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NAS CECIL FIELD, FL
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SECOND SEMI-ANNUAL THIRD YEAR GROUNDWATER MONITORING LETTER REPORT
FOR NORTH SOUTH APRON PLUME NAS CECIL FIELD FL
8/27/2008
TETRA TECH NUS INC



TETRA TECH

PITT-08-8-040

Document Tracking Number 07JAX0082

August 27, 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, 2nd Semi-Annual, 3rd Year –
May 2008
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, 2nd Semi-Annual, 3rd Year – May 2008, 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 the sampling activities detailed herein 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 activities were 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 (FAC). A copy of the NAMP Approval Order is provided in Attachment A. This report summarizes the field operations and analytical results for the subject site for the 2nd Semi-Annual, 3rd Year – May 2008 sampling event. Figure 1 shows the location of the North-South Apron Plume site.

FIELD OPERATIONS

The May 2008 field operations were performed in general accordance with FDEP and TtNUS Standard Operating Procedures (SOPs). Groundwater samples were collected on May 29, 2008, 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 benzene, the contaminant of concern (COC), using United States Environmental Protection Agency (USEPA) Method SW-846 8260B.

Tetra Tech NUS, Inc.

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During the January 2008 Base Realignment and Closure (BRAC) Cleanup Team (BCT) meeting (Meeting Number 2451, Decision 728), it was decided that groundwater samples would be collected from CEF-M18-04I, CEF-M18-05I, CEF-M18-09I, and CEF-M18-12D and analyzed only for benzene on a semi-annual basis. Thus, the sampling program was revised to eliminate toluene, ethyl benzene, and total xylenes based on consecutive non-detections since 2000. This recommendation was approved in a letter submitted to NAVFAC SE by FDEP dated April 16, 2008.

Prior to obtaining the May 2008 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. The depth to water measurements were subtracted from known top of casing elevations to calculate groundwater elevations.

RESULTS

Groundwater elevations in the intermediate wells ranged from 65.56 to 67.75 feet above mean sea level. Table 1 provides the groundwater elevation data. Figure 2 shows that the direction of groundwater flow was to the southeast in the intermediate zone in May 2008. 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 Concentration for benzene, as defined in Chapter 62-777, FAC, was 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 during this sampling event. In CEF-M18-04I, the benzene concentration decreased from 8.6 micrograms per liter ($\mu\text{g/L}$) in November 2007 to 5.5 $\mu\text{g/L}$ in May 2008. The GCTL for benzene is 1.0 $\mu\text{g/L}$. Benzene was not detected in the intermediate perimeter wells, CEF-M18-05I and CEF-M18-09I, or in the deep well, CEF-M18-12D, during the May 2008 sampling event.

CONCLUSIONS AND RECOMMENDATIONS

During the May 2008 sampling event, benzene concentrations decreased in CEF-M18-04I from the November 2007 sampling event. Benzene was not detected in perimeter wells CEF-M18-5I, CEF-M18-09I or deep well CEF-M18-12D.

TtNUS recommends continuing the semi-annual groundwater monitoring program in accordance with the 2005 NAMP. The 1st Semi-Annual, 4th Year sampling event is scheduled for November 2008. Water levels in monitoring wells CEF-M18-02I through CEF-M18-10I will be measured to evaluate groundwater flow at the site. A 1st Semi-Annual, 4th Year Groundwater Monitoring Report will be prepared when the results from the sampling event have been received and evaluated.

The electronic copy of this submittal is available on the Cecil Field document warehouse system (DWS) at <http://dws.navy-env.com/>. 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
P.E. License Number 61263

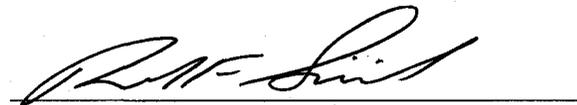
Kara F. Wimble
Project Scientist

Enclosures (7)

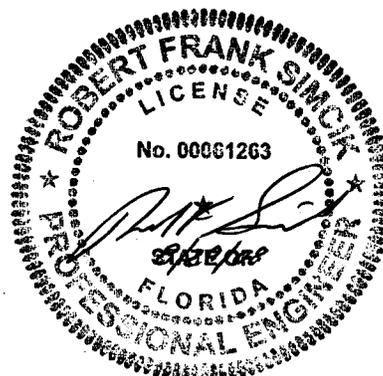
- c: A. Sanford, NAVFAC SE (1 copy)
M. Halil, CH2M Hill (electronic only)
M. Perry, TtNUS (1 copy, unbound)
D. Humbert, TtNUS (letter only)
M. Speranza, TtNUS (letter only)
M. Jonnet, TtNUS (1 copy)
J. Johnson, TtNUS (1 copy for Information Repository)
CTO 0076 Project File (1 copy)

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 Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 3rd Year – May 2008 was developed for the North-South Apron Plume at Naval Air Station Cecil Field and should not be construed to apply to any other site.



August 27, 2008
Robert Simcik, P.E.
License Number 61263



TABLES

Table 1
Groundwater Elevation Data

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 3rd Year - May 2008
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		May 28, 2008	
			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)	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	8.21	67.57
CEF-M18-03I	35	75.13	7.24	67.89	NM	NM	NM	NM	NM	NM	NM	NM	7.02	68.11	6.89	68.24	7.79	67.34
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	8.24	66.42
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	7.86	65.56
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	8.41	67.70
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	8.51	67.75
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	7.93	67.61
CEF-M18-09I	35	74.32	6.98	67.34	7.32	67.00	8.25	66.07	7.83	66.49	9.30	65.02	6.73	67.59	6.58	67.74	7.62	66.70
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	8.86	66.12
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	NM	NM

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 Detections in Groundwater

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 3rd Year - May 2008
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
Page 1 of 2

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
VOCs (µg/L)													
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 (continued)					CEF-M18-05I						
			2/2/2007	5/2/2007	11/19/2007	05/29/08		11/30/00		05/02/01	08/07/01	11/06/01	02/14/02	
						Sample	Duplicate	Sample	Duplicate					
VOCs (µg/L)														
Benzene	1	100	9.64	0.48 U	8.6	5.5	5.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Toluene	40	400	0.2 U	0.25 U	0.28 U	NA	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
Ethylbenzene	30	300	0.3 U	0.99 U	0.34 U	NA	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
Xylenes, total	20	200	0.3 U	0.6 U	0.38 U	NA	NA	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	

Parameter	GCTL	NADSC	CEF-M18-05I (continued)							CEF-M18-09I			
			03/01/05	7/7/2006	11/22/2006	2/2/2007	5/2/2007	11/19/2007	5/29/2008	10/23/02	02/28/05	7/6/2006	
												Sample	Duplicate
VOCs (µg/L)													
Benzene	1	100	0.50 U	0.5 U	0.2 U	0.2 U	0.48 U	0.23 U	0.23 U	14.5	16.0	3.5	3.5
Toluene	40	400	0.50 U	0.5 U	0.3 U	0.2 U	0.25 U	0.28 U	NA	1.0 U	0.50 U	0.5 U	0.5 U
Ethylbenzene	30	300	0.50 U	0.5 U	0.2 U	0.3 U	0.99 U	0.34 U	NA	1.0 U	0.50 U	0.5 U	0.5 U
Xylenes, total	20	200	1.0 U	1 U	0.3 U	0.3 U	0.6 U	0.38 U	NA	3.0 U	1.0 U	1 U	1 U

Table 2
Summary of BTEX Detections in Groundwater

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 3rd Year - May 2008
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
Page 2 of 2

Parameter	GCTL	NADSC	CEF-M18-09I (continued)						CEF-M18-12D			
			11/22/2006	2/2/2007	5/2/2007	11/19/2007		5/29/2008	07/11/03		02/28/05	7/6/2006
						Sample	Duplicate		Sample	Duplicate		
VOCs (µg/L)												
Benzene	1	100	1.4	1.28	5.6	0.31 J	0.38 J	0.23 U	1.2	1.1	0.55	0.5 U
Toluene	40	400	0.3 U	0.2 U	0.25 U	0.28 U	0.28 U	NA	1.0 U	1.0 U	0.50 U	0.5 U
Ethylbenzene	30	300	0.2 U	0.3 U	0.99 U	0.34 U	0.34 U	NA	1.0 U	1.0 U	0.50 U	0.5 U
Xylenes, total	20	200	0.3 U	0.3 U	0.6 U	0.38 U	0.38 U	NA	3.0 U	3.0 U	1.0 U	1 U

Parameter	GCTL	NADSC	CEF-M18-12D (continued)					
			11/22/2006		2/2/2007	5/2/2007	11/19/2007	5/29/2008
			Sample	Duplicate				
VOCs (µg/L)								
Benzene	1	100	0.4 I	0.4 I	0.33 I	0.6 J	0.23 U	0.23 U
Toluene	40	400	0.3 U	0.3 U	0.2 U	0.25 U	0.28 U	NA
Ethylbenzene	30	300	0.2 U	0.2 U	0.3 U	0.99 U	0.34 U	NA
Xylenes, total	20	200	0.3 U	0.3 U	0.3 U	0.6 U	0.38 U	NA

GCTL = Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels from Chapter 62-777, Florida Administrative Code (FAC).

NADSC = Natural Attenuation Default Source Concentrations from Chapter 62-777, FAC.

VOCs = Volatile organic compounds.

µg/L = Micrograms per liter

Shading indicates concentration greater than FDEP GCTL.

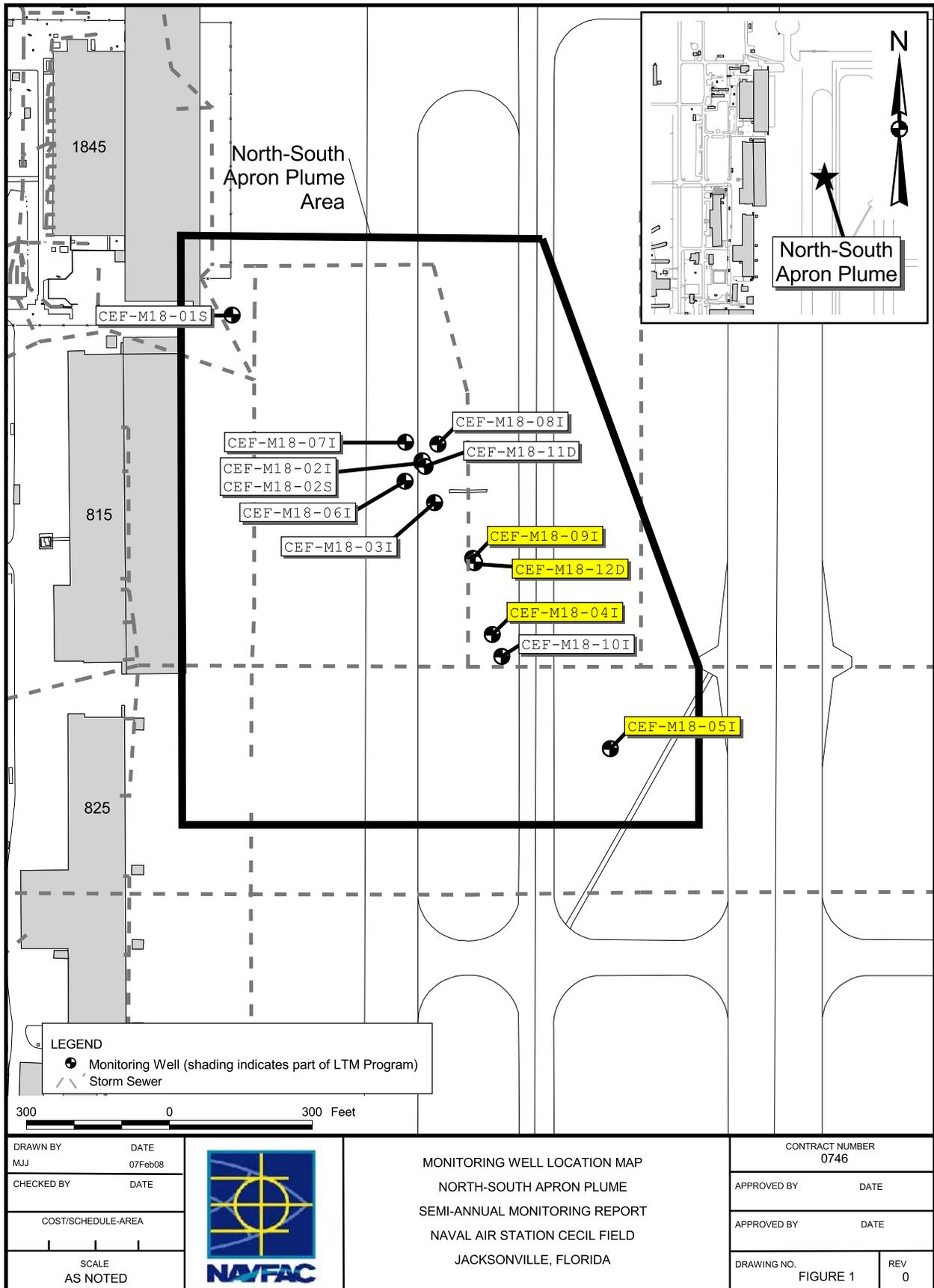
U = Not detected at detection limit shown.

I = Reported value is between laboratory method detection limit and laboratory practical quantitation limit.

J = Estimated value.

NA= Not analyzed.

FIGURES



LEGEND
 ● Monitoring Well (shading indicates part of LTM Program)
 --- Storm Sewer

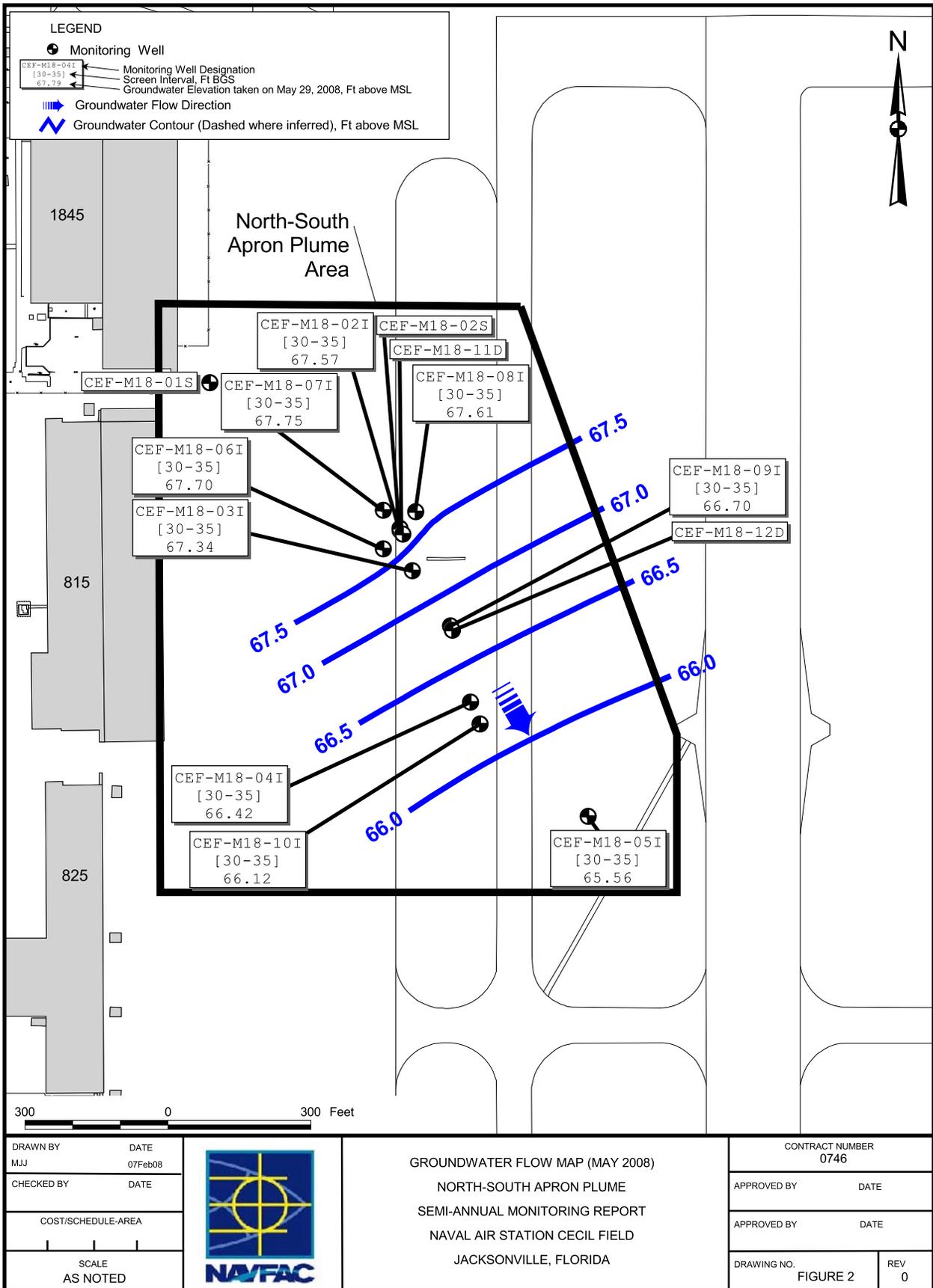
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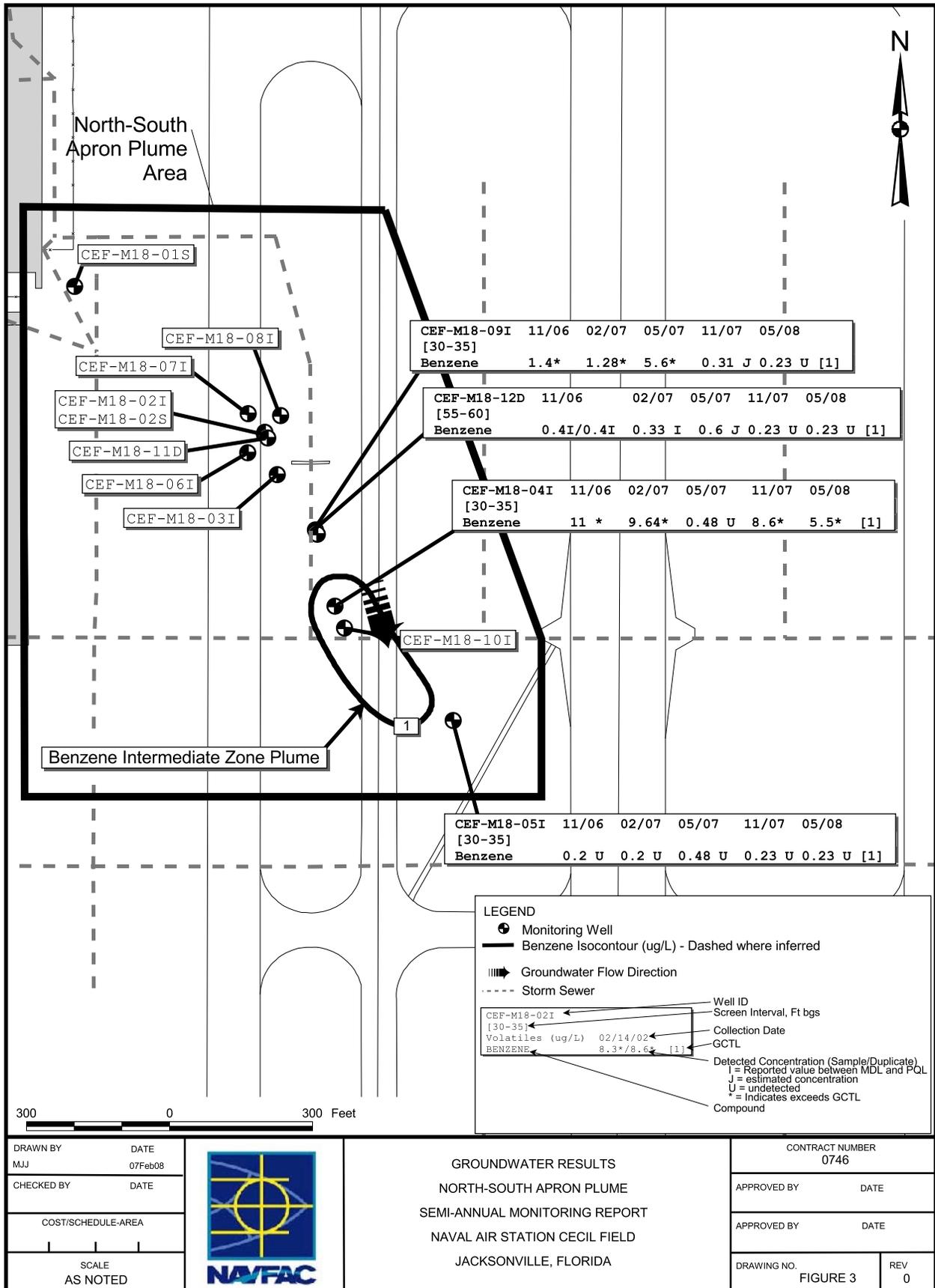
DRAWN BY MJJ	DATE 07Feb08
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE AS NOTED	



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





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

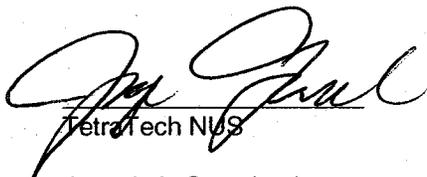
ATTACHMENT B
GROUNDWATER ANALYTICAL REPORT

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM for Environmental Laboratories.



Tetra Tech NUS
Trever Sheets
Data Validator



Tetra Tech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

- Appendix A – Qualified Analytical Results
- Appendix B – Results as Reported by the Laboratory
- Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (e.g. base-line drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can be any number of issues; e.g. poor chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = % Difference between columns/detectors $>25\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 01264

SDG: BR006-032 MEDIA: WATER DATA FRACTION: OV

nsample CEF-M18-04I-20080529
samp_date 5/29/2008
lab_id B803338-01
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

nsample CEF-M18-05I-20080529
samp_date 5/29/2008
lab_id B803338-02
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

nsample CEF-M18-09I-20080529
samp_date 5/29/2008
lab_id B803338-03
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZENE	5.5		

Parameter	Result	Val Qual	Qual Code
BENZENE	0.23	U	

Parameter	Result	Val Qual	Qual Code
BENZENE	0.23	U	

PROJ_NO: 01264

SDG: BR006-032 MEDIA: WATER DATA FRACTION: OV

nsample CEF-M18-12D-20080529
samp_date 5/29/2008
lab_id B803338-04
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

nsample CEF-M18-DU01-20080529
samp_date 5/29/2008
lab_id B803338-05
qc_type NM
units UG/L
Pct_Solids
DUP_OF: CEF-M18-04I-20080529

nsample TRIP BLANK-Cooler J100
samp_date 5/29/2008
lab_id B803338-06
qc_type NM
units UG/L
Pct_Solids
DUP_OF:

Parameter	Result	Val Qual	Qual Code
BENZENE	0.23	U	

Parameter	Result	Val Qual	Qual Code
BENZENE	5.6		

Parameter	Result	Val Qual	Qual Code
BENZENE	0.23	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

ORGANIC ANALYSIS DATA SHEET

EPA 8260B

TRIP BLANK-Cooler J100

Laboratory:	<u>ENCO Jacksonville</u>	SDG:	<u>BR006-032</u>
Client:	<u>Tetra Tech NUS (BR006)</u>	Project:	<u>CTO# 0102 NAS Cecil Field</u>
Matrix:	<u>Ground Water</u>	Laboratory ID:	<u>B803338-06</u>
Sampled:	<u>05/29/08 00:00</u>	Prepared:	<u>06/04/08 09:00</u>
Solids:		Preparation:	<u>EPA 5030B_MS</u>
Batch:	<u>8F04020</u>	Sequence:	<u>BA02891</u>
		Calibration:	<u>0806001</u>
		Instrument:	<u>JVGCMS2</u>
		File ID:	<u>11F4020.D</u>
		Analyzed:	<u>06/04/08 18:34</u>
		Initial/Final:	<u>5 mL / 5 mL</u>

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	MDL	MRL
71-43-2	Benzene	1	0.23	U	0.23	1.0

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.0	47	95	85 - 120	
4-Bromofluorobenzene	50.0	48	95	75 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene	339631	10.37	597460	10.37	
1,4-Difluorobenzene	430162	11.04	754142	11.03	
Chlorobenzene-d5	375608	14.29	665083	14.28	
1,4-Dichlorobenzene-d4	212589	16.57	389356	16.56	

* Values outside of QC limits

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG BR006-032

SORT	UNITS	NSAMPLE	LAB ID	QC TYPE	SAMP DATE	EXTR DATE	ANAL DATE	SMP EXTR	EXTR ANL	SMP ANL
OV	%	TRIP BLANK-Cooler J100	B803338-06	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	%	CEF-M18-DU01-20080529	B803338-05	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	%	CEF-M18-12D-20080529	B803338-04	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	%	CEF-M18-09I-20080529	B803338-03	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	%	CEF-M18-05I-20080529	B803338-02	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	%	CEF-M18-04I-20080529	B803338-01	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	UG/L	TRIP BLANK-Cooler J100	B803338-06	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	UG/L	CEF-M18-DU01-20080529	B803338-05	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	UG/L	CEF-M18-12D-20080529	B803338-04	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	UG/L	CEF-M18-09I-20080529	B803338-03	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	UG/L	CEF-M18-05I-20080529	B803338-02	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6
OV	UG/L	CEF-M18-04I-20080529	B803338-01	NM	5/29/2008	6/4/2008	6/4/2008	6	0	6

CASE NARRATIVE

**Tetra Tech NUS, Inc/NAS Cecil Field CTO 0102
Project Manger Ms. Kara Wimble
SDG BR006-032**

Lab Sample ID	Client Sample ID
B803338-01	CEF-M18-041-20080529
B803338-02	CEF-M18-051-20080529
B803338-03	CEF-M18-091-20080529
B803338-04	CEF-M18-12D-20080529
B803338-05	CEF-M18-DU01-20080529
B803338-06	Trip Blank

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.

Analysis: EPA 8260B

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

I certify that this data package is in compliance 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

Released By:

Environmental Conservation Laboratories, Inc.

Lorraine Strong
Project Manager



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER

26228

B803338

PAGE 1 OF 1

PROJECT NO: 112001264		FACILITY: North-South Avon		PROJECT MANAGER: Kara Wumble		PHONE NUMBER: 904-636-6125		LABORATORY NAME AND CONTACT: ENCO Laboratory			
SAMPLERS (SIGNATURE): Kara J. Wumble				FIELD OPERATIONS LEADER: Kara Wumble		PHONE NUMBER: 904-636-6125		ADDRESS: 4810 Executive Park Ct, Ste 211			
				CARRIER/WAYBILL NUMBER: hand delivery				CITY, STATE: Jacksonville, FL 32256			
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/> <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						CONTAINER TYPE: PLASTIC (P) or GLASS (G) G		PRESERVATIVE USED			
						TYPE OF ANALYSIS: VOCS - Benzene only HCL					
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	COMMENTS		
5/29	1308	CEF-M18-04T-20080529				GW		3	Cool to 4°C ↓ Benzene ONLY! Temp Blank included		
	1403	CEF-M18-05T-20080529					3				
	1149	CEF-M18-09C-20080529					3				
	1220	CEF-M18-12D-20080529					3				
	0000	CEF-M18-DU01-20080529					3				
		- Trip Blank									
1. RELINQUISHED BY: Kara J. Wumble		DATE: 5/29/08	TIME: 1640	1. RECEIVED BY: [Signature]		DATE: 5/29/08	TIME: 5/29/08 8:1640				
2. RELINQUISHED BY:		DATE:	TIME:	2. RECEIVED BY:		DATE:	TIME:				
3. RELINQUISHED BY:		DATE:	TIME:	3. RECEIVED BY:		DATE:	TIME:				
COMMENTS: J100 @ 0.8°C											

DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

ANALYSES DATA PACKAGE COVER PAGE

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Client Sample Id:

CEF-M18-04I-20080529

CEF-M18-05I-20080529

CEF-M18-09I-20080529

CEF-M18-12D-20080529

CEF-M18-DU01-20080529

TRIP BLANK-Cooler J100

Lab Sample Id:

B803338-01

B803338-02

B803338-03

B803338-04

B803338-05

B803338-06

I certify that this data package is in compliance 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.

Signature:  Lorraine Strong
2008.06.19 15:04:58 -04'00'

Name: Lorraine Strong

Date: June 19, 2008

Title: Project Manager

PREPARATION BATCH SUMMARY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Batch: 8F04020 Batch Matrix: Water

Preparation: EPA 5030B MS

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Blank	8F04020-BLK1	11F4007.D	06/04/08 09:00	
LCS	8F04020-BS1	11F4008.D	06/04/08 09:00	
Matrix Spike	8F04020-MS1	11F4011.D	06/04/08 09:00	
Matrix Spike Dup	8F04020-MSD1	11F4012.D	06/04/08 09:00	
CEF-M18-04I-20080529	B803338-01	11F4015.D	06/04/08 09:00	
CEF-M18-05I-20080529	B803338-02	11F4016.D	06/04/08 09:00	
CEF-M18-09I-20080529	B803338-03	11F4017.D	06/04/08 09:00	
CEF-M18-12D-20080529	B803338-04	11F4018.D	06/04/08 09:00	
CEF-M18-DU01-20080529	B803338-05	11F4019.D	06/04/08 09:00	
TRIP BLANK-Cooler J100	B803338-06	11F4020.D	06/04/08 09:00	

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Sequence: BA02875

Instrument: JVGCMS2

Matrix: Water

Calibration: 0806001

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	BA02875-TUN1	11EY002.D	05/30/08 22:37
Initial Cal Blank	BA02875-ICB1	11EY005.D	05/31/08 00:08
Cal Standard	BA02875-CAL1	11EY007.D	05/31/08 01:07
Cal Standard	BA02875-CAL2	11EY008.D	05/31/08 01:37
Cal Standard	BA02875-CAL3	11EY009.D	05/31/08 02:07
Cal Standard	BA02875-CAL4	11EY010.D	05/31/08 02:37
Cal Standard	BA02875-CAL5	11EY012.D	05/31/08 03:37
Cal Standard	BA02875-CAL6	11EY015.D	05/31/08 05:07
Secondary Cal Check	BA02875-SCV1	11EY018.D	05/31/08 06:37
Secondary Cal Check	BA02875-SCV2	11EY019.D	05/31/08 07:07

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Sequence: BA02891

Instrument: JVGCMS2

Matrix: Water

Calibration: 0806001

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	BA02891-TUN1	11F4002.D	06/04/08 09:29
Calibration Check	BA02891-CCV1	11F4004.D	06/04/08 10:29
Blank	8F04020-BLK1	11F4007.D	06/04/08 12:02
LCS	8F04020-BS1	11F4008.D	06/04/08 12:32
Matrix Spike	8F04020-MS1	11F4011.D	06/04/08 14:04
Matrix Spike Dup	8F04020-MSD1	11F4012.D	06/04/08 14:34
CEF-M18-04I-20080529	B803338-01	11F4015.D	06/04/08 16:04
CEF-M18-05I-20080529	B803338-02	11F4016.D	06/04/08 16:34
CEF-M18-09I-20080529	B803338-03	11F4017.D	06/04/08 17:04
CEF-M18-12D-20080529	B803338-04	11F4018.D	06/04/08 17:34
CEF-M18-DU01-20080529	B803338-05	11F4019.D	06/04/08 18:04
TRIP BLANK-Cooler J100	B803338-06	11F4020.D	06/04/08 18:34

HOLDING TIME SUMMARY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	0
CEF-M18-041-20080529	05/29/08 13:08	05/29/08 16:40	06/04/08 09:00	5.83	NA	06/04/08 16:04	6.00	14.00	
CEF-M18-051-20080529	05/29/08 14:03	05/29/08 16:40	06/04/08 09:00	5.79	NA	06/04/08 16:34	6.00	14.00	
CEF-M18-091-20080529	05/29/08 11:49	05/29/08 16:40	06/04/08 09:00	5.88	NA	06/04/08 17:04	6.00	14.00	
CEF-M18-12D-20080529	05/29/08 12:20	05/29/08 16:40	06/04/08 09:00	5.86	NA	06/04/08 17:34	6.00	14.00	
CEF-M18-DU01-20080529	05/29/08 00:00	05/29/08 16:40	06/04/08 09:00	6.38	NA	06/04/08 18:04	7.00	14.00	
TRIP BLANK-Cooler J100	05/29/08 00:00	05/29/08 16:40	06/04/08 09:00	6.38	NA	06/04/08 18:34	7.00	14.00	

METHOD DETECTION AND REPORTING LIMITS

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Matrix: Water

Instrument: JVGCMS2

Analyte	MDL	MRL	Units
Benzene	0.23	1	ug/L

SURROGATE STANDARD RECOVERY AND RT SUMMARY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Sequence: BA02875

Instrument: JVGCMS2

Matrix: Water

Calibration: 0806001

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
Initial Cal Blank (BA02875-ICB1)			Lab File ID: 11EY005.D		Analyzed: 05/31/08 00:08			
Toluene-d8	50.0	97	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	88	75 - 120	15.53	15.53	0.0000	+/-1.0	
Secondary Cal Check (BA02875-SCV1)			Lab File ID: 11EY018.D		Analyzed: 05/31/08 06:37			
Toluene-d8	50.0	100	0 - 200	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	104	0 - 200	15.53	15.53	0.0000	+/-1.0	
Secondary Cal Check (BA02875-SCV2)			Lab File ID: 11EY019.D		Analyzed: 05/31/08 07:07			
Toluene-d8	50.0	94	0 - 200	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	90	0 - 200	15.53	15.53	0.0000	+/-1.0	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Sequence: BA02891

Instrument: JVGCMS2

Matrix: Water

Calibration: 0806001

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
Calibration Check (BA02891-CCV1)			Lab File ID: 11F4004.D		Analyzed: 06/04/08 10:29			
Toluene-d8	50.0	92	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	92	75 - 120	15.53	15.53	0.0000	+/-1.0	
Blank (8F04020-BLK1)			Lab File ID: 11F4007.D		Analyzed: 06/04/08 12:02			
Toluene-d8	50.0	97	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	94	75 - 120	15.53	15.53	0.0000	+/-1.0	
LCS (8F04020-BS1)			Lab File ID: 11F4008.D		Analyzed: 06/04/08 12:32			
Toluene-d8	50.0	95	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	94	75 - 120	15.54	15.53	0.0100	+/-1.0	
Matrix Spike (8F04020-MS1)			Lab File ID: 11F4011.D		Analyzed: 06/04/08 14:04			
Toluene-d8	50.0	92	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	93	75 - 120	15.54	15.53	0.0100	+/-1.0	
Matrix Spike Dup (8F04020-MSD1)			Lab File ID: 11F4012.D		Analyzed: 06/04/08 14:34			
Toluene-d8	50.0	94	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	95	75 - 120	15.53	15.53	0.0000	+/-1.0	
CEF-M18-041-20080529 (B803338-01)			Lab File ID: 11F4015.D		Analyzed: 06/04/08 16:04			
Toluene-d8	50.0	90	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	95	75 - 120	15.53	15.53	0.0000	+/-1.0	
CEF-M18-051-20080529 (B803338-02)			Lab File ID: 11F4016.D		Analyzed: 06/04/08 16:34			
Toluene-d8	50.0	100	85 - 120	12.61	12.6	0.0100	+/-1.0	
4-Bromofluorobenzene	50.0	93	75 - 120	15.54	15.53	0.0100	+/-1.0	
CEF-M18-091-20080529 (B803338-03)			Lab File ID: 11F4017.D		Analyzed: 06/04/08 17:04			
Toluene-d8	50.0	92	85 - 120	12.61	12.6	0.0100	+/-1.0	
4-Bromofluorobenzene	50.0	87	75 - 120	15.54	15.53	0.0100	+/-1.0	
CEF-M18-12D-20080529 (B803338-04)			Lab File ID: 11F4018.D		Analyzed: 06/04/08 17:34			
Toluene-d8	50.0	93	85 - 120	12.6	12.6	0.0000	+/-1.0	
4-Bromofluorobenzene	50.0	93	75 - 120	15.53	15.53	0.0000	+/-1.0	
CEF-M18-DU01-20080529 (B803338-05)			Lab File ID: 11F4019.D		Analyzed: 06/04/08 18:04			
Toluene-d8	50.0	95	85 - 120	12.61	12.6	0.0100	+/-1.0	
4-Bromofluorobenzene	50.0	93	75 - 120	15.54	15.53	0.0100	+/-1.0	
TRIP BLANK-Cooler J100 (B803338-06)			Lab File ID: 11F4020.D		Analyzed: 06/04/08 18:34			
Toluene-d8	50.0	95	85 - 120	12.61	12.6	0.0100	+/-1.0	
4-Bromofluorobenzene	50.0	95	75 - 120	15.54	15.53	0.0100	+/-1.0	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

EPA 8260B

<u>Matrix Spike</u>

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Matrix: Water

Batch: 8F04020

Laboratory ID: 8F04020-MS1

Preparation: EPA 5030B_MS

Initial/Final: 5 mL / 5 mL

Source Sample Name: Matrix Spike

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC. #	QC LIMITS REC.
Benzene	20.0	ND	22	111	80 - 120

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC. #	% RPD #	QC LIMITS	
					RPD	REC.
Benzene	20.0	23	115	4	30	80 - 120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Matrix: Water

Batch: 8F04020

Laboratory ID: 8F04020-BS1

Preparation: EPA 5030B MS

Initial/Final: 5 mL / 5 mL

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC. #	QC LIMITS REC.
Benzene	20.0	23	114	80 - 120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Lab File ID: 11EY002.D

Injection Date: 05/30/08

Instrument ID: JVGCMS2

Injection Time: 22:37

Sequence: BA02875

Lab Sample ID: BA02875-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	25.3	PASS
75	30 - 60% of 95	51.6	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	5.8	PASS
173	Less than 2% of 174	0.371	PASS
174	50 - 100% of 95	72.4	PASS
175	5 - 9% of 174	5.36	PASS
176	95 - 101% of 174	97.5	PASS
177	5 - 9% of 176	7.09	PASS

INITIAL CALIBRATION DATA (Continued)

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Calibration: 0806001

Instrument: JVGCMS2

Matrix: Water

Calibration Date: 06/02/08 13:34

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Benzene	0.9469181	13.07735	10.32167	7.461594E-02			15	
Toluene-d8	1.048835	14.32632	12.6	3.396095E-03			15	
4-Bromofluorobenzene	0.5967495	14.86577	15.53	7.849165E-03			15	

MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Lab File ID: 11F4002.D

Injection Date: 06/04/08

Instrument ID: JVGCMS2

Injection Time: 09:29

Sequence: BA02891

Lab Sample ID: BA02891-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.9	PASS
75	30 - 60% of 95	55.4	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	5.74	PASS
173	Less than 2% of 174	0.867	PASS
174	50 - 100% of 95	85.5	PASS
175	5 - 9% of 174	7.1	PASS
176	95 - 101% of 174	95.9	PASS
177	5 - 9% of 176	5.25	PASS

CONTINUING CALIBRATION CHECK

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Instrument ID: JVGCMS2

Calibration: 0806001

Lab File ID: 11F4004.D

Calibration Date: 06/02/08 13:34

Sequence: BA02891

Injection Date: 06/04/08

Lab Sample ID: BA02891-CCV1

Injection Time: 10:29

COMPOUND	TYPE	CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Benzene	A	50.0	48	0.9469181	0.9143739		-3.4	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Calibration: 0806001

Laboratory ID: BA02875-SCV1

Sequence: BA02875

Standard ID: B8F0008

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Benzene	20.0	24	21.4	25.00
4-Bromofluorobenzene	50.0	52	3.6	
Toluene-d8	50.0	50	0.1	

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Calibration: 0806001

Laboratory ID: BA02875-SCV2

Sequence: BA02875

Standard ID: B8F0009

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Benzene	100	110	12.8	25.00
4-Bromofluorobenzene	50.0	45	-9.9	
Toluene-d8	50.0	47	-5.9	

* Values outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY
EPA 8260B

Laboratory: ENCO Jacksonville

SDG: BR006-032

Client: Tetra Tech NUS (BR006)

Project: CTO# 0102 NAS Cecil Field

Sequence: BA02891

Instrument: JVGCMS2

Matrix: Water

Calibration: 0806001

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (8F04020-BLK1)									
Lab File ID: 11F4007.D					Analyzed: 06/04/08 12:02				
Pentafluorobenzene	338265	10.36	597460	10.37	57	50 - 200	-0.0100	+/-0.50	
1,4-Difluorobenzene	428721	11.03	754142	11.03	57	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	391128	14.28	665083	14.28	59	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	234372	16.57	389356	16.56	60	50 - 200	0.0100	+/-0.50	
CEF-M18-04I-20080529 (B803338-01)									
Lab File ID: 11F4015.D					Analyzed: 06/04/08 16:04				
Pentafluorobenzene	366450	10.36	597460	10.37	61	50 - 200	-0.0100	+/-0.50	
1,4-Difluorobenzene	457263	11.04	754142	11.03	61	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	390327	14.29	665083	14.28	59	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	216336	16.57	389356	16.56	56	50 - 200	0.0100	+/-0.50	
CEF-M18-05I-20080529 (B803338-02)									
Lab File ID: 11F4016.D					Analyzed: 06/04/08 16:34				
Pentafluorobenzene	333277	10.37	597460	10.37	56	50 - 200	0.0000	+/-0.50	
1,4-Difluorobenzene	432927	11.04	754142	11.03	57	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	384771	14.28	665083	14.28	58	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	219450	16.57	389356	16.56	56	50 - 200	0.0100	+/-0.50	
CEF-M18-09I-20080529 (B803338-03)									
Lab File ID: 11F4017.D					Analyzed: 06/04/08 17:04				
Pentafluorobenzene	356848	10.36	597460	10.37	60	50 - 200	-0.0100	+/-0.50	
1,4-Difluorobenzene	477409	11.04	754142	11.03	63	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	403435	14.29	665083	14.28	61	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	228491	16.57	389356	16.56	59	50 - 200	0.0100	+/-0.50	
CEF-M18-12D-20080529 (B803338-04)									
Lab File ID: 11F4018.D					Analyzed: 06/04/08 17:34				
Pentafluorobenzene	350156	10.36	597460	10.37	59	50 - 200	-0.0100	+/-0.50	
1,4-Difluorobenzene	452634	11.04	754142	11.03	60	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	394658	14.29	665083	14.28	59	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	222916	16.57	389356	16.56	57	50 - 200	0.0100	+/-0.50	
CEF-M18-DU01-20080529 (B803338-05)									
Lab File ID: 11F4019.D					Analyzed: 06/04/08 18:04				
Pentafluorobenzene	334526	10.36	597460	10.37	56	50 - 200	-0.0100	+/-0.50	
1,4-Difluorobenzene	432869	11.04	754142	11.03	57	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	399883	14.29	665083	14.28	60	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	210677	16.56	389356	16.56	54	50 - 200	0.0000	+/-0.50	
TRIP BLANK-Cooler J100 (B803338-06)									
Lab File ID: 11F4020.D					Analyzed: 06/04/08 18:34				
Pentafluorobenzene	339631	10.37	597460	10.37	57	50 - 200	0.0000	+/-0.50	
1,4-Difluorobenzene	430162	11.04	754142	11.03	57	50 - 200	0.0100	+/-0.50	
Chlorobenzene-d5	375608	14.29	665083	14.28	56	50 - 200	0.0100	+/-0.50	
1,4-Dichlorobenzene-d4	212589	16.57	389356	16.56	55	50 - 200	0.0100	+/-0.50	