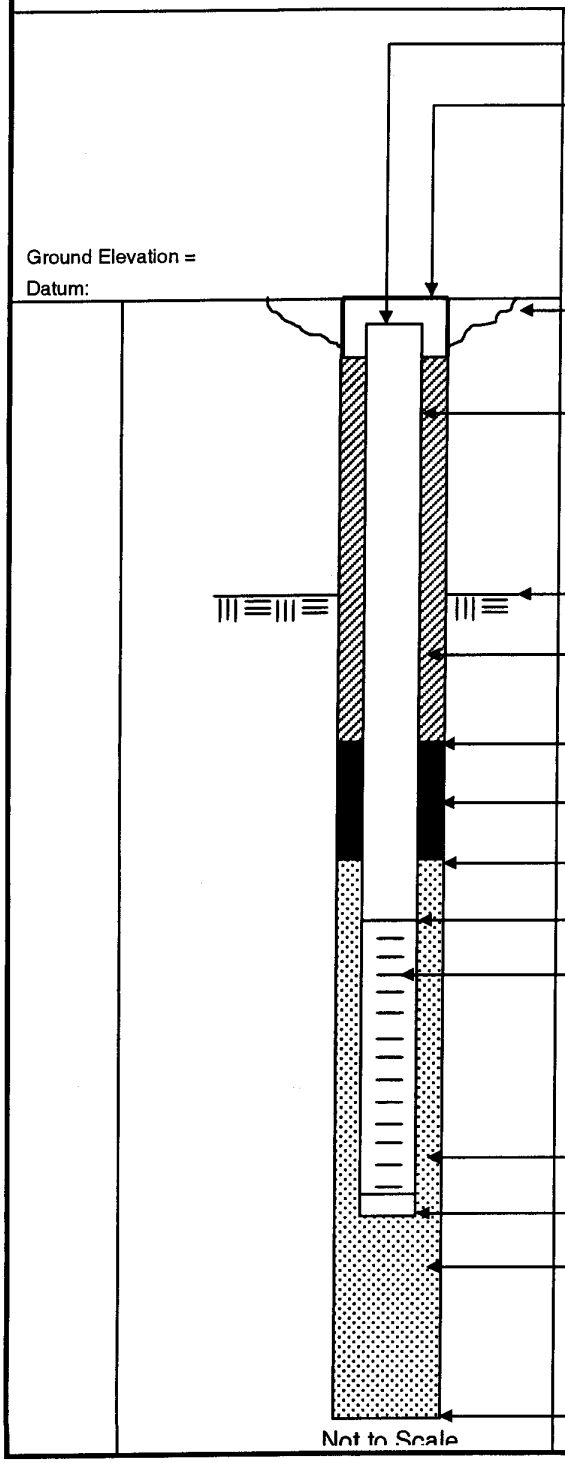
Elevation / Total Depth of Borehole: 16.0 feet

Tetra Tech NUS, Inc.

WELL No.: CEF-~~A~~271- 7S

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Partridge	BORING No.:	CEF-271-7S
PROJECT No.:	0486	DRILLER:	ALAN KELLY ~~Gary Oakes~~	DATE COMPLETED:	8-21-01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	



Elevation / Depth of Top of Riser: 1 1-3 in.

Elevation / Height of Top of Surface Casing: 1 0 ft.

I.D. of Surface Casing: 8 in.

Type of Surface Casing: Steel, boltdown

Type of Surface Seal: Concrete Pad 2'x2'x6"

I.D. of Riser: 2 inch

Type of Riser: Sch. 40, PVC

Borehole Diameter: 8"

Elevation / Depth Top of Rock: NA

Type of Backfill: Portland Cement Type I

Elevation / Depth of Seal: 1 ~~2~~ 1.0

Type of Seal: Medium Sand (30/65 grade)

Elevation / Depth of Top of Filter Pack: 1 2.0

Elevation / Depth of Top of Screen: 1 ~~3.0~~ 2.7

Type of Screen: Sch. 40, PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 2 inch

Type of Filter Pack: Coarse Sand (20/30 grade)

Elevation / Depth of Bottom of Screen: 1 ~~13.0~~ 12.7

Elevation / Depth of Bottom of Filter Pack: 1 13.0

Type of Backfill Below Well: Coarse Sand (20/30 grade)

Elevation / Total Depth of Borehole: 13.0

Tetra Tech NUS, Inc.

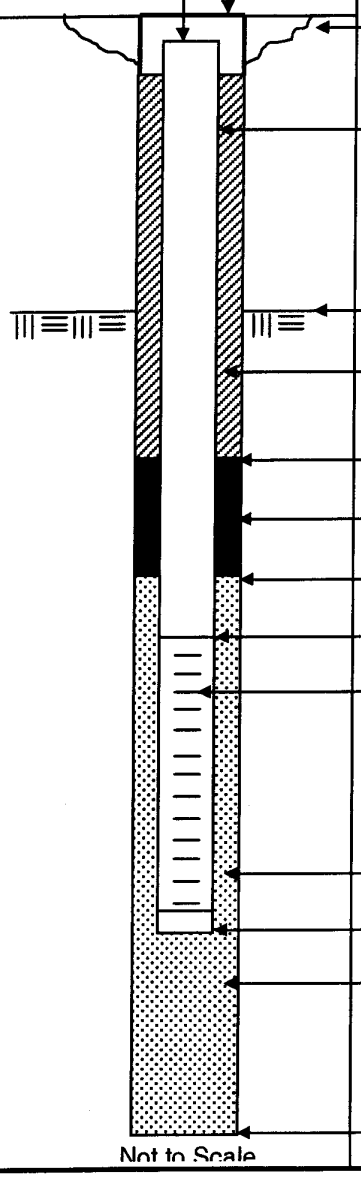
WELL No.: CEF-B271-85

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Partridge	BORING No.:	CEF-271-85
PROJECT No.:	0486	DRILLER:	ALAN KELLY ~~Gary Oakes~~	DATE COMPLETED:	8-20-01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 11.3 in.

Elevation / Height of Top of Surface Casing: 10 ft.

I.D. of Surface Casing: 8 inch

Type of Surface Casing: Steel, boltdown

Type of Surface Seal: Concrete Pad 2'x2'x6"

I.D. of Riser: 2 inch

Type of Riser: Sch. 40, PVC

Borehole Diameter: 8 in.

Elevation / Depth Top of Rock: NA

Type of Backfill: Portland Cement Type I

Elevation / Depth of Seal: 11.0

Type of Seal: Medium Sand (30/65 grade)

Elevation / Depth of Top of Filter Pack: 12.0

Elevation / Depth of Top of Screen: 13.0

Type of Screen: Sch. 40, PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 2 inch

Type of Filter Pack: Coarse Sand (20/30 grade)

Elevation / Depth of Bottom of Screen: 13.0

Elevation / Depth of Bottom of Filter Pack: 13.0

Type of Backfill Below Well: Coarse Sand (20/30 grade)

Elevation / Total Depth of Borehole: 13.5

Tetra Tech NUS, Inc.

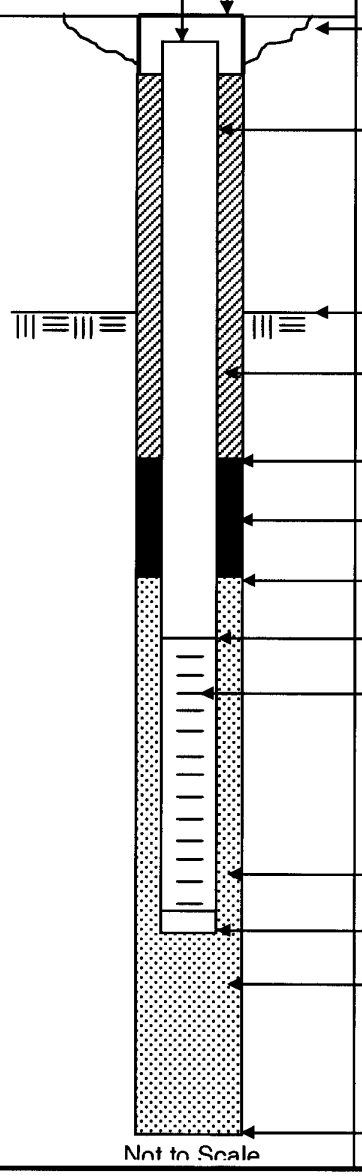
WELL No.: CEF-~~B~~271- 95

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Partridge	BORING No.:	95
PROJECT No.:	0486	DRILLER: ALAN KELLY	~~Gary Oakes~~	DATE COMPLETED:	8-21-01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =

Datum:



Elevation / Depth of Top of Riser: 1 1-3 in.

Elevation / Height of Top of Surface Casing: 1 0 ft.

I.D. of Surface Casing: 8 in.

Type of Surface Casing: Steel, boltdown

Type of Surface Seal: Concrete Pad 2'x 2' x 6"

I.D. of Riser: 2 inch

Type of Riser: Sch. 40, PVC

Borehole Diameter: 8 in

Elevation / Depth Top of Rock: 1 N/A

Type of Backfill: Portland Cement Type I

Elevation / Depth of Seal: 1 1.0

Type of Seal: Medium Sand (30/65 grade)

Elevation / Depth of Top of Filter Pack: 1 1.5

Elevation / Depth of Top of Screen: 1 2.7

Type of Screen: Sch. 40, PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 2 inch

Type of Filter Pack: Coarse Sand (20/30 grade)

Elevation / Depth of Bottom of Screen: 1 12.7

Elevation / Depth of Bottom of Filter Pack: 1 13.0

Type of Backfill Below Well: Coarse Sand (20/30 grade)

Elevation / Total Depth of Borehole: 1 13.0

Tetra Tech NUS, Inc.

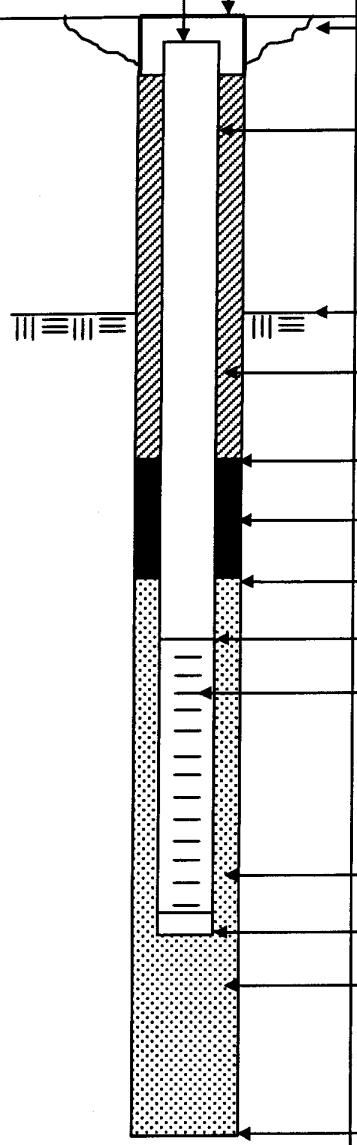
WELL No.: CEF-~~B~~271-10S

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Partridge	BORING No.:	10S
PROJECT No.:	0486	DRILLER:	ALAN KELLY ~~Gary Oakes~~	DATE COMPLETED:	8-21-01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1 1-3 in.

Elevation / Height of Top of Surface Casing: 1 0 ft.

I.D. of Surface Casing: 8 in.

Type of Surface Casing: Steel, boltdown

Type of Surface Seal: Concrete Pad 2'x2'x6"

I.D. of Riser: 2 inch

Type of Riser: Sch. 40, PVC

Borehole Diameter: 8 in.

Elevation / Depth Top of Rock: 1 N/A

Type of Backfill: Portland Cement Type I

Elevation / Depth of Seal: 1 1.0

Type of Seal: Medium Sand (30/65 grade)

Elevation / Depth of Top of Filter Pack: 1 2.0

Elevation / Depth of Top of Screen: 1 3.1

Type of Screen: Sch. 40, PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 2 inch

Type of Filter Pack: Coarse Sand (20/30 grade)

Elevation / Depth of Bottom of Screen: 1 13.1

Elevation / Depth of Bottom of Filter Pack: 1 13.4

Type of Backfill Below Well: Coarse Sand (20/30 grade)

Elevation / Total Depth of Borehole: 1 13.4

Tetra Tech NUS, Inc.

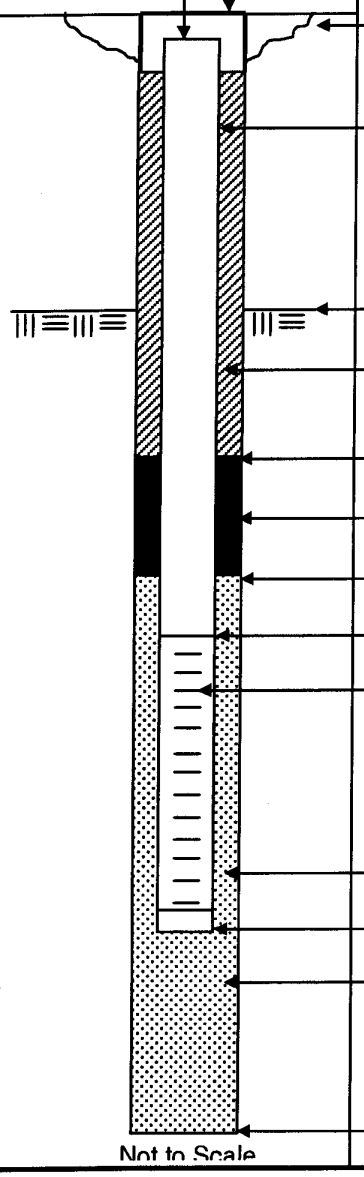
WELL No.: CEF-B271-11S

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Partridge	BORING No.:	11S
PROJECT No.:	0486	DRILLER: ALAN KELLY	~~Gary Oakes~~	DATE COMPLETED:	8-20-01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 11-3 in.

Elevation / Height of Top of Surface Casing: 10 ft.

I.D. of Surface Casing: 8 inch

Type of Surface Casing: Steel, boltdown

Type of Surface Seal: Concrete Pad 2'x2'x6"

I.D. of Riser: 2 inch

Type of Riser: Sch. 40, PVC

Borehole Diameter: 8 in.

Elevation / Depth Top of Rock: NA

Type of Backfill: Portland Cement Type I

Elevation / Depth of Seal: 11.0

Type of Seal: Medium Sand (30/65 grade)

Elevation / Depth of Top of Filter Pack: 12.0

Elevation / Depth of Top of Screen: 13.2

Type of Screen: Sch. 40, PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 2 inch

Type of Filter Pack: Coarse Sand (20/30 grade)

Elevation / Depth of Bottom of Screen: 13.2

Elevation / Depth of Bottom of Filter Pack: 13.4

Type of Backfill Below Well: Coarse Sand (20/30 grade)

Elevation / Total Depth of Borehole: 13.4

Tetra Tech NUS, Inc.

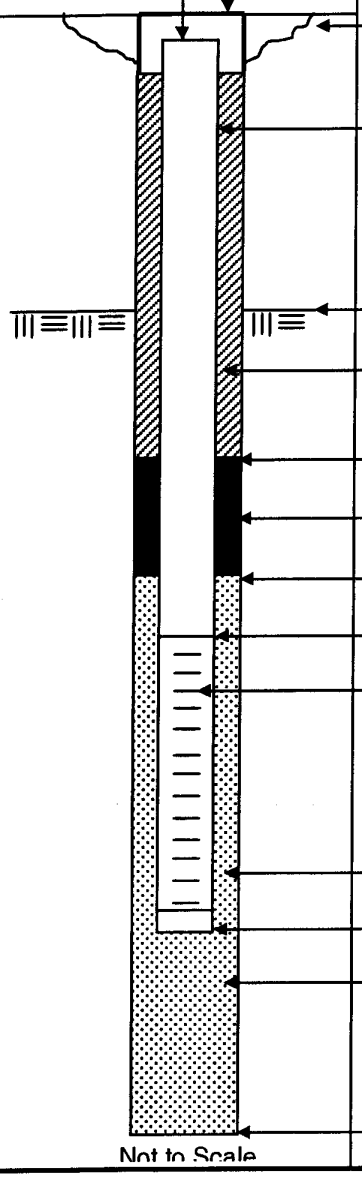
WELL No.: CEF-~~B~~271- 125

MONITORING WELL SHEET

PROJECT:	NAS CECIL FIELD	DRILLING Co.:	Partridge	BORING No.:	125
PROJECT No.:	0486	DRILLER:	ALAN KELLY ~~Gary Oakes~~	DATE COMPLETED:	8.21.01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	

Ground Elevation =

Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1 1-3 in.

Elevation / Height of Top of Surface Casing: 1 0 ft.

I.D. of Surface Casing: 8 inch

Type of Surface Casing: Steel, boltdown

Type of Surface Seal: Concrete Pad 2'x2'x6"

I.D. of Riser: 2 inch

Type of Riser: Sch. 40, PVC

Borehole Diameter: 8 in.

Elevation / Depth Top of Rock: NA

Type of Backfill: Portland Cement Type I

Elevation / Depth of Seal: 1 1.0

Type of Seal: Medium Sand (30/65 grade)

Elevation / Depth of Top of Filter Pack: 1 2.0

Elevation / Depth of Top of Screen: 1 3.1

Type of Screen: Sch. 40, PVC

Slot Size x Length: 0.010 inch x 10 ft.

I.D. of Screen: 2 inch

Type of Filter Pack: Coarse Sand (20/30 grade)

Elevation / Depth of Bottom of Screen: 1 13.1

Elevation / Depth of Bottom of Filter Pack: 1 13.4

Type of Backfill Below Well: Coarse Sand (20/30 grade)

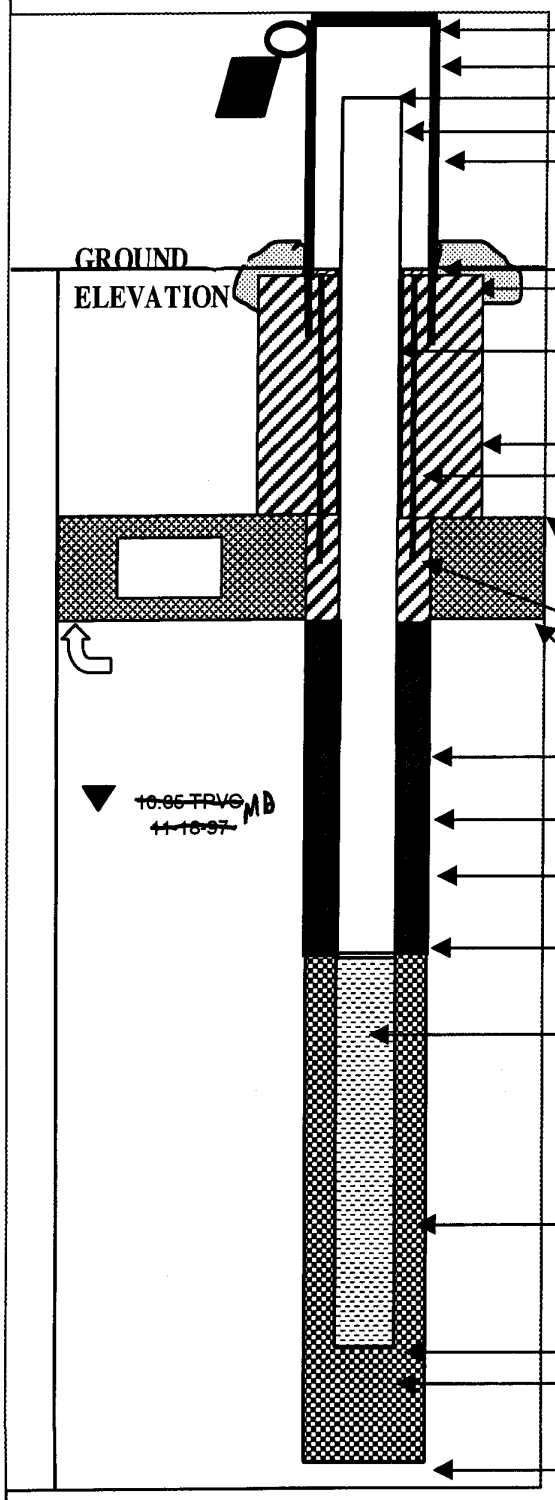
Elevation / Total Depth of Borehole: 1 13.4

BORING NO.: _____

Tetra Tech NUS, Inc. **DOUBLE-CASED MONITORING WELL SHEET**

PERMIT No. Not Req'd

PROJECT:	NAS Cecil Field	DRILLING Co.:	Partridge	BORING No.:	CEP-271-11
PROJECT No.:	N0486	DRILLER:	ALAN KELLY ~~G. Oakes~~	DATE COMPLETED:	8-21-01
SITE:	B. 271	DRILLING METHOD:	Hollow Stem	NORTHING:	
GEOLOGIST:	L. Knight	DEV. METHOD:	Submersible	EASTING:	



ELEVATION OF TOP OF SURFACE CASING: 0 FT.

STICK-UP TOP OF SURFACE CASING: FLUSH

ELEVATION OF TOP OF RISER PIPE: 1-3 IN.

RISER STICK-UP ABOVE GROUND SURFACE: NONE

I.D. OF SURFACE CASING: 12"

TYPE OF SURFACE CASING: STEEL, BOLTDOWN

GROUND ELEVATION:

TYPE OF SURFACE SEAL: 2 X 2 X 6" CONC. PAD

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

BOREHOLE DIAMETER: 14"

PERM. CASING I.D. : 6"

TYPE OF CASING & BACKFILL: PVC, SCHEDULE TYPE I PORTLAND CEMENT

ELEVATION / DEPTH TOP CONFINING LAYER / NONE

ELEVATION / DEPTH BOTTOM OF CASING 125'

ELEVATION / DEPTH BOT. CONFINING LAYER / NONE

ELEVATION / DEPTH OF SEAL: 127.7

TYPE OF SEAL: MEDIUM SAND (30/65)

ELEVATION / DEPTH TOP OF FILTER PACK: 130

ELEVATION / DEPTH TOP OF SCREEN: 132.5

TYPE OF SCREEN: PVC SCHEDULE 40

SLOT SIZE X LENGTH: 0.010" X 5'

I.D. OF SCREEN: 2"

TYPE OF FILTER PACK: COARSE SAND (20/30)

BOREHOLE DIAMETER BELOW CASING: 5 7/8"

ELEVATION / DEPTH BOTTOM OF SCREEN: 137.5

ELEVATION / DEPTH BOTTOM OF FILTER PACK: 138.0

TYPE OF BACKFILL BELOW WELL: COARSE SAND PACK

ELEVATION / DEPTH OF BOREHOLE: 138.0

APPENDIX D

FIELD DATA SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Cecil
Project No.: N0486

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

Sample ID No.: CEF-B271-GW-
Sample Location: B271 04-01
Sampled By: RZ / DH
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7/17/00								
Time: 1615								
Method: Peristaltic								

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	~~Salinity~~ Time	Other
Date: 7/17/00								
Method: Peristaltic	0.50 gal	6.19	0.258	27.3	-10	1.25	1540	
Monitor Reading (ppm): N/A	1.0 gal	5.05	0.198	26.5	-10	1.24	1552	
Well Casing Diameter & Material	2.5 gal	6.29	0.176	26.3	-10	1.79	1600	
Type: PVC 2"								
Total Well Depth (TD): 15.55								
Static Water Level (WL): 8.81								
One Casing Volume (gal/L): 1.14								
Start Purge (hrs): 1530								
End Purge (hrs): 1410								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 3.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
BETXM + VOH	HCL / ICE	2x 40mL	Y
EDB	HCL / ICE	2x 40mL	↓
PAH	ICE	2x 1L Amber	↓
TRPH	HCL / ICE	2x 1L Amber	↓
Total Lead	HNO_3 / ICE	1x 250mL plastic	↓

OBSERVATIONS / NOTES:

3 volumes = 3.42 G
5 volume = 5.7 G

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	CEF-B271-GW-04-01 DUP

Signature(s): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Cecil Field - UST
Project No.: N048G

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

Sample ID No.: CEF-B271-GW-05-01
Sample Location: BLDG 271
Sampled By: HE / DH
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7/17/00								
Time: 1630								
Method: Peristaltic								

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	~~Salinity~~ Time	Other
Date: 7/17/00								
Method: peristaltic	0.50 Gal	5.43	0.176	27.9	-10	1.35	1540	
Monitor Reading (ppm): N/A	1.5 Gal	5.96	0.135	27.7	-10	1.20	1549	
Well Casing Diameter & Material	2.5 Gal	5.70	0.166	27.6	-10	1.88	1559	
Type: PVC 2"	3.5	5.83	0.175	22.5	-10	1.73	1615	
Total Well Depth (TD): 15.55								
Static Water Level (WL): 9.26								
One Casing Volume (gal/L): 1.07								
Start Purge (hrs): 1530								
End Purge (hrs): 1615								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 3.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
BETXN + VOH	HCl / ICE	2x 40 mL	HE
EDB	HCl / ICE	2x 40 mL	↓
PAH	ICE	2x 1L Amber	↓
TRPH	HCl / ICE	2x 1L Amber	↓
Total lead	HNO_3 / ICE	1x 250 mL Plastic	✓

OBSERVATIONS / NOTES:

3 volumes = ~~3.27 G~~ 3.21 G (HE) 7/17/00
5 vol. = 5.35 L

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Cecil Field - UST
Project No.: N048C

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

Sample ID No.: CEF-B271-GW-06-01
Sample Location: Bldg 271
Sampled By: JHE / DH
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7/17/00								
Time: 1620								
Method: Peristaltic								

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	~~Salinity~~ Time	Other
Date: 7/17/00								
Method: Peristaltic	1.0 gal	5.19	0.250	27.7	-10	4.62	1542	
Monitor Reading (ppm): N/A	2. gal	5.60	.240	28.0	-10	2.26	1555	
Well Casing Diameter & Material	3.5 gal	5.58	0.255	27.7	-10	1.24	1604	
Type: PVC 2"								
Total Well Depth (TD): 15.60								
Static Water Level (WL): 9.72								
One Casing Volume(gal/L): 0.99								
Start Purge (hrs): 1530								
End Purge (hrs): 1610								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 3.8								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

3 volumes = 2.97 G
5 volumes = 4.95 G

Circle if Applicable:

MS/MSD	~~Duplicate ID No.:~~
Yes	CEF-B271-GW-06-01 MS/MSD

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0456GH0050190

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

Sample ID No.: CEF-B271-GW-015-02
Sample Location: CEF-271-15
Sampled By: L. MIDDLETON
C.O.C. No.: B271-
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		Other
Date: 8/23/01 Time: 1050								
Method: Low Flow Peristaltic	CLEAR	6.19	0.359	25.7	3.8	0.03		

PURGE DATA

Date: 08/23/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0.2								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 16.80	See Low Flow Purge Sheet							
Static H20 Level (ft): 4.78								
1 Screen Vol. (gal/L): 6.2								
Start Purge (hrs): 0950								
End Purge (hrs): 0940								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 20								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs by SW846 8260B	HCL	3-40 ml vials	X
PAHs by SW846 8270C	None	2-1 liter ambers	X
TRPH by FL-PRO	HCL	2-1 liter ambers	X
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	X
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	X

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

7-1 1300 1040

8-E 0900 1010

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID: CEF-271-15
DATE: 8/23/01

	Time (Hrs.)	Water Level (ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments
VOC	0950	4.78	400	—	—	—	—	—	
4	0000	4.91	400	6.35	0.474	38.9	0.24	25.8	
8	1010	4.95	400	6.23	0.411	55.6	0.09	25.6	CLEAR
12	1020	5.01	400	6.22	0.387	33.0	0.10	25.8	
16	1030	5.03	400	6.19	0.363	8.5	0.06	25.8	
20	1040	5.03	400	6.19	0.359	3.8	0.03	25.7	
		END PURGE							

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CBF-271-1I
Sample Location:
Sampled By: LLK
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8·24·01	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Time: 1040								
Method: Low Flow Peristaltic	CLEAR	9.69	0.267	26.6	64.7	0.76		

PURGE DATA

Date: 8·24·01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 38	See Low Flow Purge Sheet							
Static H20 Level (ft): 4.25								
1 Screen Vol. (gal/L): 3.02L								
Start Purge (hrs): 0940								
End Purge (hrs): 1035								
Total Purge Time (min): 55								
Total Vol. Purged (gal/L): ~17L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs	HCL	3-40 ml vials	LLK
by SW846 8260B			
PAHs by SW846 8270C	None	2-1 liter ambers	LLK
TRPH by FL-PRO	HCL	2-1 liter ambers	LLK
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	LLK
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	LLK

OBSERVATIONS / NOTES

High pH probably due to mud rotary installation (8.22.01). Pumped 5 well volumes in attempt to get pH near values recorded at other site wells (~6.6). During development (165 gallons) pH began at ~11.75 and dropped to slightly below 8.0. During purging here, pH dropped from 10.46 to 9.69 (SEE LOW FLOW PURGE SHEET).

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Louis Knight

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF.271.1I
DATE: 8.24.01

	Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments	EST. CUM. VOL.
935	~~1035~~	4.25	—	—	—	—	—	—	VERY TURBID AT FIRST	
941	~~1041~~ (1)	—	—	—	—	—	—	—		
942	~~1042~~	4.38	—	—	—	—	—	—		
943	~~1043~~	—	—	—	—	—	—	—		
944	~~1044~~ (1)	—	—	—	(1) —	—	—	—		
945	~~1045~~	4.52	300	10.90	~~.006~~ 1.52	221	5.48	27.32		2
950	~~1050~~	4.51	300	10.68	1.21	103	3.05	27.17		
955	~~1055~~	4.52	300	10.51	0.645	46.6	1.92	26.88		5
	1000	4.52	300	10.29	0.470	33.6	1.45	26.74		
	1005	4.52	300	10.13	0.402	31.1	1.30	26.74		8
	1010	4.53	300	10.11	0.352	38.3	1.27	26.68		
	1015		—	—	—	~~45.2~~	—	—		11
	1020	4.53	300	9.91	0.284	45.2	0.96	26.58		
	1025	4.53	300	9.86	0.281	52.8	0.87	26.57		14
	1030	4.53	300	9.79	0.280	54.7	0.81	26.57		
	1035	4.53	300	9.69	0.267	64.7	0.76	26.60		17L

SIGNATURE(S): Louis Knight

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

GW

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0466GH0050190

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

Sample ID No.: CEFB271-GW-35-02
Sample Location:
Sampled By:
C.O.C. No.: B271-
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		Other
Date: 8.23								
Time: 1325								
Method: Low Flow Peristaltic	CLEAR	6.23	0.483	27.85	205	1.08		

PURGE DATA

Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 12.85	See Low Flow Purge Sheet							
Static H20 Level (ft): 3.20								
1 Screen Vol. (gal/L): ~1.66 ~5.8L								
Start Purge (hrs): 1210								
End Purge (hrs): 1320								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): ~19L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs by SW846 8260B	HCL	3-40 ml vials	[illegible]
PAHs by SW846 8270C	None	2-1 liter ambers	[illegible]
TRPH by FL-PRO	HCL	2-1 liter ambers	[illegible]
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	[illegible]
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	[illegible]

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		[illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271 WELL ID.: CEF-271-MW3S
PROJECT NUMBER: N0486 GH0050190 DATE: 8-23-01

Time (Hrs)	Water Level (ft below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments	EST. CUM. VOL
1210	3.20	—	—	—	—	—	—	ORANGE-BROWN	
1211	3.38	—	—	—	—	—	—		
1212	3.62	—	—	—	—	—	—		
1213	3.74	—	—	—	—	—	—		
1214	3.76	—	—	—	—	—	—		
1215	3.75	250	5.78	0.463	140	6.98	28.27		3L
1220	3.83	225	5.87	0.460	116	3.62	28.29		
1225	3.88	225	6.01	0.459	95.2	2.78	28.32	BEGIN 10-min intervals	5L
1235	3.89	225	6.17	0.461	84.0	2.23	28.31		7L
1245	3.88	225	6.24	0.469	64.5	2.01	28.08		9L
1255	3.90	225	6.23	0.471	68.0	1.49	27.94		11L
1305	3.89	225	6.24	0.475	184	1.17	27.93		13L
1315	3.88	225	6.24	0.477	213	1.10	27.97		17L
1320	3.88	225	6.23	0.483	205	1.08	27.85		19L

SIGNATURE(S): Louis Knight

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEF-B271-GW-45-02
Sample Location: CEF-271-45
Sampled By: L. Mooneyham
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8/23/01 Time: 1320	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.65	.347	26.9	4.6	0.58		

PURGE DATA

Date: 8/23/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic	See Low Flow Purge Sheet							
Monitor Reading (ppm): 0.0								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 14.95								
Static H20 Level (ft): 2.66								
1 Screen Vol. (gal/L): 6.2								
Start Purge (hrs): 1220								
End Purge (hrs): 1310								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 20								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs by SW846 8260B	HCL	3-40 ml vials	X
PAHs by SW846 8270C	None	2-1 liter ambers	X
TRPH by FL-PRO	HCL	2-1 liter ambers	X
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	X
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	X

OBSERVATIONS / NOTES

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s): R.W.M.

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF-271-45
DATE: 8/23/01

Time (Hrs.)	Water Level (Ft. below TOC.)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments
1220	2.66	400	—	—	—	—	—	—
1230	2.86	400	6.57	0.364	233	0.19	26.6	LT BROWN
1240	2.92	400	6.63	0.403	73.5	0.72	26.7	
1250	2.93	400	6.65	0.363	43.2	0.49	26.7	
1300	2.95	400	6.67	0.347	4.9	0.59	26.9	
1310	2.97	400	6.65	0.347	4.6	0.58	26.9	
END PURGE								

SIGNATURE(S): [signature]

PAGE 2 OF 2

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CRF-B271-GW-SSR-02
Sample Location: B-271
Sampled By: L. MIDDLETON
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8/23/01 Time: 1440	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.18	0.197	27.0	0	0.02		

PURGE DATA

Date: 8/23/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0.0								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 14.66	See Low Flow Purge Sheet							
Static H20 Level (ft): 3.30								
1 Screen Vol. (gal/L): 6.2								
Start Purge (hrs): 1340								
End Purge (hrs): 1430								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): 20								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs by SW846 8260B	HCL	3-40 ml vials	X
PAHs by SW846 8270C	None	2-1 liter ambers	X
TRPH by FL-PRO	HCL	2-1 liter ambers	X
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	X
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	X

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		R. [illegible]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF-271-65R
DATE: 8/23/01

Time (Hrs)	Water Level (ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments
1340	3.30	400	—	—	—	—	—	
1350	3.48	400	6.22	0.208	40.0	6.58	27.5	CLEAR
1400	3.55	400	6.15	0.278	13.9	0.09	26.9	
1410	3.57	400	6.17	0.206	6.5	0.06	27.0	
1420	3.58	400	6.19	0.199	1.2	0.02	27.0	
1430	3.58	400	6.18	0.197	0	0.02	27.0	
	END PURGE							

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc. **GROUNDWATER SAMPLE LOG SHEET**

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEF-B271-GW-LS-02
Sample Location:
Sampled By: LLK
C.O.C. No.: 8271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8-23-01 Time: 1430	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.13	0.687	30.60	0	1.07		

PURGE DATA

Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 15.85	See Low Flow Purge Sheet							
Static H20 Level (ft): 3.96								
1 Screen Vol. (gal/L): 1.6G								
Start Purge (hrs): 1350								
End Purge (hrs): 1426								
Total Purge Time (min): 30								
Total Vol. Purged (gal/L): ~19L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs by SW846 8260B	HCL	3-40 ml vials	LLK
PAHs by SW846 8270C	None	2-1 liter ambers	LLK
TRPH by FL-PRO	HCL	2-1 liter ambers	LLK
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	LLK
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	LLK

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s): Louis Knight

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID: CEF-271-MW65
DATE:

Time (Hrs.)	Water Level (ft.-below TOC)	Flow (ml/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments	EST. CUM. VOL
1350	3.96	—	—	—	—	—	—		
1352	4.15	—	—	—	—	—	—		
1353	4.15	—	—	—	—	—	—		
1354	4.18	—	—	—	—	—	—		
1355	4.19	600	5.95	0.691	0	4.33	31.05		4L
1400	4.19	600	5.88	0.678	0	2.35	30.90		7L
1405	4.20	600	5.88	0.681	0	1.44	30.84		10L
1410	4.20	600	5.98	0.686	0	1.21	30.75		13L
1415	4.20	600	6.07	0.686	0	1.14	30.73		16L
1420	4.20	600	6.13	0.687	0	1.07	30.60		19

SIGNATURE(S): Louis Knight

PAGE 2 OF 2

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEP. 271 - 75
Sample Location:
Sampled By:
C.O.C. No.: B271-
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		Other
Date: 8.24.01								
Time: 1300								
Method: Low Flow Peristaltic	PALE ORANGE	6.60	0.848	25.7	52.5	4.45		

PURGE DATA

Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 13.65	See Low Flow Purge Sheet							
Static H20 Level (ft): 3.57								
1 Screen Vol. (gal/L): (1.6G)(6.04L)								
Start Purge (hrs): 1217								
End Purge (hrs): 1255								
Total Purge Time (min): 43								
Total Vol. Purged (gal/L): ~20.5L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs	HCL	3-40 ml vials	[illegible]
by SW846 8260B			
PAHs by SW846 8270C	None	2-1 liter ambers	[illegible]
TRPH by FL-PRO	HCL	2-1 liter ambers	[illegible]
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	[illegible]
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	[illegible]

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): James Krypt

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF-271-MW75
DATE: 8/24/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments	EST. CUM. VOL.
1212	3.57	—	—	—	—	—	—	PALE ORANGE BROWN	
1213	3.74	—	—	—	—	—	—		
1214	3.76	—	—	—	—	—	—		
1215	3.79	500	6.41	0.834	136	1.07	26.1		2L
1220	3.93	500	6.41	0.835	83.8	0.65	25.9	(12)	4.5L
1225	3.91	450	6.45	0.837	73.5	2.19	25.9		7L
1230	3.91	450	6.48	0.843	73.4	3.62	25.8		9.25L
1235	3.92	450	6.50	0.846	110	4.27	25.8		11.5L
1240	3.92	450	6.52	0.848	28.2	4.56	25.8		13.75
1245	3.92	450	6.55	0.850	32.0	4.60	25.7		16L
1250	3.92	450	6.57	0.848	58.2	4.59	25.7		18.25L
1255	3.92	450	6.60	0.848	52.5	4.45	25.7		20.5L

SIGNATURE(S): James Kryll

PAGE 2 OF 2

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEF-B271-GW-95-01
Sample Location:
Sampled By:
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8-24-01 / Time: 0900	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.04	0.534	28.20	0			

PURGE DATA

Date: 8-24-01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm):								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 13.05	See Low Flow Purge Sheet							
Static H20 Level (ft): 4.38								
1 ~~Screen~~ Well Vol. (gal/L): ~5.25L								
Start Purge (hrs): 0815								
End Purge (hrs): 0855								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): ~17L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs	HCL	3-40 ml vials	SRK
by SW846 8260B			
PAHs by SW846 8270C	None	2-1 liter ambers	SRK
TRPH by FL-PRO	HCL	2-1 liter ambers	SRK
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	SRK
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	SRK

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Steve Kyle

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF-271-8S
DATE: 8-24-01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments	EST. CUM. VOL.
0815	4.38	—	—	—	—	—	—		
0816	4.60	—	—	—	—	—	—		
0817	4.64	—	—	—	—	—	—		
0818	4.69	—	—	—	—	—	—		
0819	4.69	—	—	—	—	—	—		
0820	4.70	400	5.68	0.530	16.7	5.47	28.35		3L
0825	4.63	400	5.90	0.537	11.2	2.55	28.36		5L
0830	4.70	400	6.00	0.547	4.3	1.83	28.33		7L
0835	4.71	400	6.04	0.543	0	2.23	28.25		9L
0840	4.72	400	6.04	0.535	0	1.38	28.23		11L
0845	4.72	400	6.04	0.532	0	1.13	28.22		13L
0850	4.73	400	6.04	0.532	0	0.94	28.20		15L
0855	4.73	400	6.04	0.534	0	0.74	28.20		17L

SIGNATURE: Louis Hay

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEF-B271-GW-95-01
Sample Location: CEF-B271-95
Sampled By: L. MIDDLETON
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8/24/01 Time: 1010	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.60	0.514	27.8	1.0	0.21		

PURGE DATA

Date: 8/24/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic	See Low Flow Purge Sheet							
Monitor Reading (ppm): 0.0								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 13.0								
Static H20 Level (ft): 3.99								
1 Screen Vol. (gal/L): 5.6								
Start Purge (hrs): 0915								
End Purge (hrs): 1000								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 18								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs	HCL	3-40 ml vials	X
by SW846 8260B			
PAHs by SW846 8270C	None	2-1 liter ambers	X
TRPH by FL-PRO	HCL	2-1 liter ambers	X
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	X
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	X

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF-B271-9S
DATE: 8/24/01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments
0915	3.99	400	—	—	—	—	—	
0925	4.21	400	6.60	0.545	11.5	0.68	28.2	CLEAR
0935	4.24	400	6.68	0.552	1.1	0.35	27.8	
0945	4.26	400	6.66	0.524	1.3	0.23	27.8	
0955	4.27	400	6.63	0.508	2.1	0.19	27.8	
1000	4.28	400	6.60	0.514	1.0	0.21	27.8	
	END PURGE							

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEF-B271-GW-105-01
Sample Location: CEF-B271-105
Sampled By: L. MIDDLETON
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8/24/01 Time: 1255	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.29	0.410	28.6	4.1	2.06		

PURGE DATA

Date: 8/24/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic	See Low Flow Purge Sheet							
Monitor Reading (ppm): 0								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 13.15								
Static H20 Level (ft): 4.80								
1 Screen Vol. (gal/L): 5.1								
Start Purge (hrs): 1205								
End Purge (hrs): 1245								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): 8.16								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs	HCL	3-40 ml vials	X
by SW846 8260B			
PAHs by SW846 8270C	None	2-1 liter ambers	X
TRPH by FL-PRO	HCL	2-1 liter ambers	X
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	X
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	X

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
X	—	[signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271 **WELL ID.:**
PROJECT NUMBER: N0486 GH0050190 **DATE:**

Time (Hrs.)	Water Level (Ft. below TOC)		Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments
1205	4.80	Vol	400	—	—	—	—	—	
1215	4.90	4	400	5.90	0.428	5[illegible]	3.23	28.5	CLEAR
1225	4.97	8	400	5.90	0.417	50.7	2.17	28.3	
1235	5.00	12	400	6.28	0.411	15.0	1.67	28.5	
1240	5.02	14	400	6.30	0.413	3.8	1.75	28.5	
1245	5.04	16	400	6.29	0.410	4.1	2.06	28.6	
	END PURGE								

SIGNATURE(S): [illegible]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0050190

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

Sample ID No.: CEF-B271-GW-115-01
Sample Location: CEF-B271-115
Sampled By: L. MIDDLETON
C.O.C. No.: B271-
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		Other
Date: 8/24/01 Time: 0840								
Method: Low Flow Peristaltic	CLEAR	6.47	0.371	30.7	0	1.15		

PURGE DATA

Date: 8/24/01	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic								
Monitor Reading (ppm): 0.0								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 13.30	See Low Flow Purge Sheet							
Static H20 Level (ft): 3.83								
1 Screen Vol. (gal): 5.9								
Start Purge (hrs): 0745								
End Purge (hrs): 0830								
Total Purge Time (min): 45								
Total Vol. Purged (gal): 18								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs	HCL	3-40 ml vials	X
by SW846 8260B			
PAHs by SW846 8270C	None	2-1 liter ambers	X
TRPH by FL-PRO	HCL	2-1 liter ambers	X
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	X
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	X

OBSERVATIONS / NOTES

Circle if Applicable:

MS/MSD

Duplicate ID No.: CEF-B271-DU1-02

Signature(s): R. M

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEF-B271-115
DATE: 8/24/01

Time (Hrs.)	Water Level (Ft. below TOC)		Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	Comments
0745	3.83	va	400	—	—	—	—	—	
0755	3.98	4	400	6.32	0.379	70.5	1.08	30.9	
0805	4.05	8	400	6.38	0.375	63.8	1.05	30.8	CLEAR
0815	4.08	12	400	6.41	0.372	0	1.20	30.8	
0825	4.10	16	400	6.45	0.366	0	1.24	30.7	
0830	4.10	18	400	6.47	0.371	0	1.15	30.7	
END PURGE									

SIGNATURE(S): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NASCF, B. 271, Tanks 271, SAR Phase II
Project No.: N0486GH0C60190

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

Sample ID No.: CEF-B271-GW-125-01
Sample Location:
Sampled By: LLK
C.O.C. No.: B271-
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA

Date: 8-23-01 Time: 1045	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l		Other
Method: Low Flow Peristaltic	CLEAR	6.19	0.537	25.74	0	3.58		

PURGE DATA

Date:	Time	pH	S.C.	Temp (°C)	Turbidity	DO	Salinity	ORP
Method: Low Flow Peristaltic	See Low Flow Purge Sheet							
Monitor Reading (ppm):								
Well Casing Diameter: 2 inch								
Well Casing Material: PVC								
Total Well Depth (ft): 13.4								
Static H20 Level (ft): 3.91								
1 Screen Vol. (gal/L): 1.6G								
Start Purge (hrs): 0950								
End Purge (hrs): 1030								
Total Purge Time (min): 40								
Total Vol. Purged (gal/L): ~18L								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
BTEX; MTBE; 1,2 dichloroethane, and VOHs by SW846 8260B	HCL	3-40 ml vials	✓
PAHs by SW846 8270C	None	2-1 liter ambers	✓
TRPH by FL-PRO	HCL	2-1 liter ambers	✓
Total Lead by SW846 6010B	HNO3	1-500 ml HDPE	✓
EDB by EPA Method 504	Sodium Thiosulfate	3-40 ml vials	✓

OBSERVATIONS / NOTES

Circle If Applicable:

MS/MSD	Duplicate ID No.:	Signature(s): Louis Knight

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NAS Cecil Field B. 271, Tanks 271
PROJECT NUMBER: N0486 GH0050190

WELL ID.: CEP. B271. MW 128
DATE: 8.23.01

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (Celsius)	EST SUM VOL	Comments
0950	3.91	—	—	—	—	—	—		
0951	4.25	—	—	—	—	—	—		
0952	4.23	—	—	—	—	—	—		
0953	4.26	—	—	—	—	—	—		
0954	4.27	—	—	—	—	—	—		
0955	4.27	475	6.30	0.575	124	8.82	26.04	2.4L	
1000	4.29	475	6.31	0.571	61.6	5.93	25.89	5L	
1005	4.27	450	6.31	0.568	34.3	5.34	25.89	7.25	
1010	4.28	450	6.30	0.565	20.0	4.96	25.84	9.5	
1015	4.28	450	6.28	0.559	9.3	4.49	25.81	12.0	
1020	4.28	450	6.25	0.552	4.9	4.04	25.75	15.0	
1025	4.28	450	6.19	0.537	0	3.58	25.74	18.0	
1030									

SIGNATURE(S): James Kryll

APPENDIX E

PHASE 1 SOIL ANALYTICAL REPORT

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Paul Calligan

DATE: August 7, 2000

FROM: William Howard Engle

CC: File

SUBJECT: Organic Data Validation – VOA, PAH, and TRPH
CTO121 – NAS Cecil Field
SDG 24749

SAMPLES: 6/Soils

CEF-B81-SB-003-03	CEF-B271-SB-003-03
CEF-B271-SB-008-01	CEF-B271-SB-DU01
CEF-B271-SB-004-01	LEF-QH-SB002-01

OVERVIEW

The sample set for CTO121, SDG 24749; Naval Air Station Cecil Field, Jacksonville, Florida consists of six (6) soil environmental samples. A field duplicate pair was also included in this SDG, CEF-B271-SB-DU01/CEF-B271-SB-003-03. The environmental samples were analyzed for volatile organics (VOCs), polycyclic aromatic hydrocarbons (PAHs), and total residual petroleum hydrocarbons (TRPHs).

The samples were collected by Tetra Tech NUS on June 21, 1999 and analyzed by Accura Analytical Laboratory, Inc. 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 (PAHs), and FL-PRO (TRPHs) 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. Supporting documentation is presented in Appendix C. Qualified analytical results are presented in Appendix A. The original laboratory data is contained in Appendix B.

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)."

William Howard Engle

Project Chemist
Tetra Tech NUS, Inc.

Joseph A. Samchuck

Data Validation Quality Assurance Officer
Tetra Tech NUS, Inc.

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B – Results as reported by the laboratory
3. Appendix C – Supporting Documentation

DATA QUALIFIER DEFINITIONS:

U	-	Value is a nondetected result as reported by the laboratory and should not be considered present.
J	-	Positive result is estimated as a result of a value below the CRQL or a technical noncompliance.
UJ	-	Nondetected result is considered to be estimated as a result of technical noncompliances.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCB D% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = % Solid content is less than 30%

APPENDIX A

Qualified Analytical Results

CTO121 - NAS CECIL FIELD
SOIL DATA
ACCURA
SDG: 24749

SAMPLE NUMBER:	CEF-B271-SB-003-03			CEF-B271-SB-004-01			CEF-B271-SB-008-01			CEF-B271-SB-DU01		
SAMPLE DATE:	06/21/00			06/21/00			06/21/00			06/21/00		
LABORATORY ID:	AB94290			AB94289			AB94288			AB94292		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	100.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
BENZENE	280	U		6.8	U		5.8	U		300	U	
ETHYLBENZENE	1700			6.8	U		5.8	U		2800		
METHYL TERT-BUTYL ETHER	280	U		6.8	U		5.8	U		300	U	
TOLUENE	570			6.8	U		5.8	U		1800		
XYLENES, TOTAL	83000			6.8	U		5.8	U		110000		

CTO121 - NAS CECIL FIELD
SOIL DATA
ACCURA
SDG: 24749

SAMPLE NUMBER:	CEF-B81-SB-003-03			CEF-QH-SB002-01			/ /			/ /		
SAMPLE DATE:	06/21/00			06/21/00								
LABORATORY ID:	AB94287			AB94293								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	100.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
BENZENE	7.2	U		5.1	U							
ETHYLBENZENE	7.2	U		5.1	U							
METHYL TERT-BUTYL ETHER	7.2	U		5.1	U							
TOLUENE	7.2	U		5.1	U							
XYLENES, TOTAL	7.2	U		5.1	U							

CTO121 - NAS CECIL FIELD
SOIL DATA
ACCURA
SDG: 24749

SAMPLE NUMBER:	CEF-B271-SB-003-03			CEF-B271-SB-004-01			CEF-B271-SB-008-01			CEF-B271-SB-DU01		
SAMPLE DATE:	06/21/00			06/21/00			06/21/00			06/21/00		
LABORATORY ID:	AB94290			AB94289			AB94288			AB94292		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	100.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG			UG/KG			UG/KG		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	12000			84	U		69	U		14000		
2-METHYLNAPHTHALENE	21000			84	U		7.6			25000		
ACENAPHTHENE	150			84	U		69	U		180		
ACENAPHTHYLENE	370	U		84	U		69	U		370	U	
ANTHRACENE	49			84	U		69	U		110		
BENZO(A)ANTHRACENE	70			20			69	U		74		
BENZO(A)PYRENE	42			32			69	U		44		
BENZO(B)FLUORANTHENE	79			43			69	U		61		
BENZO(G,H,I)PERYLENE	370	U		37			69	U		370	U	
BENZO(K)FLUORANTHENE	88			16			69	U		370	U	
CHRYSENE	46			19			69	U		56		
DIBENZO(A,H)ANTHRACENE	370	U		84	U		69	U		370	U	
FLUORANTHENE	120			26			69	U		150		
FLUORENE	200			84	U		69	U		260		
INDENO(1,2,3-CD)PYRENE	370	U		31			69	U		370	U	
NAPHTHALENE	23000			84	U		12			24000		
PHENANTHRENE	280			8.4			69	U		350		
PYRENE	110			26			69	U		150		

CTO121 - NAS CECIL FIELD
SOIL DATA
ACCURA
SDG: 24749

SAMPLE NUMBER:	CEF-B81-SB-003-03			CEF-QH-SB002-01			/ /			/ /		
SAMPLE DATE:	06/21/00			06/21/00								
LABORATORY ID:	AB94287			AB94293								
QC_TYPE:	NORMAL			NORMAL								
% SOLIDS:	100.0 %			100.0 %			100.0 %			100.0 %		
UNITS:	UG/KG			UG/KG								
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	69	U		70	U							
2-METHYLNAPHTHALENE	8.7			70	U							
ACENAPHTHENE	69	U		70	U							
ACENAPHTHYLENE	69	U		70	U							
ANTHRACENE	69	U		70	U							
BENZO(A)ANTHRACENE	42			70	U							
BENZO(A)PYRENE	70			70	U							
BENZO(B)FLUORANTHENE	100			70	U							
BENZO(G,H,I)PERYLENE	54			70	U							
BENZO(K)FLUORANTHENE	39			70	U							
CHRYSENE	55			70	U							
DIBENZO(A,H)ANTHRACENE	14			70	U							
FLUORANTHENE	63			70	U							
FLUORENE	69	U		70	U							
INDENO(1,2,3-CD)PYRENE	50			70	U							
NAPHTHALENE	10			70	U							
PHENANTHRENE	13			70	U							
PYRENE	61			70	U							

CTO121 - NAS CECIL FIELD
SOIL DATA
ACCURA
SDG: 24749

SAMPLE NUMBER:	CEF-B271-SB-003-03	CEF-B271-SB-004-01	CEF-B271-SB-008-01	CEF-B271-SB-DU01
SAMPLE DATE:	06/21/00	06/21/00	06/21/00	06/21/00
LABORATORY ID:	AB94290	AB94289	AB94288	AB94292
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	100.0 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG	MG/KG	MG/KG
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TOTAL PETROLEUM HYDROCARBONS	680			54			33			520		

CTO121 - NAS CECIL FIELD
SOIL DATA
ACCURA
SDG: 24749

SAMPLE NUMBER:	CEF-B81-SB-003-03	CEF-QH-SB002-01	/ /	/ /
SAMPLE DATE:	06/21/00	06/21/00		
LABORATORY ID:	AB94287	AB94293		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	100.0 %	100.0 %	100.0 %	100.0 %
UNITS:	MG/KG	MG/KG		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TOTAL PETROLEUM HYDROCARBONS	55			32	U							

APPENDIX B

Results as Reported by the Laboratory

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94287 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 6/21/00
Client Contact: PAUL CALLIGAN Date Received: 6/22/00
Client Project Number: N0486 Date Reported: 7/18/00
Client Project Name: NAS - CECIL FIELD - CTO 0121 Sample Matrix: SOIL
Client Sample ID: CEF-B81-SB-003-03

ANALYSIS: % Solids Method Ref: EPA 160.3
Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	96	1.0

ANALYSIS: BTEX + MTBE by GC/MS Method Ref: 8260B
Date Ext/Dig/Prep: 6/22/00 Date Analyzed: 6/22/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Benzene	<RDL	7.2
Ethylbenzene	<RDL	7.2
Methyl tert-Butyl Ether (MTBE)	<RDL	7.2
Toluene	<RDL	7.2
Xylenes	<RDL	7.2

ANALYSIS: PAH's Method Ref: 8270C
Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnaphthalene	<RDL	69
2-Methylnaphthalene	8.7J	69
Acenaphthene	<RDL	69
Acenaphthylene	<RDL	69
Anthracene	<RDL	69
Benzo(a)anthracene	42J	69
Benzo(a)pyrene	70	69
Benzo(b)fluoranthene	100	69
Benzo(g,h,i)perylene	54J	69
Benzo(k)fluoranthene	39J	69
Chrysene	55J	69
Dibenz(a,h)anthracene	14J	69
Fluoranthene	63J	69
Fluorene	<RDL	69

Indeno(1,2,3-cd)pyrene	50J	69
Naphthalene	10J	69
Phenanthrene	13J	69
Pyrene	61J	69

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	55	31

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2-Fluorobiphenyl (Range 45-118)	89	
Nitrobenzene-d5 (Range 34-117)	81	
p-Terphenyl-d14 (Range 42-119)	95	

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 60-118)	61	
o-Terphenyl (Range 62-109)	73	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 6/22/00 Date Analyzed: 6/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (Range 81-151)	100	
4-Bromofluorobenzene (Range 80-131)	113	
Toluene-d8 (Range 82-119)	106	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94288 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: NAS - CECIL FIELD - CTO 0121
Client Sample ID: CEF-B271-SB-008-01

Date Sampled: 6/21/00
Date Received: 6/22/00
Date Reported: 7/18/00
Sample Matrix: SOIL

ANALYSIS: % Solids Method Ref: EPA 160.3
Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	96	1.0

ANALYSIS: BTEX + MTBE by GC/MS Method Ref: 8260B
Date Ext/Dig/Prep: 6/22/00 Date Analyzed: 6/22/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Benzene	<RDL	5.8
Ethylbenzene	<RDL	5.8
Methyl tert-Butyl Ether (MTBE)	<RDL	5.8
Toluene	<RDL	5.8
Xylenes	<RDL	5.8

ANALYSIS: PAH's Method Ref: 8270C
Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnaphthalene	<RDL	69
2-Methylnaphthalene	7.6J	69
Acenaphthene	<RDL	69
Acenaphthylene	<RDL	69
Anthracene	<RDL	69
Benzo(a)anthracene	<RDL	69
Benzo(a)pyrene	<RDL	69
Benzo(b)fluoranthene	<RDL	69
Benzo(g,h,i)perylene	<RDL	69
Benzo(k)fluoranthene	<RDL	69
Chrysene	<RDL	69
Dibenz(a,h)anthracene	<RDL	69
Fluoranthene	<RDL	69
Fluorene	<RDL	69

Indeno(1,2,3-cd)pyrene	<RDL	69
Naphthalene	12J	69
Phenanthrene	<RDL	69
Pyrene	<RDL	69

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	33	31

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2-Fluorobiphenyl (Range 45-118)	90	
Nitrobenzene-d5 (Range 34-117)	78	
p-Terphenyl-d14 (Range 42-119)	96	

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 60-118)	49	
o-Terphenyl (Range 62-109)	74	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 6/22/00 Date Analyzed: 6/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (Range 81-151)	99	
4-Bromofluorobenzene (Range 80-131)	109	
Toluene-d8 (Range 82-119)	104	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94289 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: NAS - CECIL FIELD - CTO 0121
Client Sample ID: CEF-B271-SB-004-01

Date Sampled: 6/21/00
Date Received: 6/22/00
Date Reported: 7/18/00
Sample Matrix: SOIL

ANALYSIS: % Solids Method Ref: EPA 160.3

Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	79	1.0

ANALYSIS: BTEX + MTBE by GC/MS Method Ref: 8260B

Date Ext/Dig/Prep: 6/22/00 Date Analyzed: 6/22/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Benzene	<RDL	6.8
Ethylbenzene	<RDL	6.8
Methyl tert-Butyl Ether (MTBE)	<RDL	6.8
Toluene	<RDL	6.8
Xylenes	<RDL	6.8

ANALYSIS: PAH's Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnaphthalene	<RDL	84
2-Methylnaphthalene	<RDL	84
Acenaphthene	<RDL	84
Acenaphthylene	<RDL	84
Anthracene	<RDL	84
Benzo(a)anthracene	20J	84
Benzo(a)pyrene	32J	84
Benzo(b)fluoranthene	43J	84
Benzo(g,h,i)perylene	37J	84
Benzo(k)fluoranthene	16J	84
Chrysene	19J	84
Dibenz(a,h)anthracene	<RDL	84
Fluoranthene	26J	84
Fluorene	<RDL	84

Indeno(1,2,3-cd)pyrene	31J	84
Naphthalene	<RDL	84
Phenanthrene	8.4J	84
Pyrene	26J	84

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	54	38

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2-Fluorobiphenyl (Range 45-118)	78	
Nitrobenzene-d5 (Range 34-117)	77	
p-Terphenyl-d14 (Range 42-119)	78	

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 60-118)	60	
o-Terphenyl (Range 62-109)	70	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 6/22/00 Date Analyzed: 6/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (Range 81-151)	102	
4-Bromofluorobenzene (Range 80-131)	113	
Toluene-d8 (Range 82-119)	107	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94290 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 6/21/00
Client Contact: PAUL CALLIGAN Date Received: 6/22/00
Client Project Number: N0486 Date Reported: 7/18/00
Client Project Name: NAS - CECIL FIELD - CTO 0121 Sample Matrix: SOIL
Client Sample ID: CEF-B271-SB-003-03

ANALYSIS: % Solids Method Ref: EPA 160.3
Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	91	1.0

ANALYSIS: BTEX + MTBE by GC/MS Method Ref: 8260B
Date Ext/Dig/Prep: 7/5/00 Date Analyzed: 7/5/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Benzene	<RDL	280
Ethylbenzene	1700	280
Methyl tert-Butyl Ether (MTBE)	<RDL	280
Toluene	570	280
Xylenes	83000	2800

ANALYSIS: PAH's Method Ref: 8270C
Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnaphthalene	12000	370
2-Methylnaphthalene	21000	370
Acenaphthene	150J	370
Acenaphthylene	<RDL	370
Anthracene	49J	370
Benzo(a)anthracene	70J	370
Benzo(a)pyrene	42J	370
Benzo(b)fluoranthene	79J	370
Benzo(g,h,i)perylene	<RDL	370
Benzo(k)fluoranthene	88J	370
Chrysene	46J	370
Dibenz(a,h)anthracene	<RDL	370
Fluoranthene	120J	370
Fluorene	200J	370

Indeno(1,2,3-cd)pyrene	<RDL	370
Naphthalene	23000	370
Phenanthrene	280J	370
Pyrene	110J	370

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/3/00 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	680	160

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2-Fluorobiphenyl (Range 45-118)	104	
Nitrobenzene-d5 (Range 34-117)	110	
p-Terphenyl-d14 (Range 42-119)	98	

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/3/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 60-118)	37	
o-Terphenyl (Range 62-109)	64	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 7/5/00 Date Analyzed: 7/5/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (Range 81-151)	117	
4-Bromofluorobenzene (Range 80-131)	101	
Toluene-d8 (Range 82-119)	103	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94291 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: NAS - CECIL FIELD - CTO 0121
Client Sample ID: CEF-B271-SB-003-03-MS/MSD

Date Sampled: 6/21/00
Date Received: 6/22/00
Date Reported: 7/18/00
Sample Matrix: SOIL

ANALYSIS: % Solids Method Ref: EPA 160.3
Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	92	1.0

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94292 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: NAS - CECIL FIELD - CTO 0121
Client Sample ID: CEF-B271-SB-DU01

Date Sampled: 6/21/00
Date Received: 6/22/00
Date Reported: 7/18/00
Sample Matrix: SOIL

ANALYSIS: % Solids Method Ref: EPA 160.3
Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	90	1.0

ANALYSIS: BTEX + MTBE by GC/MS Method Ref: 8260B
Date Ext/Dig/Prep: 7/5/00 Date Analyzed: 7/5/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Benzene	<RDL	300
Ethylbenzene	2800	300
Methyl tert-Butyl Ether (MTBE)	<RDL	300
Toluene	1800	300
Xylenes	110000	3000

ANALYSIS: PAH's Method Ref: 8270C
Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnaphthalene	14000	370
2-Methylnaphthalene	25000	370
Acenaphthene	180J	370
Acenaphthylene	<RDL	370
Anthracene	110J	370
Benzo(a)anthracene	74J	370
Benzo(a)pyrene	44J	370
Benzo(b)fluoranthene	61J	370
Benzo(g,h,i)perylene	<RDL	370
Benzo(k)fluoranthene	<RDL	370
Chrysene	56J	370
Dibenz(a,h)anthracene	<RDL	370
Fluoranthene	150J	370
Fluorene	260J	370

Indeno(1,2,3-cd)pyrene	<RDL	370
Naphthalene	24000	370
Phenanthrene	350J	370
Pyrene	150J	370

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/3/00 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	520	170

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2-Fluorobiphenyl (Range 45-118)	102	
Nitrobenzene-d5 (Range 34-117)	98	
p-Terphenyl-d14 (Range 42-119)	95	

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/3/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 60-118)	24	
o-Terphenyl (Range 62-109)	64	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 7/5/00 Date Analyzed: 7/5/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (Range 81-151)	100	
4-Bromofluorobenzene (Range 80-131)	99	
Toluene-d8 (Range 82-119)	101	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB94293 **Accura Project #: 24749**

Client: Tetra Tech Nus -Tallahassee
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: NAS - CECIL FIELD - CTO 0121
Client Sample ID: CEF-QH-SB002-01

Date Sampled: 6/21/00
Date Received: 6/22/00
Date Reported: 7/18/00
Sample Matrix: SOIL

ANALYSIS: % Solids Method Ref: EPA 160.3
Date Ext/Dig/Prep: 7/11/00 Date Analyzed: 7/11/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Solids	95	1.0

ANALYSIS: BTEX + MTBE by GC/MS Method Ref: 8260B
Date Ext/Dig/Prep: 7/4/00 Date Analyzed: 7/4/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Benzene	<RDL	5.1
Ethylbenzene	<RDL	5.1
Methyl tert-Butyl Ether (MTBE)	<RDL	5.1
Toluene	<RDL	5.1
Xylenes	<RDL	5.1

ANALYSIS: PAH's Method Ref: 8270C
Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnaphthalene	<RDL	70
2-Methylnaphthalene	<RDL	70
Acenaphthene	<RDL	70
Acenaphthylene	<RDL	70
Anthracene	<RDL	70
Benzo(a)anthracene	<RDL	70
Benzo(a)pyrene	<RDL	70
Benzo(b)fluoranthene	<RDL	70
Benzo(g,h,i)perylene	<RDL	70
Benzo(k)fluoranthene	<RDL	70
Chrysene	<RDL	70
Dibenz(a,h)anthracene	<RDL	70
Fluoranthene	<RDL	70
Fluorene	<RDL	70

Indeno(1,2,3-cd)pyrene	<RDL	70
Naphthalene	<RDL	70
Phenanthrene	<RDL	70
Pyrene	<RDL	70

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	<RDL	32

ANALYSIS: X B/N Sample Surrogates (Soils) Method Ref: 8270C

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/10/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2-Fluorobiphenyl (Range 45-118)	97	
Nitrobenzene-d5 (Range 34-117)	84	
p-Terphenyl-d14 (Range 42-119)	96	

ANALYSIS: X PRO Sample Surrogates (Soil) Method Ref: FL-PRO

Date Ext/Dig/Prep: 6/27/00 Date Analyzed: 7/5/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 60-118)	57	
o-Terphenyl (Range 62-109)	68	

ANALYSIS: X VOC Sample Surrogates-Soil Method Ref: 5035/8260B

Date Ext/Dig/Prep: 7/4/00 Date Analyzed: 7/4/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (Range 81-151)	115	
4-Bromofluorobenzene (Range 80-131)	123	
Toluene-d8 (Range 82-119)	110	

Accura Analytical Laboratory, Inc.

APPENDIX C

Support Documentation

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 24749
Client Project: NAS - Cecil Field - CTO 0121 / N0486
Task Order Manager: Paul Calligan

The following items were noted concerning this project:

1. The following samples were received by Accura Analytical Laboratory on 5/24/00 at 1030:

Client I.D.	Laboratory I.D.
CEF-B81-SB-003-03	AB94287
CEF-B271-SB-008-01	AB94288
CEF-B271-SB-004-01	AB94289
CEF-B271-SB-003-03	AB94290
CEF-B271-SB-003-03MS/MSD	AB94291
CEF-B271-SB-DU01	AB94292
LEF-QH-SB002-01	AB94293

2. The cooler temperature was 4^0C upon receipt.

3. All soil results have been reported on a dry weight basis.

4. The "J" flags applied to the PAH results indicate estimated values in which the compounds are present at concentrations that are less than the quantitation limit, but above the method detection limit.

5. The following samples required dilution due to high analyte concentration and/or the nature of the matrix, resulting in elevated detection limits:

PAH SW-846-8310	VOC SW-846-8260B	FL-PRO
CEF-B271-SB-003-03	CEF-B271-SB-003-03	CEF-B271-SB-003-03
CEF-B271-SB-DU01	CEF-B271-SB-DU01	CEF-B271-SB-DU01
Matrix Spike	Matrix Spike	Matrix Spike
Matrix Spike Duplicate	Matrix Spike Duplicate	Matrix Spike Duplicate

6. The following surrogates were outside the method specified limits:

FL-PRO	
Nonatriacontane (C39)	ortho-Terphenyl
CEF-B271-SB-008-01	CEF-B271-SB-003-03MS/MSD
CEF-B271-SB-003-03	
CEF-B271-SB-003-03MS/MSD	
CEF-B271-SB-DU01	
LEF-QH-SB002-01	
Method Blank	
Laboratory Control Sample	

All recoveries were within the established in-house limits.

7. Due to high Xylene concentration, dilutions for the following samples were analyzed 1 day outside the EPA recommended holding time:

VOC SW-846-8260B
CEF-B271-SB-003-03
CEF-B271-SB-DU01

The Xylene results for these samples should be considered estimated.

8. The Matrix Spike and/or Matrix Spike Duplicate recoveries were outside the project specific limits for the following analytes due to sample heterogeneity:

VOC SW-846-8260B	SVOC SW-846-8270C	FL-PRO
Ethylbenzene	2-Methylnaphthalene	TPH
	Naphthalene	

The Laboratory Control Sample was within established in-house limits; therefore the data satisfies the method requirements.

9. The relative percent difference between the Matrix Spike and Matrix Spike Duplicate analyses was outside the project specific limits for the following analytes due to sample heterogeneity:

   SVOC SW-846-8270C
   2-Methylnaphthalene
   Naphthalene

10. The Laboratory Control Sample for the FL-PRO analysis was outside the project specified limits but within established in-house limits of 63-143; therefore the data satisfies the method requirements.

Quality Assurance

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER CTO 121-2 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0486	Cecil Field	PAUL CALLIGAN 850-385-9866 ext. 24	ACCURA ANALYTICAL LAB
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
Marion N. Dale, Elena Rodriguez		MERVIN DALE 904-281-1941 ext 20	6017 FINANCIAL DRIVE
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX 8185 2037 4683	NORCROSS GA 30071

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

DATE YEAR 2000	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCS 8021B	PAHs 8310	FL PRO (TPH)						COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						P	G	G						
PRESERVATIVE USED						NONE	NONE	NONE						
6/21	~~1508~~	CEF-B81-SB-003-03	SOIL	G	5	3	1	1						COOL to 4°C
6/21	1258	CEF-B271-SB-008-01	SOIL	G	5	3	1	1						
6/21	1236	CEF-B271-SB-004-01	SOIL	G	5	3	1	1						
6/21	1345	CEF-B271-SB-003-03	SOIL	G	5	3	1	1						
6/21	1345	CEF-B271-SB-003-03-MS/MSD	SOIL	G	10	6	2	2						MS/MSD for CEF B271-SB-003
6/21	0000	CEF-B271-DU01	SOIL	G	5	3	1	1						Encores
6/21	1417	CEF-QH-SB002-01	SOIL	G	5	3	1	1						

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Elena Rodriguez	6/21	1:45	[illegible]		
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

APPENDIX F

PHASE 1 GROUNDWATER ANALYTICAL REPORT

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB95918 **Accura Project #: 24998**

Client: Tetra Tech Nus -Jacksonville
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: CECIL FIELD BLDG. 312 & 271
Client Sample ID: CEF-B271-GW-05-01

Date Sampled: 7/17/00
Date Received: 7/18/00
Date Reported: 8/11/00
Sample Matrix: WATER

ANALYSIS: EDB-DBCP Method Ref: 504

Date Ext/Dig/Prep: 7/26/00 Date Analyzed: 7/26/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dibromo-3-chloropropane (DBCP)	<RDL	0.05
1,2-Dibromoethane (EDB)	<RDL	0.05

ANALYSIS: Metals - Lead Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 7/24/00 Date Analyzed: 7/27/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Lead	<RDL	0.010

ANALYSIS: PAH's by HPLC Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnapthalene	<RDL	1.0
2-Methylnapthalene	<RDL	1.0
Acenaphthene	<RDL	1.0
Acenaphthylene	<RDL	2.1
Anthracene	<RDL	0.7
Benzo(a)anthracene	<RDL	0.1
Benzo(a)pyrene	<RDL	0.1
Benzo(b)fluoranthene	<RDL	0.2
Benzo(g,h,i)perylene	<RDL	0.8
Benzo(k)fluoranthene	<RDL	0.2
Chrysene	<RDL	0.2
Dibenzo(a,h)anthracene	<RDL	0.3
Fluoranthene	<RDL	0.2
Fluorene	<RDL	0.5
Indeno(1,2,3-cd)pyrene	<RDL	0.4
Naphthalene	<RDL	1.0
Phenanthrene	<RDL	0.7

Pyrene	<RDL	0.3

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	0.16JB	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 7/28/00 Date Analyzed: 7/28/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	1
1,1,2,2-Tetrachloroethane	<RDL	1
1,1,2-Trichloroethane	<RDL	1
1,1-Dichloroethane	<RDL	1
1,1-Dichloroethene	<RDL	1
1,2-Dichloroethane	<RDL	1
1,2-Dichloropropane	<RDL	1
1,2-Dichloropropene	<RDL	1
2-Chloroethylvinyl ether	<RDL	10
Acrolein	<RDL	10
Acrylonitrile	<RDL	10
Benzene	<RDL	1
Bromodichloromethane	<RDL	1
Bromoform	<RDL	1
Bromomethane	<RDL	1
Carbon tetrachloride	<RDL	1
Chlorobenzene	<RDL	1
Chloroform	<RDL	1
Chloromethane	<RDL	1
Ethylbenzene	<RDL	1
Methyl-tert-butyl ether (MTBE)	<RDL	10
Methylene chloride	<RDL	5
Tetrachloroethene	<RDL	1
Toluene	<RDL	1
trans-1,2-Dichloroethene	<RDL	1
Trichloroethene	<RDL	1
Vinyl chloride	<RDL	1
Xylenes (Total)	5.7	2

ANALYSIS: X PAH Surrogates (Liquid) Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
p-terphenyl d14 (Range 20 - 140)	90	

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 42-193)	103	
o-Terphenyl (Range 82-142)	81	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 7/28/00 Date Analyzed: 7/28/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	90	
4-Bromofluorobenzene (86-112)	99	
Toluene-d8 (84-108)	97	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB95919 **Accura Project #: 24998**

Client: Tetra Tech Nus -Jacksonville
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: CECIL FIELD BLDG. 312 & 271
Client Sample ID: CEF-B271-GW-04-01

Date Sampled: 7/17/00
Date Received: 7/18/00
Date Reported: 8/11/00
Sample Matrix: WATER

ANALYSIS: EDB-DBCP Method Ref: 504

Date Ext/Dig/Prep: 7/26/00 Date Analyzed: 7/26/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dibromo-3-chloropropane (DBCP)	<RDL	0.05
1,2-Dibromoethane (EDB)	<RDL	0.05

ANALYSIS: Metals - Lead Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 7/24/00 Date Analyzed: 7/27/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Lead	<RDL	0.010

ANALYSIS: PAH's by HPLC Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnapthalene	<RDL	1.0
2-Methylnapthalene	<RDL	1.0
Acenaphthene	<RDL	1.0
Acenaphthylene	<RDL	2.1
Anthracene	<RDL	0.7
Benzo(a)anthracene	<RDL	0.1
Benzo(a)pyrene	<RDL	0.1
Benzo(b)fluoranthene	<RDL	0.2
Benzo(g,h,i)perylene	<RDL	0.8
Benzo(k)fluoranthene	<RDL	0.2
Chrysene	<RDL	0.2
Dibenzo(a,h)anthracene	<RDL	0.3
Fluoranthene	<RDL	0.2
Fluorene	<RDL	0.5
Indeno(1,2,3-cd)pyrene	<RDL	0.4
Naphthalene	<RDL	1.0
Phenanthrene	<RDL	0.7

Pyrene	<RDL	0.3

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	0.14JB	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 7/28/00 Date Analyzed: 7/28/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	1
1,1,2,2-Tetrachloroethane	<RDL	1
1,1,2-Trichloroethane	<RDL	1
1,1-Dichloroethane	<RDL	1
1,1-Dichloroethene	<RDL	1
1,2-Dichloroethane	<RDL	1
1,2-Dichloropropane	<RDL	1
1,2-Dichloropropene	<RDL	1
2-Chloroethylvinyl ether	<RDL	10
Acrolein	<RDL	10
Acrylonitrile	<RDL	10
Benzene	<RDL	1
Bromodichloromethane	<RDL	1
Bromoform	<RDL	1
Bromomethane	<RDL	1
Carbon tetrachloride	<RDL	1
Chlorobenzene	<RDL	1
Chloroform	<RDL	1
Chloromethane	<RDL	1
Ethylbenzene	<RDL	1
Methyl-tert-butyl ether (MTBE)	<RDL	10
Methylene chloride	<RDL	5
Tetrachloroethene	<RDL	1
Toluene	<RDL	1
trans-1,2-Dichloroethene	<RDL	1
Trichloroethene	<RDL	1
Vinyl chloride	<RDL	1
Xylenes (Total)	0.50J	2

ANALYSIS: X PAH Surrogates (Liquid) Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
p-terphenyl d14 (Range 20 - 140)	84	

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 42-193)	30	
o-Terphenyl (Range 82-142)	78	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 7/28/00 Date Analyzed: 7/28/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	92	
4-Bromofluorobenzene (86-112)	95	
Toluene-d8 (84-108)	98	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB95920 **Accura Project #: 24998**

Client: Tetra Tech Nus -Jacksonville
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: CECIL FIELD BLDG. 312 & 271
Client Sample ID: CEF-B271-GW-04-01DUP

Date Sampled: 7/17/00
Date Received: 7/18/00
Date Reported: 8/11/00
Sample Matrix: WATER

ANALYSIS: EDB-DBCP Method Ref: 504

Date Ext/Dig/Prep: 7/26/00 Date Analyzed: 7/26/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dibromo-3-chloropropane (DBCP)	<RDL	0.05
1,2-Dibromoethane (EDB)	<RDL	0.05

ANALYSIS: Metals - Lead Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 7/24/00 Date Analyzed: 7/27/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Lead	<RDL	0.010

ANALYSIS: PAH's by HPLC Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnapthalene	<RDL	1.0
2-Methylnapthalene	<RDL	1.0
Acenaphthene	<RDL	1.0
Acenaphthylene	<RDL	2.1
Anthracene	<RDL	0.7
Benzo(a)anthracene	<RDL	0.1
Benzo(a)pyrene	<RDL	0.1
Benzo(b)fluoranthene	<RDL	0.2
Benzo(g,h,i)perylene	<RDL	0.8
Benzo(k)fluoranthene	<RDL	0.2
Chrysene	<RDL	0.2
Dibenzo(a,h)anthracene	<RDL	0.3
Fluoranthene	<RDL	0.2
Fluorene	<RDL	0.5
Indeno(1,2,3-cd)pyrene	<RDL	0.4
Naphthalene	<RDL	1.0
Phenanthrene	<RDL	0.7

Pyrene	<RDL	0.3

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	0.36JB	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 7/29/00 Date Analyzed: 7/29/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	1
1,1,2,2-Tetrachloroethane	<RDL	1
1,1,2-Trichloroethane	<RDL	1
1,1-Dichloroethane	<RDL	1
1,1-Dichloroethene	<RDL	1
1,2-Dichloroethane	<RDL	1
1,2-Dichloropropane	<RDL	1
1,2-Dichloropropene	<RDL	1
2-Chloroethylvinyl ether	<RDL	10
Acrolein	<RDL	10
Acrylonitrile	<RDL	10
Benzene	<RDL	1
Bromodichloromethane	<RDL	1
Bromoform	<RDL	1
Bromomethane	<RDL	1
Carbon tetrachloride	<RDL	1
Chlorobenzene	<RDL	1
Chloroform	<RDL	1
Chloromethane	<RDL	1
Ethylbenzene	<RDL	1
Methyl-tert-butyl ether (MTBE)	<RDL	10
Methylene chloride	<RDL	5
Tetrachloroethene	<RDL	1
Toluene	<RDL	1
trans-1,2-Dichloroethene	<RDL	1
Trichloroethene	<RDL	1
Vinyl chloride	<RDL	1
Xylenes (Total)	<RDL	2

ANALYSIS: X PAH Surrogates (Liquid) Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
p-terphenyl d14 (Range 20 - 140)	88	

ANALYSIS: X_PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 42-193)	36	
o-Terphenyl (Range 82-142)	85	

ANALYSIS: X_VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 7/29/00 Date Analyzed: 7/29/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	91	
4-Bromofluorobenzene (86-112)	97	
Toluene-d8 (84-108)	95	

Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30017, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB95921 **Accura Project #: 24998**

Client: Tetra Tech Nus -Jacksonville
Client Contact: PAUL CALLIGAN
Client Project Number: N0486
Client Project Name: CECIL FIELD BLDG. 312 & 271
Client Sample ID: CEF-B271-GW-06-01

Date Sampled: 7/17/00
Date Received: 7/18/00
Date Reported: 8/11/00
Sample Matrix: WATER

ANALYSIS: EDB-DBCP Method Ref: 504

Date Ext/Dig/Prep: 7/26/00 Date Analyzed: 7/26/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dibromo-3-chloropropane (DBCP)	<RDL	0.05
1,2-Dibromoethane (EDB)	<RDL	0.05

ANALYSIS: Metals - Lead Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 7/24/00 Date Analyzed: 7/27/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Lead	<RDL	0.010

ANALYSIS: PAH's by HPLC Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1-Methylnapthalene	<RDL	1.0
2-Methylnapthalene	<RDL	1.0
Acenaphthene	<RDL	1.0
Acenaphthylene	<RDL	2.1
Anthracene	<RDL	0.7
Benzo(a)anthracene	<RDL	0.1
Benzo(a)pyrene	<RDL	0.1
Benzo(b)fluoranthene	<RDL	0.2
Benzo(g,h,i)perylene	<RDL	0.8
Benzo(k)fluoranthene	<RDL	0.2
Chrysene	<RDL	0.2
Dibenzo(a,h)anthracene	<RDL	0.3
Fluoranthene	<RDL	0.2
Fluorene	<RDL	0.5
Indeno(1,2,3-cd)pyrene	<RDL	0.4
Naphthalene	<RDL	1.0
Phenanthrene	<RDL	0.7

Pyrene	<RDL	0.3

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: mg/L

Analyte Name	Analytical Results	Reported Detection Limits
Petroleum Range Organics (PRO)	0.14JB	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 7/29/00 Date Analyzed: 7/29/00 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	1
1,1,2,2-Tetrachloroethane	<RDL	1
1,1,2-Trichloroethane	<RDL	1
1,1-Dichloroethane	<RDL	1
1,1-Dichloroethene	<RDL	1
1,2-Dichloroethane	<RDL	1
1,2-Dichloropropane	<RDL	1
1,2-Dichloropropene	<RDL	1
2-Chloroethylvinyl ether	<RDL	10
Acrolein	<RDL	10
Acrylonitrile	<RDL	10
Benzene	<RDL	1
Bromodichloromethane	<RDL	1
Bromoform	<RDL	1
Bromomethane	<RDL	1
Carbon tetrachloride	<RDL	1
Chlorobenzene	<RDL	1
Chloroform	<RDL	1
Chloromethane	<RDL	1
Ethylbenzene	<RDL	1
Methyl-tert-butyl ether (MTBE)	<RDL	10
Methylene chloride	<RDL	5
Tetrachloroethene	<RDL	1
Toluene	<RDL	1
trans-1,2-Dichloroethene	<RDL	1
Trichloroethene	<RDL	1
Vinyl chloride	<RDL	1
Xylenes (Total)	5.5	2

ANALYSIS: X PAH Surrogates (Liquid) Method Ref: 8310

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/21/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
p-terphenyl d14 (Range 20 - 140)	76	

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 7/20/00 Date Analyzed: 7/22/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
C(39) (Range 42-193)	97	
o-Terphenyl (Range 82-142)	76	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 7/29/00 Date Analyzed: 7/29/00 Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	90	
4-Bromofluorobenzene (86-112)	95	
Toluene-d8 (84-108)	93	

Accura Analytical Laboratory, Inc.

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

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
NOLK6	BLDG 312 & 271	Paul Colligan 850-385-9899	Accura
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
[signature]		Howard Ensle 850-385-9899	6017 Financial Dr.
		CARRIER/WAYBILL NUMBER	CITY, STATE
			Norfolk VA 23502

STANDARD TAT ☒ 28 day
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 7/12/00	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	BEXM + VOH (8010)/HCL	EDB (504.1)	PAH (8310)	TRPH (FL-PRO)	Total Lead (6010B)				COMMENTS
		CONTAINER TYPE PLASTIC (P) or GLASS (G)				G	G	G	G	P				
		PRESERVATIVE USED				HCL	HCL	ICE	HCL	HNO3				
	1630	CEF-B271-GW-05-01	Aq	G	9	2	2	2	2	1				Cool to 4°C
	1615	CEF-B271-GW-04-01												
	1615	CEF-B271-GW-04-01D	D											
	1615	CEF-B271-GW-06-01												
	1615	CEF-B271-GW-06-01MS												
	1615	CEF-B271-GW-06-01MSD												
	1250	CEF-B312-GW-03-01												
	1150	CEF-B312-GW-25-01												
	1250	CEF-B312-GW-03-01Dup												
	1230	CEF-B312-GW-15-01												

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
[signature]	7/12/00	1745			
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

APPENDIX G

PHASE 3 GROUNDWATER ANALYTICAL REPORT

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

TO:	**Mr. Paul Calligan**	**DATE:**	**November 19, 2001**
FROM:	**Suzanne I. Smith**	**CC:**	**File**

SUBJECT: **Organic Data Validation – VOC, PAH, TPH, and Lead**
CTO121 – NAS Cecil Field
SDG 28687

SAMPLES: **7/Aqueous**

CEF-B271-GW-10S-01 **CEF-B271-GW-11S-01** **CEF-B271-GW-1I-01**
CEF-B271-GW-7S-01 **CEF-B271-GW-8S-01** **CEF-B271-GW-9S-01**
CEF-B271-GW-DU1-02

OVERVIEW

The sample set for CTO121 SDG 28687, Naval Air Station Cecil Field, Jacksonville, Florida consists of seven (7) aqueous environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons (TPH), and Lead. One set of duplicates was analyzed in association with this SDG : CEF-B271-GW- 11S-01/CEF-B271-GW-DU1-02.

The samples were collected by Tetra Tech NUS on August 24, 2001 and analyzed by Accura Analytical Laboratory, Inc. 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 (PAHs), FDEP FL-PRO (TPH), and SW-846 Method 6010B (Lead) 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 : This data had to be resubmitted by the lab twice in order to get the list of analytes as requested.

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

The LCS/LCSD for the initial extraction for all FL-PRO samples in this SDG were not spiked. The reextraction of these samples was out of hold, but confirmed the initial results. Therefore, the initial results were reported as estimated "J" due to LCS/LCSD noncompliance.

All other quality control criteria were met for this fraction.

Field Duplicate Summary

Analyte	CEF-B271-GW-11S-01(ug/L)	CEF-B271-GW-DU1-02(ug/L)	%RPD
Chloromethane	ND	0.78	NA

No qualifications have been made due to field duplication.

Executive Summary

Laboratory performance: The LCS/LCSD for the initial extraction for all FL-PRO samples in this SDG were not spiked. The reextraction of these samples was out of hold, but confirmed the initial results. Therefore, the initial results were reported as estimated "J" due to LCS/LCSD noncompliance.

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.

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-10S-01	CEF-B271-GW-11S-01	CEF-B271-GW-DU1-02	CEF-B271-GW-1I-01
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	08/24/01
LABORATORY ID:	AC19235	AC19233	AC19234	AC19238
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-B271-GW-11S-01	

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	0.05	U		0.05	U		0.05	U		0.05	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
BENZENE	1.8			1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	1	U		1	U		1	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	1	U		1	U		0.78	J	P	1	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1.2			1	U		1	U		0.77	J	P
METHYL TERT-BUTYL ETHER	10	U		10	U		10	U		10	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	6.2			1	U		1	U		3.1		
TOTAL XYLENES	8			2	U		2	U		5.5		
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-10S-01	CEF-B271-GW-11S-01	CEF-B271-GW-DU1-02	CEF-B271-GW-1I-01
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	08/24/01
LABORATORY ID:	AC19235	AC19233	AC19234	AC19238
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-B271-GW-11S-01	

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-7S-01	CEF-B271-GW-8S-01	CEF-B271-GW-9S-01	
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	/ /
LABORATORY ID:	AC19237	AC19239	AC19240	
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	1	U		1	U		1	U				
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U				
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U				
1,1-DICHLOROETHANE	1	U		1	U		1	U				
1,1-DICHLOROETHENE	1	U		1	U		1	U				
1,2-DIBROMOETHANE	0.05	U		0.05	U		0.05	U				
1,2-DICHLOROBENZENE	1	U		1	U		1	U				
1,2-DICHLOROETHANE	1	U		1	U		1	U				
1,2-DICHLOROPROPANE	1	U		1	U		1	U				
1,3-DICHLOROBENZENE	1	U		1	U		1	U				
1,4-DICHLOROBENZENE	1	U		1	U		1	U				
BENZENE	89			1	U		9.8					
BROMODICHLOROMETHANE	1	U		1	U		1	U				
BROMOFORM	1	U		1	U		1	U				
BROMOMETHANE	1	U		1	U		1	U				
CARBON TETRACHLORIDE	1	U		1	U		1	U				
CHLOROBENZENE	1	U		1	U		1	U				
CHLORODIBROMOMETHANE	1	U		1	U		1	U				
CHLOROETHANE	1	U		1	U		1	U				
CHLOROFORM	1	U		1	U		1	U				
CHLOROMETHANE	1	U		1	U		1	U				
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U				
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U				
DICHLORODIFLUOROMETHANE	1	U		1	U		1	U				
ETHYLBENZENE	520			1	U		36					
METHYL TERT-BUTYL ETHER	11			10	U		10	U				
METHYLENE CHLORIDE	5	U		5	U		5	U				
TETRACHLOROETHENE	1	U		1	U		1	U				
TOLUENE	2900			1	U		270					
TOTAL XYLENES	3300			2	U		1600					
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U				
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U				

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-7S-01	CEF-B271-GW-8S-01	CEF-B271-GW-9S-01	
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	/ /
LABORATORY ID:	AC19237	AC19239	AC19240	
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												
TRICHLOROETHENE	1	U		1	U		1	U				
TRICHLOROFLUOROMETHANE	1	U		1	U		1	U				
VINYL CHLORIDE	1	U		1	U		1	U				

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-10S-01	CEF-B271-GW-11S-01	CEF-B271-GW-DU1-02	CEF-B271-GW-1I-01
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	08/24/01
LABORATORY ID:	AC19235	AC19233	AC19234	AC19238
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-B271-GW-11S-01	

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
2-METHYLNAPHTHALENE	1	U		1	U		1	U		0.25	J	P
ACENAPHTHENE	1	U		1	U		1	U		1	U	
ACENAPHTHYLENE	1	U		1	U		1	U		1	U	
ANTHRACENE	1	U		1	U		1	U		1	U	
BENZO(A)ANTHRACENE	1	U		1	U		1	U		1	U	
BENZO(A)PYRENE	1	U		1	U		1	U		1	U	
BENZO(B)FLUORANTHENE	1	U		1	U		1	U		1	U	
BENZO(G,H,I)PERYLENE	1	U		1	U		1	U		1	U	
BENZO(K)FLUORANTHENE	1	U		1	U		1	U		1	U	
CHRYSENE	1	U		1	U		1	U		1	U	
DIBENZO(A,H)ANTHRACENE	1	U		1	U		1	U		1	U	
FLUORANTHENE	1	U		1	U		1	U		1	U	
FLUORENE	1	U		1	U		1	U		1	U	
INDENO(1,2,3-CD)PYRENE	1	U		1	U		1	U		1	U	
NAPHTHALENE	0.47	J	P	1	U		1	U		0.71	J	P
PHENANTHRENE	1	U		1	U		1	U		1	U	
PYRENE	1	U		1	U		1	U		1	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-7S-01	CEF-B271-GW-8S-01	CEF-B271-GW-9S-01	
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	/ /
LABORATORY ID:	AC19237	AC19239	AC19240	
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
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	35			1	U		8.2					
2-METHYLNAPHTHALENE	55			1	U		7.3					
ACENAPHTHENE	4.5			1	U		1	U				
ACENAPHTHYLENE	1	U		1	U		1	U				
ANTHRACENE	1			1	U		1	U				
BENZO(A)ANTHRACENE	1	U		1	U		1	U				
BENZO(A)PYRENE	1	U		1	U		1	U				
BENZO(B)FLUORANTHENE	1	U		1	U		1	U				
BENZO(G,H,I)PERYLENE	1	U		1	U		1	U				
BENZO(K)FLUORANTHENE	1	U		1	U		1	U				
CHRYSENE	1	U		1	U		1	U				
DIBENZO(A,H)ANTHRACENE	1	U		1	U		1	U				
FLUORANTHENE	1.8			1	U		1	U				
FLUORENE	4.1			1	U		0.43	J	P			
INDENO(1,2,3-CD)PYRENE	1	U		1	U		1	U				
NAPHTHALENE	230			1	U		7.4					
PHENANTHRENE	7			1	U		1	U				
PYRENE	1.2			1	U		1	U				

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-10S-01			CEF-B271-GW-11S-01			CEF-B271-GW-DU1-02			CEF-B271-GW-1I-01		
SAMPLE DATE:	08/24/01			08/24/01			08/24/01			08/24/01		
LABORATORY ID:	AC19235			AC19233			AC19234			AC19238		
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-B271-GW-11S-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
TOTAL PETROLEUM HYDROCARBONS	1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-7S-01	CEF-B271-GW-8S-01	CEF-B271-GW-9S-01	
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	/ /
LABORATORY ID:	AC19237	AC19239	AC19240	
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	4	J	E	1	UJ	E	1.8	J	E			

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-10S-01			CEF-B271-GW-11S-01			CEF-B271-GW-DU1-02			CEF-B271-GW-1I-01		
SAMPLE DATE:	08/24/01			08/24/01			08/24/01			08/24/01		
LABORATORY ID:	AC19235			AC19233			AC19234			AC19238		
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-B271-GW-11S-01					
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	0.01	U		0.01	U		0.01	U		0.01	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28687

SAMPLE NUMBER:	CEF-B271-GW-7S-01	CEF-B271-GW-8S-01	CEF-B271-GW-9S-01	
SAMPLE DATE:	08/24/01	08/24/01	08/24/01	/ /
LABORATORY ID:	AC19237	AC19239	AC19240	
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
INORGANICS												
LEAD	0.01	U		0.01	U		0.01	U				

ACCURA ANALYTICAL LABORATORY
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

Case Narrative

AAL Project #: 28687-Revision

Client Project: NAS Cecil Field – Bldg. 271 / N0486/GHO050190

CTO Manager: Paul Calligan

The following items were noted concerning this project:

1. The following samples were received at Accura Analytical Laboratory on 08/25/01 at 1000:

Client Sample ID	Laboratory Sample ID
CEF-B271-GW-11S-01	AC19233
CEF-B271-GW-DU1-02	AC19234
CEF-B271-GW-10S-01	AC19235
CEF-B271-GW-MSMSD-02	AC19236
CEF-B271-GW-7S-01	AC19237
CEF-B271-GW-1I-01	AC19238
CEF-B271-GW-8S-01	AC19239
CEF-B271-GW-9S-01	AC19240

2. The sample cooler temperature was noted to be 2^0C upon receipt at the laboratory.

3. The "J" values noted for the FL-PRO, PAH, and VOC results indicate estimated concentrations that were above the method detection limits, but below the reporting limits.

4. The "Y" qualifiers noted for the FLA-PRO analysis indicate that the samples were re-extracted outside the EPA recommended holding time due to no laboratory control sample or laboratory control sample duplicate was spiked for the initial extraction. All results for this analysis should be considered estimated. Note that the initial FLA-PRO results were compatible to the re-extracted FLA-PRO results.

5. The pH was noted at 1.0 prior to the VOC analysis.

This report may not be reproduced, except in full, without written approval from Accura Analytical Laboratory, Inc.

6. The following samples required dilution due to high analyte concentration, resulting in elevated detection limits:

VOC-SW-846-8260B	SVOC-SW-846-8270C	
CEF-B271-GW-7S-01	CEF-B271-GW-7S-01	(Naphthalene)
CEF-B271-GW-9S-01		

7. The following surrogates were outside the method specified limit for all samples submitted for this project and the Quality Control analyzed for this project, as indicated by the "Z" qualifier:

   FLA-PRO
   C(39)
   o-Terphenyl

   The recoveries were within in-house limits established at the laboratory; therefore the data was accepted.

8. Project Specific QC consists of a laboratory control sample and a laboratory control sample duplicate for the SVOC analysis due to limited sample volume. Note that laboratory control sample and laboratory control sample duplicate recoveries are reported as matrix spike/matrix spike duplicate recoveries on the QC spreadsheet.

9. The laboratory control sample and laboratory control sample duplicate recoveries were outside the project specified limit for the following analytes:

   FL-PRO
   Laboratory Control Sample/Laboratory Control Sample Duplicate - FL-PRO

   For the FLA-PRO analysis, the recoveries were within in-house limits established at the laboratory; therefore the data was accepted.

10. The following spike recoveries were outside the project specified limits due to matrix interference:

    VOC-SW-846-8260B
    Matrix Spike/Matrix Spike Duplicate - 2-Chloroethylvinyl ether

    FLA-PRO
    Matrix Spike - FLA-PRO

This report may not be reproduced, except in full, without written approval from Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800
Case Narrative

11. The relative percent difference between the matrix spike and matrix spike duplicate was outside the method specified limit for the following analysis:

    FLA-PRO

12. Per client request, Acrolein, Acrylonitrile, and DBCP were removed from the reports, and the EDD has been corrected. Also, note that initial FLA-PRO and re-extracted FLA-PRO results are now reported for the samples.

Approved for Quality Assurance Release By:

Camden L. Robinson
Quality Assurance Officer

10/18/01
Date

This report may not be reproduced, except in full, without written approval from Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19233** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-11S-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	61		
Nitrobenzene-d5	(Range 16-125)	65		
p-Terphenyl-d14	(Range 5-157)	75		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	4	Z
o-Terphenyl (Range 82-142)	80	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	23	ZY	
o-Terphenyl (Range 82-142)	61	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	122		
4-Bromofluorobenzene (80-120)	117		
Toluene-d8 (80-119)	104		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19234** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-DU1-02**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	0.78	J	1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	48		
Nitrobenzene-d5	(Range 16-125)	47		
p-Terphenyl-d14	(Range 5-157)	40		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	13	Z
o-Terphenyl (Range 82-142)	84	

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	12	ZY	
o-Terphenyl (Range 82-142)	45	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	118		
4-Bromofluorobenzene (80-120)	120		
Toluene-d8 (80-119)	107		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19235** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-10S-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	0.47	J	1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	1.8		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	1.2		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	6.2		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	8.0		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	63		
Nitrobenzene-d5	(Range 16-125)	71		
p-Terphenyl-d14	(Range 5-157)	65		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	5	Z
o-Terphenyl (Range 82-142)	62	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	8	ZY	
o-Terphenyl (Range 82-142)	49	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	113		
4-Bromofluorobenzene (80-120)	110		
Toluene-d8 (80-119)	100		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19236** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-MSMSD-02**

not a sample

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	0.53	J	1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	0.65	JY	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	1.8		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	1.2		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	6.3		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	8.0		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	63		
Nitrobenzene-d5	(Range 16-125)	70		
p-Terphenyl-d14	(Range 5-157)	69		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	11	Z
o-Terphenyl (Range 82-142)	71	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/6/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	9	ZY	
o-Terphenyl (Range 82-142)	59	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	118		
4-Bromofluorobenzene (80-120)	119		
Toluene-d8 (80-119)	106		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19237** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-7S-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	35		1.0
2-Methylnaphthalene	55		1.0
Acenaphthene	4.5		1.0
Acenaphthylene	<RL		1.0
Anthracene	1.0		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	1.8		1.0
Fluorene	4.1		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	230		10
Phenanthrene	7.0		1.0
Pyrene	1.2		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	4.1	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	4.0		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/28/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	89		5.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	520		50
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	11		10
Tetrachloroethene	<RL		1.0
Toluene	2900		250
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	3300		100

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	67		
Nitrobenzene-d5	(Range 16-125)	70		
p-Terphenyl-d14	(Range 5-157)	36		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	8	Z
o-Terphenyl (Range 82-142)	51	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	17	ZY	
o-Terphenyl (Range 82-142)	57	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/28/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	107		
4-Bromofluorobenzene (80-120)	106		
Toluene-d8 (80-119)	97		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19238** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-1I-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	0.25	J	1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	0.71	J	1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	0.77	J	1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	3.1		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	5.5		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	67		
Nitrobenzene-d5	(Range 16-125)	72		
p-Terphenyl-d14	(Range 5-157)	52		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	2	Z
o-Terphenyl (Range 82-142)	62	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	17	ZY	
o-Terphenyl (Range 82-142)	70	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	115		
4-Bromofluorobenzene (80-120)	112		
Toluene-d8 (80-119)	100		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19239** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-8S-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	66		
Nitrobenzene-d5	(Range 16-125)	73		
p-Terphenyl-d14	(Range 5-157)	45		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	1	Z
o-Terphenyl (Range 82-142)	60	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	22	ZY	
o-Terphenyl (Range 82-142)	58	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	113		
4-Bromofluorobenzene (80-120)	118		
Toluene-d8 (80-119)	103		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19240** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-271-GW-9S-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	8.2		1.0
2-Methylnaphthalene	7.3		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	0.43	J	1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	7.4		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	1.6	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	1.8		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	9.8		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	36		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	270		25
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	1600		50

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	65		
Nitrobenzene-d5	(Range 16-125)	66		
p-Terphenyl-d14	(Range 5-157)	46		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 9/1/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	2	Z
o-Terphenyl (Range 82-142)	79	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	26	ZY	
o-Terphenyl (Range 82-142)	56	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	113		
4-Bromofluorobenzene (80-120)	113		
Toluene-d8 (80-119)	98		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19241** **Accura Project #:** **28687**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/25/2001

Client Contact: PAUL CALLIGAN Date Received: 8/25/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **METHOD BLANK**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/7/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X Base Neutral QC Surrogates (W Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 27-121)	51		
Nitrobenzene-d5	(Range 24-114)	57		
p-Terphenyl-d14	(Range 28-139)	70		

ANALYSIS: X PRO Initial QC Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	2	Z
o-Terphenyl (Range 82-142)	73	Z

ANALYSIS: X PRO QC Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/7/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	5	ZY	
o-Terphenyl (Range 82-142)	63	ZY	

ANALYSIS: X VOC QC Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (83-124)	104		
4-Bromofluorobenzene (81-118)	113		
Toluene-d8 (84-115)	98		

AALI#28687 A&L/2°C

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER B271-082401A | PAGE 1 OF 4

PROJECT NO:	N0486GH0050190
SITE NAME:	B 271
PROJECT MANAGER AND PHONE NUMBER	PAUL CAHEGAN 850-385-9899
LABORATORY NAME AND CONTACT:	ACCURA BONNIE HOGUE
SAMPLERS (SIGNATURE)	
FIELD OPERATIONS LEADER AND PHONE NUMBER	METU DALE 904-281-0400
ADDRESS	6017 FINANCIAL DR
CARRIER/WAYBILL NUMBER	FED EX 8244 2558 5603
CITY, STATE	NORCROSS GA

STANDARD TAT ☒ 28 day

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	BTEX MTBE 8260B	L2 Dichloroethane	VOH 8260B	PAH 8270C	TRPH	Total Lead 6010B	EDB 504		COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P	G			
PRESERVATIVE USED						HCl	HCl	None	HCl	HNO3	Na2S2O3			
8/24	0840	CEF-B271-GW-11S-01	GW	G	11	3	✓	2	2	1	3	AC 19233		COOL TO 4°C
8/24	0000	CEF-B271-GW-DUP1-02	GW	G	11	3	✓	2	2	1	3	AC 19234		FLOX - PO# - N0486-P271(DU)

1. RELINQUISHED BY	DATE 8/29/01	TIME 1600	1. RECEIVED BY FED EX.	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY FED EX	DATE 8-25-01	TIME 1000	3. RECEIVED BY	DATE 8-25-01	TIME 1000

COMMENTS

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

3/99

AAL#28687 ABL/2°C

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER B271-082401B | PAGE 2 OF 4

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N0486GH0050190	B271	PAUL CALLIGAN 850-385-9899	ACCUTEX BONNIE HOGNE
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
		MERV DALE 904-281-0400	6017 FINANCIAL DR
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX 8244 2558 5614	NORCROSS, GA 30071

STANDARD TAT ☒ 28 DAY

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	BTEX MTBE 1,2 DCE 8260B	VOH 8260B	PAH 8270C	~~TOTAL LEAD 6010B~~	~~6010B~~ TOTAL LEAD FLTR PRES	EDB 504			COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P	G			
PRESERVATIVE USED						HCl	HCl	None	HCl	HNO3	Na2S2O3			
8/24	1255	CEF-B271-GW-105-01	GW	G	11	3	✓	3	2	1	3	AC19235		COOL TO 4°C
8/24	1255	CEF-B271-GW-MSMSD-02	GW	G	22	6	✓	4	4	2	6	AC19236		FLTR-Pb# - N0486-P377(DW)

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
	8/24/01	1600	FED EX		
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY FED EX	DATE 8-25-01	TIME 1000	3. RECEIVED BY	DATE 8-25-01	TIME 1000

COMMENTS

YELLOW (FIELD COPY) PINK (FILE COPY)

MAL# 28687 ABL/2°C

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER B271-082401C | PAGE 3 OF 4

PROJECT NO: N0486G100050190	SITE NAME: B.271	PROJECT MANAGER AND PHONE NUMBER: PAUL CALLIGAN 850 385-9899	LABORATORY NAME AND CONTACT: ACCURA BONNIE HOGUE
SAMPLERS (SIGNATURE): [signature]		FIELD OPERATIONS LEADER AND PHONE NUMBER: MERV DALE 904-281-0400	ADDRESS: 6017 FINANCIAL DR
		CARRIER/WAYBILL NUMBER: FED EX 8244 2538 5625	CITY, STATE: NORCROSS, GA 30071

STANDARD TAT ☒ 28 DAY

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	BTEX MTBE 8260B	VOH 8260B	PAH 8270C	TEPH	EL-PEO	TOTAL LEAD 6010B	EDB 504		COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P	G			
PRESERVATIVE USED						HCl	HCl	NONE	HCl	HNO_3	$Na_2S_2O_3$			
8/24	1300	CEF-B271-GW-75-01	GW	G	11	3	✓	2	2	1	3	AC19237		COOL TO 4°C
8/24	1040	CEF-B271-GW-IZ-01	GW	G	11	3	✓	2	2	1	3	AC19238		FLOR-
														Pond N0486-
														B271DN

1. RELINQUISHED BY [signature]	DATE 8/24/01	TIME 1600	1. RECEIVED BY FED EX	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY FED EX.	DATE 8-25-01	TIME 1000	3. RECEIVED BY Arnold Freight	DATE 8-25-01	TIME 1000.

COMMENTS

WHITE YELLOW (FIELD COPY) PINK (FILE COPY) 3/99

AAL# 28687 ABL/2°C

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER B271-082401D | PAGE 4 OF 4

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
N045GH0050190	B.271	PAUL CALLEGAN 850.385-9894	ACCURA BONNIE HOGUE
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
		MERV DALE 904281-0400	6017 FINANCIAL DR
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FEDEX 828720741130	NORCROSS, GA

STANDARD TAT ☒ 28 DAY

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	TYPE OF ANALYSIS: BTEX NATBE 1,2 DCE	VOA 8260B	PAH 8270C	TPH	FILTERED TOTAL LEAD 6010B	EDB 504			COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P	G			
PRESERVATIVE USED						HCl	HCl	None	HCl	HNO3	Na2S2O3			
8/24	0900	CEF-B271-GW-85-01	GW	G	11	3	V	2	2	1	3	AC19239		COOL TO 4°C
8/24	1010	CEF-B271-GW-95-01	GW	G	11	3	V	2	2	1	3	AC19240		FLOR-
														PER N0486-
														P377(DW)

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	1600	8/24/01	1. RECEIVED BY FED EX		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY FED EX	8-25-01	1000	3. RECEIVED BY Arnold B Reyes	8-25-01	1000

COMMENTS

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

3/99

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

TO: **Mr. Paul Calligan** **DATE:** **November 19, 2001**

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

SUBJECT: **Organic Data Validation – VOC, PAH, TPH, and Lead**
CTO121 – NAS Cecil Field
SDG 28678

SAMPLES: **6/Aqueous**

CEF-B271-GW-12S-01	**CEF-B271-GW-1S-02**	**CEF-B271-GW-3S-02**
CEF-B271-GW-4S-02	**CEF-B271-GW-5SR-02**	**CEF-B271-GW-6S-02**

OVERVIEW

The sample set for CTO121 SDG 28678, Naval Air Station Cecil Field, Jacksonville, Florida consists of six (6) aqueous environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons (TPH), and Lead.

The samples were collected by Tetra Tech NUS on August 23, 2001 and analyzed by Accura Analytical Laboratory, Inc. 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 (PAHs), FDEP FL-PRO (TPH), and SW-846 Method 6010B (Lead) 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 : This data had to be resubmitted by the lab twice in order to get the list of analytes as requested.

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

The LCS/LCSD for the initial extraction for all FL-PRO samples in this SDG were not spiked. The reextraction of these samples was out of hold, but confirmed the initial results. Therefore, the initial results were reported as estimated "J" due to LCS/LCSD noncompliance.

Sample CEF-B271-GW-5SR-02 was not extracted in hold so only out of hold data is available. Therefore, the data is flagged estimated "J" due to holding time noncompliance.

All other quality control criteria were met for this fraction.

Executive Summary

Laboratory performance: The LCS/LCSD for the initial extraction for all FL-PRO samples in this SDG were not spiked. The reextraction of these samples was out of hold, but confirmed the initial results. Therefore, the initial results were reported as estimated "J" due to LCS/LCSD noncompliance. Sample CEF-B271-GW-5SR-02 was not extracted in hold so only out of hold data is available. Therefore, the data is flagged estimated "J" due to holding time noncompliance.

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 I. Smith
Project Chemist
Tetra Tech NUS, Inc.

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-12S-01			CEF-B271-GW-1S-02			CEF-B271-GW-3S-02			CEF-B271-GW-4S-02		
SAMPLE DATE:	08/23/01			08/23/01			08/23/01			08/23/01		
LABORATORY ID:	AC19188			AC19187			AC19190			AC19189		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	UG/L			UG/L			UG/L			UG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2,2-TETRACHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2-DIBROMOETHANE	0.05	U		0.05	U		0.05	U		0.05	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,2-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
BENZENE	0.44	J	P	1	U		1	U		1	U	
BROMODICHLOROMETHANE	1	U		1	U		1	U		1	U	
BROMOFORM	1	U		1	U		1	U		1	U	
BROMOMETHANE	1	U		1	U		1	U		1	U	
CARBON TETRACHLORIDE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLORODIBROMOMETHANE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CHLOROFORM	1	U		1	U		1	U		1	U	
CHLOROMETHANE	0.53	J	P	0.51	J	P	1	U		1	U	
CIS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		2	U	
DICHLORODIFLUOROMETHANE	1	U		1	U		1	U		1	U	
ETHYLBENZENE	1	U		1	U		1	U		1	U	
METHYL TERT-BUTYL ETHER	10	U		10	U		10	U		10	U	
METHYLENE CHLORIDE	5	U		5	U		5	U		5	U	
TETRACHLOROETHENE	1	U		1	U		1	U		1	U	
TOLUENE	0.35	J	P	1	U		1	U		1	U	
TOTAL XYLENES	2	U		2	U		2	U		2	U	
TRANS-1,2-DICHLOROETHENE	1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		2	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-12S-01	CEF-B271-GW-1S-02	CEF-B271-GW-3S-02	CEF-B271-GW-4S-02
SAMPLE DATE:	08/23/01	08/23/01	08/23/01	08/23/01
LABORATORY ID:	AC19188	AC19187	AC19190	AC19189
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRICHLOROETHENE	1	U		1	U		1	U		1	U	
TRICHLOROFLUOROMETHANE	1	U		1	U		1	U		1	U	
VINYL CHLORIDE	1	U		1	U		1	U		1	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-5SR-02	CEF-B271-GW-6S-02		
SAMPLE DATE:	08/23/01	08/23/01	/ /	/ /
LABORATORY ID:	AC19191	AC19192		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
1,1,1-TRICHLOROETHANE	1	U		1	U							
1,1,2,2-TETRACHLOROETHANE	1	U		1	U							
1,1,2-TRICHLOROETHANE	1	U		1	U							
1,1-DICHLOROETHANE	1	U		1	U							
1,1-DICHLOROETHENE	1	U		1	U							
1,2-DIBROMOETHANE	0.05	U		0.05	U							
1,2-DICHLOROBENZENE	1	U		1	U							
1,2-DICHLOROETHANE	1	U		1	U							
1,2-DICHLOROPROPANE	1	U		1	U							
1,3-DICHLOROBENZENE	1	U		1	U							
1,4-DICHLOROBENZENE	1	U		1	U							
BENZENE	1	U		1	U							
BROMODICHLOROMETHANE	1	U		1	U							
BROMOFORM	1	U		1	U							
BROMOMETHANE	1	U		1	U							
CARBON TETRACHLORIDE	1	U		1	U							
CHLOROBENZENE	1	U		1	U							
CHLORODIBROMOMETHANE	1	U		1	U							
CHLOROETHANE	1	U		1	U							
CHLOROFORM	1	U		1	U							
CHLOROMETHANE	1	U		1	U							
CIS-1,2-DICHLOROETHENE	1	U		1	U							
CIS-1,3-DICHLOROPROPENE	1	U		1	U							
DICHLORODIFLUOROMETHANE	1	U		1	U							
ETHYLBENZENE	1	U		1	U							
METHYL TERT-BUTYL ETHER	10	U		10	U							
METHYLENE CHLORIDE	5	U		5	U							
TETRACHLOROETHENE	1	U		1	U							
TOLUENE	1	U		1	U							
TOTAL XYLENES	2	U		2	U							
TRANS-1,2-DICHLOROETHENE	1	U		1	U							
TRANS-1,3-DICHLOROPROPENE	1	U		1	U							

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-5SR-02	CEF-B271-GW-6S-02		
SAMPLE DATE:	08/23/01	08/23/01	/ /	/ /
LABORATORY ID:	AC19191	AC19192		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
VOLATILES												
TRICHLOROETHENE	1	U		1	U							
TRICHLOROFLUOROMETHANE	1	U		1	U							
VINYL CHLORIDE	1	U		1	U							

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-12S-01	CEF-B271-GW-1S-02	CEF-B271-GW-3S-02	CEF-B271-GW-4S-02
SAMPLE DATE:	08/23/01	08/23/01	08/23/01	08/23/01
LABORATORY ID:	AC19188	AC19187	AC19190	AC19189
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	MG/L	MG/L	MG/L	MG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	0.01	U		0.01	U		0.01	U		0.01	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-5SR-02	CEF-B271-GW-6S-02		
SAMPLE DATE:	08/23/01	08/23/01	/ /	/ /
LABORATORY ID:	AC19191	AC19192		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	MG/L	MG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
INORGANICS												
LEAD	0.01	U		0.01	U							

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-12S-01	CEF-B271-GW-1S-02	CEF-B271-GW-3S-02	CEF-B271-GW-4S-02
SAMPLE DATE:	08/23/01	08/23/01	08/23/01	08/23/01
LABORATORY ID:	AC19188	AC19187	AC19190	AC19189
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	0.0 %	0.0 %	0.0 %	0.0 %
UNITS:	UG/L	UG/L	UG/L	UG/L
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
2-METHYLNAPHTHALENE	1	U		1	U		1	U		1	U	
ACENAPHTHENE	1	U		1	U		1	U		1	U	
ACENAPHTHYLENE	1	U		1	U		1	U		1	U	
ANTHRACENE	1	U		1	U		1	U		1	U	
BENZO(A)ANTHRACENE	1	U		1	U		1	U		1	U	
BENZO(A)PYRENE	1	U		1	U		1	U		1	U	
BENZO(B)FLUORANTHENE	1	U		1	U		1	U		1	U	
BENZO(G,H,I)PERYLENE	1	U		1	U		1	U		1	U	
BENZO(K)FLUORANTHENE	1	U		1	U		1	U		1	U	
CHRYSENE	1	U		1	U		1	U		1	U	
DIBENZO(A,H)ANTHRACENE	1	U		1	U		1	U		1	U	
FLUORANTHENE	1	U		1	U		1	U		1	U	
FLUORENE	1	U		1	U		1	U		1	U	
INDENO(1,2,3-CD)PYRENE	1	U		1	U		1	U		1	U	
NAPHTHALENE	1	U		1	U		1	U		1	U	
PHENANTHRENE	1	U		1	U		1	U		1	U	
PYRENE	1	U		1	U		1	U		1	U	

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-5SR-02	CEF-B271-GW-6S-02		
SAMPLE DATE:	08/23/01	08/23/01	/ /	/ /
LABORATORY ID:	AC19191	AC19192		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	UG/L	UG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	1	U		1	U							
2-METHYLNAPHTHALENE	1	U		1	U							
ACENAPHTHENE	1	U		1	U							
ACENAPHTHYLENE	1	U		1	U							
ANTHRACENE	1	U		1	U							
BENZO(A)ANTHRACENE	1	U		1	U							
BENZO(A)PYRENE	1	U		1	U							
BENZO(B)FLUORANTHENE	1	U		1	U							
BENZO(G,H,I)PERYLENE	1	U		1	U							
BENZO(K)FLUORANTHENE	1	U		1	U							
CHRYSENE	1	U		1	U							
DIBENZO(A,H)ANTHRACENE	1	U		1	U							
FLUORANTHENE	1	U		1	U							
FLUORENE	1	U		1	U							
INDENO(1,2,3-CD)PYRENE	1	U		1	U							
NAPHTHALENE	1	U		1	U							
PHENANTHRENE	1	U		1	U							
PYRENE	1	U		1	U							

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-12S-01			CEF-B271-GW-1S-02			CEF-B271-GW-3S-02			CEF-B271-GW-4S-02		
SAMPLE DATE:	08/23/01			08/23/01			08/23/01			08/23/01		
LABORATORY ID:	AC19188			AC19187			AC19190			AC19189		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS:	0.0 %			0.0 %			0.0 %			0.0 %		
UNITS:	MG/L			MG/L			MG/L			MG/L		
FIELD DUPLICATE OF:												
	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TOTAL PETROLEUM HYDROCARBONS	1	UJ	E	1	UJ	E	1	UJ	E	1	UJ	E

CTO121-NAS CECIL FIELD
WATER DATA
AAL
SDG: 28678

SAMPLE NUMBER:	CEF-B271-GW-5SR-02	CEF-B271-GW-6S-02		
SAMPLE DATE:	08/23/01	08/23/01	/ /	/ /
LABORATORY ID:	AC19191	AC19192		
QC_TYPE:	NORMAL	NORMAL		
% SOLIDS:	0.0 %	0.0 %	100.0 %	100.0 %
UNITS:	MG/L	MG/L		
FIELD DUPLICATE OF:				

	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE	RESULT	QUAL	CODE
PETROLEUM HYDROCARBONS												
TOTAL PETROLEUM HYDROCARBONS	1	UJ	H	1	UJ	E						

ACCURA ANALYTICAL LABORATORY
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

Case Narrative

AAL Project #: 28678-Revision

Client Project: NAS Cecil Field – Bldg. 271 / N0486/GHO050190

CTO Manager: Paul Calligan

The following items were noted concerning this project:

1. The following samples were received at Accura Analytical Laboratory on 08/24/01 at 0930:

Client Sample ID	Laboratory Sample ID
CEF-B271-GW-1S-02	AC19187
CEF-B271-GW-12S-01	AC19188
CEF-B271-GW-4S-02	AC19189
CEF-B271-GW-3S-02	AC19190
CEF-B271-GW-5SR-02	AC19191
CEF-B271-GW-6S-02	AC19192

2. The sample cooler temperature was noted to be 2^0C upon receipt at the laboratory.

3. The "J" values noted for the VOC results indicate estimated concentrations that were above the method detection limits, but below the reporting limits.

4. The "Y" qualifiers noted for the FLA-PRO analysis indicate that the samples were re-extracted outside the EPA recommended holding time due to no laboratory control sample or laboratory control sample duplicate was spiked for the initial extraction. All results for this analysis should be considered estimated. Note that the initial data results were compatible to the re-extracted data results.

5. The pH was noted at 1.0 prior to the VOC analysis.

This report may not be reproduced, except in full, without written approval from Accura Analytical Laboratory, Inc.

6. The following surrogates were outside the method specified limit, as indicated by the "Z" qualifier:

FLA-PRO

C(39) -	CEF-B271-GW-1S-02	CEF-B271-GW-12S-01
	CEF-B271-GW-4S-02	CEF-B271-GW-3S-02
	CEF-B271-GW-5SR-02	CEF-B271-GW-6S-02
	Method Blank	Laboratory Control Sample
	Laboratory Control Sample Duplicate	
o-Terphenyl -	CEF-B271-GW-1S-02	CEF-B271-GW-12S-01
	CEF-B271-GW-4S-02	CEF-B271-GW-3S-02
	CEF-B271-GW-5SR-02	Method Blank
	Laboratory Control Sample	Laboratory Control Sample Duplicate

The recoveries were within in-house limits established at the laboratory; therefore the data was accepted.

7. Project Specific QC consists of a laboratory control sample and a laboratory control sample duplicate for the SVOC and FLA-PRO analyses due to limited sample volume. Note that laboratory control sample and laboratory control sample duplicate recoveries are reported as matrix spike/matrix spike duplicate recoveries on the QC spreadsheet.

8. The laboratory control sample and laboratory control sample duplicate recoveries were outside the project specified limit for the following analytes:

FL-PRO

Laboratory Control Sample/Laboratory Control Sample Duplicate - FL-PRO

For the FLA-PRO analysis, the recoveries were within in-house limits established at the laboratory; therefore the data was accepted.

This report may not be reproduced, except in full, without written approval from Accura Analytical Laboratory, Inc.

ACCURA ANALYTICAL LABORATORY
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800
Case Narrative

9. The following spike recoveries were outside the project specified limits due to matrix interference:

   VOC-SW-846-8260B
   Matrix Spike/Matrix Spike Duplicate - 2-Chloroethylvinyl ether

10. Per client request, Acrolein, Acrylonitrile, and DBCP were removed from the reports, and the EDD has been corrected. Also, note that initial FLA-PRO and re-extracted FLA-PRO results are now reported for the samples except for sample CEF-B271-GW-5SR-02.
    Sample was not initially extracted in hold

Approved for Quality Assurance Release By:

Camden Robinson
Quality Assurance Officer

10/18/01
Date

This report may not be reproduced, except in full, without written approval from Accura Analytical Laboratory, Inc.
A2LA Accredited-ID: 120261 •Certificate #-1365.1•Exp 7/31/02 Effective 8/14/00•Scope: Testing Technologies
Potable & Non-potable Water-Solid/Hazardous Waste

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19187** **Accura Project #:** **28678**

Client: **Tetra Tech Nus -Tallahassee** Date Sampled: 8/23/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-B271-GW-1S-02**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/7/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	0.51	J	1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	50		
Nitrobenzene-d5	(Range 16-125)	54		
p-Terphenyl-d14	(Range 5-157)	36		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	15	Z
o-Terphenyl (Range 82-142)	69	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/7/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	30	ZY	
o-Terphenyl (Range 82-142)	67	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	111		
4-Bromofluorobenzene (80-120)	104		
Toluene-d8 (80-119)	97		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19188** **Accura Project #:** **28678**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/23/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-B271-GW-12S-01**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	0.44	J	1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	0.53	J	1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	0.35	J	1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	55		
Nitrobenzene-d5	(Range 16-125)	60		
p-Terphenyl-d14	(Range 5-157)	39		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	9	Z
o-Terphenyl (Range 82-142)	45	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	18	ZY	
o-Terphenyl (Range 82-142)	55	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	110		
4-Bromofluorobenzene (80-120)	103		
Toluene-d8 (80-119)	97		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19189** **Accura Project #:** **28678**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/23/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-B271-GW-4S-02**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		2.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		2.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	57		
Nitrobenzene-d5	(Range 16-125)	63		
p-Terphenyl-d14	(Range 5-157)	51		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	13	Z
o-Terphenyl (Range 82-142)	78	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	12	ZY	
o-Terphenyl (Range 82-142)	64	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	112		
4-Bromofluorobenzene (80-120)	102		
Toluene-d8 (80-119)	99		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19190** **Accura Project #:** **28678**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/23/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-B271-GW-3S-02**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X_B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	52		
Nitrobenzene-d5	(Range 16-125)	61		
p-Terphenyl-d14	(Range 5-157)	35		

ANALYSIS: X_PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	24	Z
o-Terphenyl (Range 82-142)	68	Z

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	11	ZY	
o-Terphenyl (Range 82-142)	62	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	116		
4-Bromofluorobenzene (80-120)	105		
Toluene-d8 (80-119)	99		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved
LABORATORY REPORT

Accura Sample ID #: **AC19191** **Accura Project #:** **28678**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/23/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-B271-GW-5SR-02**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) no initial version in hold Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X_B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	59		
Nitrobenzene-d5	(Range 16-125)	68		
p-Terphenyl-d14	(Range 5-157)	42		

ANALYSIS: X_PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	23	ZY	
o-Terphenyl (Range 82-142)	69	ZY	

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	120		
4-Bromofluorobenzene (80-120)	119		
Toluene-d8 (80-119)	106		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19192** **Accura Project #:** **28678**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/23/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **CEF-B271-GW-6S-02**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL	Y	1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
trnas-1,3-Dicloropropene	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 21-122)	62		
Nitrobenzene-d5	(Range 16-125)	67		
p-Terphenyl-d14	(Range 5-157)	44		

ANALYSIS: X PRO Intial Sample Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

C(39) (Range 42-193)	5	Z
o-Terphenyl (Range 82-142)	88	

ANALYSIS: X PRO Sample Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/8/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	9	ZY	
o-Terphenyl (Range 82-142)	94		

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/27/2001 Date Analyzed: 8/27/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (81-132)	123		
4-Bromofluorobenzene (80-120)	120		
Toluene-d8 (80-119)	107		

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC19193** **Accura Project #:** **28678**

Client: Tetra Tech Nus -Tallahassee Date Sampled: 8/24/2001

Client Contact: PAUL CALLIGAN Date Received: 8/24/2001

Client Project Number: N0486/GHO050190 Date Reported: 11/8/2001

Client Project Name: NAS CECIL FIELD-BLDG 271 Sample Matrix: WATER

Client Sample ID: **METHOD BLANK**

ANALYSIS: EDB Method Ref: 504.1

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/6/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dibromoethane (EDB)	<RL		0.05

ANALYSIS: Metals - Lead (W) Method Ref: 3010A/6010B

Date Ext/Dig/Prep: 9/6/2001 Date Analyzed: 9/10/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Lead	<RL		0.010

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		1.0
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: Petroleum Range Organics (PRO) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/7/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: PRO - Initial Run Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: mg/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
Petroleum Range Organics (PRO)	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichlorobenzene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichlorobenzene	<RL		1.0
1,4-Dichlorobenzene	<RL		1.0
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0
Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroethane	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
cis-1,2-Dichloroethene	<RL		1.0
cis-1,3-Dicloropropene	<RL		1.0
Dibromochloromethane	<RL		1.0
Dichlorodifluoromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	<RL		5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
trans-1,3-Dicloropropene	<RL		1.0
Trichloroethene	<RL		1.0
Trichlorofluoromethane	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X Base Neutral QC Surrogates (W Method Ref: 8270C

Date Ext/Dig/Prep: 8/30/2001 Date Analyzed: 9/5/2001 Result Units: %

Analyte Name		Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl	(Range 27-121)	51		
Nitrobenzene-d5	(Range 24-114)	57		
p-Terphenyl-d14	(Range 28-139)	70		

ANALYSIS: X PRO Initial QC Surr.(W) Method Ref: FL-PRO

Date Ext/Dig/Prep: 8/28/2001 Date Analyzed: 8/31/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits

Client Sample ID: METHOD BLANK AALSample ID #: AC19193 Accura Project #: 28678

C(39) (Range 42-193)	2	Z
o-Terphenyl (Range 82-142)	73	Z

ANALYSIS: X PRO QC Surrogates (Water) Method Ref: FL-PRO

Date Ext/Dig/Prep: 9/5/2001 Date Analyzed: 9/7/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
C(39) (Range 42-193)	5	Z	
o-Terphenyl (Range 82-142)	63	Z	

ANALYSIS: X VOC QC Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 8/24/2001 Date Analyzed: 8/24/2001 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (83-124)	109		
4-Bromofluorobenzene (81-118)	117		
Toluene-d8 (84-115)	104		

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER B271-082301 | PAGE 1 OF 1

PROJECT NO: N0486 GW 050190
SITE NAME: B.271
PROJECT MANAGER AND PHONE NUMBER: PAUL CALLIGAN 850 385 9899
LABORATORY NAME AND CONTACT: ACCUTEX B. HOGUE
SAMPLERS (SIGNATURE): [signature]
FIELD OPERATIONS LEADER AND PHONE NUMBER: MERV DALE 904-281-0400
ADDRESS: 6017 FINANCIAL DR
CARRIER/WAYBILL NUMBER: FEDEX 8287 2074 1152
CITY, STATE: NORCROSS GA 30071

STANDARD TAT ☒ 28 DAY
RUSH TAT ☐
☑ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

AAL# 28678
B&B/29C

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	BTEX MTBE 8260B	1,2 DICHLOROETHANE VOH	SW 846 8260B PAH	SW 846 8270C TPH	FE-DEO TOTAL LEADS	SW 846 6010B EDB	METHOD 504	REG 08.24.01	COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)						G	G	G	G	P	G			
PRESERVATIVE USED						HCL	ACL	NONE	HCL	HNO3	NAS.O3			
8/23	1440	CEF-B271-GW-55R-02	GW	G	11	3	✓	2	2	1	3	AC19	91	COOL TO 4°C
8/23	1430	CEF-B271-GW-65-02	GW	G	11	3	✓	2	2	1	3	↓	92	FLOR-
														PO# N0486-
														P377(DW)

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	8/23/01	1600	1. RECEIVED BY FEDEX		
2. RELINQUISHED BY FEDEX	8.24.01	0930	2. RECEIVED BY [signature]	08.24.01	0930
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

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

3/99

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER B271-082301A | PAGE 1 OF 1

PROJECT NO: N0486 GTO 050190

SITE NAME: B.271 NASCF

PROJECT MANAGER AND PHONE NUMBER: Paul Collison 850 385 9899

LABORATORY NAME AND CONTACT: AccuRA B. Hogue

SAMPLERS (SIGNATURE): [signature]

FIELD OPERATIONS LEADER AND PHONE NUMBER: Merv Dane 904 281 0400

ADDRESS: 6017 Financial Drive

CARRIER/WAYBILL NUMBER: Fedex 8287 2074 1141

CITY, STATE: Norcross, GA 30071

STANDARD TAT ☒ 28 DAYS

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

AAL#28678 Pos/2°C

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	BTEX MTBE 8260B	1,2 dichloroethane	VOHs SW846 8260B	PAHs SW846 8270C	TRPH FL-PRO	TOTAL LEAD SW846 6010B	EDB Method 504			COMMENTS
CONTAINER TYPE PLASTIC (P) or GLASS (G)								G	G	G	G	P	G		
PRESERVATIVE USED							HCL	HCL	NONE	HCL	HNO_3	Na Thiosul			
8/23	1050	CEF-B271-GW-15-02	GW	G	11	3	✓	2	2	1	3	AC19	187		Cool to 4°C
8/23	1045	CEF-B271-GW-125-01	GW	G	11	3	✓	2	2	1	3	↓	88		FLOR-PO # N0486-P377 (DW)

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	8/23/01	1600	1. RECEIVED BY FEDEX		
2. RELINQUISHED BY FEDEX	08.24.01	0930	2. RECEIVED BY [signature]	08.24.01	0930
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 B271-082801B | PAGE 1 OF 1

PROJECT NO: N0486 GH305010
SITE NAME: B-271
PROJECT MANAGER AND PHONE NUMBER: PAUL CALLIGAN 850 3859899
LABORATORY NAME AND CONTACT: ACCUTRA B. HOGUE
SAMPLERS (SIGNATURE): [signature]
FIELD OPERATIONS LEADER AND PHONE NUMBER: MERV DALE 904 281-0400
ADDRESS: 6017 FINANCIAL DR
CARRIER/WAYBILL NUMBER: FEDEX 8287 2074 1163
CITY, STATE: NORCROSS, GA

STANDARD TAT ☒ 28 DAYS
RUSH TAT ☐ ☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

AAL# 28678
BGB/2C

DATE YEAR 2001	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	BTEX, MTBE 8260B	1,2 DIBROMOETHANE	VOHs	SW846 8260B PAHs	SW846 8270C TRPH	EL-PZO	TOTAL LEAD SW846 6010B	EDB	METHOD 504	COMMENTS
					CONTAINER TYPE PLASTIC (P) or GLASS (G)	G	G	G	G	P	G				
					PRESERVATIVE USED	HCl	HCl	NaOH	HCl	HNO3	Na2S2O3				
8/23	1320	CEF-B271-GW-45-02	GW	G	11	3	✓	2	2	1	3	AC19	89		Cool to 4°C
8/23	1325	CEF-B271-GW-35-02	GW	G	11	3	✓	2	2	1	3	↓	90		FOR-
															PO# N0486
															P377(DW)

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	8/23/01	1600	1. RECEIVED BY FEDEX		
2. RELINQUISHED BY FEDEX	08.24.01	0930	2. RECEIVED BY [signature]	08.24.01	0930
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. TINUS-001

APPENDIX H

AQUIFER DATA

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT: SOUTHDIV	JOB NUMBER: CTO 0121 0486 GHO 150 105
SUBJECT: Cecil Field Bldg 271 Tanks UL, R, SUL, & D	
BASED ON	DRAWING NUMBER
BY: R. Miller; CHECKED BY: TR 12/7/01	APPROVED BY; DATE

CEF-271-6S

Well diameter = 2"
Open interval = 10'
Storage coef. = 0.15
Well-loss coef. = 1

Thickness of aquifer = 80.7'
DEPTH TO BEDROCK = 87'
DEPTH TO WATER (AVE) = 6.3'
87' − 6.3' = 80.7'

Static water level = 6.34'
Depth to water during test = 9.09
s = 0.839m @ 12.8460 min
s = 0.839m x 3.281 ft/m = 2.75 ft 6.34' + 2.75' = 9.09'

Length of test = 12.846 min / 60 min/hr = 0.214 hr

Pumping rate = 2 gal / 1.33 min = 1.5 gpm

RECEIVED
DEC 12 2001
TETRA TECH NUS
JACKSONVILLE FL

```
*****************************************************************
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-271-6S

```
WELL DIAMETER (IN) =          2
STATIC WATER LEVEL (FT) =     6.34
DEPTH TO WATER DURING TEST (FT) =          9.09
THE LENGTH OF THE TEST (HR) =              .214
PUMPING RATE (GPM) =          1.5
THICKNESS OF AQUIFER (FT) =                80.7
OPEN INTERVAL (FT) =          10
STORAGE COEFFICIENT =         .15
WELL-LOSS COEFFICIENT =       1
```

```
SPECIFIC CAPACITY (GPM/FT) =  .5454568

TRANSMISSIVITY:  (FT*FT/SEC) =  7.297135E-03
                 (FT*FT/DAY) =  630.4725
                 (GAL/DAY/FT) =  4716.249
           USING A STORAGE COEFFICIENT =  .15
           NUMBER OF ITERATIONS =  3

HYDRAULIC CONDUCTIVITY:  (FT/SEC) =  9.042299E-05
                         (FT/DAY) =  7.812547
                         (GAL/DAY/FT*FT) =  51.9028

THE NUMBER OF WELLS IN THIS RECORD IS  1
```

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE 1 OF 1

CLIENT SOUTHDIV	JOB NUMBER CTO 121 0486 GHO 150 105
SUBJECT Cecil Field Bldg 271 Tanks UL, R, SUL, & D	
BASED ON	DRAWING NUMBER
BY R. Miller / CHECKED BY TR 12/7/01	APPROVED BY / DATE

CEF-271-1S

Well diameter = 2"
Open interval = 10'
Storage coef. = 0.15
Well-loss coef = 1

Thickness of aquifer = 80.7'
Depth to bedrock = 87'
Depth to water (avg) = 6.3'
87 - 6.3' = 80.7'

Static water level = 6.74'
Depth to water during test = 12.80'
S = 1.847 m @ 13.8383 min
S = 1.847 m × 3.281 ft/m = 6.06' 6.74' + 6.06' = 12.80'

Length of test = 0.231 hr
13.8383 min × 1 hr/60 min = 2.31 × 10⁻¹ hr

Pumping rate = 1 gpm

****
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-271-01S

WELL DIAMETER (IN) = 2
STATIC WATER LEVEL (FT) = 6.74
DEPTH TO WATER DURING TEST (FT) = 12.8
THE LENGTH OF THE TEST (HR) = .231
PUMPING RATE (GPM) = 1
THICKNESS OF AQUIFER (FT) = 80.7
OPEN INTERVAL (FT) = 10
STORAGE COEFFICIENT = .15
WELL-LOSS COEFFICIENT = 1

SPECIFIC CAPACITY (GPM/FT) = .1650166

TRANSMISSIVITY: (FT*FT/SEC) = 2.174424E-03
(FT*FT/DAY) = 187.8702
(GAL/DAY/FT) = 1405.363
USING A STORAGE COEFFICIENT = .15
NUMBER OF ITERATIONS = 3

HYDRAULIC CONDUCTIVITY: (FT/SEC) = 2.694453E-05
(FT/DAY) = 2.328008
(GAL/DAY/FT*FT) = 15.46616

THE NUMBER OF WELLS IN THIS RECORD IS 1

TETRA TECH NUS, INC. **CALCULATION WORKSHEET** PAGE ____ OF ____

CLIENT: SOUTHDIV	JOB NUMBER: CTO 0121 0486 GHO 150 105
SUBJECT: Cecil Field Bldg 271 Tanks UL, R, SUL, & D	
BASED ON	DRAWING NUMBER
BY: R. Miller / CHECKED BY: TR 12/7/01	APPROVED BY / DATE

CEF-271-11S

Well diameter = 2"
Open interval = 10'
Storage coef. = 0.15
Well loss coef. = 1

Thickness of aquifer = 80.7'
DEPTH TO BEDROCK = 87'
DEPTH TO WATER (AVE) = 6.3'
87' - 6.3' = 80.7'

Static water level = 5.91'
Depth to water during test = 9.67'
s = 1.145 m @ 16.1717 min
S = 1.145 m x 3.281 ft/m = 3.76' 5.91' + 3.76' = 9.67'

Length of test = 0.270
16.1717 min x 1 hr / 60 min = 2.70 x 10^-1

Pumping rate = 1 gpm

```
*****************************************************************
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-271-11S

```
WELL DIAMETER (IN) =          2
STATIC WATER LEVEL (FT) =     5.91
DEPTH TO WATER DURING TEST (FT) =          9.67
THE LENGTH OF THE TEST (HR) =              .27
PUMPING RATE (GPM) =          1
THICKNESS OF AQUIFER (FT) =                80.7
OPEN INTERVAL (FT) =          10
STORAGE COEFFICIENT =         .15
WELL-LOSS COEFFICIENT =       1
```

```
SPECIFIC CAPACITY (GPM/FT) =  .2659578

TRANSMISSIVITY:  (FT*FT/SEC) =  3.534781E-03
                 (FT*FT/DAY) =  305.4051
                 (GAL/DAY/FT) =  2284.583
           USING A STORAGE COEFFICIENT =  .15
           NUMBER OF ITERATIONS =  3

HYDRAULIC CONDUCTIVITY:  (FT/SEC) =  4.380151E-05
                         (FT/DAY) =  3.78445
                         (GAL/DAY/FT*FT) =  25.14206

THE NUMBER OF WELLS IN THIS RECORD IS  1
```

In-Situ Inc. Hermit 3000

Report generated: 12/27/01 17:56:24
Report from file: C:\Win-Situ\Data\SN45671 2001-11-09 112939 DR 271 1S.bin
DataMgr Version 3.70

Serial number: 00045671
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: DR 271 1S

Test defined on: 11/08/01 09:22:50
Test started on: 11/09/01 11:29:39
Test stopped on: 11/09/01 11:46:18
Test extracted on: 11/09/01 14:39:25

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 149

TOTAL DATA SAMPLES 149

Channel number [2]
Measurement type: Pressure
Channel name: Probe PXD 261
Linearity: 0.0596000
Scale: 14.0748000
Offset: -0.1421000
Warmup: 50
Specific gravity: 1.000
Mode: Surface
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 2.330 Meters H2O
Baro Reference: 14.811 PSI

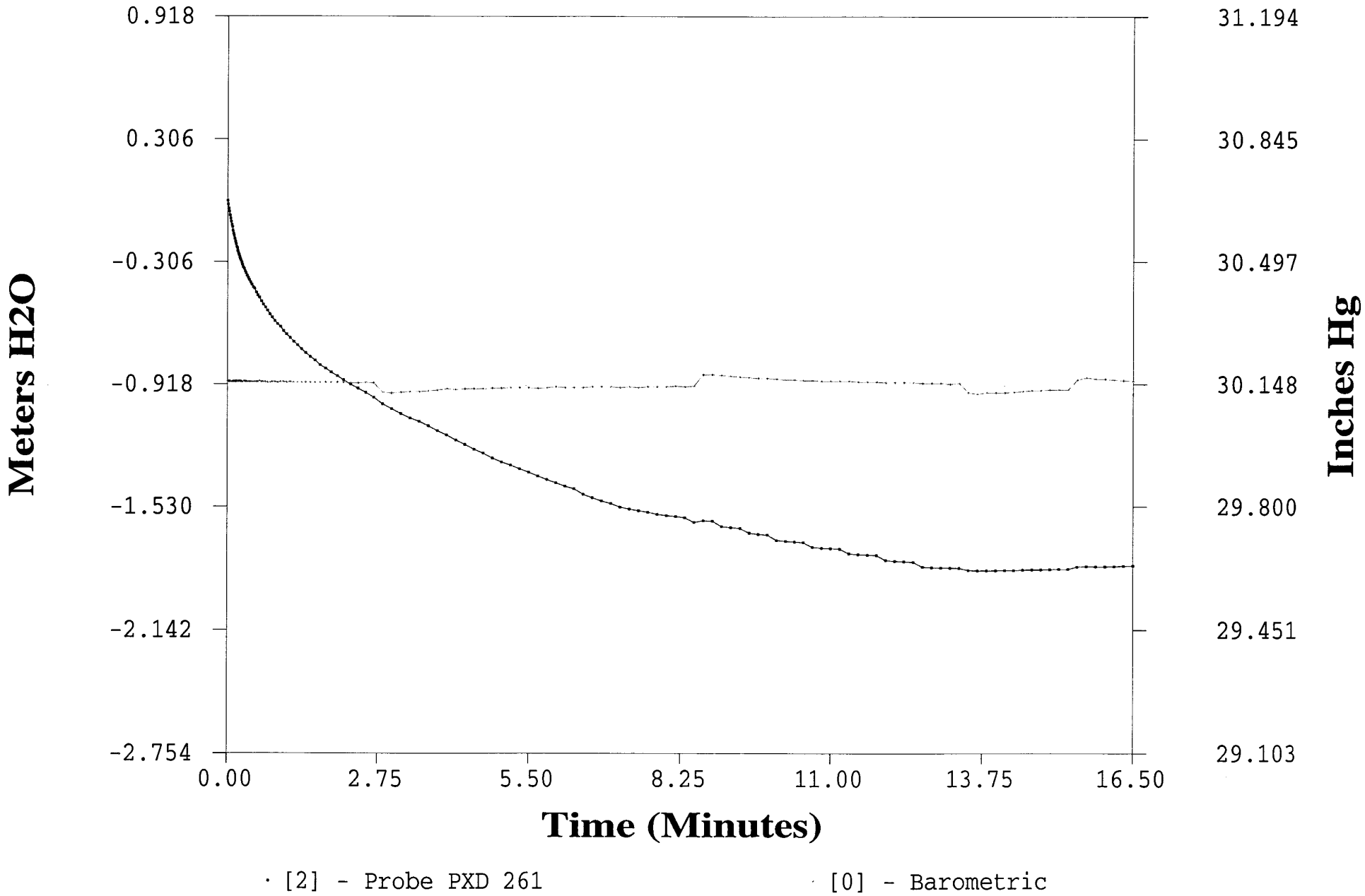
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[2] Meters H2O	Chan[0] Inches Hg
11/09/01	11:29:39	0.0000	0.000	30.155
11/09/01	11:29:39	0.0112	-0.019	30.155
11/09/01	11:29:40	0.0223	-0.039	30.155
11/09/01	11:29:41	0.0335	-0.054	30.157
11/09/01	11:29:41	0.0447	-0.073	30.157
11/09/01	11:29:42	0.0558	-0.089	30.155
11/09/01	11:29:43	0.0670	-0.105	30.155
11/09/01	11:29:43	0.0782	-0.121	30.155
11/09/01	11:29:44	0.0893	-0.131	30.155
11/09/01	11:29:45	0.1005	-0.150	30.155
11/09/01	11:29:45	0.1117	-0.164	30.157
11/09/01	11:29:46	0.1228	-0.175	30.155
11/09/01	11:29:47	0.1340	-0.190	30.155
11/09/01	11:29:47	0.1452	-0.204	30.157
11/09/01	11:29:48	0.1563	-0.216	30.155
11/09/01	11:29:49	0.1675	-0.230	30.157
11/09/01	11:29:49	0.1787	-0.237	30.157
11/09/01	11:29:50	0.1898	-0.252	30.155
11/09/01	11:29:51	0.2010	-0.262	30.155
11/09/01	11:29:51	0.2122	-0.271	30.157

11/09/01	11:29:52	0.2233	-0.281	30.157
11/09/01	11:29:53	0.2350	-0.292	30.155
11/09/01	11:29:53	0.2475	-0.299	30.157
11/09/01	11:29:54	0.2607	-0.310	30.155
11/09/01	11:29:55	0.2747	-0.321	30.155
11/09/01	11:29:56	0.2895	-0.333	30.155
11/09/01	11:29:57	0.3052	-0.339	30.157
11/09/01	11:29:58	0.3218	-0.353	30.155
11/09/01	11:29:59	0.3395	-0.362	30.157
11/09/01	11:30:00	0.3582	-0.375	30.155
11/09/01	11:30:01	0.3780	-0.385	30.155
11/09/01	11:30:02	0.3990	-0.395	30.155
11/09/01	11:30:04	0.4212	-0.407	30.155
11/09/01	11:30:05	0.4447	-0.420	30.155
11/09/01	11:30:07	0.4695	-0.432	30.155
11/09/01	11:30:08	0.4958	-0.439	30.155
11/09/01	11:30:10	0.5238	-0.458	30.155
11/09/01	11:30:12	0.5535	-0.473	30.155
11/09/01	11:30:14	0.5848	-0.483	30.157
11/09/01	11:30:16	0.6180	-0.503	30.155
11/09/01	11:30:18	0.6532	-0.519	30.155
11/09/01	11:30:20	0.6905	-0.533	30.155
11/09/01	11:30:22	0.7300	-0.549	30.153
11/09/01	11:30:25	0.7718	-0.567	30.153
11/09/01	11:30:27	0.8162	-0.583	30.155
11/09/01	11:30:30	0.8632	-0.602	30.155
11/09/01	11:30:33	0.9130	-0.617	30.153
11/09/01	11:30:36	0.9657	-0.630	30.155
11/09/01	11:30:40	1.0215	-0.651	30.155
11/09/01	11:30:43	1.0807	-0.668	30.153
11/09/01	11:30:47	1.1433	-0.686	30.155
11/09/01	11:30:51	1.2097	-0.705	30.153
11/09/01	11:30:55	1.2800	-0.722	30.153
11/09/01	11:31:00	1.3545	-0.743	30.153
11/09/01	11:31:05	1.4335	-0.762	30.153
11/09/01	11:31:10	1.5172	-0.781	30.153
11/09/01	11:31:15	1.6057	-0.799	30.153
11/09/01	11:31:20	1.6995	-0.822	30.153
11/09/01	11:31:26	1.7988	-0.840	30.153
11/09/01	11:31:33	1.9042	-0.858	30.153
11/09/01	11:31:39	2.0157	-0.877	30.153
11/09/01	11:31:47	2.1338	-0.897	30.153
11/09/01	11:31:54	2.2590	-0.920	30.151
11/09/01	11:32:02	2.3915	-0.939	30.151
11/09/01	11:32:10	2.5320	-0.960	30.153
11/09/01	11:32:19	2.6808	-0.984	30.151
11/09/01	11:32:29	2.8383	-1.017	30.125
11/09/01	11:32:39	3.0050	-1.041	30.123
11/09/01	11:32:49	3.1717	-1.066	30.125
11/09/01	11:32:59	3.3383	-1.087	30.127
11/09/01	11:33:09	3.5050	-1.104	30.127
11/09/01	11:33:19	3.6717	-1.127	30.129
11/09/01	11:33:29	3.8383	-1.151	30.131
11/09/01	11:33:39	4.0050	-1.172	30.135
11/09/01	11:33:49	4.1717	-1.198	30.133
11/09/01	11:33:59	4.3383	-1.220	30.135
11/09/01	11:34:09	4.5050	-1.243	30.135
11/09/01	11:34:19	4.6717	-1.264	30.135
11/09/01	11:34:29	4.8383	-1.287	30.137
11/09/01	11:34:39	5.0050	-1.307	30.137
11/09/01	11:34:49	5.1717	-1.323	30.139
11/09/01	11:34:59	5.3383	-1.341	30.139
11/09/01	11:35:09	5.5050	-1.358	30.139
11/09/01	11:35:19	5.6717	-1.377	30.137
11/09/01	11:35:29	5.8383	-1.395	30.139
11/09/01	11:35:39	6.0050	-1.411	30.141
11/09/01	11:35:49	6.1717	-1.428	30.139
11/09/01	11:35:59	6.3383	-1.441	30.139
11/09/01	11:36:09	6.5050	-1.468	30.139
11/09/01	11:36:19	6.6717	-1.485	30.141

11/09/01	11:36:29	6.8383	-1.501	30.141
11/09/01	11:36:39	7.0050	-1.514	30.141
11/09/01	11:36:49	7.1717	-1.532	30.139
11/09/01	11:36:59	7.3383	-1.542	30.141
11/09/01	11:37:09	7.5050	-1.550	30.139
11/09/01	11:37:19	7.6717	-1.557	30.141
11/09/01	11:37:29	7.8383	-1.568	30.141
11/09/01	11:37:39	8.0050	-1.574	30.141
11/09/01	11:37:49	8.1717	-1.578	30.143
11/09/01	11:37:59	8.3383	-1.585	30.141
11/09/01	11:38:09	8.5050	-1.608	30.143
11/09/01	11:38:19	8.6717	-1.600	30.176
11/09/01	11:38:29	8.8383	-1.602	30.176
11/09/01	11:38:39	9.0050	-1.629	30.174
11/09/01	11:38:49	9.1717	-1.634	30.171
11/09/01	11:38:59	9.3383	-1.638	30.169
11/09/01	11:39:09	9.5050	-1.661	30.167
11/09/01	11:39:19	9.6717	-1.667	30.165
11/09/01	11:39:29	9.8383	-1.671	30.165
11/09/01	11:39:39	10.0050	-1.697	30.163
11/09/01	11:39:49	10.1717	-1.702	30.161
11/09/01	11:39:59	10.3383	-1.705	30.161
11/09/01	11:40:09	10.5050	-1.708	30.159
11/09/01	11:40:19	10.6717	-1.731	30.159
11/09/01	11:40:29	10.8383	-1.736	30.157
11/09/01	11:40:39	11.0050	-1.738	30.157
11/09/01	11:40:49	11.1717	-1.740	30.157
11/09/01	11:40:59	11.3383	-1.763	30.157
11/09/01	11:41:09	11.5050	-1.767	30.155
11/09/01	11:41:19	11.6717	-1.769	30.155
11/09/01	11:41:29	11.8383	-1.771	30.155
11/09/01	11:41:39	12.0050	-1.796	30.153
11/09/01	11:41:49	12.1717	-1.800	30.153
11/09/01	11:41:59	12.3383	-1.802	30.153
11/09/01	11:42:09	12.5050	-1.806	30.153
11/09/01	11:42:19	12.6717	-1.829	30.151
11/09/01	11:42:29	12.8383	-1.832	30.151
11/09/01	11:42:39	13.0050	-1.833	30.151
11/09/01	11:42:49	13.1717	-1.835	30.149
11/09/01	11:42:59	13.3383	-1.835	30.151
11/09/01	11:43:09	13.5050	-1.846	30.125
11/09/01	11:43:19	13.6717	-1.848	30.121
11/09/01	11:43:29	13.8383	-1.847	30.125
11/09/01	11:43:39	14.0050	-1.847	30.125
11/09/01	11:43:49	14.1717	-1.846	30.125
11/09/01	11:43:59	14.3383	-1.845	30.127
11/09/01	11:44:09	14.5050	-1.844	30.129
11/09/01	11:44:19	14.6717	-1.843	30.131
11/09/01	11:44:29	14.8383	-1.843	30.131
11/09/01	11:44:39	15.0050	-1.841	30.133
11/09/01	11:44:49	15.1717	-1.841	30.133
11/09/01	11:44:59	15.3383	-1.841	30.133
11/09/01	11:45:09	15.5050	-1.828	30.161
11/09/01	11:45:19	15.6717	-1.826	30.167
11/09/01	11:45:29	15.8383	-1.828	30.163
11/09/01	11:45:39	16.0050	-1.827	30.163
11/09/01	11:45:49	16.1717	-1.827	30.161
11/09/01	11:45:59	16.3383	-1.825	30.159
11/09/01	11:46:09	16.5050	-1.823	30.157

DR 271 1S


0.918
0.306
-0.306
-0.918
-1.530
-2.142
-2.754
Meters H2O
31.194
30.845
30.497
30.148
29.800
29.451
29.103
Inches Hg
0.00
2.75
5.50
8.25
11.00
13.75
16.50
Time (Minutes)
[2] - Probe PXD 261
[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 12/27/01 17:56:53
Report from file: C:\Win-Situ\Data\SN45671 2001-11-09 120438 R 271 1S.bin
DataMgr Version 3.70

Serial number: 00045671
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: R 271 1S

Test defined on: 11/08/01 09:23:49
Test started on: 11/09/01 12:04:38
Test stopped on: 11/09/01 12:35:04
Test extracted on: 11/09/01 14:39:45

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 233

TOTAL DATA SAMPLES 233

Channel number [2]
Measurement type: Pressure
Channel name: Probe PXD 261
Linearity: 0.0596000
Scale: 14.0748000
Offset: -0.1421000
Warmup: 50
Specific gravity: 1.000
Mode: Surface
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 0.030 Meters H2O
Baro Reference: 14.804 PSI

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[2] Meters H2O	Chan[0] Inches Hg
11/09/01	12:04:38	0.0000	0.000	30.141
11/09/01	12:04:38	0.0110	-0.001	30.143
11/09/01	12:04:39	0.0220	-0.001	30.143
11/09/01	12:04:39	0.0330	0.000	30.143
11/09/01	12:04:40	0.0440	-0.001	30.143
11/09/01	12:04:41	0.0550	-0.001	30.141
11/09/01	12:04:41	0.0660	-0.001	30.141
11/09/01	12:04:42	0.0770	-0.001	30.141
11/09/01	12:04:43	0.0880	0.001	30.141
11/09/01	12:04:43	0.0990	0.001	30.141
11/09/01	12:04:44	0.1100	0.013	30.143
11/09/01	12:04:45	0.1210	0.039	30.141
11/09/01	12:04:45	0.1320	0.092	30.141
11/09/01	12:04:46	0.1430	0.137	30.143
11/09/01	12:04:47	0.1540	0.152	30.143
11/09/01	12:04:47	0.1650	0.154	30.141
11/09/01	12:04:48	0.1760	0.155	30.141
11/09/01	12:04:49	0.1870	0.197	30.141
11/09/01	12:04:49	0.1980	0.200	30.141
11/09/01	12:04:50	0.2090	0.244	30.141

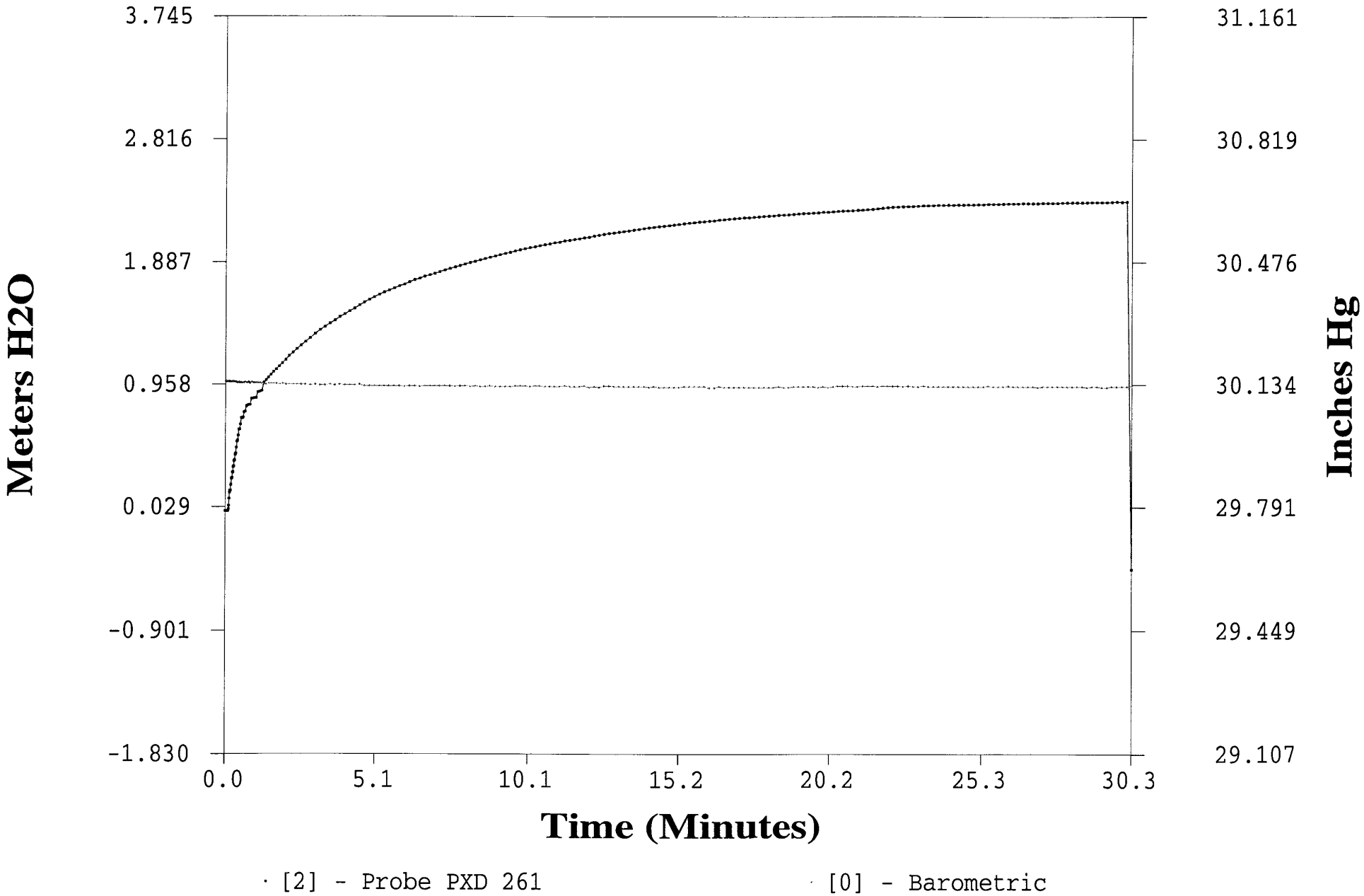
11/09/01	12:04:51	0.2200	0.247	30.141
11/09/01	12:04:51	0.2310	0.250	30.141
11/09/01	12:04:52	0.2427	0.290	30.141
11/09/01	12:04:53	0.2552	0.293	30.143
11/09/01	12:04:54	0.2683	0.333	30.141
11/09/01	12:04:54	0.2823	0.337	30.141
11/09/01	12:04:55	0.2972	0.379	30.141
11/09/01	12:04:56	0.3128	0.383	30.141
11/09/01	12:04:57	0.3295	0.426	30.141
11/09/01	12:04:58	0.3472	0.433	30.141
11/09/01	12:04:59	0.3658	0.478	30.141
11/09/01	12:05:01	0.3857	0.525	30.139
11/09/01	12:05:02	0.4067	0.535	30.139
11/09/01	12:05:03	0.4288	0.570	30.139
11/09/01	12:05:05	0.4523	0.615	30.141
11/09/01	12:05:06	0.4772	0.618	30.139
11/09/01	12:05:08	0.5035	0.656	30.139
11/09/01	12:05:09	0.5315	0.703	30.139
11/09/01	12:05:11	0.5612	0.703	30.139
11/09/01	12:05:13	0.5925	0.707	30.139
11/09/01	12:05:15	0.6257	0.748	30.139
11/09/01	12:05:17	0.6608	0.752	30.141
11/09/01	12:05:19	0.6982	0.793	30.139
11/09/01	12:05:22	0.7377	0.799	30.139
11/09/01	12:05:24	0.7795	0.802	30.141
11/09/01	12:05:27	0.8238	0.804	30.137
11/09/01	12:05:30	0.8708	0.850	30.141
11/09/01	12:05:33	0.9207	0.852	30.139
11/09/01	12:05:36	0.9733	0.855	30.139
11/09/01	12:05:39	1.0292	0.858	30.139
11/09/01	12:05:43	1.0883	0.900	30.139
11/09/01	12:05:47	1.1510	0.904	30.139
11/09/01	12:05:51	1.2173	0.910	30.137
11/09/01	12:05:55	1.2877	0.973	30.137
11/09/01	12:05:59	1.3622	0.993	30.135
11/09/01	12:06:04	1.4412	1.012	30.137
11/09/01	12:06:09	1.5248	1.032	30.137
11/09/01	12:06:14	1.6133	1.053	30.137
11/09/01	12:06:20	1.7072	1.075	30.137
11/09/01	12:06:26	1.8065	1.097	30.135
11/09/01	12:06:32	1.9118	1.121	30.137
11/09/01	12:06:39	2.0233	1.146	30.135
11/09/01	12:06:46	2.1415	1.176	30.135
11/09/01	12:06:54	2.2667	1.202	30.135
11/09/01	12:07:01	2.3992	1.229	30.135
11/09/01	12:07:10	2.5397	1.257	30.135
11/09/01	12:07:19	2.6885	1.285	30.135
11/09/01	12:07:28	2.8460	1.314	30.133
11/09/01	12:07:38	3.0127	1.345	30.135
11/09/01	12:07:48	3.1793	1.374	30.133
11/09/01	12:07:58	3.3460	1.399	30.133
11/09/01	12:08:08	3.5127	1.424	30.135
11/09/01	12:08:18	3.6793	1.447	30.133
11/09/01	12:08:28	3.8460	1.472	30.135
11/09/01	12:08:38	4.0127	1.493	30.133
11/09/01	12:08:48	4.1793	1.515	30.133
11/09/01	12:08:58	4.3460	1.537	30.133
11/09/01	12:09:08	4.5127	1.561	30.135
11/09/01	12:09:18	4.6793	1.582	30.131
11/09/01	12:09:28	4.8460	1.604	30.131
11/09/01	12:09:38	5.0127	1.624	30.131
11/09/01	12:09:48	5.1793	1.643	30.131
11/09/01	12:09:58	5.3460	1.660	30.131
11/09/01	12:10:08	5.5127	1.676	30.131
11/09/01	12:10:18	5.6793	1.692	30.131
11/09/01	12:10:28	5.8460	1.708	30.131
11/09/01	12:10:38	6.0127	1.721	30.129
11/09/01	12:10:48	6.1793	1.738	30.131
11/09/01	12:10:58	6.3460	1.754	30.131
11/09/01	12:11:08	6.5127	1.766	30.129

11/09/01	12:11:18	6.6793	1.780	30.131
11/09/01	12:11:28	6.8460	1.792	30.131
11/09/01	12:11:38	7.0127	1.803	30.131
11/09/01	12:11:48	7.1793	1.815	30.131
11/09/01	12:11:58	7.3460	1.828	30.131
11/09/01	12:12:08	7.5127	1.839	30.131
11/09/01	12:12:18	7.6793	1.850	30.129
11/09/01	12:12:28	7.8460	1.862	30.131
11/09/01	12:12:38	8.0127	1.873	30.131
11/09/01	12:12:48	8.1793	1.884	30.129
11/09/01	12:12:58	8.3460	1.894	30.131
11/09/01	12:13:08	8.5127	1.906	30.129
11/09/01	12:13:18	8.6793	1.915	30.129
11/09/01	12:13:28	8.8460	1.927	30.131
11/09/01	12:13:38	9.0127	1.935	30.129
11/09/01	12:13:48	9.1793	1.946	30.129
11/09/01	12:13:58	9.3460	1.956	30.129
11/09/01	12:14:08	9.5127	1.964	30.129
11/09/01	12:14:18	9.6793	1.974	30.131
11/09/01	12:14:28	9.8460	1.982	30.131
11/09/01	12:14:38	10.0127	1.991	30.131
11/09/01	12:14:48	10.1793	1.998	30.129
11/09/01	12:14:58	10.3460	2.005	30.131
11/09/01	12:15:08	10.5127	2.014	30.131
11/09/01	12:15:18	10.6793	2.021	30.129
11/09/01	12:15:28	10.8460	2.028	30.129
11/09/01	12:15:38	11.0127	2.036	30.129
11/09/01	12:15:48	11.1793	2.041	30.129
11/09/01	12:15:58	11.3460	2.050	30.131
11/09/01	12:16:08	11.5127	2.055	30.129
11/09/01	12:16:18	11.6793	2.061	30.129
11/09/01	12:16:28	11.8460	2.067	30.129
11/09/01	12:16:38	12.0127	2.075	30.131
11/09/01	12:16:48	12.1793	2.078	30.127
11/09/01	12:16:58	12.3460	2.088	30.129
11/09/01	12:17:08	12.5127	2.093	30.127
11/09/01	12:17:18	12.6793	2.100	30.131
11/09/01	12:17:28	12.8460	2.106	30.131
11/09/01	12:17:38	13.0127	2.111	30.129
11/09/01	12:17:48	13.1793	2.116	30.129
11/09/01	12:17:58	13.3460	2.122	30.129
11/09/01	12:18:08	13.5127	2.127	30.129
11/09/01	12:18:18	13.6793	2.132	30.129
11/09/01	12:18:28	13.8460	2.138	30.129
11/09/01	12:18:38	14.0127	2.143	30.129
11/09/01	12:18:48	14.1793	2.148	30.127
11/09/01	12:18:58	14.3460	2.153	30.129
11/09/01	12:19:08	14.5127	2.158	30.127
11/09/01	12:19:18	14.6793	2.162	30.127
11/09/01	12:19:28	14.8460	2.167	30.127
11/09/01	12:19:38	15.0127	2.171	30.127
11/09/01	12:19:48	15.1793	2.176	30.127
11/09/01	12:19:58	15.3460	2.181	30.129
11/09/01	12:20:08	15.5127	2.185	30.129
11/09/01	12:20:18	15.6793	2.189	30.129
11/09/01	12:20:28	15.8460	2.194	30.129
11/09/01	12:20:38	16.0127	2.197	30.129
11/09/01	12:20:48	16.1793	2.200	30.125
11/09/01	12:20:58	16.3460	2.204	30.125
11/09/01	12:21:08	16.5127	2.210	30.129
11/09/01	12:21:18	16.6793	2.212	30.127
11/09/01	12:21:28	16.8460	2.216	30.127
11/09/01	12:21:38	17.0127	2.219	30.127
11/09/01	12:21:48	17.1793	2.222	30.127
11/09/01	12:21:58	17.3460	2.225	30.127
11/09/01	12:22:08	17.5127	2.228	30.127
11/09/01	12:22:18	17.6793	2.231	30.127
11/09/01	12:22:28	17.8460	2.234	30.127
11/09/01	12:22:38	18.0127	2.238	30.127
11/09/01	12:22:48	18.1793	2.241	30.127

11/09/01	12:22:58	18.3460	2.243	30.127
11/09/01	12:23:08	18.5127	2.247	30.129
11/09/01	12:23:18	18.6793	2.249	30.127
11/09/01	12:23:28	18.8460	2.251	30.127
11/09/01	12:23:38	19.0127	2.254	30.129
11/09/01	12:23:48	19.1793	2.257	30.129
11/09/01	12:23:58	19.3460	2.259	30.129
11/09/01	12:24:08	19.5127	2.261	30.129
11/09/01	12:24:18	19.6793	2.263	30.129
11/09/01	12:24:28	19.8460	2.265	30.127
11/09/01	12:24:38	20.0127	2.269	30.129
11/09/01	12:24:48	20.1793	2.269	30.127
11/09/01	12:24:58	20.3460	2.272	30.129
11/09/01	12:25:08	20.5127	2.276	30.131
11/09/01	12:25:18	20.6793	2.277	30.131
11/09/01	12:25:28	20.8460	2.280	30.131
11/09/01	12:25:38	21.0127	2.281	30.129
11/09/01	12:25:48	21.1793	2.284	30.129
11/09/01	12:25:58	21.3460	2.285	30.131
11/09/01	12:26:08	21.5127	2.289	30.131
11/09/01	12:26:18	21.6793	2.292	30.131
11/09/01	12:26:28	21.8460	2.296	30.129
11/09/01	12:26:38	22.0127	2.300	30.131
11/09/01	12:26:48	22.1793	2.303	30.131
11/09/01	12:26:58	22.3460	2.306	30.131
11/09/01	12:27:08	22.5127	2.308	30.131
11/09/01	12:27:18	22.6793	2.310	30.129
11/09/01	12:27:28	22.8460	2.312	30.131
11/09/01	12:27:38	23.0127	2.313	30.129
11/09/01	12:27:48	23.1793	2.315	30.129
11/09/01	12:27:58	23.3460	2.317	30.131
11/09/01	12:28:08	23.5127	2.318	30.129
11/09/01	12:28:18	23.6793	2.319	30.129
11/09/01	12:28:28	23.8460	2.321	30.129
11/09/01	12:28:38	24.0127	2.321	30.129
11/09/01	12:28:48	24.1793	2.322	30.129
11/09/01	12:28:58	24.3460	2.323	30.129
11/09/01	12:29:08	24.5127	2.324	30.129
11/09/01	12:29:18	24.6793	2.324	30.129
11/09/01	12:29:28	24.8460	2.325	30.129
11/09/01	12:29:38	25.0127	2.326	30.129
11/09/01	12:29:48	25.1793	2.327	30.129
11/09/01	12:29:58	25.3460	2.328	30.129
11/09/01	12:30:08	25.5127	2.330	30.131
11/09/01	12:30:18	25.6793	2.330	30.129
11/09/01	12:30:28	25.8460	2.331	30.129
11/09/01	12:30:38	26.0127	2.332	30.129
11/09/01	12:30:48	26.1793	2.333	30.131
11/09/01	12:30:58	26.3460	2.333	30.129
11/09/01	12:31:08	26.5127	2.334	30.129
11/09/01	12:31:18	26.6793	2.335	30.129
11/09/01	12:31:28	26.8460	2.335	30.129
11/09/01	12:31:38	27.0127	2.336	30.129
11/09/01	12:31:48	27.1793	2.336	30.127
11/09/01	12:31:58	27.3460	2.338	30.129
11/09/01	12:32:08	27.5127	2.339	30.129
11/09/01	12:32:18	27.6793	2.339	30.129
11/09/01	12:32:28	27.8460	2.339	30.129
11/09/01	12:32:38	28.0127	2.340	30.129
11/09/01	12:32:48	28.1793	2.341	30.129
11/09/01	12:32:58	28.3460	2.342	30.129
11/09/01	12:33:08	28.5127	2.342	30.129
11/09/01	12:33:18	28.6793	2.342	30.129
11/09/01	12:33:28	28.8460	2.342	30.127
11/09/01	12:33:38	29.0127	2.343	30.129
11/09/01	12:33:48	29.1793	2.344	30.129
11/09/01	12:33:58	29.3460	2.344	30.127
11/09/01	12:34:08	29.5127	2.344	30.127
11/09/01	12:34:18	29.6793	2.346	30.129
11/09/01	12:34:28	29.8460	2.346	30.129

11/09/01	12:34:38	30.0127	2.346	30.129
11/09/01	12:34:48	30.1793	2.347	30.129
11/09/01	12:34:58	30.3460	-0.440	30.131

R 271 1S


3.745
2.816
1.887
0.958
0.029
-0.901
-1.830
Meters H2O
31.161
30.819
30.476
30.134
29.791
29.449
29.107
Inches Hg
0.0
5.1
10.1
15.2
20.2
25.3
30.3
Time (Minutes)
[2] - Probe PXD 261
[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 12/27/01 17:41:11
Report from file: C:\Win-Situ\Data\SN45671 2001-11-08 133339 DR 271 6S.bin
DataMgr Version 3.70

Serial number: 00045671
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: DR 271 6S

Test defined on: 11/08/01 09:24:35
Test started on: 11/08/01 13:33:39
Test stopped on: 11/08/01 13:48:24
Test extracted on: 11/08/01 15:50:29

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 139

TOTAL DATA SAMPLES 139

Channel number [2]
Measurement type: Pressure
Channel name: Probe PXD 261
Linearity: 0.0596000
Scale: 14.0748000
Offset: -0.1421000
Warmup: 50
Specific gravity: 1.000
Mode: Surface
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 2.278 Meters H2O
Baro Reference: 14.799 PSI

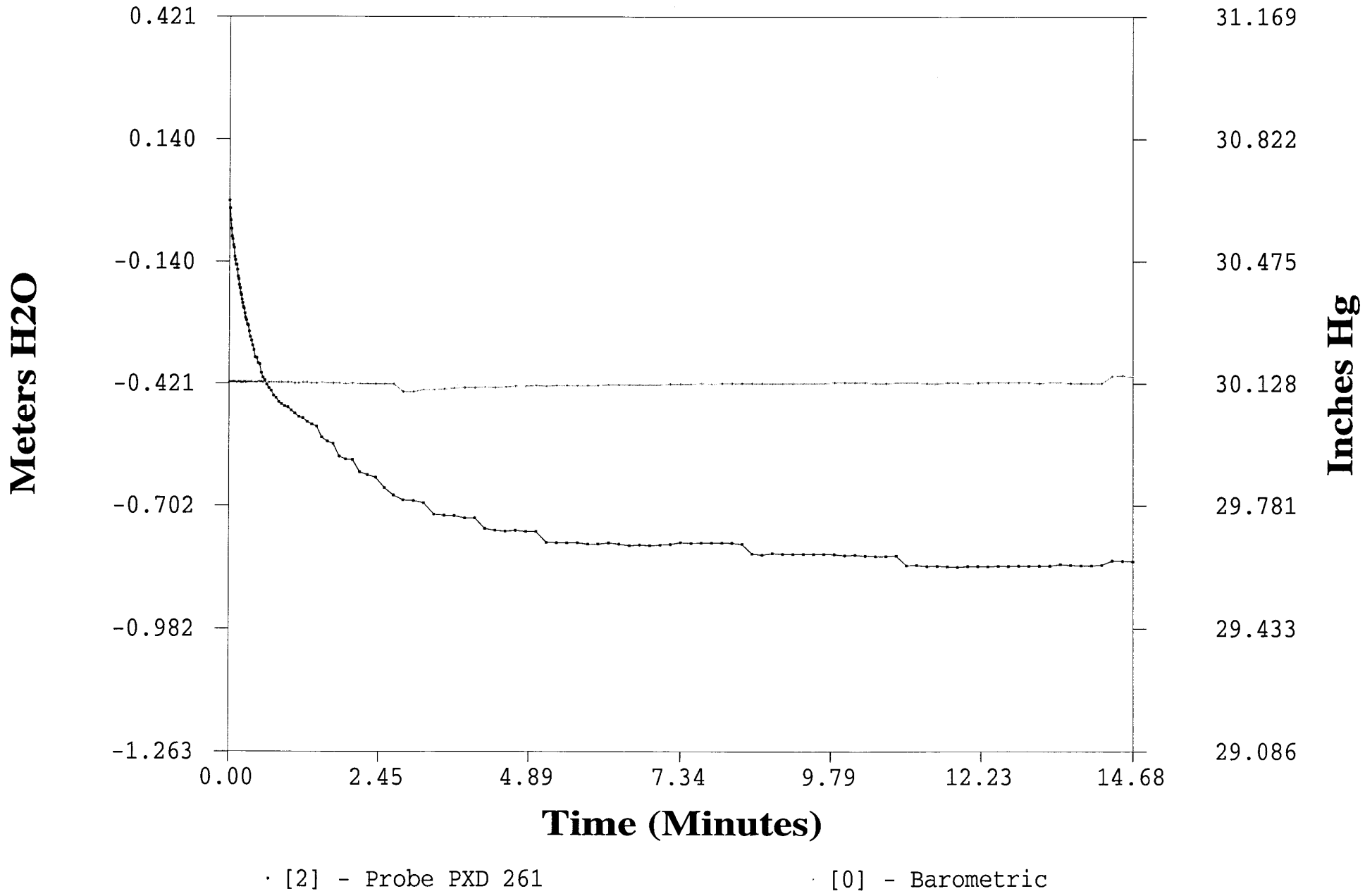
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[2] Meters H2O	Chan[0] Inches Hg
11/08/01	13:33:39	0.0000	0.000	30.131
11/08/01	13:33:39	0.0110	-0.018	30.133
11/08/01	13:33:40	0.0220	-0.046	30.133
11/08/01	13:33:40	0.0330	-0.064	30.131
11/08/01	13:33:41	0.0440	-0.082	30.133
11/08/01	13:33:42	0.0550	-0.089	30.133
11/08/01	13:33:42	0.0660	-0.103	30.133
11/08/01	13:33:43	0.0770	-0.108	30.133
11/08/01	13:33:44	0.0880	-0.129	30.133
11/08/01	13:33:44	0.0990	-0.137	30.133
11/08/01	13:33:45	0.1100	-0.147	30.133
11/08/01	13:33:46	0.1210	-0.147	30.131
11/08/01	13:33:46	0.1320	-0.159	30.131
11/08/01	13:33:47	0.1430	-0.175	30.133
11/08/01	13:33:48	0.1540	-0.180	30.133
11/08/01	13:33:48	0.1650	-0.194	30.133
11/08/01	13:33:49	0.1760	-0.201	30.133
11/08/01	13:33:50	0.1870	-0.213	30.131
11/08/01	13:33:50	0.1980	-0.217	30.133
11/08/01	13:33:51	0.2090	-0.228	30.129

11/08/01	13:33:52	0.2200	-0.235	30.131
11/08/01	13:33:52	0.2310	-0.245	30.131
11/08/01	13:33:53	0.2427	-0.248	30.133
11/08/01	13:33:54	0.2552	-0.260	30.133
11/08/01	13:33:55	0.2683	-0.270	30.131
11/08/01	13:33:55	0.2823	-0.275	30.133
11/08/01	13:33:56	0.2972	-0.284	30.131
11/08/01	13:33:57	0.3128	-0.287	30.133
11/08/01	13:33:58	0.3295	-0.301	30.133
11/08/01	13:33:59	0.3472	-0.314	30.131
11/08/01	13:34:00	0.3658	-0.322	30.133
11/08/01	13:34:02	0.3857	-0.333	30.131
11/08/01	13:34:03	0.4067	-0.344	30.131
11/08/01	13:34:04	0.4288	-0.361	30.131
11/08/01	13:34:06	0.4523	-0.362	30.131
11/08/01	13:34:07	0.4772	-0.374	30.133
11/08/01	13:34:09	0.5035	-0.377	30.133
11/08/01	13:34:10	0.5315	-0.396	30.133
11/08/01	13:34:12	0.5612	-0.407	30.131
11/08/01	13:34:14	0.5925	-0.413	30.131
11/08/01	13:34:16	0.6257	-0.423	30.129
11/08/01	13:34:18	0.6608	-0.431	30.131
11/08/01	13:34:20	0.6982	-0.437	30.131
11/08/01	13:34:23	0.7377	-0.449	30.131
11/08/01	13:34:25	0.7795	-0.454	30.131
11/08/01	13:34:28	0.8238	-0.463	30.131
11/08/01	13:34:31	0.8708	-0.468	30.131
11/08/01	13:34:34	0.9207	-0.473	30.131
11/08/01	13:34:37	0.9733	-0.475	30.131
11/08/01	13:34:40	1.0292	-0.483	30.131
11/08/01	13:34:44	1.0883	-0.490	30.129
11/08/01	13:34:48	1.1510	-0.498	30.129
11/08/01	13:34:52	1.2173	-0.501	30.131
11/08/01	13:34:56	1.2877	-0.509	30.131
11/08/01	13:35:00	1.3622	-0.514	30.129
11/08/01	13:35:05	1.4412	-0.519	30.129
11/08/01	13:35:10	1.5248	-0.545	30.131
11/08/01	13:35:15	1.6133	-0.554	30.129
11/08/01	13:35:21	1.7072	-0.560	30.129
11/08/01	13:35:27	1.8065	-0.589	30.129
11/08/01	13:35:33	1.9118	-0.595	30.127
11/08/01	13:35:40	2.0233	-0.596	30.129
11/08/01	13:35:47	2.1415	-0.625	30.127
11/08/01	13:35:55	2.2667	-0.631	30.127
11/08/01	13:36:02	2.3992	-0.636	30.127
11/08/01	13:36:11	2.5397	-0.661	30.127
11/08/01	13:36:20	2.6885	-0.677	30.127
11/08/01	13:36:29	2.8460	-0.689	30.104
11/08/01	13:36:39	3.0127	-0.690	30.104
11/08/01	13:36:49	3.1793	-0.695	30.110
11/08/01	13:36:59	3.3460	-0.721	30.110
11/08/01	13:37:09	3.5127	-0.724	30.112
11/08/01	13:37:19	3.6793	-0.725	30.114
11/08/01	13:37:29	3.8460	-0.730	30.117
11/08/01	13:37:39	4.0127	-0.730	30.117
11/08/01	13:37:49	4.1793	-0.754	30.119
11/08/01	13:37:59	4.3460	-0.758	30.117
11/08/01	13:38:09	4.5127	-0.760	30.119
11/08/01	13:38:19	4.6793	-0.758	30.121
11/08/01	13:38:29	4.8460	-0.761	30.121
11/08/01	13:38:39	5.0127	-0.760	30.123
11/08/01	13:38:49	5.1793	-0.785	30.121
11/08/01	13:38:59	5.3460	-0.786	30.123
11/08/01	13:39:09	5.5127	-0.787	30.123
11/08/01	13:39:19	5.6793	-0.786	30.123
11/08/01	13:39:29	5.8460	-0.790	30.123
11/08/01	13:39:39	6.0127	-0.790	30.123
11/08/01	13:39:49	6.1793	-0.786	30.125
11/08/01	13:39:59	6.3460	-0.790	30.125
11/08/01	13:40:09	6.5127	-0.793	30.125

11/08/01	13:40:19	6.6793	-0.791	30.125
11/08/01	13:40:29	6.8460	-0.793	30.125
11/08/01	13:40:39	7.0127	-0.791	30.125
11/08/01	13:40:49	7.1793	-0.790	30.127
11/08/01	13:40:59	7.3460	-0.786	30.127
11/08/01	13:41:09	7.5127	-0.788	30.127
11/08/01	13:41:19	7.6793	-0.786	30.129
11/08/01	13:41:29	7.8460	-0.786	30.127
11/08/01	13:41:39	8.0127	-0.786	30.129
11/08/01	13:41:49	8.1793	-0.787	30.129
11/08/01	13:41:59	8.3460	-0.789	30.129
11/08/01	13:42:09	8.5127	-0.811	30.129
11/08/01	13:42:19	8.6793	-0.814	30.129
11/08/01	13:42:29	8.8460	-0.810	30.129
11/08/01	13:42:39	9.0127	-0.812	30.129
11/08/01	13:42:49	9.1793	-0.812	30.129
11/08/01	13:42:59	9.3460	-0.812	30.129
11/08/01	13:43:09	9.5127	-0.812	30.129
11/08/01	13:43:19	9.6793	-0.812	30.129
11/08/01	13:43:29	9.8460	-0.813	30.131
11/08/01	13:43:39	10.0127	-0.815	30.131
11/08/01	13:43:49	10.1793	-0.814	30.131
11/08/01	13:43:59	10.3460	-0.816	30.131
11/08/01	13:44:09	10.5127	-0.817	30.129
11/08/01	13:44:19	10.6793	-0.817	30.129
11/08/01	13:44:29	10.8460	-0.816	30.131
11/08/01	13:44:39	11.0127	-0.838	30.131
11/08/01	13:44:49	11.1793	-0.838	30.131
11/08/01	13:44:59	11.3460	-0.840	30.129
11/08/01	13:45:09	11.5127	-0.840	30.129
11/08/01	13:45:19	11.6793	-0.841	30.131
11/08/01	13:45:29	11.8460	-0.842	30.131
11/08/01	13:45:39	12.0127	-0.840	30.129
11/08/01	13:45:49	12.1793	-0.840	30.131
11/08/01	13:45:59	12.3460	-0.841	30.131
11/08/01	13:46:09	12.5127	-0.839	30.131
11/08/01	13:46:19	12.6793	-0.840	30.131
11/08/01	13:46:29	12.8460	-0.839	30.131
11/08/01	13:46:39	13.0127	-0.839	30.131
11/08/01	13:46:49	13.1793	-0.839	30.129
11/08/01	13:46:59	13.3460	-0.839	30.131
11/08/01	13:47:09	13.5127	-0.836	30.131
11/08/01	13:47:19	13.6793	-0.838	30.129
11/08/01	13:47:29	13.8460	-0.838	30.129
11/08/01	13:47:39	14.0127	-0.838	30.129
11/08/01	13:47:49	14.1793	-0.837	30.129
11/08/01	13:47:59	14.3460	-0.828	30.149
11/08/01	13:48:09	14.5127	-0.828	30.151
11/08/01	13:48:19	14.6793	-0.829	30.147

DR 271 6S


0.421
0.140
-0.140
-0.421
-0.702
-0.982
-1.263
Meters H2O
31.169
30.822
30.475
30.128
29.781
29.433
29.086
Inches Hg
0.00
2.45
4.89
7.34
9.79
12.23
14.68
Time (Minutes)
[2] - Probe PXD 261
[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 12/27/01 17:46:54
Report from file: C:\Win-Situ\Data\SN45671 2001-11-08 134848 R 271 6S.bin
DataMgr Version 3.70

Serial number: 00045671
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: R 271 6S

Test defined on: 11/08/01 09:25:52
Test started on: 11/08/01 13:48:48
Test stopped on: 11/08/01 14:00:37
Test extracted on: 11/08/01 15:50:49

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 121

TOTAL DATA SAMPLES 121

Channel number [2]
Measurement type: Pressure
Channel name: Probe PXD 261
Linearity: 0.0596000
Scale: 14.0748000
Offset: -0.1421000
Warmup: 50
Specific gravity: 1.000
Mode: Surface
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 1.473 Meters H2O
Baro Reference: 14.803 PSI

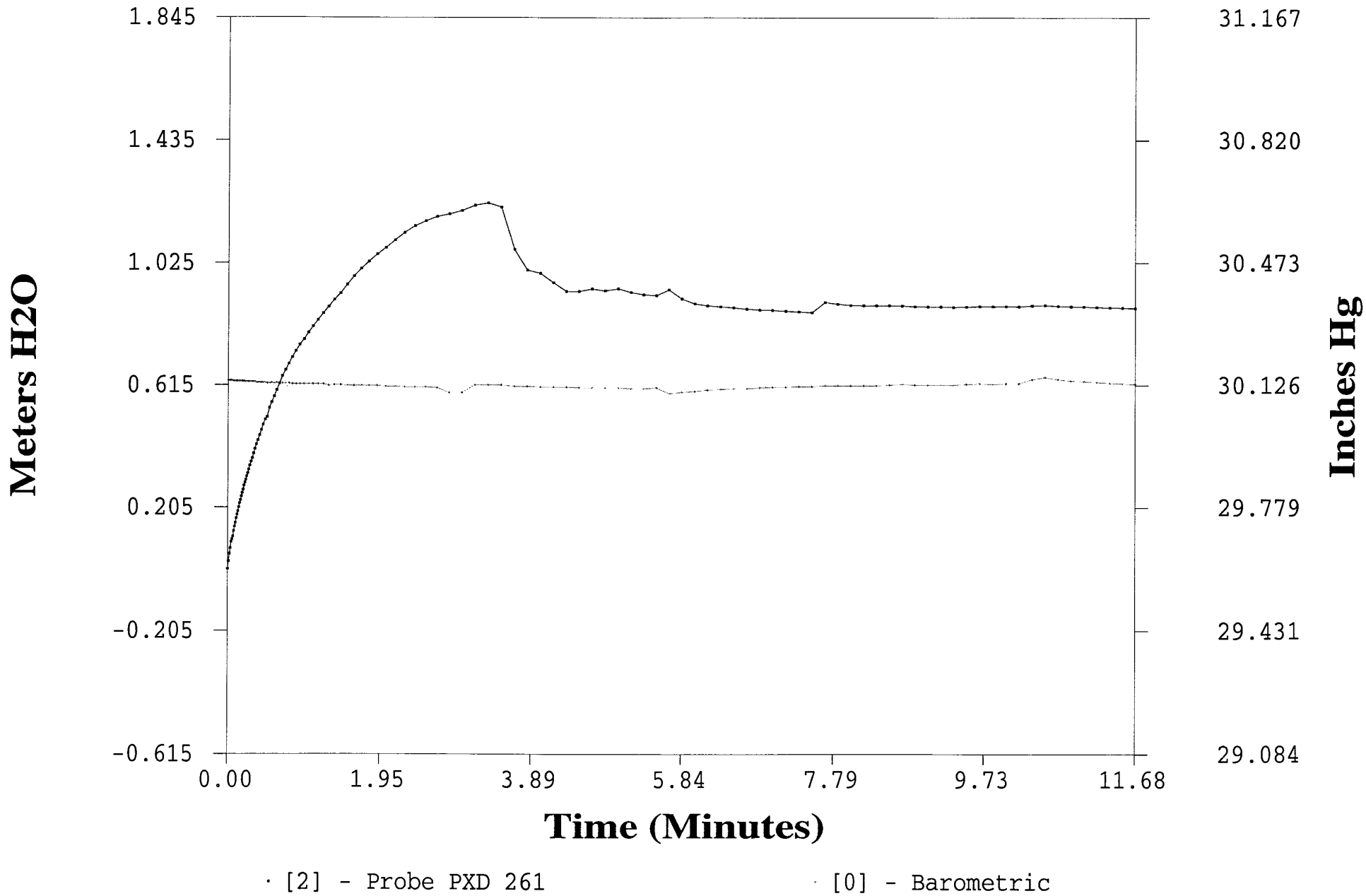
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[2] Meters H2O	Chan[0] Inches Hg
11/08/01	13:48:48	0.0000	0.000	30.139
11/08/01	13:48:48	0.0110	0.025	30.139
11/08/01	13:48:49	0.0220	0.050	30.139
11/08/01	13:48:49	0.0330	0.069	30.139
11/08/01	13:48:50	0.0440	0.090	30.139
11/08/01	13:48:51	0.0550	0.098	30.139
11/08/01	13:48:51	0.0660	0.108	30.137
11/08/01	13:48:52	0.0770	0.126	30.137
11/08/01	13:48:53	0.0880	0.141	30.137
11/08/01	13:48:53	0.0990	0.154	30.137
11/08/01	13:48:54	0.1100	0.168	30.137
11/08/01	13:48:55	0.1210	0.181	30.137
11/08/01	13:48:55	0.1320	0.192	30.137
11/08/01	13:48:56	0.1430	0.206	30.137
11/08/01	13:48:57	0.1540	0.219	30.137
11/08/01	13:48:57	0.1650	0.230	30.137
11/08/01	13:48:58	0.1760	0.241	30.137
11/08/01	13:48:59	0.1870	0.254	30.137
11/08/01	13:48:59	0.1980	0.264	30.135
11/08/01	13:49:00	0.2090	0.278	30.137

11/08/01	13:49:01	0.2200	0.288	30.135
11/08/01	13:49:01	0.2310	0.298	30.135
11/08/01	13:49:02	0.2427	0.309	30.135
11/08/01	13:49:03	0.2552	0.320	30.135
11/08/01	13:49:04	0.2683	0.332	30.135
11/08/01	13:49:04	0.2823	0.345	30.135
11/08/01	13:49:05	0.2972	0.358	30.135
11/08/01	13:49:06	0.3128	0.370	30.135
11/08/01	13:49:07	0.3295	0.386	30.135
11/08/01	13:49:08	0.3472	0.401	30.135
11/08/01	13:49:09	0.3658	0.415	30.133
11/08/01	13:49:11	0.3857	0.430	30.133
11/08/01	13:49:12	0.4067	0.447	30.133
11/08/01	13:49:13	0.4288	0.464	30.133
11/08/01	13:49:15	0.4523	0.482	30.133
11/08/01	13:49:16	0.4772	0.500	30.133
11/08/01	13:49:18	0.5035	0.508	30.131
11/08/01	13:49:19	0.5315	0.539	30.131
11/08/01	13:49:21	0.5612	0.557	30.133
11/08/01	13:49:23	0.5925	0.577	30.131
11/08/01	13:49:25	0.6257	0.598	30.133
11/08/01	13:49:27	0.6608	0.620	30.131
11/08/01	13:49:29	0.6982	0.645	30.131
11/08/01	13:49:32	0.7377	0.666	30.131
11/08/01	13:49:34	0.7795	0.687	30.131
11/08/01	13:49:37	0.8238	0.708	30.129
11/08/01	13:49:40	0.8708	0.730	30.129
11/08/01	13:49:43	0.9207	0.750	30.129
11/08/01	13:49:46	0.9733	0.769	30.129
11/08/01	13:49:49	1.0292	0.791	30.129
11/08/01	13:49:53	1.0883	0.812	30.129
11/08/01	13:49:57	1.1510	0.834	30.129
11/08/01	13:50:01	1.2173	0.857	30.129
11/08/01	13:50:05	1.2877	0.879	30.125
11/08/01	13:50:09	1.3622	0.902	30.127
11/08/01	13:50:14	1.4412	0.924	30.127
11/08/01	13:50:19	1.5248	0.953	30.125
11/08/01	13:50:24	1.6133	0.981	30.125
11/08/01	13:50:30	1.7072	1.006	30.125
11/08/01	13:50:36	1.8065	1.030	30.125
11/08/01	13:50:42	1.9118	1.055	30.125
11/08/01	13:50:49	2.0233	1.077	30.123
11/08/01	13:50:56	2.1415	1.102	30.123
11/08/01	13:51:04	2.2667	1.127	30.121
11/08/01	13:51:11	2.3992	1.149	30.121
11/08/01	13:51:20	2.5397	1.165	30.121
11/08/01	13:51:29	2.6885	1.180	30.119
11/08/01	13:51:38	2.8460	1.189	30.104
11/08/01	13:51:48	3.0127	1.200	30.104
11/08/01	13:51:58	3.1793	1.218	30.127
11/08/01	13:52:08	3.3460	1.226	30.127
11/08/01	13:52:18	3.5127	1.211	30.127
11/08/01	13:52:28	3.6793	1.070	30.123
11/08/01	13:52:38	3.8460	1.001	30.123
11/08/01	13:52:48	4.0127	0.991	30.121
11/08/01	13:52:58	4.1793	0.959	30.121
11/08/01	13:53:08	4.3460	0.930	30.121
11/08/01	13:53:18	4.5127	0.930	30.119
11/08/01	13:53:28	4.6793	0.938	30.119
11/08/01	13:53:38	4.8460	0.932	30.119
11/08/01	13:53:48	5.0127	0.940	30.119
11/08/01	13:53:58	5.1793	0.927	30.117
11/08/01	13:54:08	5.3460	0.919	30.117
11/08/01	13:54:18	5.5127	0.917	30.119
11/08/01	13:54:28	5.6793	0.936	30.102
11/08/01	13:54:38	5.8460	0.905	30.106
11/08/01	13:54:48	6.0127	0.889	30.108
11/08/01	13:54:58	6.1793	0.882	30.112
11/08/01	13:55:08	6.3460	0.879	30.114
11/08/01	13:55:18	6.5127	0.875	30.117

11/08/01	13:55:28	6.6793	0.871	30.117
11/08/01	13:55:38	6.8460	0.868	30.119
11/08/01	13:55:48	7.0127	0.867	30.121
11/08/01	13:55:58	7.1793	0.864	30.121
11/08/01	13:56:08	7.3460	0.862	30.123
11/08/01	13:56:18	7.5127	0.860	30.123
11/08/01	13:56:28	7.6793	0.894	30.125
11/08/01	13:56:38	7.8460	0.888	30.125
11/08/01	13:56:48	8.0127	0.884	30.125
11/08/01	13:56:58	8.1793	0.883	30.125
11/08/01	13:57:08	8.3460	0.883	30.125
11/08/01	13:57:18	8.5127	0.883	30.127
11/08/01	13:57:28	8.6793	0.882	30.129
11/08/01	13:57:38	8.8460	0.880	30.127
11/08/01	13:57:48	9.0127	0.879	30.127
11/08/01	13:57:58	9.1793	0.879	30.127
11/08/01	13:58:08	9.3460	0.877	30.127
11/08/01	13:58:18	9.5127	0.878	30.129
11/08/01	13:58:28	9.6793	0.880	30.131
11/08/01	13:58:38	9.8460	0.879	30.129
11/08/01	13:58:48	10.0127	0.880	30.131
11/08/01	13:58:58	10.1793	0.879	30.131
11/08/01	13:59:08	10.3460	0.882	30.143
11/08/01	13:59:18	10.5127	0.884	30.149
11/08/01	13:59:28	10.6793	0.881	30.143
11/08/01	13:59:38	10.8460	0.880	30.139
11/08/01	13:59:48	11.0127	0.879	30.137
11/08/01	13:59:58	11.1793	0.878	30.135
11/08/01	14:00:08	11.3460	0.876	30.133
11/08/01	14:00:18	11.5127	0.875	30.131
11/08/01	14:00:28	11.6793	0.874	30.129

R 271 6S


1.845
1.435
1.025
0.615
0.205
-0.205
-0.615
Meters H2O
31.167
30.820
30.473
30.126
29.779
29.431
29.084
Inches Hg
0.00
1.95
3.89
5.84
7.79
9.73
11.68
Time (Minutes)
[2] - Probe PXD 261
[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 12/27/01 17:54:53
Report from file: C:\Win-Situ\Data\SN45671 2001-11-09 100837 DR 271 11S.bin
DataMgr Version 3.70

Serial number: 00045671
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: DR 271 11S

Test defined on: 11/08/01 09:26:43
Test started on: 11/09/01 10:08:37
Test stopped on: 11/09/01 10:25:59
Test extracted on: 11/09/01 14:40:05

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 154

TOTAL DATA SAMPLES 154

Channel number [2]
Measurement type: Pressure
Channel name: Probe PXD 261
Linearity: 0.0596000
Scale: 14.0748000
Offset: -0.1421000
Warmup: 50
Specific gravity: 1.000
Mode: Surface
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 1.411 Meters H2O
Baro Reference: 14.822 PSI

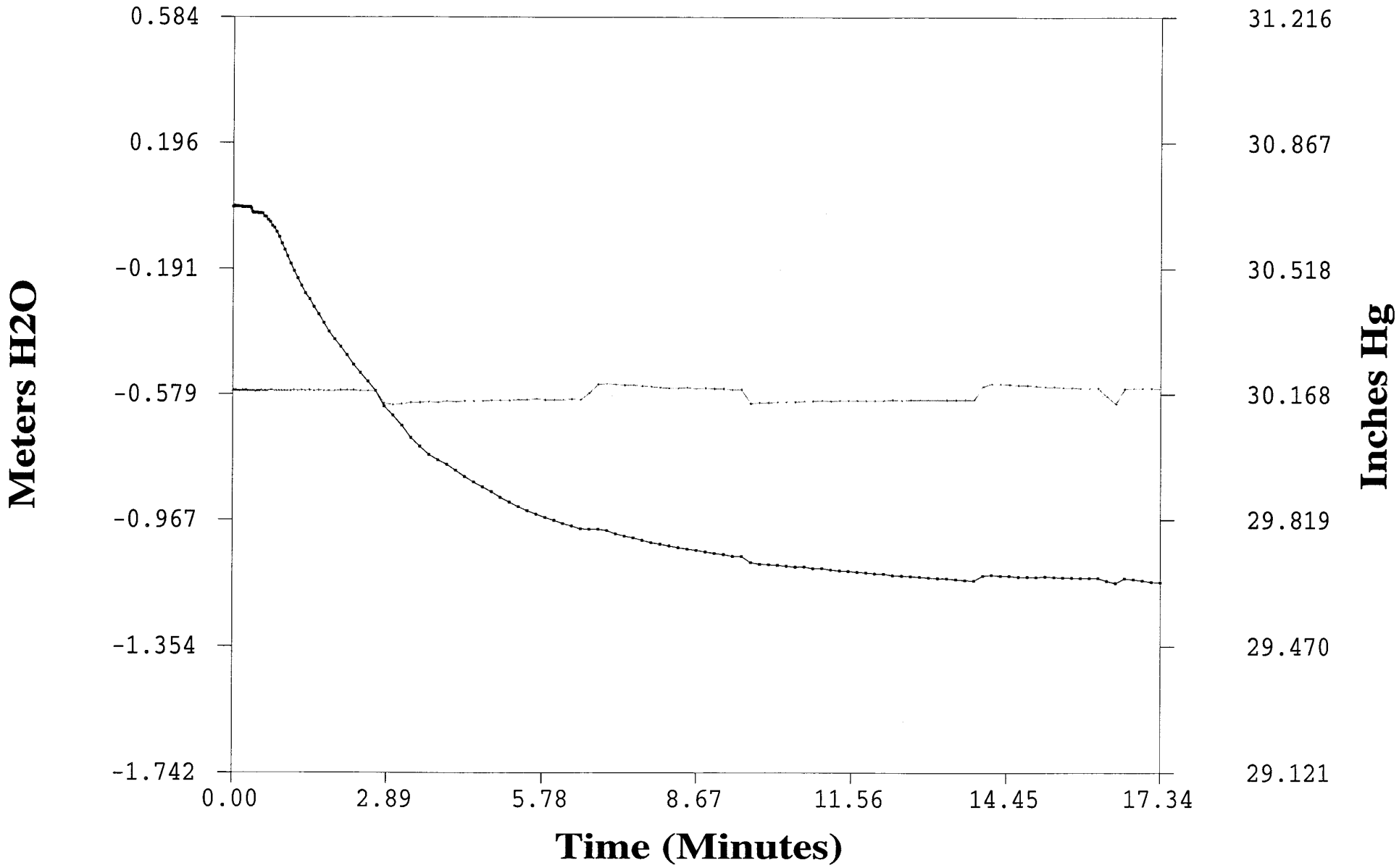
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[2] Meters H2O	Chan[0] Inches Hg
11/09/01	10:08:37	0.0000	0.000	30.178
11/09/01	10:08:37	0.0112	0.000	30.178
11/09/01	10:08:38	0.0223	0.003	30.180
11/09/01	10:08:39	0.0335	0.001	30.180
11/09/01	10:08:39	0.0447	0.001	30.178
11/09/01	10:08:40	0.0558	0.001	30.178
11/09/01	10:08:41	0.0670	0.002	30.180
11/09/01	10:08:41	0.0782	0.001	30.178
11/09/01	10:08:42	0.0893	0.001	30.178
11/09/01	10:08:43	0.1005	0.001	30.178
11/09/01	10:08:43	0.1117	0.001	30.178
11/09/01	10:08:44	0.1228	0.001	30.178
11/09/01	10:08:45	0.1340	0.001	30.178
11/09/01	10:08:45	0.1452	0.001	30.178
11/09/01	10:08:46	0.1563	0.001	30.178
11/09/01	10:08:47	0.1675	-0.001	30.178
11/09/01	10:08:47	0.1787	-0.002	30.180
11/09/01	10:08:48	0.1898	-0.002	30.180
11/09/01	10:08:49	0.2010	-0.002	30.178
11/09/01	10:08:49	0.2122	-0.002	30.178

11/09/01	10:08:50	0.2233	-0.001	30.180
11/09/01	10:08:51	0.2350	-0.001	30.180
11/09/01	10:08:51	0.2475	-0.001	30.180
11/09/01	10:08:52	0.2607	-0.001	30.180
11/09/01	10:08:53	0.2747	-0.001	30.178
11/09/01	10:08:54	0.2895	-0.001	30.178
11/09/01	10:08:55	0.3052	-0.001	30.178
11/09/01	10:08:56	0.3218	-0.001	30.178
11/09/01	10:08:57	0.3395	-0.007	30.178
11/09/01	10:08:58	0.3582	-0.015	30.178
11/09/01	10:08:59	0.3780	-0.019	30.178
11/09/01	10:09:00	0.3990	-0.019	30.178
11/09/01	10:09:02	0.4212	-0.019	30.176
11/09/01	10:09:03	0.4447	-0.019	30.178
11/09/01	10:09:05	0.4695	-0.020	30.178
11/09/01	10:09:06	0.4958	-0.020	30.178
11/09/01	10:09:08	0.5238	-0.020	30.180
11/09/01	10:09:10	0.5535	-0.021	30.178
11/09/01	10:09:12	0.5848	-0.030	30.178
11/09/01	10:09:14	0.6180	-0.031	30.178
11/09/01	10:09:16	0.6532	-0.040	30.178
11/09/01	10:09:18	0.6905	-0.046	30.180
11/09/01	10:09:20	0.7300	-0.059	30.180
11/09/01	10:09:23	0.7718	-0.065	30.178
11/09/01	10:09:25	0.8162	-0.077	30.178
11/09/01	10:09:28	0.8632	-0.093	30.178
11/09/01	10:09:31	0.9130	-0.113	30.178
11/09/01	10:09:34	0.9657	-0.133	30.178
11/09/01	10:09:38	1.0215	-0.153	30.178
11/09/01	10:09:41	1.0807	-0.176	30.178
11/09/01	10:09:45	1.1433	-0.197	30.180
11/09/01	10:09:49	1.2097	-0.220	30.178
11/09/01	10:09:53	1.2800	-0.243	30.180
11/09/01	10:09:58	1.3545	-0.267	30.178
11/09/01	10:10:03	1.4335	-0.285	30.180
11/09/01	10:10:08	1.5172	-0.309	30.178
11/09/01	10:10:13	1.6057	-0.332	30.180
11/09/01	10:10:18	1.6995	-0.359	30.178
11/09/01	10:10:24	1.7988	-0.385	30.178
11/09/01	10:10:31	1.9042	-0.409	30.178
11/09/01	10:10:37	2.0157	-0.432	30.180
11/09/01	10:10:45	2.1338	-0.458	30.180
11/09/01	10:10:52	2.2590	-0.487	30.180
11/09/01	10:11:00	2.3915	-0.513	30.178
11/09/01	10:11:08	2.5320	-0.540	30.178
11/09/01	10:11:17	2.6808	-0.568	30.178
11/09/01	10:11:27	2.8383	-0.616	30.143
11/09/01	10:11:37	3.0050	-0.645	30.139
11/09/01	10:11:47	3.1717	-0.676	30.141
11/09/01	10:11:57	3.3383	-0.714	30.145
11/09/01	10:12:07	3.5050	-0.741	30.145
11/09/01	10:12:17	3.6717	-0.766	30.147
11/09/01	10:12:27	3.8383	-0.782	30.145
11/09/01	10:12:37	4.0050	-0.797	30.149
11/09/01	10:12:47	4.1717	-0.815	30.147
11/09/01	10:12:57	4.3383	-0.834	30.149
11/09/01	10:13:07	4.5050	-0.851	30.149
11/09/01	10:13:17	4.6717	-0.865	30.149
11/09/01	10:13:27	4.8383	-0.880	30.151
11/09/01	10:13:37	5.0050	-0.898	30.151
11/09/01	10:13:47	5.1717	-0.912	30.151
11/09/01	10:13:57	5.3383	-0.926	30.153
11/09/01	10:14:07	5.5050	-0.939	30.153
11/09/01	10:14:17	5.6717	-0.949	30.155
11/09/01	10:14:27	5.8383	-0.960	30.153
11/09/01	10:14:37	6.0050	-0.969	30.153
11/09/01	10:14:47	6.1717	-0.978	30.153
11/09/01	10:14:57	6.3383	-0.986	30.155
11/09/01	10:15:07	6.5050	-0.995	30.153
11/09/01	10:15:17	6.6717	-0.996	30.171

11/09/01	10:15:27	6.8383	-0.996	30.196
11/09/01	10:15:37	7.0050	-1.000	30.198
11/09/01	10:15:47	7.1717	-1.010	30.196
11/09/01	10:15:57	7.3383	-1.017	30.194
11/09/01	10:16:07	7.5050	-1.022	30.194
11/09/01	10:16:17	7.6717	-1.029	30.192
11/09/01	10:16:27	7.8383	-1.037	30.190
11/09/01	10:16:37	8.0050	-1.041	30.188
11/09/01	10:16:47	8.1717	-1.047	30.186
11/09/01	10:16:57	8.3383	-1.053	30.186
11/09/01	10:17:07	8.5050	-1.056	30.188
11/09/01	10:17:17	8.6717	-1.061	30.184
11/09/01	10:17:27	8.8383	-1.065	30.186
11/09/01	10:17:37	9.0050	-1.070	30.184
11/09/01	10:17:47	9.1717	-1.073	30.184
11/09/01	10:17:57	9.3383	-1.079	30.182
11/09/01	10:18:07	9.5050	-1.079	30.182
11/09/01	10:18:17	9.6717	-1.098	30.143
11/09/01	10:18:27	9.8383	-1.103	30.145
11/09/01	10:18:37	10.0050	-1.104	30.145
11/09/01	10:18:47	10.1717	-1.106	30.147
11/09/01	10:18:57	10.3383	-1.109	30.147
11/09/01	10:19:07	10.5050	-1.112	30.147
11/09/01	10:19:17	10.6717	-1.111	30.149
11/09/01	10:19:27	10.8383	-1.116	30.149
11/09/01	10:19:37	11.0050	-1.116	30.151
11/09/01	10:19:47	11.1717	-1.120	30.149
11/09/01	10:19:57	11.3383	-1.123	30.151
11/09/01	10:20:07	11.5050	-1.125	30.151
11/09/01	10:20:17	11.6717	-1.127	30.151
11/09/01	10:20:27	11.8383	-1.129	30.151
11/09/01	10:20:37	12.0050	-1.131	30.151
11/09/01	10:20:47	12.1717	-1.133	30.151
11/09/01	10:20:57	12.3383	-1.137	30.153
11/09/01	10:21:07	12.5050	-1.138	30.151
11/09/01	10:21:17	12.6717	-1.140	30.153
11/09/01	10:21:27	12.8383	-1.142	30.153
11/09/01	10:21:37	13.0050	-1.144	30.153
11/09/01	10:21:47	13.1717	-1.145	30.153
11/09/01	10:21:57	13.3383	-1.147	30.153
11/09/01	10:22:07	13.5050	-1.149	30.153
11/09/01	10:22:17	13.6717	-1.152	30.153
11/09/01	10:22:27	13.8383	-1.153	30.153
11/09/01	10:22:37	14.0050	-1.138	30.190
11/09/01	10:22:47	14.1717	-1.136	30.198
11/09/01	10:22:57	14.3383	-1.138	30.198
11/09/01	10:23:07	14.5050	-1.139	30.196
11/09/01	10:23:17	14.6717	-1.142	30.194
11/09/01	10:23:27	14.8383	-1.142	30.194
11/09/01	10:23:37	15.0050	-1.143	30.192
11/09/01	10:23:47	15.1717	-1.140	30.190
11/09/01	10:23:57	15.3383	-1.143	30.190
11/09/01	10:24:07	15.5050	-1.144	30.188
11/09/01	10:24:17	15.6717	-1.145	30.188
11/09/01	10:24:27	15.8383	-1.145	30.186
11/09/01	10:24:37	16.0050	-1.145	30.186
11/09/01	10:24:47	16.1717	-1.145	30.186
11/09/01	10:24:57	16.3383	-1.154	30.163
11/09/01	10:25:07	16.5050	-1.161	30.143
11/09/01	10:25:17	16.6717	-1.147	30.184
11/09/01	10:25:27	16.8383	-1.149	30.186
11/09/01	10:25:37	17.0050	-1.152	30.186
11/09/01	10:25:47	17.1717	-1.157	30.186
11/09/01	10:25:57	17.3383	-1.158	30.184

DR 271 11S


0.584
0.196
-0.191
-0.579
-0.967
-1.354
-1.742
Meters H2O
31.216
30.867
30.518
30.168
29.819
29.470
29.121
Inches Hg
0.00
2.89
5.78
8.67
11.56
14.45
17.34
Time (Minutes)
[2] - Probe PXD 261
[0] - Barometric

In-Situ Inc. Hermit 3000

Report generated: 12/27/01 17:55:49
Report from file: C:\Win-Situ\Data\SN45671 2001-11-09 102808 R 271 11S.bin
DataMgr Version 3.70

Serial number: 00045671
Firmware Version 7.10
Unit name: HERMIT 3000

Test name: R 271 11S

Test defined on: 11/08/01 09:27:52
Test started on: 11/09/01 10:28:08
Test stopped on: 11/09/01 10:41:33
Test extracted on: 11/09/01 14:40:24

Data gathered using Logarithmic testing
Maximum time between data points: 0.1667 Minutes.
Number of data samples: 130

TOTAL DATA SAMPLES 130

Channel number [2]
Measurement type: Pressure
Channel name: Probe PXD 261
Linearity: 0.0596000
Scale: 14.0748000
Offset: -0.1421000
Warmup: 50
Specific gravity: 1.000
Mode: Surface
User-defined reference: 0.000 Meters H2O
Referenced on: test start
Pressure head at reference: 0.231 Meters H2O
Baro Reference: 14.823 PSI

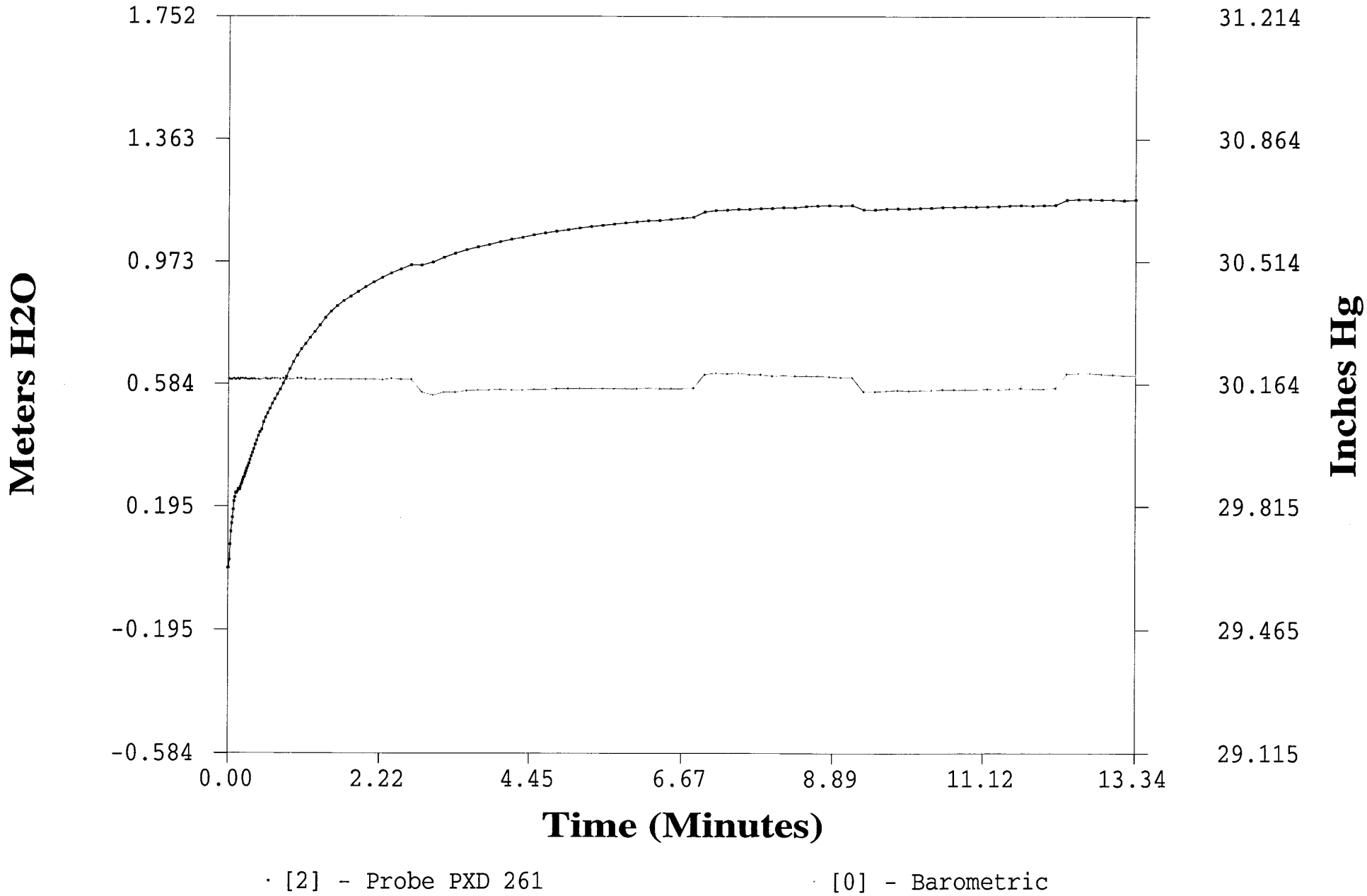
Channel number [0]
Measurement type: Barometric Pressure
Channel name: Barometric
Linearity: 0.0000000
Scale: 0.0000000
Offset: 0.0000000
Warmup: 50

Date	Time	ET (min)	Chan[2] Meters H2O	Chan[0] Inches Hg
11/09/01	10:28:08	0.0000	0.000	30.180
11/09/01	10:28:08	0.0113	0.001	30.180
11/09/01	10:28:09	0.0227	0.026	30.178
11/09/01	10:28:10	0.0340	0.074	30.178
11/09/01	10:28:10	0.0453	0.114	30.178
11/09/01	10:28:11	0.0567	0.140	30.178
11/09/01	10:28:12	0.0680	0.159	30.178
11/09/01	10:28:12	0.0793	0.184	30.180
11/09/01	10:28:13	0.0907	0.210	30.180
11/09/01	10:28:14	0.1020	0.223	30.178
11/09/01	10:28:14	0.1133	0.238	30.178
11/09/01	10:28:15	0.1247	0.237	30.178
11/09/01	10:28:16	0.1360	0.240	30.180
11/09/01	10:28:16	0.1473	0.249	30.180
11/09/01	10:28:17	0.1587	0.247	30.178
11/09/01	10:28:18	0.1700	0.247	30.178
11/09/01	10:28:18	0.1813	0.255	30.180
11/09/01	10:28:19	0.1927	0.264	30.180
11/09/01	10:28:20	0.2040	0.269	30.180
11/09/01	10:28:20	0.2153	0.277	30.180

11/09/01	10:28:21	0.2267	0.285	30.180
11/09/01	10:28:22	0.2383	0.289	30.178
11/09/01	10:28:23	0.2508	0.298	30.180
11/09/01	10:28:23	0.2640	0.306	30.180
11/09/01	10:28:24	0.2780	0.314	30.178
11/09/01	10:28:25	0.2928	0.321	30.178
11/09/01	10:28:26	0.3085	0.331	30.178
11/09/01	10:28:27	0.3252	0.342	30.178
11/09/01	10:28:28	0.3428	0.353	30.180
11/09/01	10:28:29	0.3615	0.364	30.178
11/09/01	10:28:30	0.3813	0.377	30.180
11/09/01	10:28:32	0.4023	0.390	30.178
11/09/01	10:28:33	0.4245	0.403	30.178
11/09/01	10:28:34	0.4480	0.418	30.178
11/09/01	10:28:36	0.4728	0.430	30.176
11/09/01	10:28:37	0.4992	0.439	30.178
11/09/01	10:28:39	0.5272	0.462	30.180
11/09/01	10:28:41	0.5568	0.477	30.180
11/09/01	10:28:43	0.5882	0.491	30.178
11/09/01	10:28:45	0.6213	0.505	30.178
11/09/01	10:28:47	0.6565	0.521	30.180
11/09/01	10:28:49	0.6938	0.535	30.180
11/09/01	10:28:52	0.7333	0.551	30.180
11/09/01	10:28:54	0.7752	0.566	30.178
11/09/01	10:28:57	0.8195	0.585	30.180
11/09/01	10:28:59	0.8665	0.606	30.178
11/09/01	10:29:02	0.9163	0.630	30.178
11/09/01	10:29:06	0.9690	0.653	30.178
11/09/01	10:29:09	1.0248	0.674	30.180
11/09/01	10:29:13	1.0840	0.694	30.180
11/09/01	10:29:16	1.1467	0.711	30.178
11/09/01	10:29:20	1.2130	0.731	30.178
11/09/01	10:29:25	1.2833	0.749	30.178
11/09/01	10:29:29	1.3578	0.770	30.176
11/09/01	10:29:34	1.4368	0.794	30.178
11/09/01	10:29:39	1.5205	0.814	30.178
11/09/01	10:29:44	1.6090	0.832	30.178
11/09/01	10:29:50	1.7028	0.848	30.178
11/09/01	10:29:56	1.8022	0.862	30.178
11/09/01	10:30:02	1.9075	0.877	30.178
11/09/01	10:30:09	2.0190	0.893	30.178
11/09/01	10:30:16	2.1372	0.908	30.178
11/09/01	10:30:23	2.2623	0.923	30.176
11/09/01	10:30:31	2.3948	0.936	30.180
11/09/01	10:30:40	2.5353	0.949	30.178
11/09/01	10:30:49	2.6842	0.963	30.178
11/09/01	10:30:58	2.8417	0.962	30.141
11/09/01	10:31:08	3.0083	0.972	30.133
11/09/01	10:31:18	3.1750	0.987	30.141
11/09/01	10:31:28	3.3417	1.000	30.141
11/09/01	10:31:38	3.5083	1.011	30.145
11/09/01	10:31:48	3.6750	1.020	30.147
11/09/01	10:31:58	3.8417	1.028	30.147
11/09/01	10:32:08	4.0083	1.037	30.149
11/09/01	10:32:18	4.1750	1.045	30.147
11/09/01	10:32:28	4.3417	1.051	30.147
11/09/01	10:32:38	4.5083	1.058	30.149
11/09/01	10:32:48	4.6750	1.065	30.149
11/09/01	10:32:58	4.8417	1.070	30.151
11/09/01	10:33:08	5.0083	1.075	30.151
11/09/01	10:33:18	5.1750	1.080	30.151
11/09/01	10:33:28	5.3417	1.085	30.151
11/09/01	10:33:38	5.5083	1.089	30.151
11/09/01	10:33:48	5.6750	1.093	30.151
11/09/01	10:33:58	5.8417	1.097	30.151
11/09/01	10:34:08	6.0083	1.101	30.151
11/09/01	10:34:18	6.1750	1.104	30.153
11/09/01	10:34:28	6.3417	1.105	30.151
11/09/01	10:34:38	6.5083	1.109	30.151
11/09/01	10:34:48	6.6750	1.112	30.151

11/09/01	10:34:58	6.8417	1.115	30.153
11/09/01	10:35:08	7.0083	1.132	30.192
11/09/01	10:35:18	7.1750	1.137	30.196
11/09/01	10:35:28	7.3417	1.138	30.194
11/09/01	10:35:38	7.5083	1.141	30.196
11/09/01	10:35:48	7.6750	1.141	30.192
11/09/01	10:35:58	7.8417	1.143	30.192
11/09/01	10:36:08	8.0083	1.144	30.188
11/09/01	10:36:18	8.1750	1.146	30.190
11/09/01	10:36:28	8.3417	1.146	30.188
11/09/01	10:36:38	8.5083	1.150	30.188
11/09/01	10:36:48	8.6750	1.152	30.188
11/09/01	10:36:58	8.8417	1.152	30.186
11/09/01	10:37:08	9.0083	1.152	30.184
11/09/01	10:37:18	9.1750	1.153	30.184
11/09/01	10:37:28	9.3417	1.139	30.143
11/09/01	10:37:38	9.5083	1.139	30.143
11/09/01	10:37:48	9.6750	1.142	30.145
11/09/01	10:37:58	9.8417	1.143	30.147
11/09/01	10:38:08	10.0083	1.143	30.145
11/09/01	10:38:18	10.1750	1.144	30.147
11/09/01	10:38:28	10.3417	1.146	30.147
11/09/01	10:38:38	10.5083	1.148	30.149
11/09/01	10:38:48	10.6750	1.148	30.149
11/09/01	10:38:58	10.8417	1.149	30.149
11/09/01	10:39:08	11.0083	1.149	30.149
11/09/01	10:39:18	11.1750	1.150	30.151
11/09/01	10:39:28	11.3417	1.151	30.149
11/09/01	10:39:38	11.5083	1.153	30.151
11/09/01	10:39:48	11.6750	1.154	30.153
11/09/01	10:39:58	11.8417	1.153	30.151
11/09/01	10:40:08	12.0083	1.154	30.151
11/09/01	10:40:18	12.1750	1.154	30.153
11/09/01	10:40:28	12.3417	1.170	30.194
11/09/01	10:40:38	12.5083	1.172	30.196
11/09/01	10:40:48	12.6750	1.172	30.196
11/09/01	10:40:58	12.8417	1.172	30.194
11/09/01	10:41:08	13.0083	1.172	30.192
11/09/01	10:41:18	13.1750	1.170	30.190
11/09/01	10:41:28	13.3417	1.171	30.190

R 271 11S


1.752
1.363
0.973
0.584
0.195
-0.195
-0.584
Meters H2O
31.214
30.864
30.514
30.164
29.815
29.465
29.115
Inches Hg
0.00
2.22
4.45
6.67
8.89
11.12
13.34
Time (Minutes)
[2] - Probe PXD 261
[0] - Barometric