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NAS CECIL FIELD, FL  
5090.3a

FIRST SEMI-ANNUAL THIRD YEAR GROUNDWATER MONITORING LETTER REPORT FOR  
OCALA F-18 CRASH SITE NAS CECIL FIELD FL  
12/11/2002  
TETRA TECH NUS INC



**TETRA TECH NUS, INC.**

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Document No. TTNUS/TPA-02-022/0486

December 11, 2002

Project Number 4093

Mr. David Grabka  
Remedial Project Manager  
Technical Review/Federal Facilities  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Reference: Clean Contract No. N62467-94-D-0888  
Contract Task Order No. 0209

Subject: Groundwater Monitoring Report, 1<sup>st</sup> Semi-Annual, 3<sup>rd</sup> Year (October 2002)  
Ocala F-18 Crash Site  
Naval Air Station Cecil Field  
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this semi-annual Groundwater Monitoring Report for the referenced Contract Task Order (CTO) for the Ocala F-18 Crash Site. This groundwater monitoring report was prepared for the United States Navy Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. The objective of this task is to conduct semi-annual groundwater monitoring in accordance with the Monitoring Only Plan Approval Order (MOPAO) issued by the Florida Department of Environmental Protection (FDEP) on April 1, 1998. The MOPAO is included as Attachment A. The guidance document for this report is Chapter 62-770, Florida Administrative Code (FAC).

This report summarizes the fieldwork and laboratory analytical results for sampling event conducted on October 4, 2002. Figure 1 shows the location of the site. The work was performed in general accord with the Base-wide Generic Work Plan Volumes I and II (TtNUS, 1998).

#### **FIELD OPERATIONS**

Water level measurements were recorded from each of the monitoring wells prior to sample collection. The depth to water ranged from 22.89 feet below top of casing (ft btoc) (CEF-CS4) to 26.59 ft btoc (CEF-CS2). The depth-to-water measurements, along with top-of-casing elevations, were used to calculate groundwater elevations. Groundwater elevation data from this event and the previous seven sampling events are provided on Table 1. A groundwater elevation contour map generated from the October 4, 2002 data is provided as Figure 2. Based on this data, the inferred direction of groundwater flow is to the northeast. This groundwater flow direction is consistent with historical groundwater flow directions reported for this site.



Groundwater samples were collected from three monitoring wells (CEF-CS1A, CEF-CS3, and CEF-CS7) on October 4, 2002. Following collection, the samples were placed on ice and subsequently shipped under chain-of-custody to Accutest Laboratories in Orlando, Florida. The laboratory analyzed the samples for volatile organic compounds (VOCs), by United States Environmental Protection Agency (USEPA) Method SW846 8021B, and for polynuclear aromatic hydrocarbons (PAHs), by USEPA Method SW846 8310. The reported detection limits for these methods meet the requirements for the similar methods stipulated in the MOPAO.

## RESULTS

The laboratory analytical results from the October 2002 sampling event indicate that benzene, ethylbenzene and total xylenes were detected in source well CEF-CS1A at concentrations of 1.0 µg/L (micrograms per liter), 28.0 µg/L and 16.2 µg/L respectively. In addition, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations of 34.5 µg/L, 62.4 µg/L, and 58.7 µg/L respectively. The laboratory results for samples collected from perimeter monitoring wells CEF-CS3 and CEF-CS7 indicate that the concentrations of contaminants of concern (COCs) were below laboratory detection limits (LDL) in both wells. The laboratory analytical results from the October 2002 sampling event are summarized on Table 2. The historical laboratory analytical results, action levels, and milestone objectives are summarized on Table 3. The laboratory analytical report is provided in Attachment B.

## CONCLUSIONS and RECOMMENDATIONS

The benzene, ethylbenzene, total xylenes and naphthalene concentrations reported in the source well, CEF-CS1A, were below the action levels and milestone objectives for the source well specified in the MOPAO (Table 2). The MOPAO did not specify action levels or milestone objectives for 1-methylnaphthalene and 2-methylnaphthalene; however, the concentrations reported in the source well were almost three times greater than their respective groundwater cleanup target levels (GCTLs), and have generally increased over the past four sampling events. Concentrations of COCs in the perimeter monitoring wells, CEF-CS3 and CEF-CS7, were below LDLs in both wells.

The results of the October 2002 sampling event, along with the historical results, suggest that natural attenuation is not reducing the concentrations of COCs at this site. Therefore, TtNUS recommends that a treatability study be performed at this site to determine if a passive technology such as in-situ oxygen curtain (iSOC®) or Oxygen Reducing Compounds (ORC®) injection may be an effective remediation strategy for the site.



TETRA TECH NUS, INC.

Mr. David Grabka  
FDEP  
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If you have any questions regarding the information presented in this document, please contact me by phone at (813) 806-0202, or via e-mail at [calliganp@ttnus.com](mailto:calliganp@ttnus.com).

Sincerely,

Paul E. Calligan, P.G.  
Task Order Manager  
Florida License No. PG-0001864

PC/cg

Attachments (4)

cc: W. Hansel, SOUTHDIV  
J. Thorsen, Seminole Ranger District  
D. Wroblewski, TtNUS (cover letter only)  
M. Perry, TtNUS (unbound)  
Project File

## TABLES

**Table 1**  
**Groundwater Elevation and Monitoring Well Construction Data**

Semi-Annual Groundwater Monitoring Report  
Ocala F-18 Crash Site  
Ocala National Forest  
Naval Air Station Cecil Field  
Jacksonville, Florida  
Page 1 of 3

Monitoring Well Identification	Total Well Depth (feet, bls)	Screened Interval (feet, bls)	TOC Elevation (feet, msl) <sup>1</sup>	May 4, 1998		August 26, 1998		November 23, 1998	
				Depth to Water (feet, btoc)	Water Level Elevation (feet msl)	Depth to Water (feet, btoc)	Water Level Elevation (feet msl)	Depth to Water (feet, btoc)	Water Level Elevation (feet msl)
CEF-CS1A	31	15.5 to 30.5	81.30	20.30	61.00	21.85	59.45	20.23	61.07
CEF-CS2	29.5	14.0 to 29.0	83.54	22.52	61.02	24.17	59.37	22.42	61.12
CEF-CS3	32	16.5 to 31.5	80.98	20.08	60.90	21.60	59.38	20.00	60.98
CEF-CS4	29.5	14.0 to 29.0	79.88	19.05	60.83	20.55	59.33	18.96	60.92
CEF-CS5	33	17.5 to 32.5	80.66	19.79	60.87	21.06	59.60	19.50	61.16
CEF-CS6	53.5	48.0 to 53.0	81.59	20.61	60.98	22.15	59.44	20.52	61.07
CEF-CS7	29.9	19.0 to 29.0	80.89	20.11	60.78	21.64	59.25	20.00	60.89

See notes at end of table.

**Table 1 (cont.)**  
**Groundwater Elevation and Monitoring Well Construction Data**

Semi-Annual Groundwater Monitoring Report  
 Ocala F-18 Crash Site  
 Ocala National Forest  
 Naval Air Station Cecil Field  
 Jacksonville, Florida  
 Page 2 of 3

Monitoring Well Identification	Total Well Depth (feet, bls)	Screened Interval (feet, bls)	TOC Elevation (feet, msl) <sup>1</sup>	February 22, 1999		October 4, 1999		March 7, 2000	
				Depth to Water (feet, btoc)	Water Level Elevation (feet msl)	Depth to Water (feet, btoc)	Water Level Elevation (feet msl)	Depth to Water (feet, btoc)	Water Level Elevation (feet msl)
CEF-CS1A	31	15.5 to 30.5	81.30	22.39	58.91	25.05	56.25	25.98	55.32
CEF-CS2	29.5	14.0 to 29.0	83.54	24.60	58.94	27.33	56.21	28.28	55.26
CEF-CS3	32	16.5 to 31.5	80.98	22.16	58.82	24.84	56.14	25.82	55.16
CEF-CS4	29.5	14.0 to 29.0	79.88	21.12	58.76	23.79	56.09	24.80	55.08
CEF-CS5	33	17.5 to 32.5	80.66	21.68	58.98	24.33	56.33	25.35	55.31
CEF-CS6	53.5	48.0 to 53.0	81.59	22.67	58.92	25.37	56.22	26.33	55.26
CEF-CS7	29.9	19.0 to 29.0	80.89	22.15	58.74	24.84	56.05	25.81	55.08

See notes at end of table.

**Table 1 (cont.)  
Groundwater Elevation and Monitoring Well Construction Data**

Semi-Annual Groundwater Monitoring Report  
Ocala F-18 Crash Site  
Ocala National Forest  
Naval Air Station Cecil Field  
Jacksonville, Florida  
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Monitoring Well Identification	Total Well Depth (feet, bls)	Screened Interval (feet, bls)	TOC Elevation (feet, msl) <sup>1</sup>	September 27, 2000		March 7, 2001		October 4, 2002	
				Depth to Water (feet, btoc)	Water Level Elevation (feet msl)	Depth to Water (feet, btoc)	Water Level Elevation (feet msl)	Depth to Water (feet, btoc)	Water Level Elevation (feet msl)
CEF-CS1A	31	15.5 to 30.5	81.30	28.49	52.81	30.29	51.01	24.23	57.07
CEF-CS2	29.5	14.0 to 29.0	83.54	30.77	52.77	31.91	51.63	26.59	56.95
CEF-CS3	32	16.5 to 31.5	80.98	28.26	52.72	30.07	50.91	23.98	57.00
CEF-CS4	29.5	14.0 to 29.0	79.88	27.19	52.69	29.02	50.86	22.89	56.99
CEF-CS5	33	17.5 to 32.5	80.66	27.77	52.89	29.6	51.06	23.43	57.23
CEF-CS6	53.5	48.0 to 53.0	81.59	28.78	52.81	30.59	51.00	24.55	57.04
CEF-CS7	29.9	19.0 to 29.0	80.89	28.27	52.62	DRY	<50.99	23.97	56.92

<sup>1</sup>Top of casing elevations for monitoring wells 1A through 6 were surveyed by ARC Surveying, Inc. for the Remediation Closure Report [Bechtel Environmental, Inc. (BEI), 1996]. Following its installation, monitoring well CEF-CS7 was surveyed by Harding Lawson Associates (HLA) personnel based on ARC's data.

Notes: bls = below land surface.  
TOC = top of casing.  
msl = mean sea level.  
btoc = below top of casing.  
< = less than.

**Table 2**  
**Summary of Detections in Groundwater**

Semi-Annual Groundwater Monitoring Report  
Ocala F-18 Crash Site  
Ocala National Forest  
Naval Air Station Cecil Field  
Jacksonville, Florida

Contaminant	Monitoring Well Location			Cleanup Criteria <sup>1</sup>	
	CEF-CS1A (source)	CEF-CS3 (perimeter)	CEF-CS7 (perimeter)	Action Levels (source/perimeter)	Milestone Objectives (end of year 3)
<b><u>Volatile Organic Coumpounds (USEPA Method 8021B) (µg/L)</u></b>					
Benzene	1.0	ND	ND	100/1	8
Ethylbenzene	28.0	ND	ND	300/30	40
Toluene	ND	ND	ND	400/40	80
Total Xylenes	16.2	ND	ND	NA	NA
<b><u>Polynuclear Aromatic Hydrocarbons (USEPA Method 8310)(µg/L)</u></b>					
Naphthalene	34.5	ND	ND	200/20	60
1-methylnapthalene	62.4	ND	ND	NA	NA
2-methylnapthalene	58.7	ND	ND	NA	NA
<sup>1</sup> Based on the Monitoring Only Plan for Natural Attenuation Approval Order (MOPAO) (Attachment A)					
Notes: µg/L = micrograms per liter. ND = none detected. NA = no value presented in the approval order.					

**Table 3**  
**Summary of Detections in Groundwater**

Semi-Annual Groundwater Monitoring Report  
Ocala F-18 Crash Site  
Ocala National Forest  
Naval Air Station Cecil Field  
Jacksonville, Florida  
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Compounds Detected	Monitoring Well Identification																			Cleanup Criteria <sup>1</sup>	
	CEF-CS1A (source) <sup>4</sup>											CEF-CS2	CEF-CS3 (perimeter) <sup>4</sup>							Action Levels (source/perimeter)	Milestone Objectives (end of year 3)
	Aug 98	Nov 98	Feb 99	Oct 99	Mar 00	Mar 00 <sup>3</sup>	Sep 00	Mar 01	Oct 02	Oct 02 <sup>3</sup>	Oct 99	Aug 98	Nov 98	Feb 99	Oct 99	Mar 00	Aug 00	Mar 01	Oct 02		
<b><u>Volatile Organic Compounds<sup>2</sup> (µg/L)</u></b>																					
Benzene	16	14	13	16.9	16.6	16.6	42	39	1.0	1.2	ND	ND	ND	ND	NS	ND	ND	ND	ND	100/1	8
Ethylbenzene	44	31	34	43.2	31.2	31.2	31	50	28.0	30.2	ND	ND	ND	ND	NS	ND	ND	ND	ND	300/30	40
Toluene	7.1	3.5	1.8	3.4	2.1	2.1	6	8.9	ND	0.61	ND	ND	ND	ND	NS	ND	ND	ND	ND	400/40	80
Total Xylenes	115	63	33	80.4	38.4	38.4	39	53	16.2	16.3	ND	ND	ND	ND	NS	ND	ND	ND	ND	NA	NA
<b><u>Polynuclear Aromatic Hydrocarbons<sup>2</sup> (µg/L)</u></b>																					
Naphthalene	52	75	39	16	29.5 <sup>3</sup>	16.8	34	61	34.5	33.5	ND	ND	ND	ND	NS	ND	ND	ND	ND	200/20	60
1-Methylnaphthalene	45	87	31	27	37.2 <sup>3</sup>	20.3	20	32	62.4	62.2	ND	ND	ND	ND	NS	ND	ND	ND	ND	NA	NA
2-Methylnaphthalene	75	59	42	17	33.1 <sup>3</sup>	19.6	18	38	58.7	57.5	ND	ND	ND	ND	NS	ND	ND	ND	ND	NA	NA
See notes at end of table.																					

**Table 3 (Cont.)  
Summary of Detections in Groundwater**

Semi-Annual Groundwater Monitoring Report  
Ocala F-18 Crash Site  
Ocala National Forest  
Naval Air Station Cecil Field  
Jacksonville, Florida  
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Compounds Detected	Monitoring Well Identification							Cleanup Criteria <sup>1</sup>	
	CEF-CS7 (perimeter) <sup>5</sup>							Action Levels (source/ perimeter)	Milestone Objectives (end of year 3)
	Aug 98	Nov 98	Feb 99	Oct 99	Mar 00	Sep 00	Mar 01		
<b>Volatile Organic Compounds<sup>2</sup> (µg/L)</b>									
Benzene	ND	ND	ND	ND	ND	ND	NS	100/1	8
Ethylbenzene	ND	ND	ND	ND	ND	ND	NS	300/30	40
Toluene	ND	ND	ND	ND	ND	ND	NS	400/40	80
Total Xylenes	1.2	ND	ND	ND	ND	ND	NS	NA	NA
<b>Polynuclear Aromatic Hydrocarbons<sup>2</sup> (µg/L)</b>									
Naphthalene	ND	ND	ND	ND	ND	ND	NS	200/20	60
1-Methylnaphthalene	ND	ND	ND	ND	ND	ND	NS	NA	NA
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	NS	NA	NA

<sup>1</sup>Based on the MOPAO

<sup>2</sup>The various USEPA methods used for these analytical groups have had low enough detection limits to meet the required reporting limits in the MOPAO

<sup>3</sup>Duplicate sample data is shown

<sup>4</sup>Data from May 1998 sampling has been deleted for format reasons. It can be found in all previous monitoring reports.

Notes: µg/L = micrograms per liter.

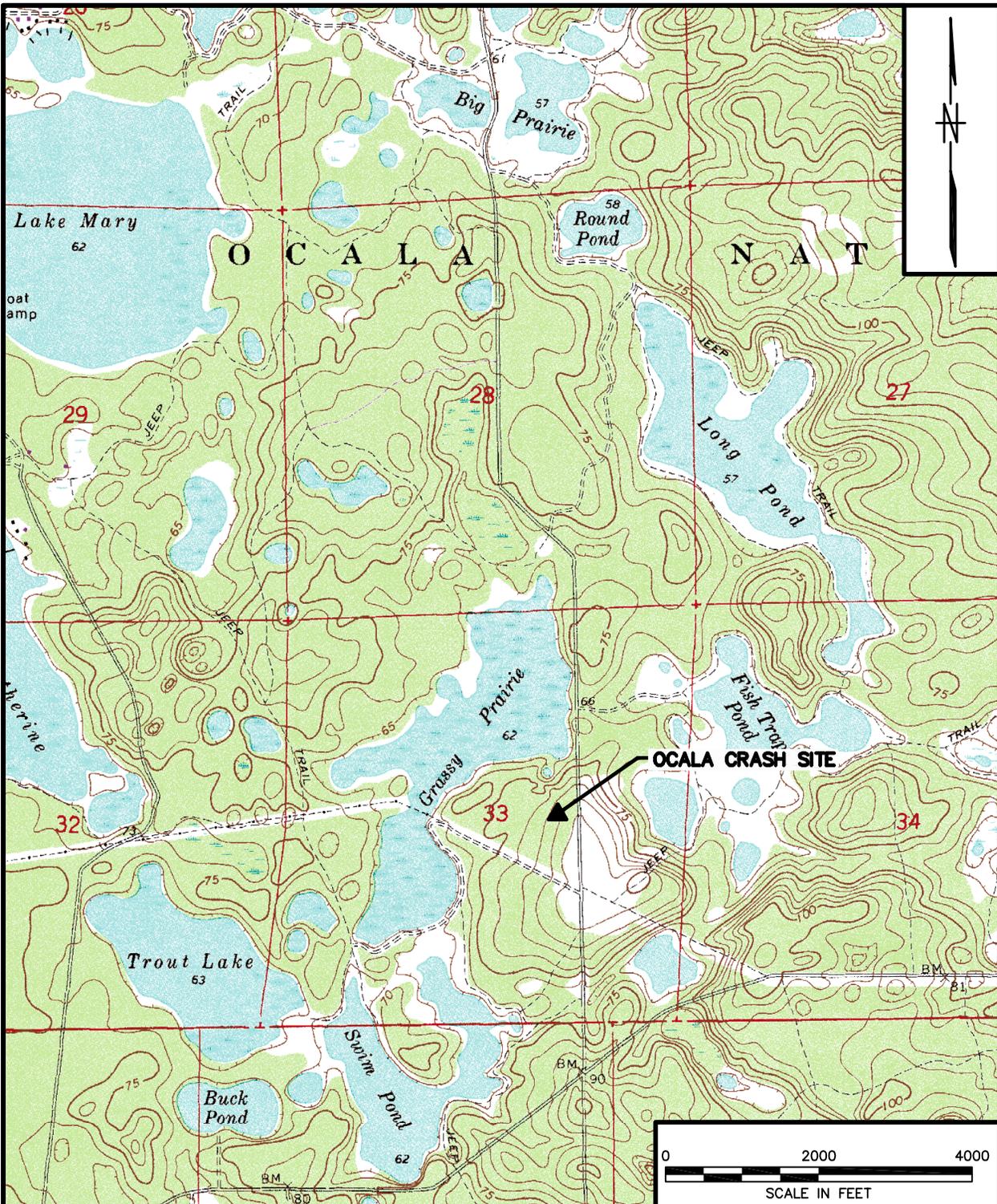
ND = none detected.

NA = no value presented in the approval order.

NS = not sampled.

## FIGURES

ACAD: 4093CM01.dwg 12/03/02 HUB PIT



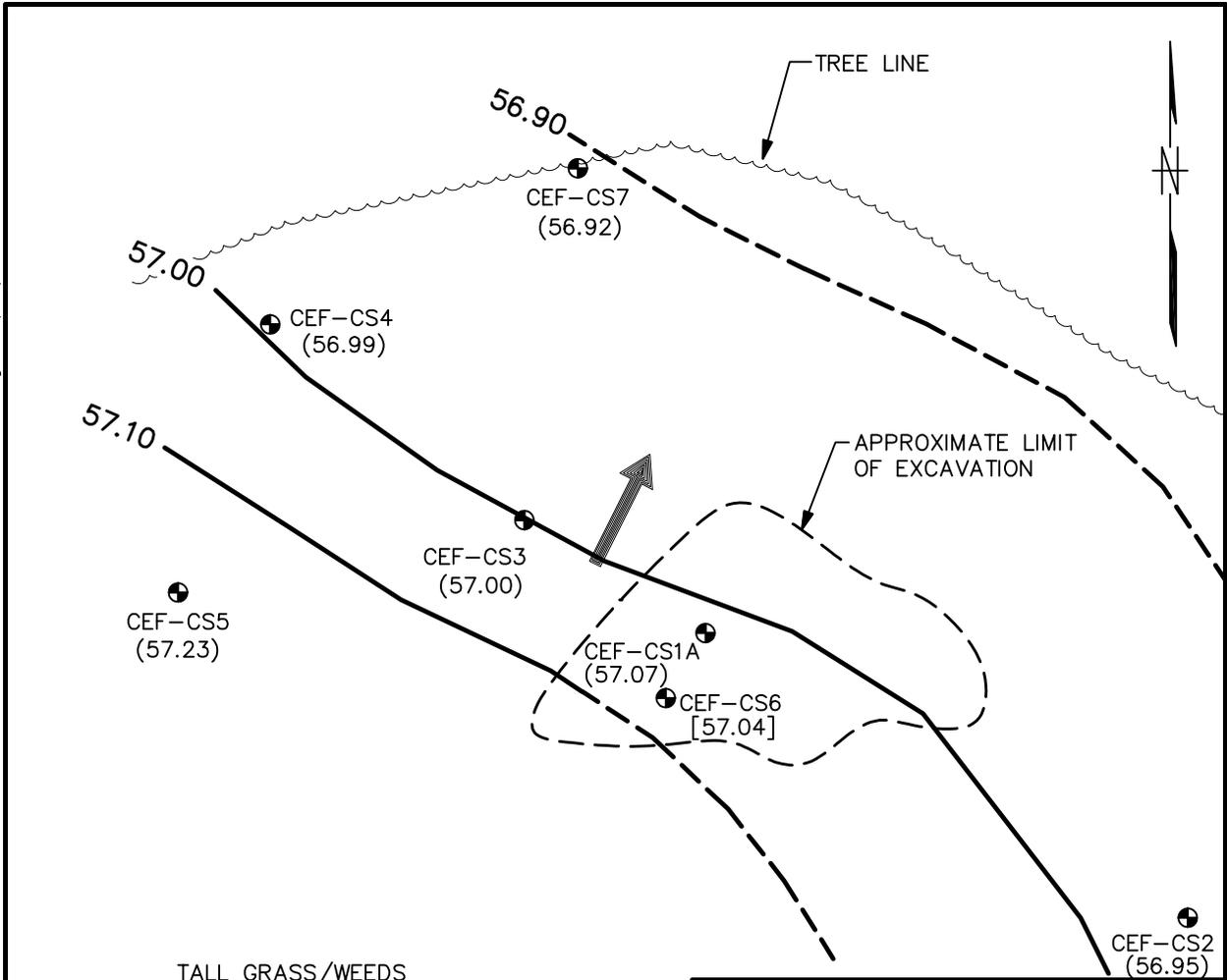
DRAWN BY HJB	DATE 12/2/02
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



**SITE LOCATION MAP**  
**OCALA F-18 CRASH SITE**  
**OCALA NATIONAL FOREST**  
**NAVAL AIR STATION CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

CONTRACT NO. 4093	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0

ACAD: 4093GF01.dwg 12/02/02 HJB PIT



**LEGEND:**

-  CEF-CS2 MONITORING WELL LOCATION
-  57.00 POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- (56.95) GROUNDWATER ELEVATION (FT. MSL)
- [57.04] NOT INCLUDED IN CONTOURING
-  GROUNDWATER FLOW DIRECTION

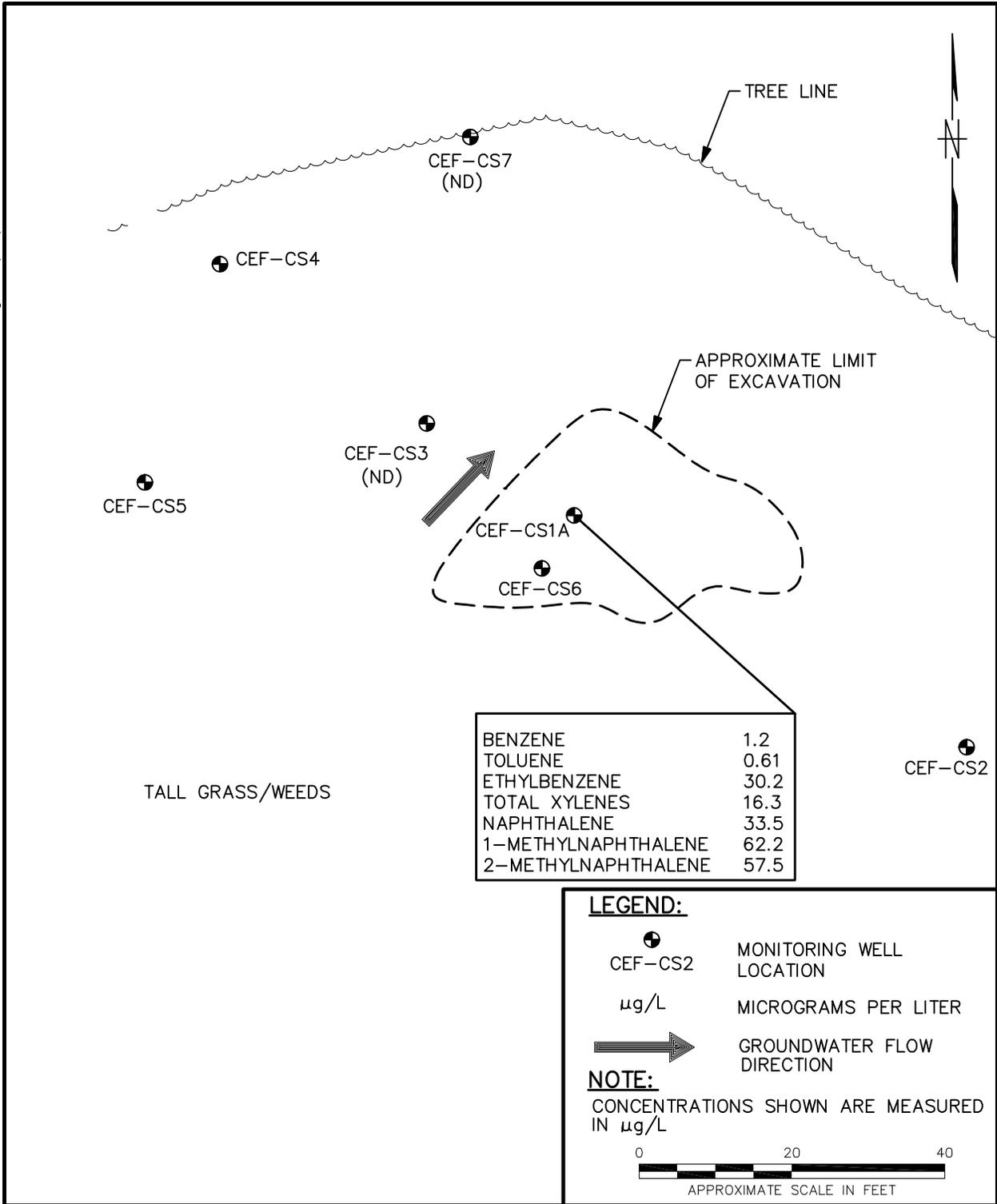
0 20 40  
APPROXIMATE SCALE IN FEET

DRAWN BY	DATE
HJB	12/2/02
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	
AS NOTED	



POTENTIOMETRIC SURFACE MAP  
 OCTOBER 4, 2002  
 Ocala F-18 CRASH SITE  
 Ocala National Forest  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA

CONTRACT NO. 4093	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2	REV. 0



DRAWN BY HJB	DATE 11/11/02
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



**GROUNDWATER ANALYTICAL RESULTS**  
**OCTOBER 4, 2002**  
**OCALA F-18 CRASH SITE**  
**OCALA NATIONAL FOREST**  
**NAVAL AIR STATION CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

CONTRACT NO. 4093	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 3	REV. 0

**ATTACHMENT A**

**FDEP MONITORING ONLY PLAN APPROVAL ORDER**



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Commanding Officer  
Mr. Bryan Kizer, Code 1842  
SOUTHNAVFACENCOM  
Post Office Box 190010  
North Charleston, SC 29419-0068

Subject: Monitoring Only Plan  
Approval Order  
Ocala F-18 Crash Site

Dear Mr. Kizer:

The Bureau of Waste Cleanup has completed the review of the Site Assessment Report Addendum and Monitoring Only Proposal for Natural Attenuation dated January 1998 (received January 26, 1998), submitted for this site. Pursuant to Rule 62-770.690, Florida Administrative Code (F.A.C.), the Department approves the monitoring only proposal. Pursuant to Rule 62-770.690(7), F.A.C., you are required to complete the monitoring program outlined below. The first sampling event should be performed within 60 days of receipt of this Monitoring Only Plan Approval Order (Order). Water-level measurements should be made immediately prior to each sampling event. The analytical results (laboratory report), chain of custody, cumulative summary table of the analytical results, site map(s) illustrating the most recent analytical results, and the water-level elevation information (cumulative summary table and most recent flow interpretation map), should be submitted to the Department within 60 days of sample collection.

Monitoring Wells  
CEF-CS1A; CEF-CS3;  
and CEF-CS7

Parameters  
602 and 8310

Frequency  
Quarterly

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

Mr. Bryan Kizer  
Page two of 6

If concentrations of chemicals of concern in any of the designated wells increase above the action levels listed below, the well or wells must be resampled no later than 30 days after the initial positive results are known. If the results of the resampling confirm the initial sampling results, then a proposal must be submitted, as described in Rule 62-770.690(7)(f), F.A.C.

Contaminated well:

MW-CEF-CS1A: 100 µg/l Benzene; 300 µg/l Ethylbenzene; 400 µg/l Toluene; and 200 µg/l Naphthalene.

Perimeter wells:

MW-CEF-CS3 and MW-CEF-CS7: 1 µg/l Benzene; 30 µg/l Ethylbenzene; 40 µg/l Toluene; 20 µg/l Naphthalene.

The approved Remedial Action by Natural Attenuation monitoring period is 5 years. "Milestone" objectives should be established if monitoring is projected to take greater than one year. The following are the "milestone" objectives that will be used for annual evaluation of remediation progress by natural attenuation. An explanation of the progress relative to these milestone objectives, and the need for corrective action (if applicable), should be provided in the annual evaluation:

<u>Benzene</u>	<u>MW-CEF- CS1A</u>
End of year 1	12
End of year 2	10
End of year 3	8
End of year 4	4
End of year 5	ND

<u>Ethylbenzene</u>	
End of year 1	70
End of year 2	50
End of year 3	40
End of year 4	30
End of year 5	25

<u>Toluene</u>	
End of year 1	110
End of year 2	100
End of year 3	80

Mr. Bryan Kizer  
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End of year 4	50
End of year 5	35

Naphthalene

End of year 1	110
End of year 2	90
End of year 3	60
End of year 4	30
End of year 5	15

If the applicable No Further Action criteria in Rule 62-770.680, F.A.C., are achieved at the end of the monitoring period, a Site Rehabilitation Completion Report, summarizing the monitoring program and containing documentation supporting the opinion that the cleanup objectives have been achieved, should be submitted as required in Rule 62-770.690(8), F.A.C. If the applicable No Further Action criteria in Rule 62-770.680, F.A.C., are not achieved following one year of monitoring, then a report summarizing the monitoring program should be submitted, including a proposal as described in Rule 62-770.690(7)(g).

Persons affected by this Order have the following options:

If you choose to accept the above decision by the Department you do not have to do anything. This Order is final and effective as of the date on the top of the first page of this Order.

If you disagree with the decision, you may do one of the following:

1. File a petition for administrative hearing with the Office of the General Counsel of the Department within 21 days after receipt of this Order;

OR

2. File a request for an extension of time to file a petition for hearing with the Office of the General Counsel of the Department within 21 days after receipt of this Order. Such a request should be made if you wish to meet with the Department in an attempt to informally resolve any disputes without first filing a petition for hearing.

Mr. Bryan Kizer  
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Please be advised that mediation of this decision, pursuant to Section 120.573, Florida Statutes (F.S.), is not available.

How to Request an Extension of Time to File a Petition for Hearing

A request for an extension of time to file a petition for hearing must be filed (received) in the Office of the General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida 32399-3000, within 21 days after receipt of this Order. Pursuant to Rule 28-106.111(3), F.A.C., a request for extension of time shall contain a certificate that the moving party has consulted with all other parties, if any, concerning the extension and that the Department and any other parties agree to said extension. Petitioner, if different from Commanding Officer, Naval Air Station Cecil Field, shall mail a copy of the petition to from Commanding Officer, Naval Air Station Cecil Field at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for administrative hearing must be filed until the request is acted upon.

How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of the General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida 32399-3000, within 21 days after receipt of this Order. Petitioner, if different from from Commanding Officer, Naval Air Station Cecil Field, shall mail a copy of the petition to from Commanding Officer, Naval Air Station Cecil Field at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Rules 62-103.155 and 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information:

- a) The name, address, and telephone number of each petitioner, the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the

Mr. Bryan Kizer  
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- FDEP facility number, and the name and address of the facility;
- b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
  - c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
  - d) A statement of the material facts disputed by the petitioner, if any;
  - e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
  - f) A statement of which rules or statutes petitioner contends requires reversal or modification of the Department's action or proposed action; and
  - g) A statement of the relief petitioner seeks, stating precisely what petitioner wants the Department to do regarding the Department's action or proposed action.

This Order is final and effective as of the date on the top of the first page of this Order. Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a Final Order pursuant to an administrative hearing or an Order Responding to Supplemental Information provided pursuant to meetings with the Department.

#### Judicial Review

Any party to this Order has the right to seek judicial review of this Order pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Department clerk in the Office of the General Counsel, 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida 32399-3000. Simultaneously with filing a Notice of Appeal with the Department, petitioner must file a copy of the Notice of Appeal with the applicable filing fees, with the appropriate District Court of Appeal. The Notice of Appeal must be received by the Department clerk within 30 days from the date this Order was signed by the Department clerk (see below).

#### Questions

Should you have any questions regarding the legal processes, please contact the Office of the General Counsel at (850) 488-9730. Any questions you may have on the technical aspects of this Order should be directed to Michael J. Deliz,

Mr. Bryan Kizer  
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P.G. at (850) 921-9991. Contact with any of the above does not constitute a petition for administrative hearing.

Sincerely,



John M. Ruddell, Director  
Division of Waste Management

JMR/mjd

FILING AND ACKNOWLEDGMENT  
FILED, on this date, pursuant to  
§120.52 Florida Statutes, with the  
designated Department Clerk, receipt  
of which is hereby acknowledged.

Maria L. Larson  
Clerk  
(or Deputy Clerk)

4/3/98  
Date

c: Deborah Metrin, FDEP Central District  
David Kruzicki, NAS Cecil Field

**ATTACHMENT B**  
**GROUNDWATER ANALYTICAL REPORT**

### Sample Summary

Tetra Tech, NUS

NAS Cecil Field-CTO-209  
Project No: N4093 WR75(SS)

Job No: F14936

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
F14936-1	10/03/02	15:00 SB	10/04/02	AQ	Ground Water	CEF-CS-3
F14936-2	10/03/02	15:35 SB	10/04/02	AQ	Ground Water	CEF-CS-7
F14936-3	10/03/02	16:10 SB	10/04/02	AQ	Ground Water	CEF-CS-1A
F14936-4	10/03/02	00:00 SB	10/04/02	AQ	Ground Water	CEF-DU01

Report of Analysis

Client Sample ID: CEF-CS-3	Date Sampled: 10/03/02
Lab Sample ID: F14936-1	Date Received: 10/04/02
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: NAS Cecil Field-CTO-209	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF020746.D	1	10/17/02	RAW	n/a	n/a	GEF699
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	94%		74-127%
98-08-8	aaa-Trifluorotoluene	98%		73-135%

ND = Not detected      MDL - Method Detection Limit  
 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 compound

000002

Report of Analysis

<b>Client Sample ID:</b> CEF-CS-3	<b>Date Sampled:</b> 10/03/02
<b>Lab Sample ID:</b> F14936-1	<b>Date Received:</b> 10/04/02
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Method:</b> EPA 8310 SW846 3510C	
<b>Project:</b> NAS Cecil Field-CTO-209	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE010833.D	1	10/11/02	MRE	10/09/02	OP6064	GEE483
Run #2							

Run #	Initial Volume	Final Volume
Run #1	980 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
50-32-8	Benzo(a)pyrene	ND	0.20	0.10	ug/l	
91-20-3	Naphthalene	ND	2.0	0.51	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	0.51	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	0.51	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		32-142%
92-94-4	p-Terphenyl	82%		30-128%

ND = Not detected      MDL - Method Detection Limit  
 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

0000-0

## Report of Analysis

Client Sample ID:	CEF-CS-7	Date Sampled:	10/03/02
Lab Sample ID:	F14936-2	Date Received:	10/04/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	NAS Cecil Field-CTO-209		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF020747.D	1	10/17/02	RAW	n/a	n/a	GEF699
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	90%		74-127%
98-08-8	aaa-Trifluorotoluene	95%		73-135%

ND = Not detected      MDL - Method Detection Limit  
 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-CS-7	
<b>Lab Sample ID:</b> F14936-2	<b>Date Sampled:</b> 10/03/02
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 10/04/02
<b>Method:</b> EPA 8310 SW846 3510C	<b>Percent Solids:</b> n/a
<b>Project:</b> NAS Cecil Field-CTO-209	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EEO10834.D	1	10/11/02	MRE	10/09/02	OP6064	GEE483
Run #2							

Run #	Initial Volume	Final Volume
Run #1	920 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	ND	2.2	0.54	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	0.54	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.54	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		32-142%
92-94-4	p-Terphenyl	76%		30-128%

ND = Not detected      MDL - Method Detection Limit  
 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

000012

Report of Analysis

Client Sample ID: CEF-CS-1A	Date Sampled: 10/03/02
Lab Sample ID: F14936-3	Date Received: 10/04/02
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: NAS Cecil Field-CTO-209	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF020748.D	1	10/17/02	RAW	n/a	n/a	GEF699
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.0	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	28.0	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	16.2	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	99%		74-127%
98-08-8	aaa-Trifluorotoluene	100%		73-135%

(a) All hits confirmed by dual column analysis.

ND = Not detected      MDL - Method Detection Limit  
 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

Report of Analysis

Client Sample ID: CEF-CS-1A	Date Sampled: 10/03/02
Lab Sample ID: F14936-3	Date Received: 10/04/02
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 8310 SW846 3510C	
Project: NAS Cecil Field-CTO-209	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE010835.D	1	10/11/02	MRE	10/09/02	OP6064	GEE483
Run #2 <sup>a</sup>	EE010889.D	2	10/13/02	MRE	10/09/02	OP6064	GEE484

Run #	Initial Volume	Final Volume
Run #1	980 ml	1.0 ml
Run #2	980 ml	1.0 ml

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
50-32-8	Benzo(a)pyrene	ND	0.20	0.10	ug/l	
91-20-3	Naphthalene	34.5 <sup>b</sup>	4.1	1.0	ug/l	
90-12-0	1-Methylnaphthalene	62.4 <sup>b</sup>	4.1	1.0	ug/l	
91-57-6	2-Methylnaphthalene	58.7 <sup>b</sup>	4.1	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	128%	113%	32-142%
92-94-4	p-Terphenyl	90%	92%	30-128%

- (a) All hits confirmed by spectral match using a diode array detector.
- (b) Result is from Run# 2

ND = Not detected      MDL - Method Detection Limit  
 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

000014

## Report of Analysis

<b>Client Sample ID:</b> CEF-DU01		<b>Date Sampled:</b> 10/03/02
<b>Lab Sample ID:</b> F14936-4		<b>Date Received:</b> 10/04/02
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8021B		
<b>Project:</b> NAS Cecil Field-CTO-209		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	EF020749.D	1	10/17/02	RAW	n/a	n/a	GEF699
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.2	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	30.2	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	0.61	1.0	0.50	ug/l	J
1330-20-7	Xylenes (total)	16.3	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	104%		74-127%
98-08-8	aaa-Trifluorotoluene	104%		73-135%

(a) All hits confirmed by dual column analysis.

ND = Not detected      MDL - Method Detection Limit  
 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

000015

## Report of Analysis

<b>Client Sample ID:</b> CEF-DU01	
<b>Lab Sample ID:</b> F14936-4	<b>Date Sampled:</b> 10/03/02
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 10/04/02
<b>Method:</b> EPA 8310 SW846 3510C	<b>Percent Solids:</b> n/a
<b>Project:</b> NAS Cecil Field-CTO-209	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE010836.D	1	10/11/02	MRE	10/09/02	OP6064	GEE483
Run #2 *	EE010890.D	2	10/13/02	MRE	10/09/02	OP6064	GEE484

	Initial Volume	Final Volume
Run #1	970 ml	1.0 ml
Run #2	970 ml	1.0 ml

## Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
50-32-8	Benzo(a)pyrene	ND	0.21	0.10	ug/l	
91-20-3	Naphthalene	33.5 <sup>b</sup>	4.1	1.0	ug/l	
90-12-0	1-Methylnaphthalene	62.2 <sup>b</sup>	4.1	1.0	ug/l	
91-57-6	2-Methylnaphthalene	57.5 <sup>b</sup>	4.1	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	117%	114%	32-142%
92-94-4	p-Terphenyl	89%	92%	30-128%

(a) All hits confirmed by spectral match using a diode array detector.

(b) Result is from Run# 2

ND = Not detected      MDL - Method Detection Limit  
 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

000016



# CHAIN OF CUSTODY

4405 VINELAND ROAD • SUITE C-15  
 ORLANDO, FL 32811  
 TEL: 407-425-6700 • FAX: 407-425-0707

ACCUTEST JOB #: **F14936**  
 ACCUTEST QUOTE #:

CLIENT INFORMATION		FACILITY INFORMATION				ANALYTICAL INFORMATION						MATRIX CODES	
NAME: <b>Tetra Tech Nus</b>		PROJECT NAME: <b>CTO-209</b>				80218 602 only 8310 PATH						DRINKING WATER GROUND WATER WASTE WATER SOIL SLUDGE OIL OTHER LIQUID OTHER SOLID	
ADDRESS: <b>5421 Beaumont Center Blvd</b>		LOCATION: <b>Ocala Crash Site</b>											
CITY: <b>Tampa</b> STATE: <b>FL</b> ZIP: <b>33634</b>		PROJECT NO.: <b>N4093.0000.LC0050105</b>											
SEND REPORT TO: PHONE # <b>813-806-0202</b> FAX: <b>813-806-0405</b>		FAX # <b>813-806-0405</b>											
ACCUTEST SAMPLE #	FIELD ID / POINT OF COLLECTION	COLLECTION			MATRIX	# OF BOTTLES	PRESERVATION					LAB USE ONLY	
		DATE	TIME	SAMPLED BY:			HCl	NaOH	HNO3	H2SO4	NONE		
1	CEF-CS-3	10/3/02	1500	SB, SRM	GW	5	3					3	2
2	CEF-CS-7	10/3/02	1535	SB, SRM	GW	5	3					3	2
3	CEF-CS-1A	10/3/02	1610	SB, SRM	GW	5	3					3	2
4	CEF-DU01	10/3/02	0000	SB, SRM	GW	5	3					3	2
	Temp Blank												

DATA TURNAROUND INFORMATION		DATA DELIVERABLE INFORMATION		COMMENTS/REMARKS	
<input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> 48 HOUR RUSH <input type="checkbox"/> 24 HOUR EMERGENCY <input type="checkbox"/> OTHER	APPROVED BY: _____	<input checked="" type="checkbox"/> STANDARD <input type="checkbox"/> COMMERCIAL "B" <input type="checkbox"/> DISK DELIVERABLE <input type="checkbox"/> STATE FORMS <input type="checkbox"/> OTHER (SPECIFY) _____		NOTE: CEF-CS-1A Source Well (Hot)	

**SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY**

RELINQUISHED BY: <b>Scott R. McGuire</b>	DATE TIME: <b>10/4/02 1330</b>	RECEIVED BY: <b>H. Shagor</b>	RELINQUISHED BY: <b>10/9/02 13:30</b>	DATE TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE TIME:	RECEIVED BY:	RELINQUISHED BY:	DATE TIME:	RECEIVED BY:

SEAL # \_\_\_\_\_ PRESERVE WHERE APPLICABLE  ON ICE  TEMPERATURE **24**