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NAS CECIL FIELD, FL  
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FIRST SEMI-ANNUAL THIRD YEAR GROUNDWATER MONITORING LETTER REPORT FOR  
NORTH SOUTH APRON PLUME NAS CECIL FIELD FL  
3/12/2008  
TETRA TECH NUS INC

Document Tracking Number 07JAX0082

March 12, 2008

Project Number 112G00746

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 IV Contract Number N62467-04-D-0055  
Contract Task Order 0076

Subject: Semi-Annual Groundwater Monitoring Report, 1<sup>st</sup> Semi-Annual, 3<sup>rd</sup> Year –  
November 2007  
North-South Apron Plume  
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, 1<sup>st</sup> Semi-Annual, 3<sup>rd</sup> Year – November 2007, for the North-South Apron Plume. This Semi-Annual Groundwater Monitoring Report was prepared for the United States Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE), under the Comprehensive Long-Term Environmental Action Navy (CLEAN) IV Contract Number N62467-04-D-0055.

The primary objective of these sampling activities is to monitor groundwater associated with the intermediate and deep zones of the shallow surficial aquifer at the site on a semi-annual basis. The sampling program was accomplished in general accordance with the Natural Attenuation Monitoring Plan (NAMP) Approval Order issued by the Florida Department of Environmental Protection (FDEP) on October 21, 2005, based on Chapter 62-770.690, Florida Administrative Code (see Attachment A). This report summarizes the field operations and analytical results for the subject site for the 1<sup>st</sup> Semi-Annual, 3<sup>rd</sup> Year – November 2007 sampling event. Figure 1 shows the location of the site.

## **FIELD OPERATIONS**

Field operations were performed in general accordance with FDEP and TtNUS Standard Operating Procedures (SOPs). Groundwater samples were collected on November 19, 2007, using low-flow methods, from the three intermediate monitoring wells (CEF-M18-04I, CEF-M18-05I, and CEF-M18-09I) and one deep monitoring well (CEF-M18-12D) listed in the 2003 Supplemental Site Assessment Letter Report II and the 2005 NAMP. Following collection, the groundwater samples were placed on ice and hand-delivered under chain of custody to ENCO Laboratories in Jacksonville, Florida, for analysis. All samples were analyzed for the contaminants of concern (COCs) benzene, toluene, ethylbenzene, and total xylenes (BTEX) using United States Environmental Protection Agency (USEPA) Method SW-846 8260B.

Mr. David Grabka  
FDEP  
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Prior to obtaining groundwater samples, synoptic water levels and total well depths were measured in all of the intermediate wells in the area and recorded on a site-specific groundwater level measurement sheet.

## RESULTS

Groundwater elevations ranged from 66.62 to 68.44 feet above mean sea level. The depth to water measurements and top of casing elevations were used to calculate groundwater elevations. Table 1 provides the groundwater elevation data. Figure 2 shows the direction of groundwater flow to the southeast in the intermediate zone in November 2007. These results are consistent with the previous measurements and calculations for the site.

The analytical results for this event are summarized in Table 2, and the laboratory report is provided as Attachment B. Figure 3 presents the analytical results for this event. The results indicate that the Natural Attenuation Default Source Concentrations for BTEX, as defined in Chapter 62-777, Florida Administrative Code (FAC), were not exceeded in the groundwater samples from this event. As indicated in Table 2, the Groundwater Cleanup Target Level (GCTL) for benzene was exceeded in CEF-M18-04I. No other analytes were detected in excess of GCTLs during this sampling event.

In CEF-M18-04I, the benzene concentrations increased from less than the detection limit in May 2007 to 8.6 micrograms per liter ( $\mu\text{g/L}$ ) in November 2007, in excess of the GCTL of 1.0  $\mu\text{g/L}$ . In CEF-M18-09I, the benzene concentration decreased from 5.6  $\mu\text{g/L}$  in May 2007 to less than the GCTL in November 2007. No COCs were detected in either the intermediate perimeter well CEF-M18-05I or in the deep well CEF-M18-12D during the November 2007 sampling event.

## CONCLUSIONS AND RECOMMENDATIONS

During the November 2007 sampling event, benzene concentrations increased in CEF-M18-04I and decreased in CEF-M18-09I from the May 2007 sampling event. No COCs were detected in the perimeter well CEF-M18-5I or the deep well CEF-M18-12D.

TtNUS recommends continuing the semi-annual groundwater monitoring program in accordance with the 2005 NAMP with the following adjustments. As agreed to during the January 2008 Base Realignment and Closure Cleanup Team (BCT) meeting (Meeting Number 2451; Decision Number 728), groundwater samples will be collected from CEF-M18-04I, CEF-M18-05I, CEF-M18-09I, and CEF-M18-12D and analyzed for benzene only using USEPA Method SW-846 8260B on a semi-annual basis. The sampling program has been revised to eliminate toluene, ethyl benzene, and total xylenes based on consecutive non-detections since 2000. Water levels in monitoring wells CEF-M18-02I through CEF-M18-10I will be measured to evaluate the groundwater flow at the site. The 2<sup>nd</sup> Semi-Annual, 3<sup>rd</sup> Year sampling event is scheduled for May 2008.

If you have any questions with regard to this submittal, please do not hesitate to contact Robert Simcik at (412) 921-8163 or by email at Robert.Simcik@ttnus.com.

Sincerely,



Robert Simcik, P.E.  
Task Order Manager  
License Number 61263

Kara F. Wimble  
Project Scientist

Mr. David Grabka  
FDEP  
March 12, 2008 – Page 3

Enclosures (9)

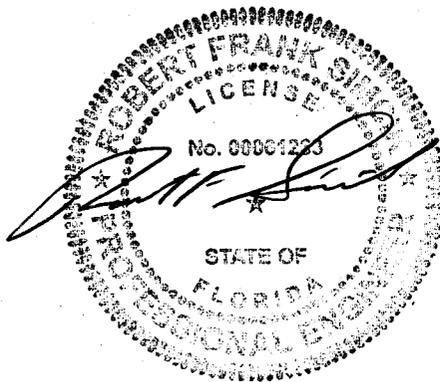
c: B. Nwokike, NAVFAC SE (CD only)  
M. Halil, CH2M Hill (CD only)  
M. Perry, TtNUS (unbound and CD)  
D. Humbert, TtNUS (letter only)  
M. Speranza, TtNUS (letter only)  
M. Jonnet, TtNUS (Cecil DMS) (CD)  
K. Wimble, TtNUS  
J. Johnson, TtNUS (Information Repository)  
CTO 0076 Project File

**CERTIFICATION**

The information contained herein 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 engineer should be notified to evaluate the effects of any additional information on the information described in this report. This Groundwater Monitoring Report, 4<sup>th</sup> Quarter, 2<sup>nd</sup> Year - December 2007 is for Building 81, Tanks 81 A, B, and C at Former Naval Air Station Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.



March 12, 2008  
Robert Simcik, P.E.  
License Number 61263



## TABLES

**Table 1  
Groundwater Elevation Data**

Semi-Annual Groundwater Monitoring Report, 1st Semi-Annual, 3<sup>rd</sup> Year - November 2007  
North-South Apron Plume  
Naval Air Station Cecil Field  
Jacksonville, Florida

Monitoring Well Identification	Well Depth (feet btoc)	TOC Elevation (feet above msl)	February 23, 2005		July 6, 2006		November 22, 2006		February 2, 2007		May 2, 2007		August 1, 2007		November 19, 2007	
			Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)	Depth to Water (feet btoc)	Water-Level Elevation (feet above msl)
CEF-M18-01S	15	75.89	7.17	68.72	NM	NM										
CEF-M18-02S	15	76.02	7.97	68.05	NM	NM										
CEF-M18-02I	35	75.78	7.79	67.99	NM	NM	NM	NM	NM	NM	NM	NM	7.53	68.25	7.50	68.28
	35	75.13	7.24	67.89	NM	NM	NM	NM	NM	NM	NM	NM	7.02	68.11	6.89	68.24
CEF-M18-04I	35	74.66	7.71	66.95	8.01	66.65	8.98	65.68	8.58	66.08	8.33	66.33	7.42	67.24	7.29	67.37
CEF-M18-05I	35	73.42	7.35	66.07	7.59	65.83	8.64	64.78	8.12	65.30	8.88	64.54	6.89	66.53	6.8	66.62
CEF-M18-06I	35	76.11	8.18	67.93	NM	NM	NM	NM	NM	NM	NM	NM	7.91	68.20	7.89	68.22
CEF-M18-07I	35	76.26	8.14	68.12	NM	NM	NM	NM	NM	NM	NM	NM	7.86	68.40	7.82	68.44
CEF-M18-08I	35	75.54	7.49	68.05	NM	NM	NM	NM	NM	NM	NM	NM	7.20	68.34	7.17	68.37
CEF-M18-09I	35	74.32	6.98	67.34	7.32	67.00	8.25	66.07	7.83	66.49	9.3	65.02	6.73	67.59	6.58	67.74
CEF-M18-10I	35	74.98	8.33	66.65	NM	NM	NM	NM	NM	NM	NM	NM	8.05	66.93	7.91	67.07
CEF-M18-11D	55	75.80	7.74	68.06	NM	NM										
CEF-M18-12D	55	74.14	6.70	67.44	7.03	67.11	7.99	66.15	7.60	66.54	8.58	65.56	NM	NM	NM	NM

**Notes:**

First quarter (May 2001) data were not included.  
The TOC elevation of CEF-M18-2I has been corrected.

TOC = top of casing  
msl = mean sea level  
btoc = below top of casing  
NM = not measured

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

Semi-Annual Groundwater Monitoring Report, 1st Semi-Annual, 3<sup>rd</sup> Year - November 2007  
North-South Apron Plume  
Naval Air Station Cecil Field  
Jacksonville, Florida  
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Parameter	GCTL	NADSC	CEF-M18-04I											
			03/28/00	03/28/00	09/14/00	05/02/01	08/07/01	08/07/01	11/06/01	02/14/02	3/1/2005	7/7/2006	11/22/2006	
<b>VOCs (µg/L)</b>														
Benzene	1	100	1.0 U	1.0 U	7.7	8.0	8.7	8.7	8.8	9.1	13.1	13.3	11	
Toluene	40	400	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.50 U	0.5 U	0.3 U	
Ethylbenzene	30	300	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.50 U	0.5 U	0.2 U	
Xylenes, total	20	200	3.0 U	3.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	1.0 U	1 U	0.3 U	
Parameter	GCTL	NADSC	CEF-M18-04I				CEF-M18-05I							
			2/2/2007	5/2/2007	11/19/2007	11/30/00		05/02/01	08/07/01	11/06/01	02/14/02	03/01/05	7/7/2006	
						Sample	Duplicate							
<b>VOCs (µg/L)</b>														
Benzene	1	100	9.64	0.48 U	8.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.50 U	0.5 U	
Toluene	40	400	0.2 U	0.25 U	0.28 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.50 U	0.5 U	
Ethylbenzene	30	300	0.3 U	0.99 U	0.34 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.50 U	0.5 U	
Xylenes, total	20	200	0.3 U	0.6 U	0.38 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	1.0 U	1 U	
Parameter	GCTL	NADSC	CEF-M18-05I				CEF-M18-09I							
			11/22/2006	2/2/2007	5/2/2007	11/19/2007	10/23/02	02/28/05	7/6/2006		11/22/2006	2/2/2007	5/2/2007	
									Sample	Duplicate				
<b>VOCs (µg/L)</b>														
Benzene	1	100	0.2 U	0.2 U	0.48 U	0.23 U	14.5	16.0	3.5	3.5	1.4	1.28	5.6	
Toluene	40	400	0.3 U	0.2 U	0.25 U	0.28 U	1.0 U	0.50 U	0.5 U	0.5 U	0.3 U	0.2 U	0.25 U	
Ethylbenzene	30	300	0.2 U	0.3 U	0.99 U	0.34 U	1.0 U	0.50 U	0.5 U	0.5 U	0.2 U	0.3 U	0.99 U	
Xylenes, total	20	200	0.3 U	0.3 U	0.6 U	0.38 U	3.0 U	1.0 U	1 U	1 U	0.3 U	0.3 U	0.6 U	

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

Semi-Annual Groundwater Monitoring Report, 1st Semi-Annual, 3<sup>rd</sup> Year - November 2007  
North-South Apron Plume  
Naval Air Station Cecil Field  
Jacksonville, Florida  
Page 2 of 2

Parameter	GCTL	NADSC	CEF-M18-091		CEF-M18-12D								
			11/19/2007		07/11/03		02/28/05	7/6/2006	11/22/2006		2/2/2007	5/2/2007	11/19/2007
			Sample	Duplicate	Sample	Duplicate			Sample	Duplicate			
<b>VOCs (µg/L)</b>													
Benzene	1	100	0.31 J	0.38 J	1.2	1.1	0.55	0.5 U	0.4 I	0.4 I	0.33 I	0.6 J	0.23 U
Toluene	40	400	0.28 U	0.28 U	1.0 U	1.0 U	0.50 U	0.5 U	0.3 U	0.3 U	0.2 U	0.25 U	0.28 U
Ethylbenzene	30	300	0.34 U	0.34 U	1.0 U	1.0 U	0.50 U	0.5 U	0.2 U	0.2 U	0.3 U	0.99 U	0.34 U
Xylenes, total	20	200	0.38 U	0.38 U	3.0 U	3.0 U	1.0 U	1 U	0.3 U	0.3 U	0.3 U	0.6 U	0.38 U

**Notes:**

FDEP GCTLs taken from Chapter 62-777, Florida Administrative Code (FAC).

NADSC taken from Chapter 62-777, FAC.

Shading indicates concentration greater than FDEP GCTL.

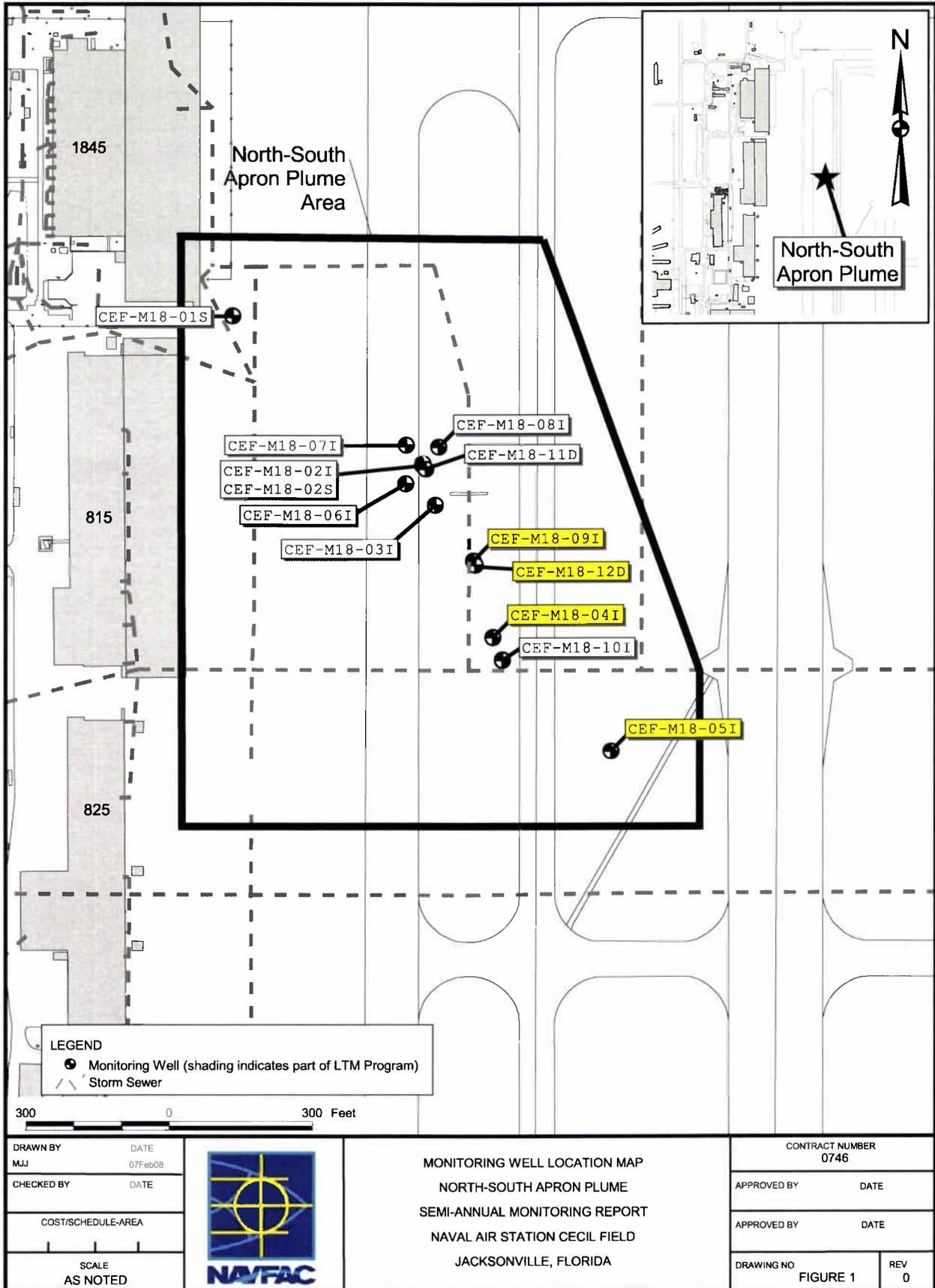
U = Not detected at detection limit shown.

I = Instrument detection limit.

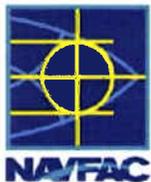
J = Estimated value.

VOCs = Volatile organic compounds.

## FIGURES

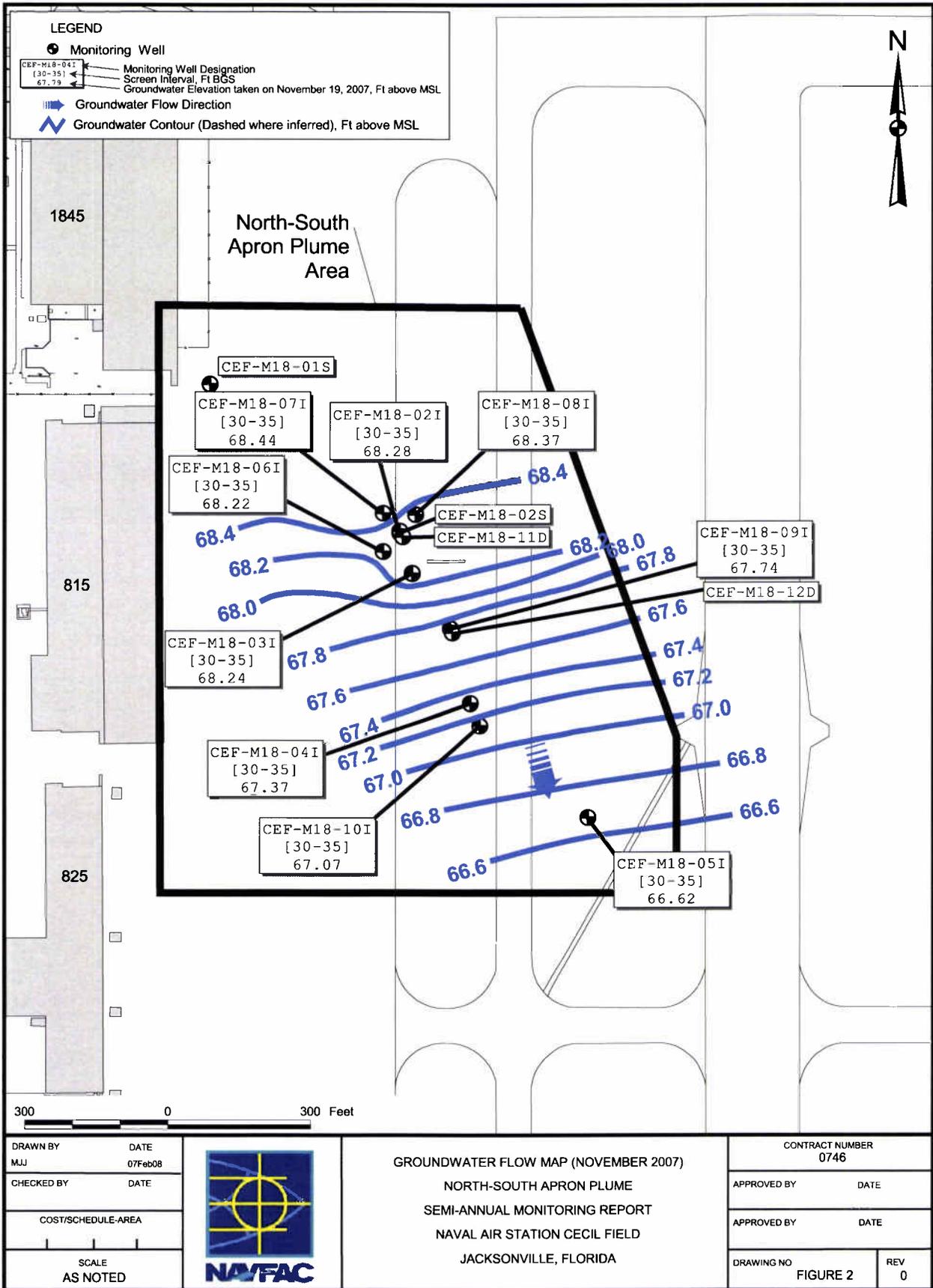


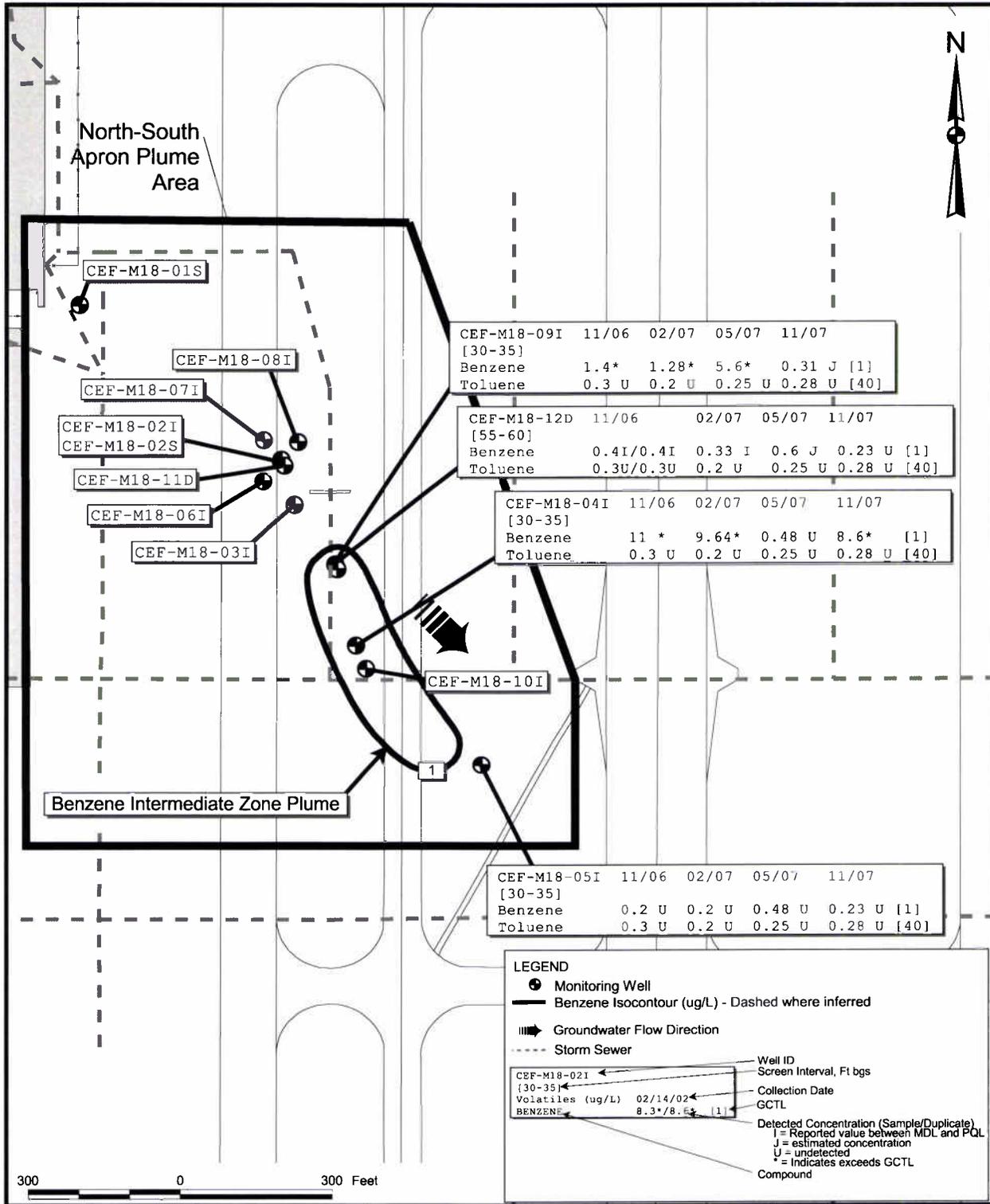
DRAWN BY MJJ	DATE 07Feb08
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COST/SCHEDULE-AREA	
SCALE AS NOTED	



MONITORING WELL LOCATION MAP  
 NORTH-SOUTH APRON PLUME  
 SEMI-ANNUAL MONITORING REPORT  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA

CONTRACT NUMBER 0746	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO FIGURE 1	REV 0





DRAWN BY MJJ	DATE 07Feb08
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



**GROUNDWATER RESULTS**  
**NORTH-SOUTH APRON PLUME**  
**SEMI-ANNUAL MONITORING REPORT**  
**NAVAL AIR STATION CECIL FIELD**  
**JACKSONVILLE, FLORIDA**

CONTRACT NUMBER 0746	
APPROVED BY	DATE
APPROVED BY	DATE
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**ATTACHMENT A**

**NATURAL ATTENUATION MONITORING PLAN APPROVAL ORDER**



Jeb Bush  
Governor

# Department of Environmental Protection

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

Colleen M. Castille  
Secretary

October 21, 2005

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

Commanding Officer  
Attn: Mr. Gabe Magwood  
Code ES24 (UST RPM)  
Southern Division  
Naval Facilities Engineering Command  
P.O. Box 190010  
North Charleston, South Carolina 29419-9010

Subject: Natural Attenuation Monitoring Plan Approval Order  
North-South Apron Plume  
Naval Air Station Cecil Field  
Jacksonville, Duval County

Dear Mr. Magwood:

The Bureau of Waste Cleanup has reviewed the Supplemental Site Assessment Letter Report II and Natural Attenuation Monitoring Plan dated August 3, 2005 (received August 5, 2005), prepared and submitted by Tetra Tech NUS, Inc. for the petroleum product discharge discovered at this site. Pursuant to paragraph 62-770.690(5)(a), Florida Administrative Code (F.A.C.), the Florida Department of Environmental Protection (Department) approves the Natural Attenuation Monitoring Plan. Pursuant to rule 62-770.690(8), F.A.C., you are required to complete the monitoring program outlined below. The first sampling event must be performed within 60 days of receipt of this Natural Attenuation Monitoring Plan Approval Order (Order). Water-level measurements must be made immediately prior to each sampling event. The analytical results (laboratory report), chain of custody record form, cumulative summary tables as required by subparagraph 62-770.600(8)(a)25., F.A.C. (updated as applicable), site map(s) that illustrate the most recent analytical results, and the water-level elevation information (cumulative summary table and most recent flow interpretation map), must be submitted to the Department within 60 days of sample collection.

The monitoring wells to be sampled, the sampling parameters, and the sampling frequency for the first year are as follows:

*"More Protection, Less Process"*

*Printed on recycled paper.*

<u>Monitoring Wells</u>	<u>Contaminants of Concern</u>	<u>Frequency</u>	<u>Duration</u>
CEF-M18-04I; CEF-M18-09I; CEF-M18-12D; and CEF-M18-05I	BTEX	Quarterly	One year

The approved Remedial Action by Natural Attenuation monitoring period is five years. The sampling frequency will be evaluated following the submittal of the first annual report to determine whether semiannual or annual sampling may be appropriate.

If concentrations of contaminants 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 the monitoring report referenced in paragraph 62-770.690(8)(d), F.A.C., must be signed and sealed by an appropriate registered professional pursuant to rule 62-770.490, F.A.C., and must include a proposal as described in paragraph 62-770.690(8)(e), F.A.C.

Contaminated well[s]:

CEF-M18-04I and CEF-M18-09I: 100 µg/L Benzene

Perimeter well[s] (temporary point[s] of compliance):

CEF-M18-12D and CEF-M18-05I: 1 µg/L Benzene

If the applicable No Further Action criteria of rule 62-770.680, F.A.C., are met for two consecutive sampling events, a Site Rehabilitation Completion Report with a No Further Action Proposal, that summarizes the monitoring program and contains documentation to support the opinion that the cleanup objectives have been achieved, must be submitted as required in subsection 62-770.690(10), F.A.C. If the applicable No Further Action criteria of rule 62-770.680, F.A.C., are not met following five years of monitoring, then the monitoring report must include a proposal as described in subsection 62-770.690(8)(f), F.A.C.

Legal Issues

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under sections 120.569 and 120.57, Florida Statutes (F.S.), within 21 days of receipt of this Order. The procedures for petitioning for an administrative hearing are set forth below.

Persons affected by this Order have the following options:

- (A) If you choose to accept the Department's decision regarding the Supplemental Site Assessment Letter Report II and Natural Attenuation

Monitoring Plan 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.

- (B) If you choose to challenge the decision, you may do the following:
- (1) File a request for an extension of time to file a petition for an administrative hearing with the Department's Agency Clerk in the Office of General Counsel within 21 days of 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 an administrative hearing; or
  - (2) File a petition for an administrative hearing with the Department's Agency Clerk in the Office of General Counsel within 21 days of receipt of this Order.

Please be advised that mediation of this decision pursuant to section 120.573, F.S., is not available.

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

For good cause shown, pursuant to subsection 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for an administrative hearing. Such a request must be filed (received) by the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Southern Division Naval Facilities Engineering Command, shall mail a copy of the request to Southern Division Naval Facilities Engineering Command at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for an administrative hearing must be made.

#### How to File a Petition for an Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative hearing under sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) by the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within 21 days of receipt of this Order. Petitioner, if different from Southern Division Naval Facilities Engineering Command, shall mail a copy of the petition to Southern Division Naval Facilities Engineering Command 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 subsection 120.569(2), F.S. and rule 28-106.201, F.A.C., a petition for an 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 facility owner's name and address, if different from the petitioner; the FDEP facility number, and the name and address of the facility;
- (b) A statement of when and how each petitioner received notice of the Department's action or proposed action;
- (c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
- (d) A statement of the disputed issues of material fact, or a statement that there are no disputed facts;
- (e) A statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to 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 an 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 to the Department pursuant to meetings with the Department.

#### Judicial Review

Any party to this Order has the right to seek judicial review of it under section 120.68, F.S., by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Department's Agency Clerk in the Office of General Counsel at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days after this Order is filed with the Department's clerk (see below).

#### Questions

Mr. Gabe Magwood  
October 21, 2005  
Page Five

Any questions regarding the Department's review of your Supplemental Site Assessment Letter Report II and Natural Attenuation Monitoring Plan should be directed to David P. Grabka at (850) 245-8997. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 245-2242. Contact with any of the above does not constitute a petition for administrative hearing or request for an extension of time to file a petition for administrative hearing.

Sincerely,

Douglas A. Jones, Chief  
Bureau of Waste Cleanup  
Division of Waste Management

DAJ/dpg

cc: David P. Grabka, FDEP – BWC  
File

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

---

Clerk  
(or Deputy Clerk)

---

Date

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

**Environmental Conservation Laboratories, Inc.**

4810 Executive Park Court, Suite 211

Jacksonville FL, 32216-6069

Phone: 904.296.3007 FAX: 904.296.6210



www.encolabs.com

Tuesday, December 4, 2007

Tetra Tech NUS (BR006)

Attn: Kara Wimble

8640 Philips Highway Suite 16

Jacksonville, FL 32256

**RE: Laboratory Results for  
Project Number: [none], Project Name/Desc: NAS Cecil Field CTO #0076  
ENCO Workorder: B710188**

Dear Kara Wimble,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Monday, November 19, 2007.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Jacksonville. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Lorraine Strong'. The signature is written in a cursive, flowing style.

Lorraine Strong  
Project Manager

Enclosure(s)



CASE NARRATIVE

Tetra Tech NUS, Inc/NAS Cecil Field, CTO 0076  
Project Manger Ms. Kara Wimble  
SDG BR006-026

Lab Sample ID	Client Sample ID
B710188-01	CEF-M18-041-20071119
B710188-02	CEF-M18-12D-20071119
B710188-03	CEF-M18-091-20071119
B710188-04	CEF-M18-051-20071119
B710188-05	CEF-M18-DUP01-20071119
B710188-06	CEF-M18-Trip Blank-20071119

Overview

All samples submitted were analyzed by Environmental Conservation Laboratories, Inc. in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling and processing will be discussed in the Remarks section below.

Remarks

EPA Method 8260B

A Trip blank sample was received with this project; however, this sample was not listed on the chain of custody. ENCO analyzed this sample with Ms. Wimble's permission obtained during a phone conversation on November 19, 2007.

Due to insufficient sample, the MS/MSD were performed on an alternative sample not related to this project.

I certify that this data package complies with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Released By:

Environmental Conservation Laboratories, Inc.

Lorraine Strong  
Project Manager



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**SAMPLE SUMMARY / LABORATORY CHRONICLE**



Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	12/03/07	11/26/07 09:00	11/26/2007 18:14



Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	12/03/07	11/26/07 09:00	11/26/2007 18:46



Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	12/03/07	11/26/07 09:00	11/26/2007 19:19



Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	12/03/07	11/26/07 09:00	11/26/2007 19:51



Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	12/03/07	11/26/07 09:00	11/26/2007 20:24



Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	12/03/07	11/26/07 09:00	11/26/2007 16:37



**SAMPLE DETECTION SUMMARY**

27  
28  
29

Analyte	Results	Flag	PQL	Units	Method	Notes
Benzene	8.6		1.0	ug/L	EPA 8260B	

31  
32  
33

Analyte	Results	Flag	PQL	Units	Method	Notes
Benzene	0.31	I	1.0	ug/L	EPA 8260B	J

35  
36  
37

Analyte	Results	Flag	PQL	Units	Method	Notes
Benzene	0.38	I	1.0	ug/L	EPA 8260B	J



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### ANALYTICAL RESULTS

Description: CEF-M18-04I-20071119

Lab Sample ID: B710188-01

Received: 11/19/07 16:40

Matrix: Ground Water

Sampled: 11/19/07 11:43

Work Order: B710188

Project: NAS Cecil Field CTO #0076

Sampled By: Jonathan Foster

#### Volatil Organic Compounds by GCMS

\* - ENCO Jacksonville certified analyte [NELAC E82277]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Benzene [71-43-2] *	8.6		ug/L	1	0.23	1.0	7K26012	EPA 8260B	11/26/07 18:14	JL	
Ethylbenzene [100-41-4] *	0.34	U	ug/L	1	0.34	30	7K26012	EPA 8260B	11/26/07 18:14	JL	U
Toluene [108-88-3] *	0.28	U	ug/L	1	0.28	40	7K26012	EPA 8260B	11/26/07 18:14	JL	U
Xylenes (Total) [NA] *	0.38	U	ug/L	1	0.38	1.0	7K26012	EPA 8260B	11/26/07 18:14	JL	U

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
4-Bromofluorobenzene	49	1	50.0	99 %	75-120	7K26012	EPA 8260B	11/26/07 18:14	JL	
Dibromofluoromethane	50	1	50.0	100 %	80-115	7K26012	EPA 8260B	11/26/07 18:14	JL	
Toluene-d8	51	1	50.0	102 %	85-120	7K26012	EPA 8260B	11/26/07 18:14	JL	

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Description: CEF-M18-12D-20071119

Lab Sample ID: B710188-02

Received: 11/19/07 16:40

Matrix: Ground Water

Sampled: 11/19/07 12:26

Work Order: B710188

Project: NAS Cecil Field CTO #0076

Sampled By: Jonathan Foster

**Volatile Organic Compounds by GCMS**

\* - ENCO Jacksonville certified analyte [NELAC E82277]

Analyte [CAS Number] *	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Benzene [71-43-2] *	0.23	U	ug/L	1	0.23	1.0	7K26012	EPA 8260B	11/26/07 18:46	JL	U
Ethylbenzene [100-41-4] *	0.34	U	ug/L	1	0.34	30	7K26012	EPA 8260B	11/26/07 18:46	JL	U
Toluene [108-88-3] *	0.28	U	ug/L	1	0.28	40	7K26012	EPA 8260B	11/26/07 18:46	JL	U
Xylenes (Total) [NA] *	0.38	U	ug/L	1	0.38	1.0	7K26012	EPA 8260B	11/26/07 18:46	JL	U

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
4-Bromofluorobenzene	50	1	50.0	101 %	75-120	7K26012	EPA 8260B	11/26/07 18:46	JL	
Dibromofluoromethane	50	1	50.0	100 %	80-115	7K26012	EPA 8260B	11/26/07 18:46	JL	
Toluene-d8	49	1	50.0	99 %	85-120	7K26012	EPA 8260B	11/26/07 18:46	JL	

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Description: CEF-M18-09I-20071119

Lab Sample ID: B710188-03

Received: 11/19/07 16:40

Matrix: Ground Water

Sampled: 11/19/07 13:00

Work Order: B710188

Project: NAS Cecil Field CTO #0076

Sampled By: Jonathan Foster

Volatile Organic Compounds by GCMS

\* - ENCO Jacksonville certified analyte [NELAC E82277]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Benzene [71-43-2] *	0.31	I	ug/L	1	0.23	1.0	7K26012	EPA 8260B	11/26/07 19:19	JL	J
Ethylbenzene [100-41-4] *	0.34	U	ug/L	1	0.34	30	7K26012	EPA 8260B	11/26/07 19:19	JL	U
Toluene [108-88-3] *	0.28	U	ug/L	1	0.28	40	7K26012	EPA 8260B	11/26/07 19:19	JL	U
Xylenes (Total) [NA] *	0.38	U	ug/L	1	0.38	1.0	7K26012	EPA 8260B	11/26/07 19:19	JL	U

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
4-Bromofluorobenzene	51	1	50.0	102 %	75-120	7K26012	EPA 8260B	11/26/07 19:19	JL	
Dibromofluoromethane	50	1	50.0	99 %	80-115	7K26012	EPA 8260B	11/26/07 19:19	JL	
Toluene-d8	50	1	50.0	100 %	85-120	7K26012	EPA 8260B	11/26/07 19:19	JL	

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Description: CEF-M18-05I-20071119

Lab Sample ID: B710188-04

Received: 11/19/07 16:40

Matrix: Ground Water

Sampled: 11/19/07 14:13

Work Order: B710188

Project: NAS Cecil Field CTO #0076

Sampled By: Jonathan Foster

**Volatiles Organic Compounds by GCMS**

\* - ENCO Jacksonville certified analyte [NELAC E82277]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Benzene [71-43-2] *	0.23	U	ug/L	1	0.23	1.0	7K26012	EPA 8260B	11/26/07 19:51	JL	U
Ethylbenzene [100-41-4] *	0.34	U	ug/L	1	0.34	30	7K26012	EPA 8260B	11/26/07 19:51	JL	U
Toluene [108-88-3] *	0.28	U	ug/L	1	0.28	40	7K26012	EPA 8260B	11/26/07 19:51	JL	U
Xylenes (Total) [NA] *	0.38	U	ug/L	1	0.38	1.0	7K26012	EPA 8260B	11/26/07 19:51	JL	U

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
4-Bromofluorobenzene	50	1	50.0	100 %	75-120	7K26012	EPA 8260B	11/26/07 19:51	JL	
Dibromofluoromethane	50	1	50.0	100 %	80-115	7K26012	EPA 8260B	11/26/07 19:51	JL	
Toluene-d8	50	1	50.0	99 %	85-120	7K26012	EPA 8260B	11/26/07 19:51	JL	

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Description: CEF-M18-DUP01-20071119  
Matrix: Ground Water  
Project: NAS Cecil Field CTO #0076

Lab Sample ID: B710188-05  
Sampled: 11/19/07 00:00  
Sampled By: Jonathan Foster

Received: 11/19/07 16:40  
Work Order: B710188

**Volatiles Organic Compounds by GCMS**

\* - ENCO Jacksonville certified analyte [NELAC E82277]

Analyte [CAS Number] *	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Benzene [71-43-2] *	0.38	I	ug/L	1	0.23	1.0	7K26012	EPA 8260B	11/26/07 20:24	JL	J
Ethylbenzene [100-41-4] *	0.34	U	ug/L	1	0.34	30	7K26012	EPA 8260B	11/26/07 20:24	JL	U
Toluene [108-88-3] *	0.28	U	ug/L	1	0.28	40	7K26012	EPA 8260B	11/26/07 20:24	JL	U
Xylenes (Total) [NA] *	0.38	U	ug/L	1	0.38	1.0	7K26012	EPA 8260B	11/26/07 20:24	JL	U

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
4-Bromofluorobenzene	50	1	50.0	100 %	75-120	7K26012	EPA 8260B	11/26/07 20:24	JL	
Dibromofluoromethane	50	1	50.0	100 %	80-115	7K26012	EPA 8260B	11/26/07 20:24	JL	
Toluene-d8	50	1	50.0	100 %	85-120	7K26012	EPA 8260B	11/26/07 20:24	JL	

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Description: CEF-M18-Trip Blank

Lab Sample ID: B710188-06

Received: 11/19/07 16:40

Matrix: Ground Water

Sampled: 11/19/07 00:00

Work Order: B710188

Project: NAS Cecil Field CTO #0076

Sampled By: Jonathan Foster

**Volatile Organic Compounds by GCMS**

\* - ENCO Jacksonville certified analyte [NELAC E82277]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Benzene [71-43-2] *	0.23	U	ug/L	1	0.23	1.0	7K26012	EPA 8260B	11/26/07 16:37	JL	U
Ethylbenzene [100-41-4] *	0.34	U	ug/L	1	0.34	30	7K26012	EPA 8260B	11/26/07 16:37	JL	U
Toluene [108-88-3] *	0.28	U	ug/L	1	0.28	40	7K26012	EPA 8260B	11/26/07 16:37	JL	U
Xylenes (Total) [NA] *	0.38	U	ug/L	1	0.38	1.0	7K26012	EPA 8260B	11/26/07 16:37	JL	U

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
4-Bromofluorobenzene	50	1	50.0	100 %	75-120	7K26012	EPA 8260B	11/26/07 16:37	JL	
Dibromofluoromethane	49	1	50.0	98 %	80-115	7K26012	EPA 8260B	11/26/07 16:37	JL	
Toluene-d8	49	1	50.0	98 %	85-120	7K26012	EPA 8260B	11/26/07 16:37	JL	

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QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7K26012 - EPA 5030B\_MS

Blank (7K26012-BLK1)

Prepared: 11/26/2007 09:00 Analyzed: 11/26/2007 12:47

[REDACTED]							
Benzene	0.23	U	1.0	ug/L			U
Toluene	0.28	U	40	ug/L			U
Ethylbenzene	0.34	U	30	ug/L			U
Xylenes (Total)	0.38	U	1.0	ug/L			U
Surrogate: Dibromofluoromethane	48			ug/L	50.0	96	80-115
Surrogate: Toluene-d8	50			ug/L	50.0	99	85-120
Surrogate: 4-Bromofluorobenzene	51			ug/L	50.0	101	75-120

LCS (7K26012-BS1)

Prepared: 11/26/2007 09:00 Analyzed: 11/26/2007 13:22

[REDACTED]							
Benzene	21		1.0	ug/L	20.0	106	80-120
Toluene	21		40	ug/L	20.0	107	75-120
Ethylbenzene	21		30	ug/L	20.0	107	75-125
m,p-Xylenes	44		2.0	ug/L	40.0	109	75-130
o-Xylene	21		1.0	ug/L	20.0	103	80-120
Surrogate: Dibromofluoromethane	49			ug/L	50.0	97	80-115
Surrogate: Toluene-d8	49			ug/L	50.0	99	85-120
Surrogate: 4-Bromofluorobenzene	50			ug/L	50.0	99	75-120

Matrix Spike (7K26012-MS1)

Prepared: 11/26/2007 09:00 Analyzed: 11/26/2007 13:55

Source: B710150-21

[REDACTED]								
Benzene	18		1.0	ug/L	20.0	0.23 U	90	80-120
Toluene	18		40	ug/L	20.0	0.28 U	91	75-120
Ethylbenzene	18		30	ug/L	20.0	0.34 U	89	75-125
m,p-Xylenes	36		2.0	ug/L	40.0	0.38 U	91	75-130
o-Xylene	18		1.0	ug/L	20.0	0.22 U	90	80-120
Surrogate: Dibromofluoromethane	49			ug/L	50.0		98	80-115
Surrogate: Toluene-d8	49			ug/L	50.0		98	85-120
Surrogate: 4-Bromofluorobenzene	50			ug/L	50.0		100	75-120

Matrix Spike Dup (7K26012-MSD1)

Prepared: 11/26/2007 09:00 Analyzed: 11/26/2007 14:27

Source: B710150-21

[REDACTED]										
Benzene	19		1.0	ug/L	20.0	0.23 U	96	80-120	6	30
Toluene	20		40	ug/L	20.0	0.28 U	98	75-120	8	30
Ethylbenzene	19		30	ug/L	20.0	0.34 U	94	75-125	5	30
m,p-Xylenes	40		2.0	ug/L	40.0	0.38 U	101	75-130	10	30
o-Xylene	19		1.0	ug/L	20.0	0.22 U	93	80-120	3	30
Surrogate: Dibromofluoromethane	49			ug/L	50.0		99	80-115		
Surrogate: Toluene-d8	50			ug/L	50.0		100	85-120		
Surrogate: 4-Bromofluorobenzene	51			ug/L	50.0		103	75-120		

**FLAGS/NOTES AND DEFINITIONS**

PQL	PQL: Practical Quantitation Limit.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the method reporting limit (MRL).
J	Estimated value. The associated sample note or project narrative indicate the causative reason.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*	Not reported due to interference.



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TETRA TECH INC., INC.

CHAIN OF CUSTODY

NUMBER 26151

PAGE 1 OF 1

PROJECT NO: 1126 00746		FACILITY: NAS Cecil Field		PROJECT MANAGER Kern Wimble		PHONE NUMBER 904-636-6125		LABORATORY NAME AND CONTACT: ENCO Labs, Chris Thompson	
SAMPLERS (SIGNATURE) 		FIELD OPERATIONS LEADER Jon Foster		FIELD OPERATIONS LEADER Jon Foster		PHONE NUMBER 904-545-7048		ADDRESS 4810 Executive Park Court, Suite 211	
STANDARD TAT IS RUSH TAT <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day		CARRIER/VAN/BILL NUMBER Hand Delivery		CITY, STATE Jacksonville, FL		CONTAINER TYPE PLASTIC (P) or GLASS (G) 6		PRESERVATIVE USED HCl	
TOP DEPTH (FT)		BOTTOM DEPTH (FT)		MATRIX (GW, SQ, SW, SD, S, ETC)		COLLECTION METHOD (S, S, S)		NO. OF CONTAINERS	
TIME		SAMPLE ID		LOCATION ID		COMMENTS			
11/19	1143	CEF-M18-04I-20071119			GW	6	3	X	cool to 4°C
	1226	CEF-M18-12b-20071119					3		
	1300	CEF-M18-07I-20071119					3		
	1413	CEF-M18-05I-20071119					3		
	0000	CEF-M18-DUP01-20071119					3		
1. RELINQUISHED BY Jenneth Foster		DATE 11-19-07		TIME 1140		1. RECEIVED BY 		DATE 11/19/07	
2. RELINQUISHED BY		DATE		TIME		2. RECEIVED BY		DATE	
3. RELINQUISHED BY		DATE		TIME		3. RECEIVED BY		DATE	
COMMENTS		G557 0.8°C		B710188					

402R FORM NO. TMS-101

PINK (FILE COPY)

YELLOW (FIELD COPY)

WHITE (ACCOMPANIES SAMPLE)