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NAS CECIL FIELD, FL  
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SITE ASSESSMENT REPORT FOR BUILDING 860 TANK 860 A/B/D BASE REALIGNMENT  
AND CLOSURE NAS CECIL FIELD FL  
8/10/2000  
TETRA TECH NUS INC

**Site Assessment Report**  
for  
**Building 860, Tanks 860 A/B/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 0108

August 2000

**SITE ASSESSMENT REPORT  
FOR  
BUILDING 860, TANKS 860 A/B/D  
BASE REALIGNMENT AND CLOSURE**

**NAVAL AIR STATION CECIL FIELD  
JACKSONVILLE, FLORIDA**

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

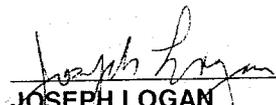
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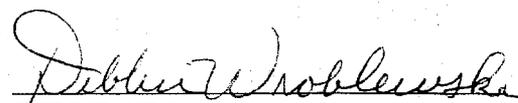
**CONTRACT NUMBER N62467-94-D-0888  
CONTRACT TASK ORDER 0108**

**AUGUST 2000**

**PREPARED UNDER THE SUPERVISION OF:**

  
\_\_\_\_\_  
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\_\_\_\_\_  
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CERTIFICATION OF TECHNICAL  
DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete and accurate and comply with all requirements of this contract.

DATE:                     August 10, 2000                    

NAME AND TITLE OF CERTIFYING OFFICIAL:

Joseph Logan  
Task Order Manager

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## ACRONYMS

AST	above ground storage tank
BCT	BRAC Closure Team
bgs	below ground surface
BRAC	Base Realignment and Closure
CH2MHill	CH2MHill Constructors, Inc.
CTO	Contract Task Order
EDB	1,2-dibromoethane
EPA	U. S. Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida – Petroleum Range Organics
GCTL	Groundwater Cleanup Target Level
HLA	Harding Lawson Associates
KAG	Kerosene Analytical Group
mg/L	milligram per liter
mg/kg	milligram per kilogram
MONA	Monitoring Only for Natural Attenuation
NAS	Naval Air Station
PAH	polycyclic aromatic hydrocarbons
PVC	polyvinyl chloride
SA	Site Assessment
SAP	Site Assessment Plan
SAR	Site Assessment Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
VOA	volatile organic aromatic
VOC	volatile organic compounds
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

## 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 860, Tanks 860 A, B, and D on Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. A Site Assessment Plan (SAP) for the assessment of soil and groundwater at Tank Sites 337, 437, 815, 860 (Tanks A, B, and D) and G-82/G-82A was prepared by TtNUS (TtNUS, 1999) under Contract Task Order 108. This Site Assessment Report (SAR) summarizes the related field operations, results, conclusions, and recommendations of the SA. In accordance with the planning documents for CTO 108, Chapter 62-770, Florida Administrative Code (FAC) is the applicable guidance for this report.

Building 860 is an aircraft maintenance hangar and is located on the western end of the flightline, just off Aerospace Street (formerly 1st Street), at NAS Cecil Field. Three above ground storage tanks (ASTs) (Tanks A, B, and D) were used to store diesel fuel for a generator and were located within a fenced area adjacent to the western wall of the hangar. Harding Lawson Associates (HLA) initiated a preliminary assessment in November 1997. According to their report (HLA, 1998), the field investigation consisted of the installation of one monitoring well (CEF-860-1S) and advancement of five soil borings. Samples for laboratory analysis were collected from the monitoring well and one soil boring. The soil analytical results indicated that the level of total recoverable petroleum hydrocarbons (TRPH) detected was above the Florida Department of Environmental Protection (FDEP) soil cleanup target level (SCTL) in Florida Administrative Code (FAC) Chapter 62-777. The groundwater analytical results indicated that the naphthalene concentration was above the groundwater cleanup target level (GCTL) in Chapter 62-777 FAC. The report (HLA, 1998) recommended that a site assessment be conducted to address soil and groundwater contamination at the site.

TtNUS field activities began on September 29, 1999 and were completed in May 2000. Concurrent with this SA, CH2MHill Constructors, Inc. (CH2MHill) conducted a source removal involving removal of the ASTs and associated piping and removal of contaminated soil beneath the tanks to the water table followed by replacement with clean fill (CH2MHill, 2000). During their activities, CH2MHill removed the source well CEF-860-1S and replaced the well following installation of clean fill. CH2MHill also reported sampling the replacement well for kerosene analytical group (KAG) constituents. Their report stated that none of the GCTLs for the KAG constituents were exceeded (CH2MHill, 2000).

The excavation was bounded to the north and east by the building walls. To the south, the excavation is bounded by an existing wall and equipment foundations on the south side of the wall. To the west, the excavation was extended to the edge of the roadway. CH2MHill collected and analyzed post-excavation samples from the walls and the bottom of the excavation. The sample from the bottom of the excavation

had concentrations of TRPH and polycyclic aromatic hydrocarbons (PAHs) greater than SCTLs for residential exposure and leachability to groundwater. The sample from the north wall had concentrations of TRPH, PAHs, and xylenes at concentrations greater than SCTLs for residential exposure and leachability to groundwater. The samples from the east wall and west wall of the excavation had concentrations of benzo(a)pyrene and dibenzo(a,h)anthracene at concentrations greater than the SCTLs for residential exposure but less than the leachability to groundwater criteria. Concentrations of contaminants in the sample from the south wall were either less than any SCTLs or were not detected (CH2MHill, 2000). The text of the Source Removal report is included in Appendix A.

## 2.0 FIELD INVESTIGATION

The SA for Building 860, Tanks A, B, and D was accomplished in three phases. The methodologies and equipment that were used during this SA are in accordance with the Base-wide Generic Work Plan (TtNUS, 1998).

Phase I began on September 28, 1999 and consisted of:

- Installing and sampling four groundwater monitoring wells.
- Analyzing groundwater samples for kerosene analytical group (KAG) volatile organic aromatics (VOAs), polycyclic aromatic compounds (PAHs), total recoverable petroleum hydrocarbons (TRPH), 1,2-dibromoethane (EDB), and lead.

On September 28 and 29, 1999, TtNUS personnel supervised the drilling and installation of monitoring wells CEF-860-2S, CEF-860-3S, CEF-860-4S and CEF-860-5S at Building 860. Monitoring well CEF-860-5S was installed as an upgradient well in relation to the former ASTs location. Monitoring well CEF-860-4S was installed sidegradient of the former ASTs location. Monitoring wells CEF-860-2S and CEF-860-3S were installed downgradient of the former ASTs location. HLA's monitoring well CEF-860-1S that had been located at the location of the tanks was removed during excavation. Monitoring well construction logs are presented in Appendix B. Monitoring well construction details are presented in Table 2-1. Monitoring well locations are shown on Figure 2-1.

Monitoring wells were installed using the hollow-stem auger drilling method. The monitoring wells that were installed by TtNUS were constructed of 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) screen and casing. The screen lengths were 10 feet with slotted openings of 0.010 inch. A 20/30-grade quartz sand filter pack was placed around the screen extending from the bottom of the borehole to a minimum depth of one foot above the top of screen. The seals consisted of about 1 foot of 30/65-grade fine sand placed directly on top of the filter pack. The rest of the annular space on the wells was filled with neat cement to the ground surface.

On October 6 and 7, 1999, groundwater samples were collected from the four newly installed monitoring wells using low flow sampling techniques. The samples were analyzed for the FAC Chapter 62-770 KAG, which includes volatile organic aromatics (VOAs) (SW846 8260B), PAHs (SW846 8310), lead (U. S. Environmental Protection Agency (EPA) Method 200.7), 1,2-dibromoethane (EDB) (EPA Method 504.1), and TRPH [Florida-Petroleum Range Organics (FL-PRO)].

**TABLE 2-1**

**MONITORING WELL CONSTRUCTION AND WATER TABLE ELEVATION DATA  
SITE ASSESSMENT REPORT TANKS 860 A/B/D  
NAVAL AIR STATION CECIL FIELD  
JACKSONVILLE, FLORIDA**

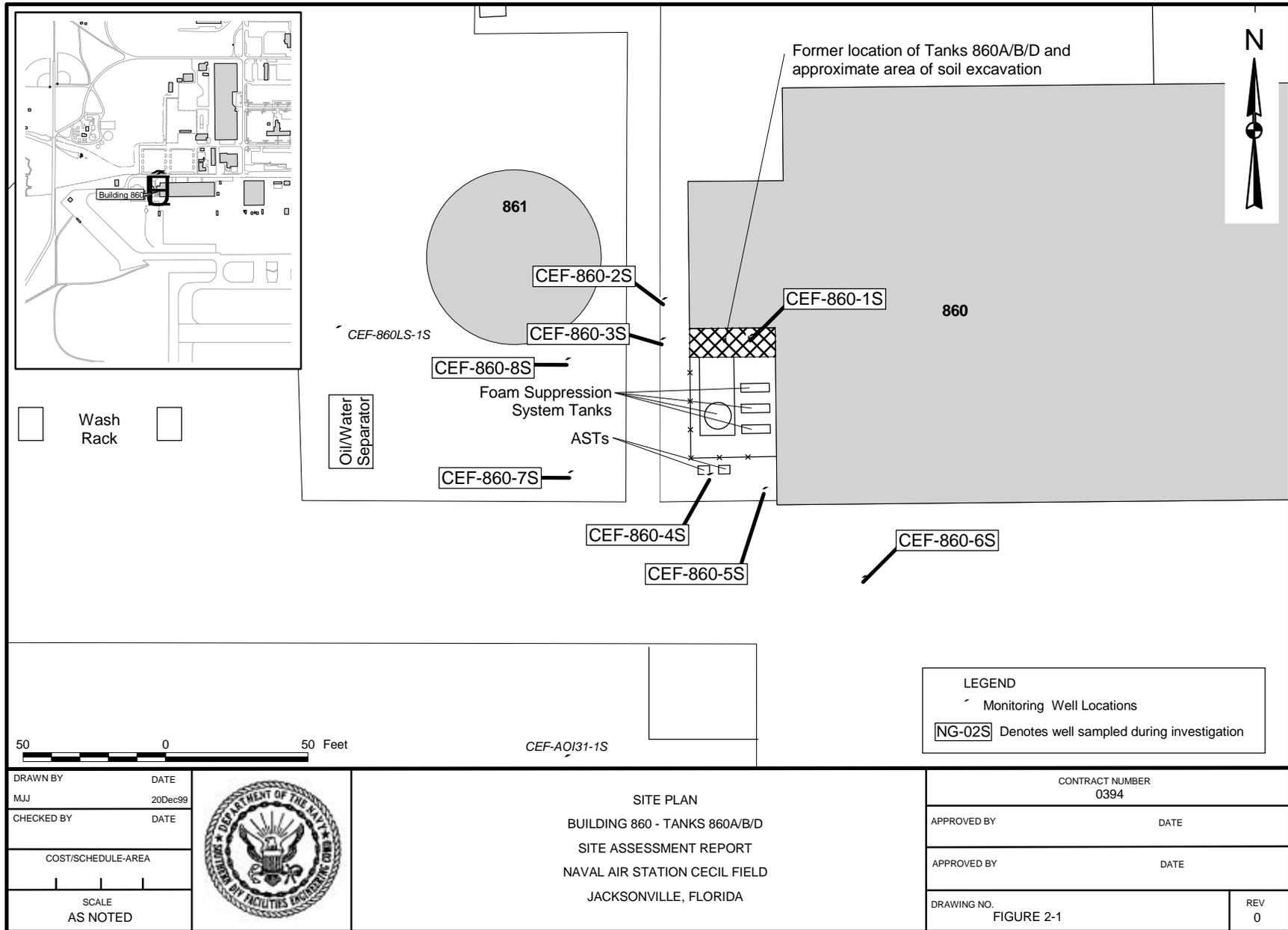
Monitoring Well Number	Total depth, feet bgs	Screened interval, feet bgs	Top of casing elevation, feet	Depth to water, feet	Elevation, feet
CEF-860-1S	15	5-15	74.63	7.30	67.33
CEF-860-2S	14	4-14	73.53	6.41	67.12
CEF-860-3S	14	4-14	73.73	6.58	67.15
CEF-860-4S	14	4-14	74.35	6.98	67.37
CEF-860-5S	14	4-14	74.46	7.02	67.44
CEF-860-6S	14	4-14	74.02	6.41	67.61
CEF-860-7S	14	4-14	73.35	6.19	67.16
CEF-860-8S	14	4-14	73.35	6.70	66.65

**NOTES**

bgs - below ground surface

Depth to Water (DTW) measured 2/18/00

Elevation is referenced to 1988 NGVD



Phase II began on February 1, 2000 and consisted of:

- Installing and sampling three groundwater monitoring wells.
- Analyzing groundwater samples for selected compounds that were detected in Phase I.

CEF-860-6S was installed to establish an upgradient boundary based on the results of the sample from well CEF-860-5S. Monitoring wells CEF-860-7S and CEF-860-8S were installed downgradient to delineate the TRPH and PAH plumes that were identified in Phase I.

On February 18, 2000, groundwater samples were collected from the three newly installed monitoring wells. The groundwater sample from well CEF-860-6S was analyzed for VOAs, PAHs, and TRPH. Results from the Phase I monitoring wells indicated that the other KAG constituents (lead and EDB) were not detected, so they were deleted from further investigation. The groundwater samples from the downgradient wells were only analyzed for VOAs and TRPH since the PAH plume had been delineated.

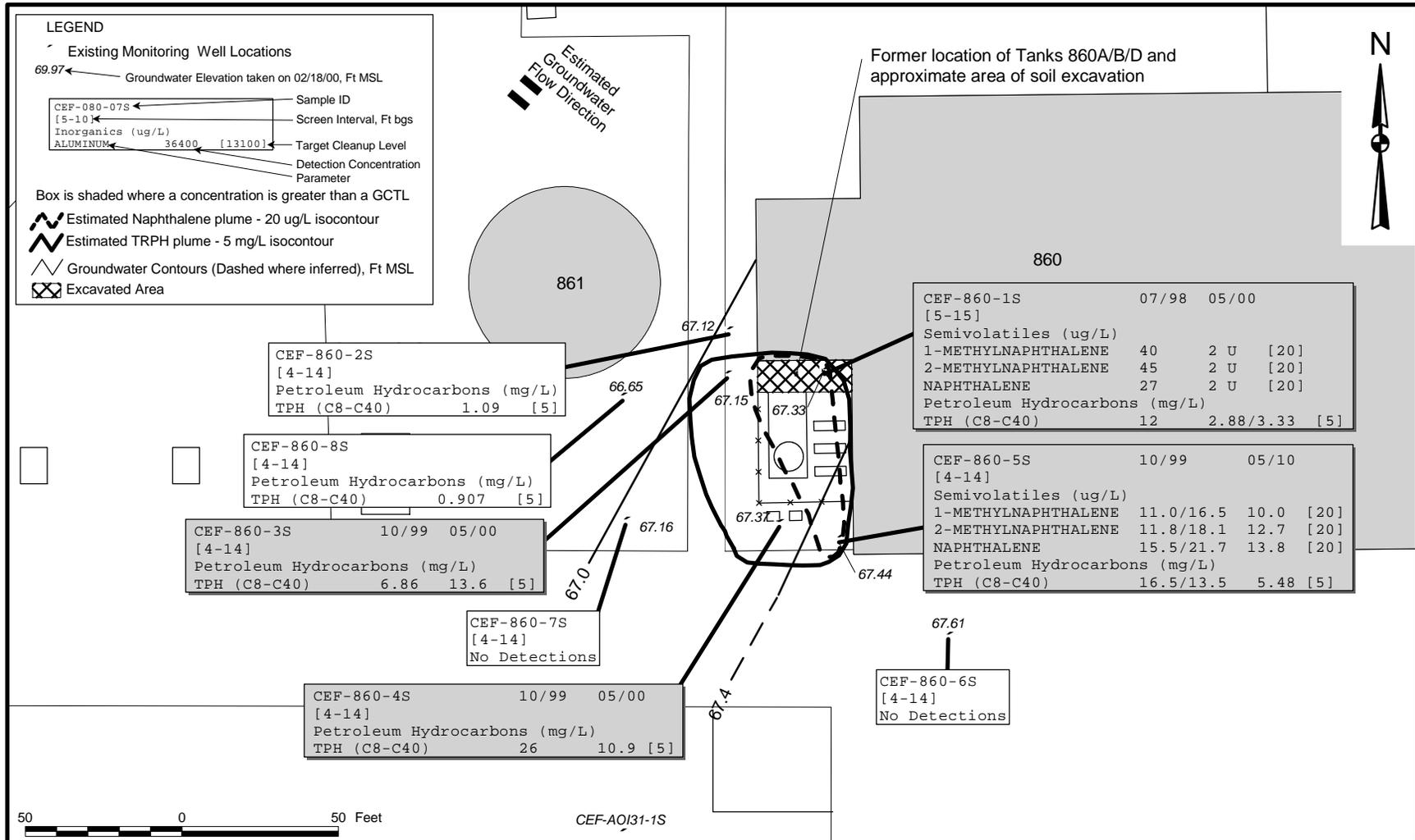
The third phase of work entailed resampling the groundwater from monitoring wells CEF-860-1S (which had been reinstalled by CH2MHill), CEF-860-3S, CEF-860-4S, and CEF-860-5S for PAHs and TRPH on May 20, 2000 to provide current data following the soil excavation.

### 3.0 SITE ASSESSMENT RESULTS

HLA (HLA, 1998) had previously reported excessively contaminated soil in a sample from the area around the source well (CEF-860-1S). CH2MHill excavated the area in September and November 1999. Figure 2-1 shows the approximate horizontal bounds of the soil removal. CH2MHill reported digging vertically to the limit of the water table at about 8 feet below ground surface (bgs).

Groundwater levels at the site were collected on four occasions, and the groundwater elevations from February 18, 2000 were calculated from the data (Table 2-1) and plotted on Figure 3-1. The data show that groundwater flow is toward the northwest. This direction was consistent with the other measurements.

The groundwater analytical results are included in Appendix C. Table 3-1 summarizes the detected compounds from the groundwater analyses performed at the site. Figure 3-1 also includes the detected concentrations from Table 3-1 for each monitoring well. This figure also shows the estimated outline of the PAH and TRPH groundwater plumes based on GCTLs. TRPH, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected at concentrations greater than GCTLs in wells CEF-860-1S, CEF-860-3S, CEF-860-4S, and CEF-860-5S. However, in the May 2000 sampling event, no contaminants were detected in CEF-860-1S at concentrations greater than GCTLs. Further, PAH concentrations in all wells were less than GCTLs in the May 2000 sampling round. The TRPH concentration decreased in CEF-860-4S and CEF-860-5S in the May 2000 event and increased in CEF-860-3S in the May 2000 event.



DRAWN BY MJJ	DATE 04Apr00		<b>GROUNDWATER CONCENTRATIONS ABOVE FDEP CRITERIA AND ELEVATION DATA</b>  BUILDING 860 - TANKS 860A/B/D SITE ASSESSMENT REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 0394	
CHECKED BY	DATE			APPROVED BY	DATE
COST/SCHEDULE-AREA				APPROVED BY	DATE
SCALE AS NOTED				DRAWING NO. FIGURE 3-1	REV 0

TABLE 3-1

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER  
 SITE ASSESSMENT REPORT TANKS 860 A/B/D  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA  
 PAGE 1 OF 4

Location	FDEP GCTL FAC 62-777	CEF-860-1S CEF-860-1S 10-Jul-98 15	CEF-860-1S CEF-860-GW-1S-03 10-May-00 15	CEF-860-1S CEF-860-GW-DU06 10-May-00 15	CEF-860-2S CEF-860-GW-2S-01 06-Oct-99 14
<b>Volatile Organic Compounds (µg/l)</b>					
ETHYLBENZENE	30	21	NM	NM	1 U
XYLENES	20	1.7	NM	NM	3 U
<b>Semivolatile Organic Compounds (µg/L)</b>					
1-METHYLNAPHTHALENE	20	40	2 U	2 U	1 U
2-METHYLNAPHTHALENE	20	45	2 U	2 U	1 U
ACENAPHTHENE	20	2 U	2 U	2 U	1 U
ANTHRACENE	2100	3	2 U	2 U	1 U
BENZO(G,H,I)PERYLENE	210	0.2 U	0.2 U	0.2 U	0.16 U
NAPHTHALENE	20	27	2 U	2 U	1 U
PHENANTHRENE	210	2.6	2 U	2 U	1 U
PYRENE	210	3	2 U	2 U	1 U
<b>Total Petroleum Hydrocarbons (mg/L)</b>					
TRPH (C8-C40)	5	12	3.33	2.88	1.09

## Notes:

GCTL - Groundwater Cleanup Target Level  
 Shaded values are greater than criteria.  
 µg/L - microgram per liter  
 mg/L - milligram per liter  
 NM - Not measured  
 U - Undetected at detection limit shown  
 J - Estimated value

TABLE 3-1

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER  
 SITE ASSESSMENT REPORT TANKS 860 A/B/D  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA  
 PAGE 2 OF 4

Location	FDEP	CEF-860-3S	CEF-860-3S	CEF-860-4S	CEF-860-4S
Sample Number	GCTL	CEF-860-GW-3S-01	CEF-860-GW-3S-03	CEF-860-GW-4S-01	CEF-860-GW-4S-03
Sample Date	FAC 62-777	07-Oct-99	10-May-00	07-Oct-99	10-May-00
Well Depth, feet		14	14	14	14
<b>Volatile Organic Compounds (µg/l)</b>					
ETHYLBENZENE	30	1 U	NM	1 U	NM
XYLENES	20	3 U	NM	3 U	NM
<b>Semivolatile Organic Compounds (µg/L)</b>					
1-METHYLNAPHTHALENE	20	1.1 UJ	2 U	1 UJ	2 U
2-METHYLNAPHTHALENE	20	1.1 UJ	2 U	1 UJ	2 U
ACENAPHTHENE	20	1.1 UJ	2 U	1 UJ	2 U
ANTHRACENE	2100	1 U	2 U	1 U	2 U
BENZO(G,H,I)PERYLENE	210	0.17 UJ	0.2 U	0.44 J	0.2 U
NAPHTHALENE	20	1.1 UJ	2 U	1 UJ	2 U
PHENANTHRENE	210	1.1 UJ	2 U	1 UJ	2 U
PYRENE	210	1 UJ	2 U	1 UJ	2 U
<b>Total Petroleum Hydrocarbons (mg/L)</b>					
TRPH (C8-C40)	5	6.86	13.6	28	10.9

## Notes:

- GCTL - Groundwater Cleanup Target Level
- Shaded values are greater than criteria.
- µg/L - microgram per liter
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- NM - Not measured
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- J - Estimated value

TABLE 3-1

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER  
 SITE ASSESSMENT REPORT TANKS 860 A/B/D  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA  
 PAGE 3 OF 4

Location	FDEP	CEF-860-5S	CEF-860-5S	CEF-860-5S	CEF-860-6S
Sample Number	GCTL	CEF-860-GW-5S-01	CEF-860-GW-DU02	CEF-860-GW-5S-03	CEF-860-GW-6S-02
Sample Date	FAC 62-777	06-Oct-99	06-Oct-99	10-May-00	18-Feb-00
Well Depth, feet		14	14	14	14
<b>Volatile Organic Compounds (µg/l)</b>					
ETHYLBENZENE	30	1 U	1 U	NM	1 U
XYLENES	20	3 U	3 U	NM	3 U
<b>Semivolatile Organic Compounds (µg/L)</b>					
1-METHYLNAPHTHALENE	20	16.5	11	10	1 U
2-METHYLNAPHTHALENE	20	18.1	11.8	12.7	1 U
ACENAPHTHENE	20	13.4	9.8	2 U	1 U
ANTHRACENE	2100	1 U	1 U	2 U	1 U
BENZO(G,H,I)PERYLENE	210	0.15 U	0.15 U	0.2 U	0.16 U
NAPHTHALENE	20	21.7	15.5	13.8	1 U
PHENANTHRENE	210	2.6	1.8	2 U	1 U
PYRENE	210	1 U	1 U	2 U	1 U
<b>Total Petroleum Hydrocarbons (mg/L)</b>					
TRPH (C8-C40)	5	13.5	16.5	5.48	0.25 U

## Notes:

- GCTL - Groundwater Cleanup Target Level
- Shaded values are greater than criteria.
- µg/L - microgram per liter
- mg/L - milligram per liter
- NM - Not measured
- U - Undetected at detection limit shown
- J - Estimated value

TABLE 3-1

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER  
 SITE ASSESSMENT REPORT TANKS 860 A/B/D  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA  
 PAGE 4 OF 4

Location	FDEP GCTL FAC 62-777	CEF-860-6S CEF-860-GW-DU03-02 18-Feb-00 14	CEF-860-7S CEF-860-GW-7S-02 18-Feb-00 14	CEF-860-8S CEF-860-GW-8S-02 18-Feb-00 14
Sample Number				
Sample Date				
Well Depth, feet				
<b>Volatile Organic Compounds (µg/l)</b>				
ETHYLBENZENE	30	1 U	1 U	1 U
XYLENES	20	3 U	3 U	3 U
<b>Semivolatile Organic Compounds (µg/L)</b>				
1-METHYLNAPHTHALENE	20	1 U	NM	NM
2-METHYLNAPHTHALENE	20	1 U	NM	NM
ACENAPHTHENE	20	1 U	NM	NM
ANTHRACENE	2100	1 U	NM	NM
BENZO(G,H,I)PERYLENE	210	0.16 U	NM	NM
NAPHTHALENE	20	1 U	NM	NM
PHENANTHRENE	210	1 U	NM	NM
PYRENE	210	1 U	NM	NM
<b>Total Petroleum Hydrocarbons (mg/L)</b>				
TRPH (C8-C40)	5	0.28 U	0.28 U	0.907

## Notes:

- GCTL - Groundwater Cleanup Target Level
- Shaded values are greater than criteria.
- µg/L - microgram per liter
- mg/L - milligram per liter
- NM - Not measured
- U - Undetected at detection limit shown
- J - Estimated value

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the results of this SA.

### Soil

Based on the field investigation, laboratory analyses, and remedial action conducted at the site, TtNUS concludes that the petroleum hydrocarbon contaminated soil has been removed to the extent allowed by site conditions. The building, wall, roadway, and groundwater table limit further removal of contaminated soil. The concentrations of benzo(a)pyrene and dibenzo(a,h)anthracene in the sample from the west wall of the excavation are greater than residential SCTLs but less than the leachability SCTLs. Because the sample depth is 4 feet below ground surface, there is no exposure route. The building and the earth cover act as a barrier, and an institutional control should be put in place to restrict access to the residual contaminated material. No further action other than the implementation of the institutional control is recommended with regard to soils at the site.

### Groundwater

Based on the field investigation and laboratory analyses of groundwater, the following conclusions and recommendations are made:

- The contaminant source, Tanks A, B, and D, and contaminated soil have been removed and no longer present a potential threat for environmental impact.
- Groundwater concentrations of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene decreased to less than GCTLs from October 1999 to May 2000. Thus, no monitoring for PAHs is recommended.
- The results of groundwater analyses indicate the concentrations of constituents of concern are less than the natural attenuation default source concentrations in FAC 62-770. Therefore, Monitoring Only for Natural Attenuation (MONA) is recommended. The MONA should be conducted on a semi-annual frequency for TRPH (FL-PRO). The recommended monitoring wells to include in the MONA are as follows: CEF-860-3S (downgradient), CEF-860-4S (source), CEF-860-2S (downgradient), CEF-860-7S (downgradient), and CEF-860-8S (downgradient).

- The following table provides milestone objectives for a recommended monitoring period of 5 years:

Milestone Objectives (mg/L)					
Compound	End of				
	Year 1	Year 2	Year 3	Year 4	Year 5
TRPH	13	11	9	7	<5

Notes: < = less than.

**5.0 PROFESSIONAL REVIEW CERTIFICATION**

The SA 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 SA report was developed for Building 860, Tanks 860 A, B, and D at the former NAS Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

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

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Date

## REFERENCES

CH2MHill, 2000. Source Removal Report, Aboveground Storage Tank Removal at Building 860, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, February.

HLA (Harding Lawson Associates), 1998. Confirmatory Sampling Report, Building 860, Tanks 860 A, B, and D, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, November.

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

TtNUS, 1999. Site Assessment Plan for Tank Sites 337, 437, 815, 860 (Tanks A, B, and D) and G-82. Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, September.

## **Appendix A**

### **Source Removal Report Text**

**SOURCE REMOVAL REPORT  
ABOVEGROUND STORAGE TANK REMOVAL AT BUILDING 860**

**NAVAL AIR STATION CECIL FIELD  
JACKSONVILLE, FLORIDA**

**Revision No. 00**

**Unit Identification Code: N60200  
Contract No. N62467-98-D-0995  
Contract Task Order No. 0002**

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**Bryan Kizer, Engineer-in-Charge**

**February 2000**

**Source Removal Report  
Aboveground Storage Tank Removal at  
Building 860**

**Naval Air Station Cecil Field  
Jacksonville, Florida**

Revision No. 00

**Contract No. N62467-98-D-0995, CTO No. 0002**

**Submitted to  
Department of the Navy, Southern Division  
Naval Facilities Engineering Command**

**Prepared by**

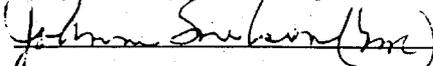


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Suite 700  
Atlanta, GA 30346

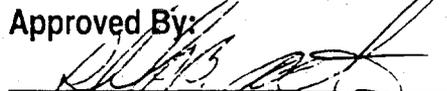
February 2000

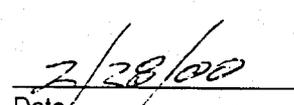
**Prepared/Approved By:**

  
\_\_\_\_\_  
JoAnne Snelson, Project Manager

\_\_\_\_\_  
Date

**Approved By:**

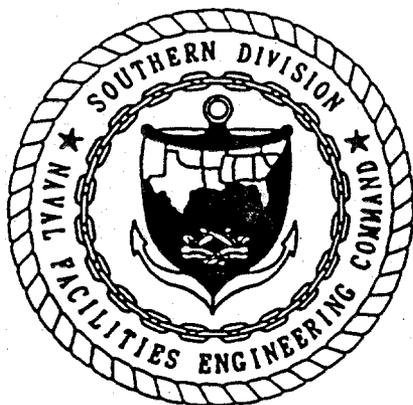
  
\_\_\_\_\_  
Philip Altrfan, Program Manager

  
\_\_\_\_\_  
Date

**Client Acceptance:**

\_\_\_\_\_  
U.S. Navy Responsible Authority

\_\_\_\_\_  
Date

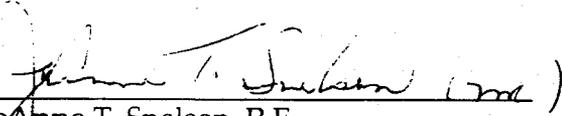


**CERTIFICATION OF TECHNICAL  
DATA CONFORMITY (FEBRUARY 2000)**

The contractor, CH2M HILL Constructors, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0002 are complete and accurate and comply with all requirements of this contract.

DATE: February 25, 2000

NAME AND TITLE OF CERTIFYING OFFICIAL:

  
JoAnne T. Snelson, P.E.  
Project Manager

## DISTRIBUTION LIST

	<u>Copies</u>
Southern Division, Naval Facilities Engineering Command	1
NAS Cecil Field	2
Florida Department of Environmental Protection	1
CH2M HILL Constructors, Inc.	2
CH2M HILL, Inc.	1

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**APPENDICES**

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Appendix B: Copies of Soil Manifests

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GLOSSARY

bls	below land surface
CCI CTO	CH2M HILL Constructors Inc. Contract Task Order
EPA	Environmental Protection Agency
FAC FDEP FDOT FID	Florida Administrative Code Florida Department of Environmental Protection Florida Department of Transportation flame ionization detector
KAG	kerosene analytical group
NAS NAVFAC	Naval Air Station Naval Facilities Engineering Command
OVA	organic vapor analyzer
PAHs PID ppm	polynuclear aromatic hydrocarbons photoionization detector parts per million
SA SCTLs SJRWMD SPLP	Site Assessment soil cleanup target levels St. Johns River Water Management District synthetic precipitation leaching procedure
TRPH	total recoverable petroleum hydrocarbons
UST	underground storage tank
VOCs	volatile organic compounds

**SOURCE REMOVAL REPORT REQUIREMENTS – CHECKLIST**

Per FAC 62-770.300(3) the Source Removal Report shall contain the following information in detail, as applicable:

Site Name: UST 605

Date(s) of Source Removal: 09/24/99 – 11/11/99

Required Information	Response
1. Volume of product that was discharged, if known	<i>Unknown</i>
2. Volume of free product and the volume of groundwater recovered	<i>None</i>
3. Volume of contaminated soil excavated and treated or properly disposed	<i>74 tons of soil excavated and disposed of offsite</i>
4. Disposal or recycling methods for free product and contaminated soil	<i>Contaminated soils recycled at Soil Safe Technologies, Garden City, Georgia and St. Marys, Georgia</i>
5. Disposal methods for other contaminated media	<i>No other contaminated media</i>
6. Scaled site map (including a graphical representation of the scale used) showing location(s) of free product recovered and the area of soil removed or treated and the approximate locations of all samples taken	<i>See Figure 2-1</i>
7. Table summarizing free product thickness in each monitoring well or piezometer and the dates the measurements were made	<i>Monitoring wells were not measured for free product prior to the excavation.</i>
8. Type of field screening instrument or method used	<i>organic vapor analyzer (OVA)/flame ionization detector (FID)</i>
9. Dimensions of the excavation(s) and location(s), integrity, capacities and last known contents of storage tanks, integral piping, dispensers, or appurtenances removed	<i>Excavation area: 31 feet long x 8 feet wide x 8 feet deep (see Figure 2-1) 3-275-gallon aboveground storage tanks (ASTs), contained diesel fuel (see Figure 1-1)</i>
10. Dimensions of the excavation(s) and location(s) and capacities of replacement tanks	<i>2-250 gallon AST installed, no excavation was necessary.</i>
11. Table indicating the identification, depth and field soil screening results of each sample collected	<i>See Table 2-2</i>
12. Depth to groundwater at the time of each excavation, measurement locations and method used to obtain that information	<i>Depth to groundwater approximately 8 feet below land surface (bls). Noted by visual observation (See Section 2.2.1)</i>
13. Type of petroleum or petroleum products discharged	<i>Diesel Fuel</i>
14. Documentation confirming the proper treatment or proper disposal of the free product or contaminated soil, including disposal manifests for free product, a copy of the treatment or acceptance of the contaminated soil and results of analyses, if performed	<i>See Table 2-1 and Appendix C</i>
15. For land farmed soil, a copy of the pre-treatment and post-treatment analytical results	<i>Not Applicable. Soil recycled offsite</i>

## 1.0 INTRODUCTION

CH2M HILL Constructors, Inc. (CCI) was contracted by the Southern Division Naval Facilities Engineering Command (NAVFAC) to perform aboveground storage tank (AST) removal, excavate petroleum-contaminated soil, and prepare a Source Removal Report for Building 860 at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. The source removal was conducted in accordance with the Florida Department of Environmental Protection (FDEP) Petroleum Contamination Site Cleanup rule 62-770, Florida Administrative Code (FAC).

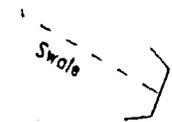
The scope of services for excavation of petroleum-contaminated soils at Site 860 is described in detail in the NAS Cecil Field Basewide Work Plan, Revision 01 (CCI, 1998a) and the Work Plan Addendum No. 01, Revision 01 (CCI, 1998b). This work was authorized under the Remedial Action Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0002.

### 1.1 SITE BACKGROUND

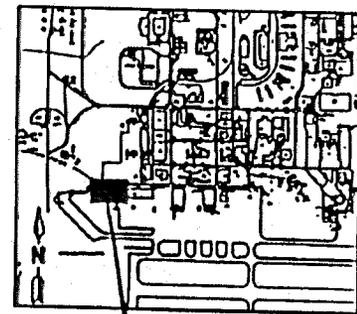
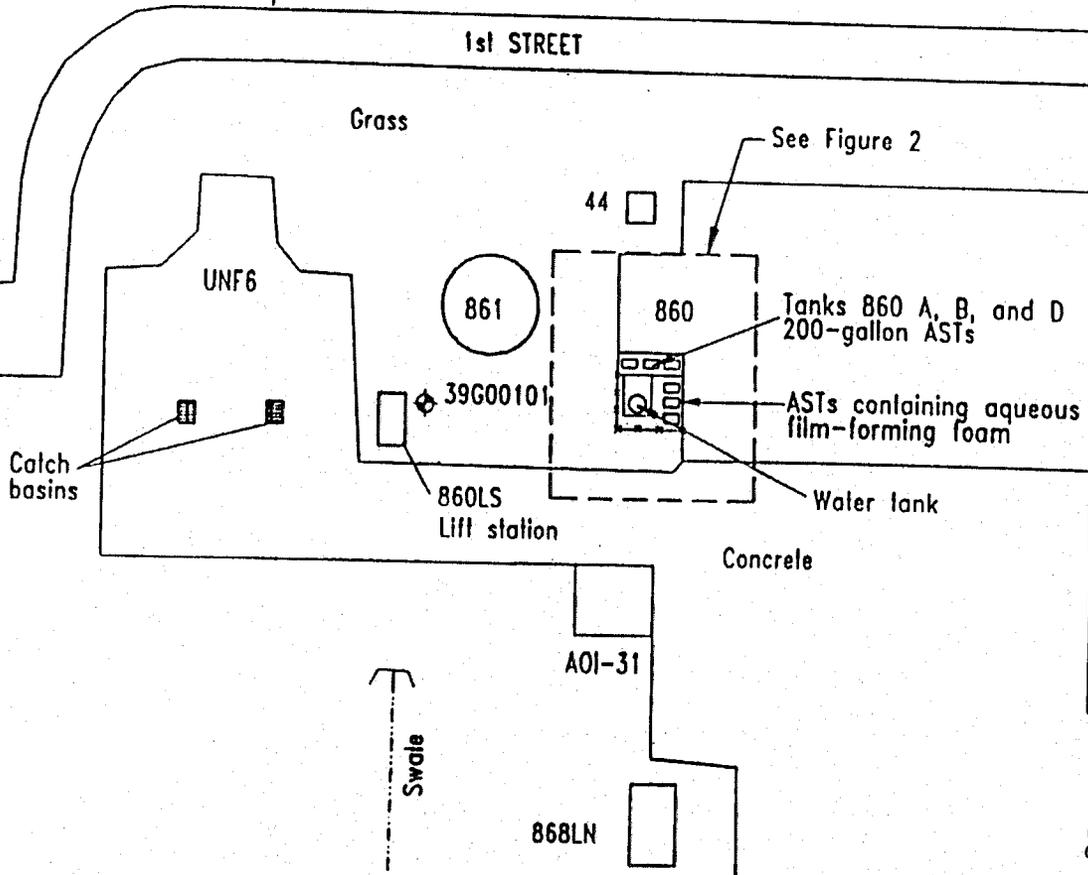
The site contained 3-275 gallon ASTs for storage of diesel fuel for a backup generator. The ASTs were located on the western end of Building 860, which is a maintenance hangar on the flightline at NAS Cecil Field. The installation date of the ASTs is unknown. A site plan showing the site conditions prior to the Source Removal is presented in Figure 1-1.

### 1.2 PROJECT OBJECTIVES

The primary objective of the soil excavation that was performed in conjunction with the AST removal at the site was to remove petroleum-contaminated soils that exceeded the soil cleanup target levels (SCTLs) outlined in FAC 62-770. FDEP allows the use of headspace organic vapor analyzer (OVA) analyses as a screening tool in evaluating whether soil samples exceed the SCTLs. Soils exhibiting an OVA concentration of greater than 50 ppm were considered to be excessively contaminated and were expected to contain constituents exceeding the SCTLs. Soils were excavated until OVA concentrations of less than 50 ppm were achieved or a permanent underground structure was encountered, then confirmatory sampling for the kerosene analytical group (KAG) was performed. The KAG analyses for soils includes volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8021, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8310, and total recoverable petroleum hydrocarbons (TRPH) by the FL-PRO method.

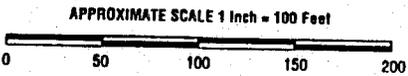


873



SITE

LEGEND	
	39G00101 Monitoring well location with groundwater sampling designation
	AOI Area of interest
	UNF Unnumbered facility
	AST Aboveground storage tank
	Fence



**Figure 1-1**  
Tanks 860 A, B, and D Maintenance Hangar  
Building 860 Source Removal Report  
NAS Cecil Field, Florida

## 2.0 SOURCE REMOVAL ACTIVITIES

A source removal was conducted at Building 860 during the period of September 26 to November 22, 1999. The tanks were removed from the site on September 17. A total of 15 tons of petroleum-contaminated soil was excavated from the area beneath the former location of the ASTs on September 26 and disposed of offsite on September 30. Based upon analytical results from confirmatory samples that were collected during the initial excavation, an additional 59 tons of petroleum contaminated soil was excavated and hauled offsite for disposal on November 22, 1999. No free product was encountered during the excavation. Photographs showing the site before, during and after the source removal are presented in Appendix A.

### 2.1 SITE PREPARATION

In preparation for excavation, all utilities were marked out by the base maintenance contractor and Sunshine State One Call. No active utilities were encountered during the soil excavation.

### 2.2 SOIL EXCAVATION AND DISPOSAL

Soils were excavated beneath and to the north, south, east and west of the tanks based on the limits of the excessively contaminated soil delineated during the excavation. The delineation was performed by screening the walls of the excavation using headspace OVA analyses. The excavation was limited to the north of the former AST location by the Building 860 foundation.

#### 2.2.1 Soil Excavation

The soil was excavated to the water table, to a depth of approximately 8 feet below land surface (bls). The depth to groundwater was determined by visual inspection during the excavation

The soil was excavated using a trackhoe and was stockpiled on visqueen prior to being loaded into trucks. Based on the manifests, 74 tons of petroleum-contaminated soil were excavated and disposed of offsite. The excavation area was approximately 31 feet long, 7 feet wide, and 8 feet deep, corresponding to approximately 64 cubic yards. The excavation areas are shown in Figure 2-1.

#### 2.2.2 Soil Transportation and Disposal

The petroleum-contaminated soil was transported offsite by truck to the Soil Safe Technologies, Inc. soil thermal treatment facilities in Garden City, Georgia and St. Marys, Georgia. A summary of the manifests is presented in Table 2-1 and copies of the manifests are presented in Appendix B.

**TABLE 2-1  
Summary of Manifests for Soil Disposal**

Date	Truck #	Company	Manifest #	Weight (pounds)	Tare (pounds)	Net (pounds)	Net (tons)
09/30/99	L3	Pritchett	40	57,740	28,120	29,620	14.81
11/11/99	396	Pritchett	1139	73,120	46,620	26,500	13.25
11/12/99	706	Pritchett	1140	77,160	31,180	45,980	22.99
11/12/99	721	Pritchett	1141	74,440	29,300	45,140	22.57

All of the soil was recycled by the disposal facility into an asphalt mix for paving or other construction purposes. A copy of the Certificate of Recycle is provided in Appendix C.

**2.2.3 Backfilling and Site Restoration**

The material used to backfill the excavation was clean fill brought in from a borrow pit operated by the Marietta Sand Corporation. A copy of the letter certifying that the material was clean fill is presented in Appendix D.

Once the excavation area was backfilled, the site was graded and seeded with a mixture of rye and bahia grass.

**2.3 SAMPLING AND ANALYSES**

Soil samples were collected from the walls of the excavation at a depth of 4 feet bls and from the floor. One water sample was collected from a temporary well that was installed in the center of the excavation. The sampling locations are shown in Figure 2-1.

**2.3.1 Headspace Analysis**

Soil samples collected from the excavation were screened using an OVA equipped with an FID in accordance with the procedures outlined in 62-770.200(8) FAC. A methane filter was used to correct the results. The lateral excavation limits were expanded until headspace concentrations were below 50 ppm or until a permanent subsurface structure was reached. The results of the headspace analyses are shown in Table 2-2.

**TABLE 2-2  
Summary of Headspace Screening Results**

Sample Location (see Figure)	Depth (feet bls)	FID Unfiltered (ppm)	FID with Filter (ppm)	FID Corrected (ppm)
1 (wall)	4	11	0	11
2 (wall)	4	3	--	3
3 (wall)	4	3.7	--	3.7
4 (wall)	4	3.2	--	3.2
5 (wall)	4	1	--	1
6 (wall)	4	64	1.2	62.8

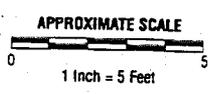
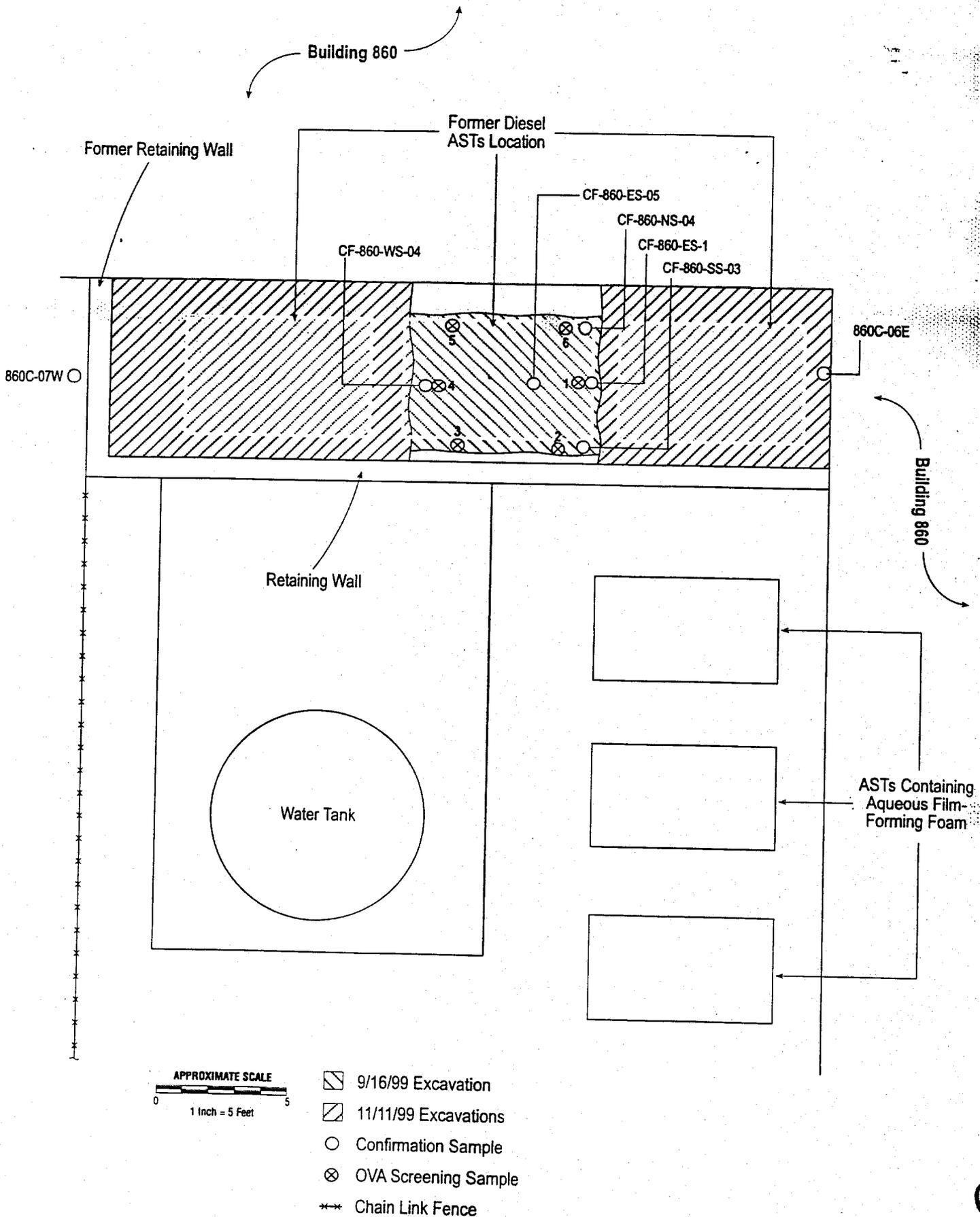
**2.3.2 KAG Analyses of Soil Samples**

A total of seven soil samples were collected for KAG analyses. On September 26, soil samples were collected from the bottom and the north, south, east, and west walls of the excavation. The sample that was collected from the south wall was below SCTLs for all KAG constituents. The samples that were collected from the north, east, and west walls and the bottom of the excavation were above the SCTLs for various KAG constituents. On November 11, the excavation was expanded to the east and west and additional soil samples were collected from the east and west walls of the excavation. Both samples were below the SCTLs for all KAG parameters. Further excavation was precluded in the vertical direction by the water table, and to the north by the Building 860 foundation. The analytical results are summarized in Table 2-3. The analytical laboratory report is provided in Appendix E.

### 2.3.3 Temporary Well Installation and KAG Analyses of Groundwater Samples

A temporary well was installed in the center of the excavation on October 22, 1999. The well was screened from 5 to 15 feet bls. A sand pack was installed around the screened interval, and the well was developed until clear.

One groundwater sample was collected from the temporary well for KAG analysis. The concentrations were below the groundwater criteria per 62-770 FAC for all KAG parameters. The analytical laboratory report for the groundwater sample is provided in Appendix F.



- ▨ 9/16/99 Excavation
- ▨ 11/11/99 Excavations
- Confirmation Sample
- ⊗ OVA Screening Sample
- \*\*\* Chain Link Fence

**Figure 2-1**  
 Soil Excavation Area  
 Building 860 Source Removal Report  
 NAS Cecil Field, Florida

Table 2-3  
Summary of KAG Analyses for Soil

Sample Location	Depth	Sample ID	Date	TRPH	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (ghi) Perylene	Benzo (k) Fluoranthene	Chrysene	Dibenzo ah Anthracene	Fluoranthene	Fluorene	Indeno (123-cd) Pyrene	Phenanthrene	Pyrene	Naphthalene	1- Methyl-naphthalene	2- Methyl-naphthalene	Ethylbenzene	Toluene	Xylenes
North Wall	4'	CF-860-NS-01	9/26/99	8000	ND	3.8	12	9.8	1.1	9.5	1	5.8	7.6	3.7	77	8.3	0.470	2.9	110	3.5	71	36	1.3	ND	0.800
East Wall	4'	CF-860-ES-02	9/26/99	10000	ND	8.4	2.5	8.7	3.6	8.5	2	6.3	6.6	5.1	23	1.5	0.770	0.530	44	<0.220	7.2	2.5	0.380	ND	0.740
East Wall #2	4'	860C-07 W	11/22/99	5	0.68	0.024	ND	0.19	0.51	0.54	0.48	0.21	0.36	0.92	0.44	0.022	0.4	0.04	0.24	ND	ND	0.27	0.0003	0.002	0.0013
South Wall	4'	CF-860-SS-03	9/26/99	7	ND	0.018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.001	0.0006
West Wall	4'	CF-860-WS-04	9/26/99	2500	ND	0.290	0.940	2.1	1.1	2	0.220	1.3	1.7	0.550	10	0.770	0.160	0.270	16	0.140	1.7	1.8	0.038	0.038	0.180
West Wall #2	4'	860C-06 E	11/22/99	7	0.41	0.019	ND	0.18	0.57	0.51	0.62	0.23	0.34	0.84	0.26	0.023	0.42	0.011	0.16	ND	0.12	0.15	0.0005	0.0022	0.0018
Bottom	8'	CF-860-BT-05	9/26/99	5300	ND	1.7	4.2	5.5	2.7	5.5	1.1	3.3	4.2	2.3	38	3.7	0.350	1.6	53	1.2	24	13	0.330	ND	0.500
SCTL (Leachability)				340	2.1	27	2500	3.2	8	10	32000	25	77	30	1200	160	28	250	880	1.7	2.2	6.1	0.6	0.5	0.2

ND = Not Detected  
All values are reported in mg/kg

### 3.0 CONCLUSIONS

A total of 74 tons of petroleum-contaminated soils at Building 860 that were identified during the source removal have been removed and recycled offsite. The soil was excavated to the water table, to a depth of approximately 8 feet bls. The horizontal limits of the excavation had headspace results (OVA with FID) of less than 50 ppm, except for the north wall which was adjacent to Building 860. Seven soil samples were collected from the excavation for KAG analyses. The sample that was collected from the bottom of the excavation was above the SCTLs for TRPH, benzo (a) anthracene, 1-methylnaphthalene, 2-methylnaphthalene, and xylenes. The sample that was collected from the north wall of the excavation was above the SCTLs for TRPH, benzo (a) anthracene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, ethylbenzene, and xylenes. Samples collected from the remaining walls were below SCTLs for all KAG parameters, confirming that the horizontal limits of soil contamination were reached, with the exception of the soil underneath Building 860. One groundwater sample that was collected for KAG analyses from a temporary well installed in the center of the excavation was below the groundwater criteria for all KAG parameters. No free product was encountered during the excavation.

REFERENCES

ABB Environmental Services, Inc., 1998, Confirmatory Sampling Report, Building 860, NAS Cecil Field, Jacksonville, Florida, November.

## **Appendix B**

### **Monitoring Well Construction Logs**



Tetra Tech NUS, Inc.

WELL No.:

CEF-860-29

MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD

DRILLING Co.:

GPI

BORING No.:

PROJECT No.: ~~0039~~ 0394

DRILLER:

J. Ziegler

DATE COMPLETED:

09/28/99

SITE: BLDG. 860

DRILLING METHOD:

Hollow Stem

NORTHING:

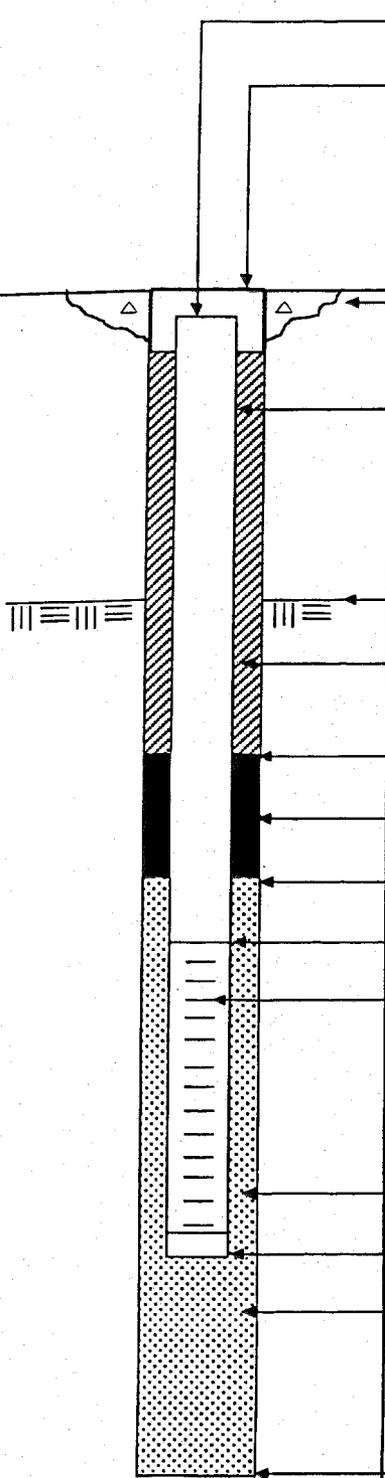
GEOLOGIST: M. DALE

DEV. METHOD:

Submersible

EASTING:

Ground Elevation =  
Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: 8 inch

Type of Surface Casing: Flush mt., Steel w/ skirt, bolt down

Type of Surface Seal: Quikrete Concrete

I.D. of Riser: 2 inch

Type of Riser: Sch. 40 PVC

Borehole Diameter: 8 inch

Elevation / Depth Top of Rock: N/A

Type of Backfill: Type 1  
Portland Cement

Elevation / Depth of Seal: 1.2 FT.

Type of Seal: 30/65 Grade Sand

Elevation / Depth of Top of Filter Pack: 1.3 FT.

Elevation / Depth of Top of Screen: 1.4 FT.

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010 inch x 10 feet

I.D. of Screen: 2 inch

Type of Filter Pack: 20/30 GRADE SAND

Elevation / Depth of Bottom of Screen: 1.14 FT.

Elevation / Depth of Bottom of Filter Pack: 1.14.5 FT.

Type of Backfill Below Well: 20/30 GRADE SAND

Elevation / Total Depth of Borehole: 14.5 FT.



Tetra Tech NUS, Inc.

WELL No.: CEF-800-35

MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD

DRILLING Co.: GPI

BORING No.: \_\_\_\_\_

PROJECT No.: 0039 0394

DRILLER: J. Ziegler

DATE COMPLETED: 09/29/99

SITE: BLDG. 860

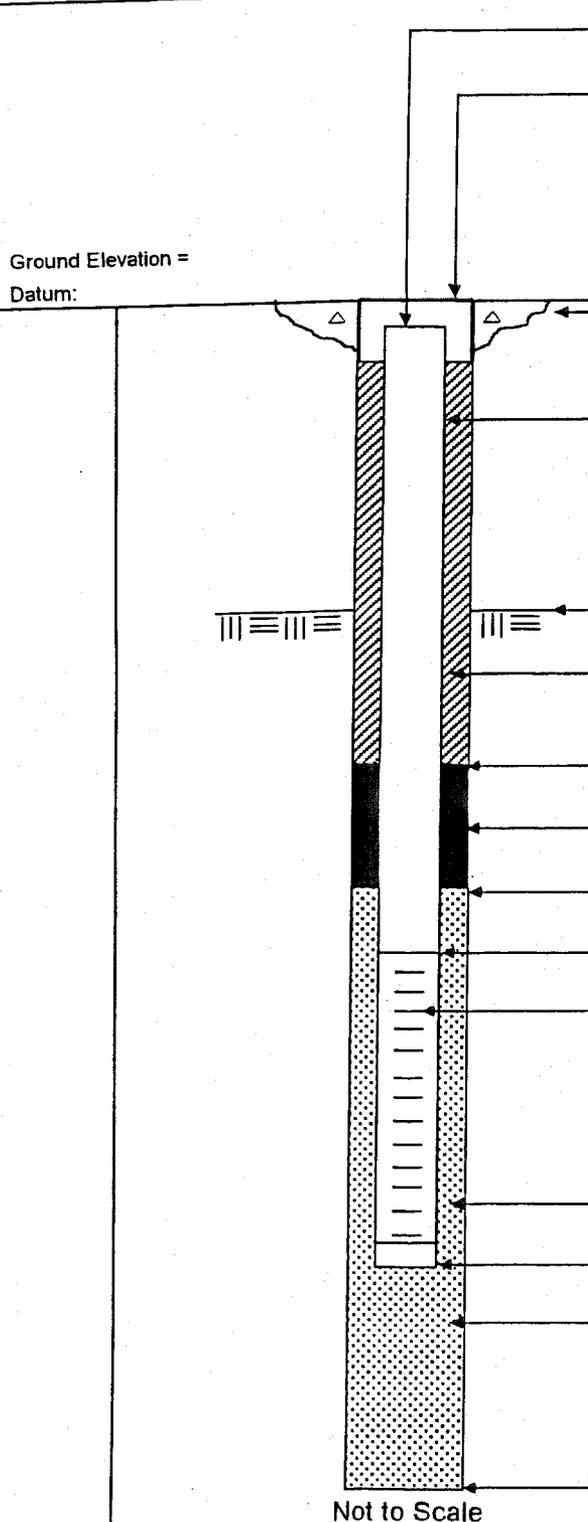
DRILLING METHOD: Hollow Stem

NORTHING: \_\_\_\_\_

GEOLOGIST: M. DALE

DEV. METHOD: Submersible

EASTING: \_\_\_\_\_



Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: 8 inch

Type of Surface Casing: Flush mt. Steel w/skirt, bolt down

Type of Surface Seal: Quikrete Concrete

I.D. of Riser: 2 inch

Type of Riser: Sch. 40 PVC

Borehole Diameter: 8 inch

Elevation / Depth Top of Rock: N/A

Type of Backfill: Type 1 Portland Cement

Elevation / Depth of Seal: 1 2 FT.

Type of Seal: 30/65 Grade Sand

Elevation / Depth of Top of Filter Pack: 1 3 FT.

Elevation / Depth of Top of Screen: 1 4 FT.

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010 inch x 10 feet

I.D. of Screen: 2 inch

Type of Filter Pack: 20/30 GRADE SAND

Elevation / Depth of Bottom of Screen: 1 14 FT.

Elevation / Depth of Bottom of Filter Pack: 1 14.5 FT.

Type of Backfill Below Well: 20/30 GRADE SAND

Elevation / Total Depth of Borehole: 1 14.5 FT.

Not to Scale



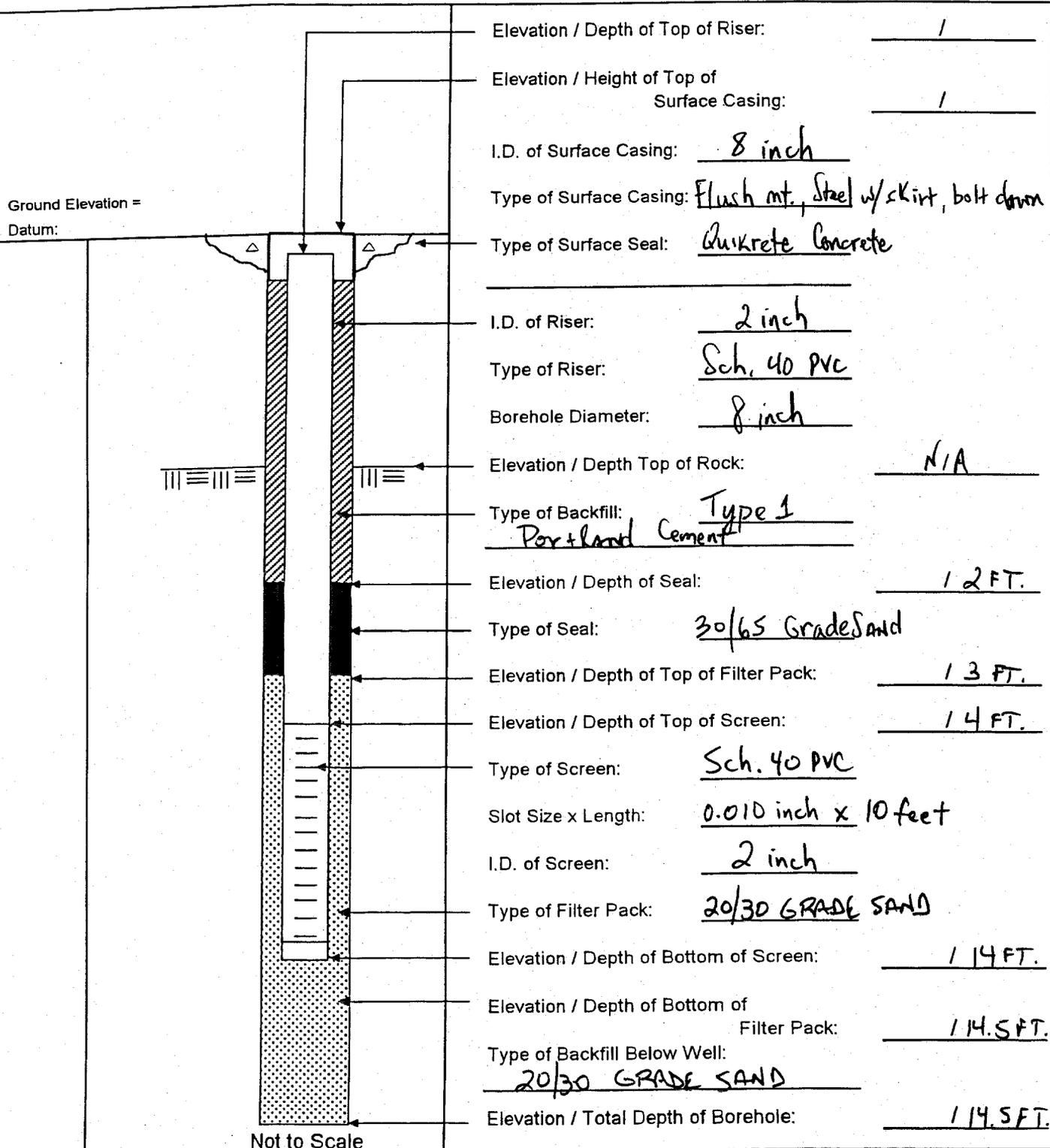
Tetra Tech NUS, Inc.

WELL No.:

CEF-860-4S

MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD DRILLING Co.: GPI BORING No.: \_\_\_\_\_  
 PROJECT No.: ~~0000~~ 0394 DRILLER: J. Ziegler DATE COMPLETED: 09/29/99  
 SITE: BLOG. 860 DRILLING METHOD: Hollow Stem NORTHING: \_\_\_\_\_  
 GEOLOGIST: M. DALE DEV. METHOD: Submersible EASTING: \_\_\_\_\_



Elevation / Depth of Top of Riser: 1  
 Elevation / Height of Top of Surface Casing: 1  
 I.D. of Surface Casing: 8 inch  
 Type of Surface Casing: Flush mt., Steel w/skirt, bolt down  
 Type of Surface Seal: Quikrete Concrete  
 I.D. of Riser: 2 inch  
 Type of Riser: Sch. 40 PVC  
 Borehole Diameter: 8 inch  
 Elevation / Depth Top of Rock: N/A  
 Type of Backfill: Type 1 Portland Cement  
 Elevation / Depth of Seal: 1.2 FT.  
 Type of Seal: 30/65 Grade Sand  
 Elevation / Depth of Top of Filter Pack: 1.3 FT.  
 Elevation / Depth of Top of Screen: 1.4 FT.  
 Type of Screen: Sch. 40 PVC  
 Slot Size x Length: 0.010 inch x 10 feet  
 I.D. of Screen: 2 inch  
 Type of Filter Pack: 20/30 GRADE SAND  
 Elevation / Depth of Bottom of Screen: 1.4 FT.  
 Elevation / Depth of Bottom of Filter Pack: 1.45 FT.  
 Type of Backfill Below Well: 20/30 GRADE SAND  
 Elevation / Total Depth of Borehole: 1.145 FT.

Ground Elevation = Datum:

Not to Scale



Tetra Tech NUS, Inc.

WELL No.: CEF-860-55

MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD

DRILLING Co.: GPI

BORING No.: \_\_\_\_\_

PROJECT No.: 0039 0394

DRILLER: J. Ziegler

DATE COMPLETED: 09/29/99

SITE: BLOG. 860

DRILLING METHOD: Hollow Stem

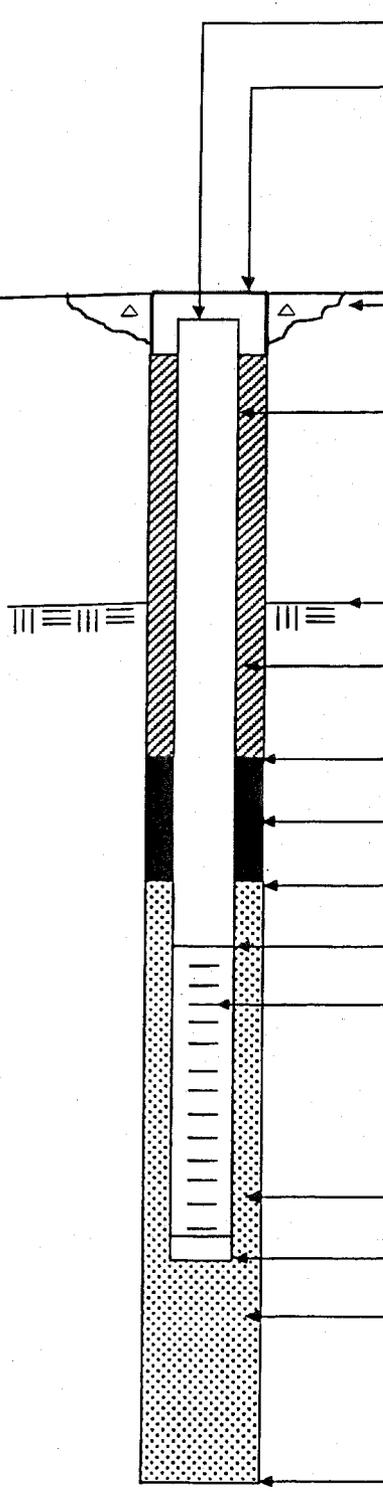
NORTHING: \_\_\_\_\_

GEOLOGIST: M. DALE

DEV. METHOD: Submersible

EASTING: \_\_\_\_\_

Ground Elevation = Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: 8 inch

Type of Surface Casing: Flush mt. Steel w/ skirt, bolt down

Type of Surface Seal: Quikrete Concrete

I.D. of Riser: 2 inch

Type of Riser: Sch. 40 PVC

Borehole Diameter: 8 inch

Elevation / Depth Top of Rock: N/A

Type of Backfill: Type 1  
Portland Cement

Elevation / Depth of Seal: 1.2 FT.

Type of Seal: 30/65 Grade Sand

Elevation / Depth of Top of Filter Pack: 1.3 FT.

Elevation / Depth of Top of Screen: 1.4 FT.

Type of Screen: Sch. 40 PVC

Slot Size x Length: 0.010 inch x 10 feet

I.D. of Screen: 2 inch

Type of Filter Pack: 20/30 GRADE SAND

Elevation / Depth of Bottom of Screen: 1.14 FT.

Elevation / Depth of Bottom of Filter Pack: 1.14.5 FT.

Type of Backfill Below Well: 20/30 GRADE SAND

Elevation / Total Depth of Borehole: 1.14.5 FT.



Tetra Tech NUS, Inc.

WELL No.:

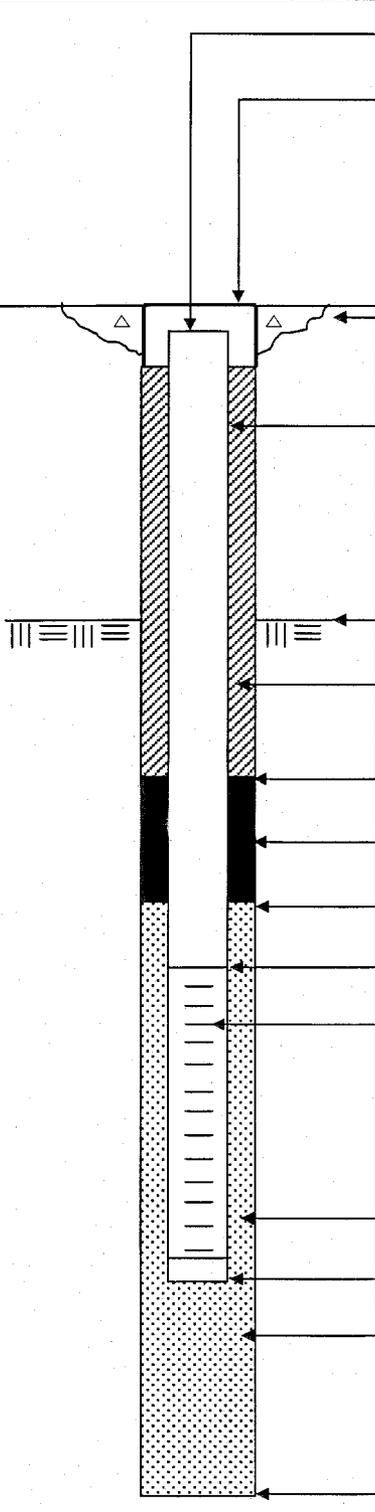
CEF-860-65

**MONITORING WELL SHEET**

SR

PROJECT: NAS CECIL FIELD DRILLING Co.: GROUNDWATER PLT. BORING No.: CEF-860-65  
 PROJECT No.: P0039 0394 DRILLER: M. SMARITTO DATE COMPLETED: 2/1/00  
 SITE: BUDG 860 DRILLING METHOD: WSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: A. WILCOX DEV. METHOD: Submersible EASTING: \_\_\_\_\_

Ground Elevation = Datum:



Elevation / Depth of Top of Riser: 1  
 Elevation / Height of Top of Surface Casing: 1  
 I.D. of Surface Casing: 8"  
 Type of Surface Casing: SS MANHOLE  
 Type of Surface Seal: QUICKRETE  
 I.D. of Riser: 2"  
 Type of Riser: PVC SCH 40  
 Borehole Diameter: 8"  
 Elevation / Depth Top of Rock: 1  
 Type of Backfill: QUICKRETE  
 Elevation / Depth of Seal: 1 1'  
 Type of Seal: 30/65 SAND  
 Elevation / Depth of Top of Filter Pack: 1 3'  
 Elevation / Depth of Top of Screen: 1 4'  
 Type of Screen: PVC SCH 40  
 Slot Size x Length: 0.010 x 10'  
 I.D. of Screen: 2"  
 Type of Filter Pack: 20/30 sand  
 Elevation / Depth of Bottom of Screen: 1 14'  
 Elevation / Depth of Bottom of Filter Pack: 1 14'  
 Type of Backfill Below Well: \_\_\_\_\_  
 Elevation / Total Depth of Borehole: 1 14'



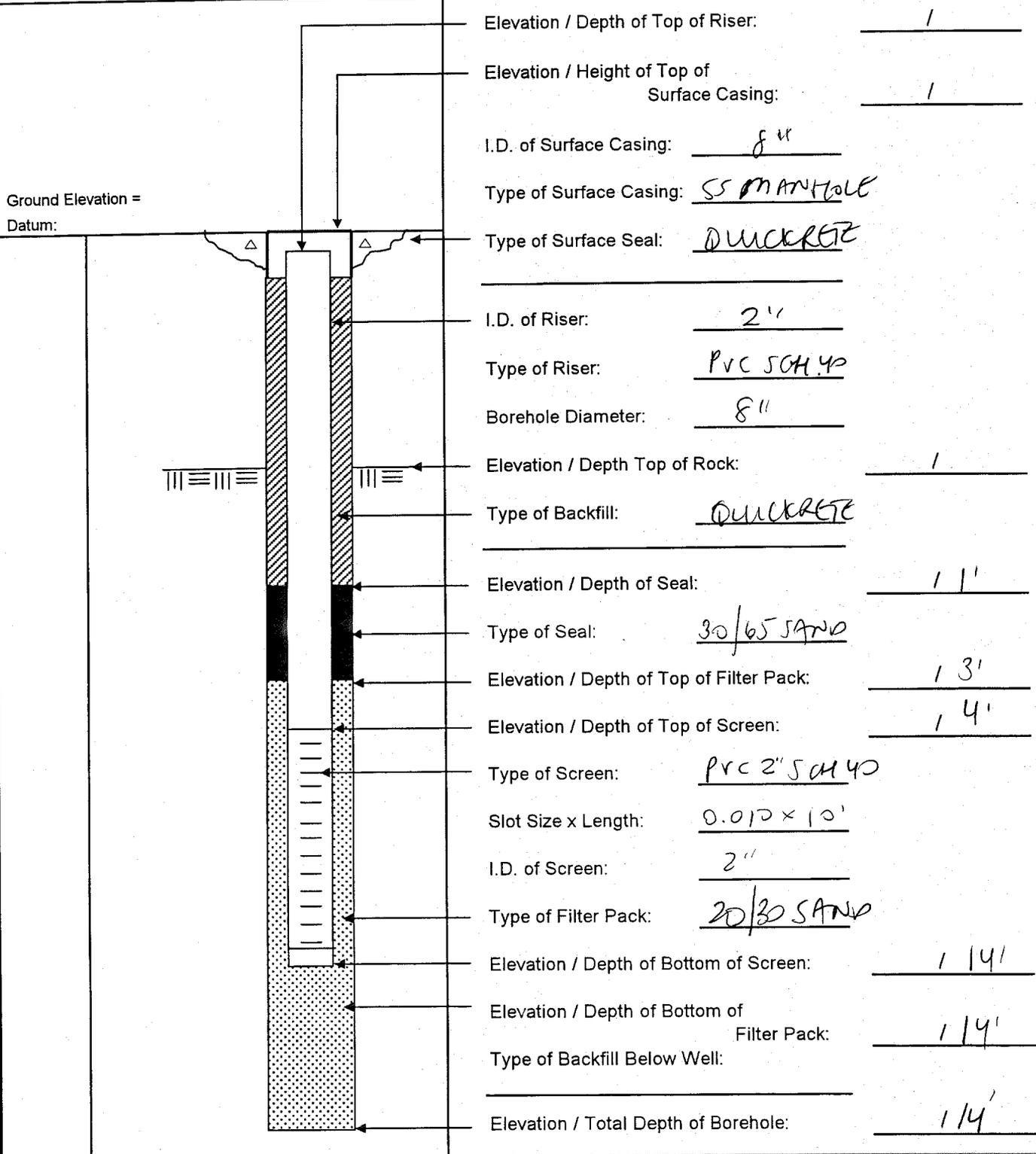
Tetra Tech NUS, Inc.

WELL No.:

CEF-F60-75

### MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD DRILLING Co.: GROUND WATER PROT. BORING No.: CEF-F60-75  
 PROJECT No.: 0039 DRILLER: A. SMART DATE COMPLETED: 2/1/00  
 SITE: BUDU F60 DRILLING METHOD: HSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: A. WILSON DEV. METHOD: Submersible EASTING: \_\_\_\_\_



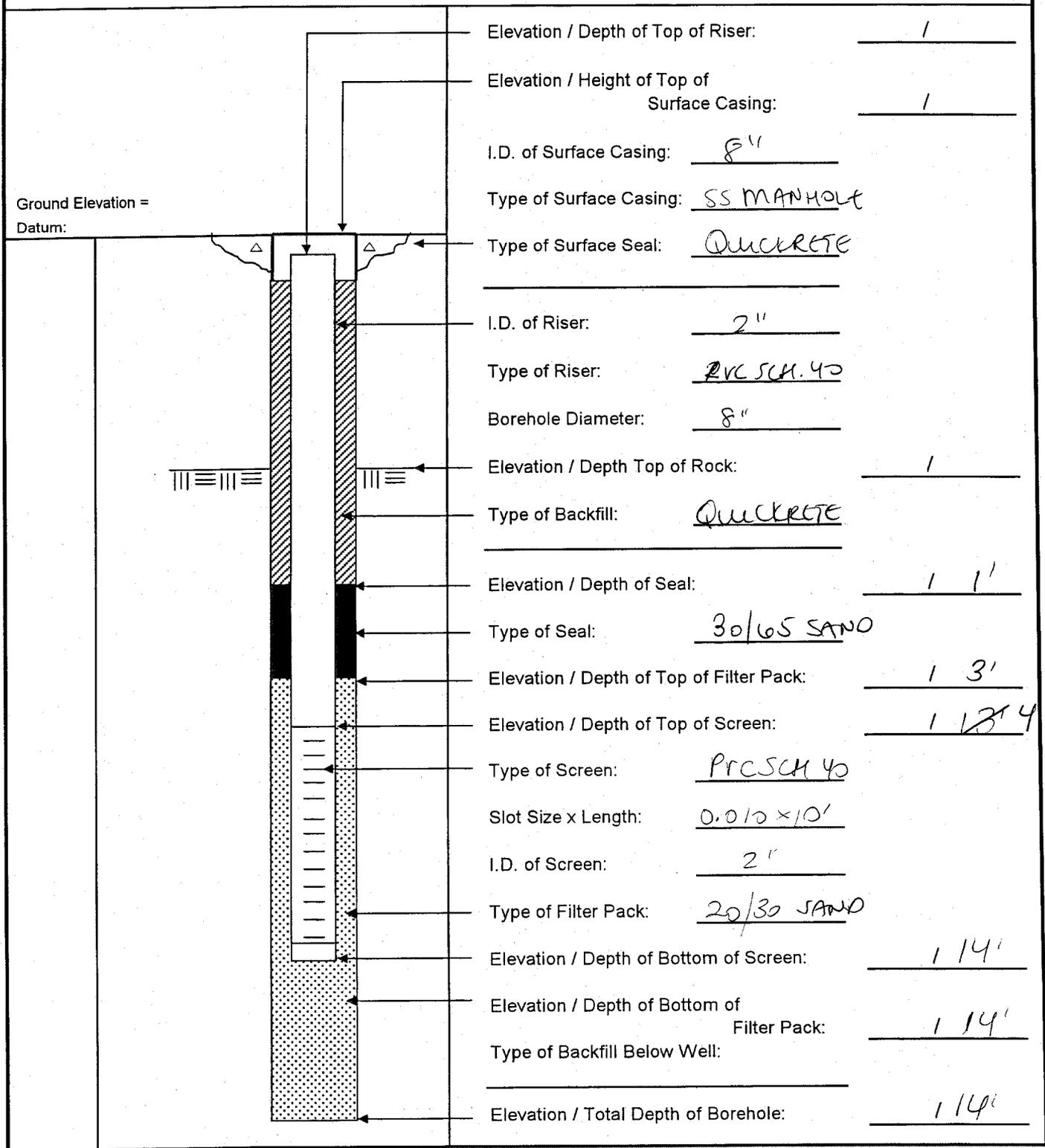


Tetra Tech NUS, Inc.

WELL No.: CEF-860-85

### MONITORING WELL SHEET

PROJECT: NAS CECIL FIELD DRILLING Co.: GROUNDWATER PROT. BORING No.: CEF-860-85  
 PROJECT No.: E-0039 N0394 DRILLER: N. SMARANTO DATE COMPLETED: 2/1/00  
 SITE: BUDG 860 DRILLING METHOD: HSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: A WILLOP DEV. METHOD: Submersible EASTING: \_\_\_\_\_



Ground Elevation = Datum:

Elevation / Depth of Top of Riser: 1  
 Elevation / Height of Top of Surface Casing: 1  
 I.D. of Surface Casing: 8"  
 Type of Surface Casing: SS MANHOLE  
 Type of Surface Seal: QUICKCRETE  
 I.D. of Riser: 2"  
 Type of Riser: PVC SCH. 40  
 Borehole Diameter: 8"  
 Elevation / Depth Top of Rock: 1  
 Type of Backfill: QUICKCRETE  
 Elevation / Depth of Seal: 1 1'  
 Type of Seal: 30/60 SAND  
 Elevation / Depth of Top of Filter Pack: 1 3'  
 Elevation / Depth of Top of Screen: 1 13' 4"  
 Type of Screen: PRCSCH 40  
 Slot Size x Length: 0.010 x 10'  
 I.D. of Screen: 2"  
 Type of Filter Pack: 20/30 SAND  
 Elevation / Depth of Bottom of Screen: 1 14'  
 Elevation / Depth of Bottom of Filter Pack: 1 14'  
 Type of Backfill Below Well: \_\_\_\_\_  
 Elevation / Total Depth of Borehole: 1 14'

## **Appendix C**

### **Groundwater Analytical Data**

## Report of Analysis

Client Sample ID:	CEF-860-GW-2S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-8	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0010808.D	1	10/20/99	CJP	n/a	n/a	VG297
Run #2							

## VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
74-83-9	Methyl bromide	ND	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	CEF-860-GW-2S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-8	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

## VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		80-116%
17060-07-0	1,2-Dichloroethane-D4	93%		74-120%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	98%		86-115%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	CEF-860-GW-2S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-8	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 504.1		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST00855.D	1	10/12/99	SKW	n/a	n/a	GST37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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

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

## Report of Analysis

Client Sample ID: CEF-860-GW-2S-01	Date Sampled: 10/06/99
Lab Sample ID: F5033-8	Date Received: 10/08/99
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: FLORIDA-PRO	
Project: NAS Cecil Field	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	OP05508.D	1	10/12/99	ME	10/11/99	OP1019	GOP264

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1.09	0.50	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		40-140%

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

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

## Report of Analysis

Client Sample ID: CEF-860-GW-2S-01  
 Lab Sample ID: F5033-8  
 Matrix: AQ - Ground Water  
 Method: SW846 8310  
 Project: NAS Cecil Field

Date Sampled: 10/06/99  
 Date Received: 10/08/99  
 Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6486.D	1	10/22/99	AMA	10/13/99	M:OP1481	M:GLC41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.16	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.16	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.16	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.16	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.16	ug/l	
218-01-9	Chrysene	ND	0.16	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.16	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.16	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		20-160%

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-2S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-8	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	NAS Cecil Field		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Lead	1.6 U	1.6	ug/l	1	10/12/99	10/14/99 JK	EPA 200.7

---

RL = Reporting Limit

## Report of Analysis

Client Sample ID:	CEF-860-GW-3S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-2	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0010826.D	1	10/21/99	CJP	n/a	n/a	VG298
Run #2 <sup>a</sup>	G0010843.D	5	10/22/99	CJP	n/a	n/a	VG298

## VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
74-83-9	Methyl bromide	ND	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane <sup>b</sup>	ND <sup>c</sup>	5.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	CEF-860-GW-3S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-2	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

## VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%	92%	80-116%
17060-07-0	1,2-Dichloroethane-D4	106%	93%	74-120%
2037-26-5	Toluene-D8	103%	103%	80-120%
460-00-4	4-Bromofluorobenzene	92%	96%	86-115%

- (a) Sample analyzed beyond hold time; reported results are considered minimum values.  
(b) Dilution required due to matrix interference.  
(c) Result is from Run# 2

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

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

## Report of Analysis

Client Sample ID: CEF-860-GW-3S-01  
Lab Sample ID: F5045-2  
Matrix: AQ - Ground Water  
Method: EPA 504.1  
Project: NAS Cecil Field

Date Sampled: 10/07/99  
Date Received: 10/09/99  
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST00862.D	1	10/12/99	SKW	n/a	n/a	GST38
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-3S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-2	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05527.D	4	10/13/99	ME	10/12/99	OP1022	GOP265
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	6.86	2.0	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	100%		40-140%	

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-3S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-2	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8310		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	LC6503.D	1	10/22/99	AMA	10/15/99	M:OP1488	M:GLC42
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.1	ug/l	
208-96-8	Acenaphthylene	ND	1.1	ug/l	
120-12-7	Anthracene	ND	1.1	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.17	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.17	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.17	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.17	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.17	ug/l	
218-01-9	Chrysene	ND	0.17	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.17	ug/l	
206-44-0	Fluoranthene	ND	1.1	ug/l	
86-73-7	Fluorene	ND	1.1	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.17	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.1	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	ug/l	
91-20-3	Naphthalene	ND	1.1	ug/l	
85-01-8	Phenanthrene	ND	1.1	ug/l	
129-00-0	Pyrene	ND	1.1	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		20-160%

(a) Samples extracted beyond recommended holding time. Results confirmed via Accutest Laboratories Southeast DRO extracts (OP1013, OP1022).

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-3S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-2	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	NAS Cecil Field		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Lead	1.6 U	1.6	ug/l	1	10/12/99	10/14/99 JK	EPA 200.7

---

RL = Reporting Limit

## Report of Analysis

Client Sample ID:	CEF-860-GW-4S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-1	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0010824.D	1	10/21/99	CJP	n/a	n/a	VG298
Run #2 <sup>a</sup>	G0010842.D	5	10/22/99	CJP	n/a	n/a	VG298

## VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
74-83-9	Methyl bromide	ND	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane <sup>b</sup>	ND <sup>c</sup>	5.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	CEF-860-GW-4S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-1	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

## VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%	91%	80-116%
17060-07-0	1,2-Dichloroethane-D4	94%	91%	74-120%
2037-26-5	Toluene-D8	104%	102%	80-120%
460-00-4	4-Bromofluorobenzene	88%	96%	86-115%

- (a) Sample analyzed beyond hold time; reported results are considered minimum values.  
(b) Dilution required due to matrix interference.  
(c) Result is from Run# 2

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-4S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-1	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 504.1		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST00861.D	1	10/12/99	SKW	n/a	n/a	GST38
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-4S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-1	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05544.D	10	10/14/99	ME	10/12/99	OP1022	GOP266
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	26.0	5.0	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		40-140%

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-4S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-1	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8310		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	LC6502.D	1	10/22/99	AMA	10/15/99	M:OP1488	M:GLC42
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.15	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.15	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo (g,h,i) perylene	0.44	0.15	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.15	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.15	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%		20-160%

(a) Samples extracted beyond recommended holding time. Results confirmed via Accutest Laboratories Southeast DRO extracts (OP1013, OP1022).

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

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

# Report of Analysis

Client Sample ID:	CEF-860-GW-4S-01	Date Sampled:	10/07/99
Lab Sample ID:	F5045-1	Date Received:	10/09/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	NAS Cecil Field		

## Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Lead	1.6 U	1.6	ug/l	1	10/12/99	10/14/99 JK	EPA 200.7

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RL = Reporting Limit

## Report of Analysis

Client Sample ID:	CEF-860-GW-5S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-9	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	G0010805.D	10	10/20/99	CJP	n/a	n/a	VG297
Run #2							

## VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	10	ug/l	
75-27-4	Bromodichloromethane	ND	10	ug/l	
75-25-2	Bromoform	ND	10	ug/l	
108-90-7	Chlorobenzene	ND	10	ug/l	
75-00-3	Chloroethane	ND	10	ug/l	
67-66-3	Chloroform	ND	10	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	10	ug/l	
56-23-5	Carbon tetrachloride	ND	10	ug/l	
75-34-3	1,1-Dichloroethane	ND	10	ug/l	
75-35-4	1,1-Dichloroethylene	ND	10	ug/l	
106-93-4	1,2-Dibromoethane	ND	10	ug/l	
107-06-2	1,2-Dichloroethane	ND	10	ug/l	
78-87-5	1,2-Dichloropropane	ND	10	ug/l	
124-48-1	Dibromochloromethane	ND	10	ug/l	
75-71-8	Dichlorodifluoromethane	ND	10	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	10	ug/l	
541-73-1	m-Dichlorobenzene	ND	10	ug/l	
95-50-1	o-Dichlorobenzene	ND	10	ug/l	
106-46-7	p-Dichlorobenzene	ND	10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	10	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	10	ug/l	
100-41-4	Ethylbenzene	ND	10	ug/l	
74-83-9	Methyl bromide	ND	10	ug/l	
74-87-3	Methyl chloride	ND	10	ug/l	
75-09-2	Methylene chloride	ND	50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	10	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	10	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	10	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	10	ug/l	
127-18-4	Tetrachloroethylene	ND	10	ug/l	
108-88-3	Toluene	ND	10	ug/l	
79-01-6	Trichloroethylene	ND	10	ug/l	
75-69-4	Trichlorofluoromethane	ND	10	ug/l	
75-01-4	Vinyl chloride	ND	10	ug/l	
1330-20-7	Xylene (total)	ND	30	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: CEF-860-GW-5S-01	Date Sampled: 10/06/99
Lab Sample ID: F5033-9	Date Received: 10/08/99
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: NAS Cecil Field	

## VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%		80-116%
17060-07-0	1,2-Dichloroethane-D4	74%		74-120%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	100%		86-115%

(a) Dilution required due to matrix interference.

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

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

### Report of Analysis

Client Sample ID:	CEF-860-GW-5S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-9	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 504.1		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST00856.D	1	10/12/99	SKW	n/a	n/a	GST37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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

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

## Report of Analysis

Client Sample ID: CEF-860-GW-5S-01	Date Sampled: 10/06/99
Lab Sample ID: F5033-9	Date Received: 10/08/99
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: FLORIDA-PRO	
Project: NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05509.D	8	10/12/99	ME	10/11/99	OP1019	GOP264
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	13.5	4.0	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	111%		40-140%	

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-5S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-9	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8310		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6487.D	1	10/22/99	AMA	10/13/99	M:OP1481	M:GLC41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	13.4	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.15	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.15	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.15	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.15	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.15	ug/l	
90-12-0	1-Methylnaphthalene	16.5	1.0	ug/l	
91-57-6	2-Methylnaphthalene	18.1	1.0	ug/l	
91-20-3	Naphthalene	21.7	1.0	ug/l	
85-01-8	Phenanthrene	2.6	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	142%		20-160%

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-5S-01	Date Sampled:	10/06/99
Lab Sample ID:	F5033-9	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	NAS Cecil Field		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Lead	3.7 B	1.6	ug/l	1	10/12/99	10/14/99 JK	EPA 200.7

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RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-6S-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-3	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	H006415.D	1	02/29/00	CJP	n/a	n/a	VH51
Run #2							

## VOA TCL List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	5.0	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
75-15-0	Carbon disulfide	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ug/l	
74-83-9	Methyl bromide	ND	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	ug/l	

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

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

000004



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-6S-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-3	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Cecil Field	

### VOA TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	100%		69-128%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

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

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

000005



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-6S-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-3	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8310	
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8930.D	1	03/03/00	AMA	02/23/00	M:OP1770	M:GLC117
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.16	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.16	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.16	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.16	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.16	ug/l	
218-01-9	Chrysene	ND	0.16	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.16	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.16	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		20-160%

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

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

000007



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-6S-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-3	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07175.D	1	02/22/00	ME	02/22/00	OP1312	GOP331
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.25	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	94%		40-140%	

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

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

000006



# Report of Analysis

**Client Sample ID:** CEF-860-GW-7S-02  
**Lab Sample ID:** F5911-2  
**Matrix:** AQ - Ground Water  
**Method:** FLORIDA-PRO  
**Project:** NAS Cecil Field

**Date Sampled:** 02/18/00  
**Date Received:** 02/19/00  
**Percent Solids:** n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07172.D	1	02/22/00	ME	02/22/00	OP1312	GOP331
Run #2							

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

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

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

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



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-8S-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-1	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07171.D	1	02/22/00	ME	02/22/00	OP1312	GOP331
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	0.907	0.25	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		40-140%

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

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

000002



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-1S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-1	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 8310	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA001397.D	1	05/20/00	CCJ	05/17/00	OP1567	GAA61
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	0.20	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	ND	2.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		45-130%
92-94-4	p-Terphenyl	96%		50-150%

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

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

**000003**



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-1S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-1	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08271.D	4	05/16/00	ME	05/13/00	OP1551	GOP376
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	3.33	1.0	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	88%		40-140%

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

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

000004



## Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-3S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-2	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 8310	
<b>Project:</b> Cecil Field-CTO-108	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	AA001398.D	1	05/20/00	CCJ	05/17/00	OP1567	GAA61

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	0.20	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	ND	2.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		45-130%
92-94-4	p-Terphenyl	62%		50-150%

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

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

000065



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-3S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-2	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08272.D	20	05/16/00	ME	05/13/00	OP1551	GOP376
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	13.6	5.1	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		40-140%

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

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

000006



## Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-4S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-3	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 8310	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA001399.D	1	05/20/00	CCJ	05/17/00	OP1567	GAA61
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2.2	ug/l	
208-96-8	Acenaphthylene	ND	2.2	ug/l	
120-12-7	Anthracene	ND	2.2	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	ug/l	
218-01-9	Chrysene	ND	0.22	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	ug/l	
206-44-0	Fluoranthene	ND	2.2	ug/l	
86-73-7	Fluorene	ND	2.2	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	ug/l	
91-20-3	Naphthalene	ND	2.2	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	ug/l	
85-01-8	Phenanthrene	ND	2.2	ug/l	
129-00-0	Pyrene	ND	2.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	73%		45-130%
92-94-4	p-Terphenyl	80%		50-150%

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

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





# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-4S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-3	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> Cecil Field-CTO-108	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08273.D	10	05/16/00	ME	05/13/00	OP1551	GOP376
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	10.9	2.6	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		40-140%

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

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

000008



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-5S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-4	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 8310	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA001401.D	1	05/20/00	CCJ	05/17/00	OP1567	GAA61
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	0.20	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	13.8	2.0	ug/l	
90-12-0	1-Methylnaphthalene	10.0	2.0	ug/l	
91-57-6	2-Methylnaphthalene	12.7	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	90%		45-130%
92-94-4	p-Terphenyl	84%		50-150%

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

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

000009



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-5S-03	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-4	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08274.D	10	05/16/00	ME	05/13/00	OP1551	GOP376
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	5.48	2.6	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	77%		40-140%

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

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

000010

## Report of Analysis

Client Sample ID:	CEF-860-GW-DU02	Date Sampled:	10/06/99
Lab Sample ID:	F5033-10	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

Run #1 <sup>a</sup>	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	G0010806.D	10	10/20/99	CJP	n/a	n/a	VG297

## VOA PPL List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	10	ug/l	
75-27-4	Bromodichloromethane	ND	10	ug/l	
75-25-2	Bromoform	ND	10	ug/l	
108-90-7	Chlorobenzene	ND	10	ug/l	
75-00-3	Chloroethane	ND	10	ug/l	
67-66-3	Chloroform	ND	10	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	10	ug/l	
56-23-5	Carbon tetrachloride	ND	10	ug/l	
75-34-3	1,1-Dichloroethane	ND	10	ug/l	
75-35-4	1,1-Dichloroethylene	ND	10	ug/l	
106-93-4	1,2-Dibromoethane	ND	10	ug/l	
107-06-2	1,2-Dichloroethane	ND	10	ug/l	
78-87-5	1,2-Dichloropropane	ND	10	ug/l	
124-48-1	Dibromochloromethane	ND	10	ug/l	
75-71-8	Dichlorodifluoromethane	ND	10	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	10	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	10	ug/l	
541-73-1	m-Dichlorobenzene	ND	10	ug/l	
95-50-1	o-Dichlorobenzene	ND	10	ug/l	
106-46-7	p-Dichlorobenzene	ND	10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	10	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	10	ug/l	
100-41-4	Ethylbenzene	ND	10	ug/l	
74-83-9	Methyl bromide	ND	10	ug/l	
74-87-3	Methyl chloride	ND	10	ug/l	
75-09-2	Methylene chloride	ND	50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	10	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	10	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	10	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	10	ug/l	
127-18-4	Tetrachloroethylene	ND	10	ug/l	
108-88-3	Toluene	ND	10	ug/l	
79-01-6	Trichloroethylene	ND	10	ug/l	
75-69-4	Trichlorofluoromethane	ND	10	ug/l	
75-01-4	Vinyl chloride	ND	10	ug/l	
1330-20-7	Xylene (total)	ND	30	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID:	CEF-860-GW-DU02	Date Sampled:	10/06/99
Lab Sample ID:	F5033-10	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field		

## VOA PPL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		80-116%
17060-07-0	1,2-Dichloroethane-D4	94%		74-120%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	96%		86-115%

(a) Dilution required due to matrix interference.

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

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

## Report of Analysis

Page 1 of 1

Client Sample ID:	CEF-860-GW-DU02	Date Sampled:	10/06/99
Lab Sample ID:	F5033-10	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 504.1		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST00857.D	1	10/12/99	SKW	n/a	n/a	GST37
Run #2							

CAS No.	Compound	Result	RL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	ug/l	

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-DU02	Date Sampled:	10/06/99
Lab Sample ID:	F5033-10	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP05510.D	8	10/12/99	ME	10/11/99	OP1019	GOP264
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	16.5	4.0	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	104%		40-140%

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-DU02	Date Sampled:	10/06/99
Lab Sample ID:	F5033-10	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8310		
Project:	NAS Cecil Field		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC6488.D	1	10/22/99	AMA	10/13/99	M:OP1481	M:GLC41
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	9.8	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.15	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.15	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.15	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.15	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.15	ug/l	
218-01-9	Chrysene	ND	0.15	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.15	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.15	ug/l	
90-12-0	1-Methylnaphthalene	11.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	11.8	1.0	ug/l	
91-20-3	Naphthalene	15.5	1.0	ug/l	
85-01-8	Phenanthrene	1.8	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	109%		20-160%

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

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

## Report of Analysis

Client Sample ID:	CEF-860-GW-DU02	Date Sampled:	10/06/99
Lab Sample ID:	F5033-10	Date Received:	10/08/99
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	NAS Cecil Field		

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method
Lead	1.6 U	1.6	ug/l	1	10/12/99	10/14/99 JK	EPA 200.7

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RL = Reporting Limit



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-DU03-02	
<b>Lab Sample ID:</b> F5911-4	<b>Date Sampled:</b> 02/18/00
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 02/19/00
<b>Method:</b> SW846 8260B	<b>Percent Solids:</b> n/a
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	H006416.D	1	02/29/00	CJP	n/a	n/a	VH51
Run #2							

## VOA TCL List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	5.0	ug/l	
71-43-2	Benzene	ND	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	ug/l	
75-25-2	Bromoform	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	1.0	ug/l	
75-00-3	Chloroethane	ND	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	ug/l	
75-15-0	Carbon disulfide	ND	5.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
591-78-6	2-Hexanone	ND	5.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ug/l	
74-83-9	Methyl bromide	ND	1.0	ug/l	
74-87-3	Methyl chloride	ND	1.0	ug/l	
75-09-2	Methylene chloride	ND	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	ug/l	
100-42-5	Styrene	ND	1.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
79-01-6	Trichloroethylene	ND	1.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

000008



## Report of Analysis

Page 2 of 2

<b>Client Sample ID:</b> CEF-860-GW-DU03-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-4	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B	
<b>Project:</b> NAS Cecil Field	

### VOA TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		69-128%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	103%		80-120%

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

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

000009



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-DU03-02	
<b>Lab Sample ID:</b> F5911-4	<b>Date Sampled:</b> 02/18/00
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 02/19/00
<b>Method:</b> SW846 8310	<b>Percent Solids:</b> n/a
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	LC8931.D	1	03/03/00	AMA	02/23/00	M:OP1770	M:GLC117
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	1.0	ug/l	
208-96-8	Acenaphthylene	ND	1.0	ug/l	
120-12-7	Anthracene	ND	1.0	ug/l	
56-55-3	Benzo (a) anthracene	ND	0.16	ug/l	
50-32-8	Benzo (a) pyrene	ND	0.16	ug/l	
205-99-2	Benzo (b) fluoranthene	ND	0.16	ug/l	
191-24-2	Benzo (g,h,i) perylene	ND	0.16	ug/l	
207-08-9	Benzo (k) fluoranthene	ND	0.16	ug/l	
218-01-9	Chrysene	ND	0.16	ug/l	
53-70-3	Dibenz(a,h)anthracene	ND	0.16	ug/l	
206-44-0	Fluoranthene	ND	1.0	ug/l	
86-73-7	Fluorene	ND	1.0	ug/l	
193-39-5	Indeno (1,2,3-cd) pyrene	ND	0.16	ug/l	
90-12-0	1-Methylnaphthalene	ND	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	ug/l	
91-20-3	Naphthalene	ND	1.0	ug/l	
85-01-8	Phenanthrene	ND	1.0	ug/l	
129-00-0	Pyrene	ND	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	66%		20-160%

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

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



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-DU03-02	<b>Date Sampled:</b> 02/18/00
<b>Lab Sample ID:</b> F5911-4	<b>Date Received:</b> 02/19/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> NAS Cecil Field	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP07173.D	1	02/22/00	ME	02/22/00	OP1312	GOP331
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.28	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	101%		40-140%	

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

000010



## Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-DU06 <b>Lab Sample ID:</b> F6502-5 <b>Matrix:</b> AQ - Ground Water <b>Method:</b> EPA 8310 <b>Project:</b> Cecil Field-CTO-108	<b>Date Sampled:</b> 05/10/00 <b>Date Received:</b> 05/11/00 <b>Percent Solids:</b> n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	AA001402.D	1	05/20/00	CCJ	05/17/00	OP1567	GAA61
Run #2							

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	2.0	ug/l	
208-96-8	Acenaphthylene	ND	2.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	0.20	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	ND	2.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		45-130%
92-94-4	p-Terphenyl	94%		50-150%

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

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

000011



# Report of Analysis

<b>Client Sample ID:</b> CEF-860-GW-DU06	<b>Date Sampled:</b> 05/10/00
<b>Lab Sample ID:</b> F6502-5	<b>Date Received:</b> 05/11/00
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> FLORIDA-PRO	
<b>Project:</b> Cecil Field-CTO-108	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP08275.D	4	05/16/00	ME	05/13/00	OP1551	GOP376
Run #2							

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	2.88	1.0	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	80%		40-140%

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

000013