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NAS CECIL FIELD, FL
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SECOND SEMI-ANNUAL FIFTH YEAR GROUNDWATER MONITORING LETTER REPORT
FOR JULY 2010 FOR NORTH SOUTH APRON PLUME NAS CECIL FIELD FL
10/08/2010
TETRA TECH NUS INC



TETRA TECH

PITT-10-10-016

October 8, 2010

Project Number 112G02267

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 V Contract Number N62470-08-D-1001
Contract Task Order JM09

Subject: Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 5th Year –
July 2010
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (Tetra Tech) is pleased to submit this Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 5th Year – July 2010, 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) Contract Number N62470-08-D-1001.

The primary objective of the sampling activities detailed herein is to monitor groundwater associated with the intermediate zone 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 Approval Order (NAMPAO) issued by the Florida Department of Environmental Protection (FDEP) on October 21, 2005, based on Chapter 62-770.690, Florida Administrative Code (F.A.C.). A copy of the NAMPAO is provided in Attachment A. This report summarizes the field operations and analytical results for the subject site for the 2nd Semi-Annual, 5th Year – July 2010 sampling event. Figure 1 shows the location of the North-South Apron Plume site.

FIELD OPERATIONS

July 2010 field operations were performed in general accordance with FDEP and Tetra Tech Standard Operating Procedures (SOPs). Groundwater samples were collected on July 2, 2010, using low-flow methods from the three intermediate monitoring wells (CEF-M18-04I, CEF-M18-05I, and CEF-M18-09I) listed in the 2003 Supplemental Site Assessment Letter Report II and 2005 NAMPAO. Following collection, the groundwater samples were placed on ice and delivered via FedEx under chain of custody to Empirical Laboratories, Nashville, Tennessee, for analysis. All samples were analyzed for benzene, the contaminant of concern (COC), using United States Environmental Protection Agency (USEPA) Method SW-846 8260B.

Prior to obtaining the July 2010 groundwater samples, synoptic water levels and total well depths were measured in the nine intermediate wells in the area (CEF-M18-02I, CEF-M18-03I, CEF-M18-04I, CEF-

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M18-05I, CEF-M18-06I, CEF-M18-07I, CEF-M18-08I, CEF-M18-09I, and CEF-M18-10I) 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 66.30 to 68.48 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 July 2010. These results are consistent with 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. 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 slightly from 3.4 micrograms per liter ($\mu\text{g/L}$) in January 2010 to 2.79 $\mu\text{g/L}$ in July 2010. The GCTL for benzene is 1.0 $\mu\text{g/L}$. The Natural Attenuation-Default Concentration for benzene, as defined in Chapter 62-777, F.A.C., was not exceeded in the groundwater samples collected during this event. Benzene concentrations have been decreasing consistently at CEF-M18-04I since March 2005, with the only exception being the May 2007 and May 2008 events. Benzene was not detected in intermediate perimeter wells CEF-M18-05I and CEF-M18-09I during the July 2010 sampling event.

CONCLUSIONS AND RECOMMENDATIONS

During the July 2010 sampling event, benzene concentrations decreased slightly in CEF-M18-04I from the January 2010 sampling event. Well CEF-M18-04I is the only well at the site where benzene concentrations have exceeded the GCTL since the May 2007 sampling event. Benzene was not detected in perimeter wells CEF-M18-05I or CEF-M18-09I.

The FDEP NAMP AO states that if cleanup objectives have not been met after five years of monitoring, then the monitoring report must include a proposal as described in 62-770.690(8)(f) FAC. Tetra Tech proposes that semi-annual groundwater monitoring continue in accordance with the BCT discussions at the August 2010 meeting (Minute No. 2638). The 1st Semi-Annual, 6th Year sampling event is scheduled for January 2011 and will eliminate CEF-M18-09I from the program. 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, 6th Year Groundwater Monitoring Report will be prepared when the results from the sampling event have been received and evaluated. It is also recommended that a new NAMP AO be prepared for the 1st Semi-Annual, Year 6 event and future events at the site.

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 contact Robert Simcik at (412) 921-8163 or by email at Robert.Simcik@ttnus.com.

Sincerely,

Robert Simcik, P.E.
Task Order Manager

Kara F. Wimble
Project Scientist



TETRA TECH

Mr. David Grabka
FDEP
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Enclosures (4)

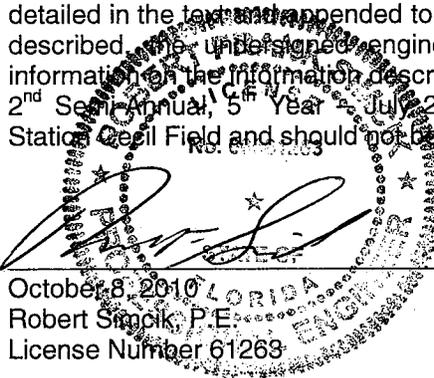
- c: A. Sanford, NAVFAC SE (1 copy)
- M. Davidson, NAVFAC SE (1 copy)
- M. Halil, CH2M Hill (electronic only)
- S. Currie, Tetra Tech CTO JM09 project file (1 copy, unbound)
- J. Trepanowski, Tetra Tech
- M. Jonnet, Tetra Tech (1 copy)
- J. Johnson, Tetra Tech (1 copy for Information Repository)

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, 5th Year - July 2010 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.



October 8, 2010
Robert Simcik, P.E.
License Number 61263



TABLES

**Table 1
Groundwater Elevation Data**

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 5th Year - July 2010
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
Page 1 of 2

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
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
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	6.80	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	9.30	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

**Table 1
Groundwater Elevation Data**

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 5th Year - July 2010
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
Page 2 of 2

Monitoring Well Identification	Well Depth (feet btoc)	TOC Elevation (feet above msl)	May 28, 2008		November 10, 2008		July 24, 2009		January 21, 2010		July 2, 2010	
			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	NM	NM								
CEF-M18-02S	15	76.02	NM	NM								
CEF-M18-02I	35	75.78	8.21	67.57	7.69	68.09	5.82	69.96	7.64	68.14	7.32	68.46
CEF-M18-03I	35	75.13	7.79	67.34	7.14	67.99	5.11	70.02	7.15	67.98	7.01	68.12
CEF-M18-04I	35	74.66	8.24	66.42	7.59	67.07	5.34	69.32	7.62	67.04	7.59	67.07
CEF-M18-05I	35	73.42	7.86	65.56	7.26	66.16	4.74	68.68	7.21	66.21	7.12	66.30
CEF-M18-06I	35	76.11	8.41	67.70	8.06	68.05	6.22	69.89	8.04	68.07	7.78	68.33
CEF-M18-07I	35	76.26	8.51	67.75	8.02	68.24	6.16	70.10	NM	NM	7.74	68.52
CEF-M18-08I	35	75.54	7.93	67.61	7.39	68.15	5.51	70.03	7.33	68.21	7.06	68.48
CEF-M18-09I	35	74.32	7.62	66.70	6.88	67.44	4.71	69.61	6.91	67.41	6.84	67.48
CEF-M18-10I	35	74.98	8.86	66.12	8.21	66.77	5.94	69.04	8.25	66.73	8.19	66.79
CEF-M18-11D	55	75.80	NM	NM								
CEF-M18-12D	55	74.14	NM	NM								

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, 5th Year - July 2010
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
Page 1 of 3

Parameter	GCTL	NADC	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	03/01/05	07/07/06

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
Toluene	40	400	1.0 U	1.0 U	2.0 U	0.50 U	0.5 U					
Ethylbenzene	30	300	1.0 U	1.0 U	2.0 U	0.50 U	0.5 U					
Xylenes, total	20	200	3.0 U	3.0 U	6.0 U	1.0 U	1 U					

Parameter	GCTL	NADC	CEF-M18-04I (continued)									
			11/22/06	02/02/07	05/02/07	11/19/07	05/29/08		11/10/08	07/24/09	01/21/10	
							Sample	Duplicate			Sample	Duplicate

VOCs (µg/L)

Benzene	1	100	11	9.64	0.48 U	8.6	5.5	5.6	8.5	6	3.4	3.3
Toluene	40	400	0.3 U	0.2 U	0.25 U	0.28 U	NA	NA	NA	NA	NA	NA
Ethylbenzene	30	300	0.2 U	0.3 U	0.99 U	0.34 U	NA	NA	NA	NA	NA	NA
Xylenes, total	20	200	0.3 U	0.3 U	0.6 U	0.38 U	NA	NA	NA	NA	NA	NA

Parameter	GCTL	NADC	CEF-M18-04I	CEF-M18-05I									
			07/02/10	11/30/00		05/02/01	08/07/01	11/06/01	02/14/02	03/01/05	07/07/06	11/22/06	
				Sample	Duplicate								

VOCs (µg/L)

Benzene	1	100	2.79	1.0 U	0.50 U	0.5 U	0.2 U					
Toluene	40	400	NA	2.0 U	0.50 U	0.5 U	0.3 U					
Ethylbenzene	30	300	NA	2.0 U	0.50 U	0.5 U	0.2 U					
Xylenes, total	20	200	NA	6.0 U	1.0 U	1 U	0.3 U					

Table 2
Summary of Detections in Groundwater

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 5th Year - July 2010
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
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Parameter	GCTL	NADC	CEF-M18-05I (continued)									
			02/02/07	05/02/07	11/19/07	05/29/08	11/10/08	07/24/09		01/21/10	07/02/10	
								Sample	Duplicate		Sample	Duplicate

VOCs (µg/L)

Benzene	1	100	0.2 U	0.48 U	0.23 U	0.23 U	0.4 U	0.11 U	0.11 U	0.12 U	0.14 U	0.14 U
Toluene	40	400	0.2 U	0.25 U	0.28 U	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	30	300	0.3 U	0.99 U	0.34 U	NA	NA	NA	NA	NA	NA	NA
Xylenes, total	20	200	0.3 U	0.6 U	0.38 U	NA	NA	NA	NA	NA	NA	NA

Parameter	GCTL	NADC	CEF-M18-09I									
			10/23/02	02/28/05	07/06/06		11/22/06	02/02/07	05/02/07	11/19/07		05/29/08
					Sample	Duplicate				Sample	Duplicate	

VOCs (µg/L)

Benzene	1	100	14.5	16.0	3.5	3.5	1.4	1.28	5.6	0.31 J	0.38 J	0.23 U
Toluene	40	400	1.0 U	0.50 U	0.5 U	0.5 U	0.3 U	0.2 U	0.25 U	0.28 U	0.28 U	NA
Ethylbenzene	30	300	1.0 U	0.50 U	0.5 U	0.5 U	0.2 U	0.3 U	0.99 U	0.34 U	0.34 U	NA
Xylenes, total	20	200	3.0 U	1.0 U	1 U	1 U	0.3 U	0.3 U	0.6 U	0.38 U	0.38 U	NA

Parameter	GCTL	NADC	CEF-M18-09I				CEF-M18-12D			
			11/10/08	07/24/09	01/21/10	07/02/10	07/11/03		02/28/05	07/06/06
							Sample	Duplicate		

VOCs (µg/L)

Benzene	1	100	0.40 U	0.11 U	0.12 U	0.14 U	1.2	1.1	0.55	0.5 U
Toluene	40	400	NA	NA	NA	NA	1.0 U	1.0 U	0.50 U	0.5 U
Ethylbenzene	30	300	NA	NA	NA	NA	1.0 U	1.0 U	0.50 U	0.5 U
Xylenes, total	20	200	NA	NA	NA	NA	3.0 U	3.0 U	1.0 U	1 U

Table 2
Summary of Detections in Groundwater

Semi-Annual Groundwater Monitoring Report, 2nd Semi-Annual, 5th Year - July 2010
North-South Apron Plume
Naval Air Station Cecil Field
Jacksonville, Florida
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Parameter	GCTL	NADC	CEF-M18-12D (continued)								
			11/22/06	11/22/06	02/02/07	05/02/07	11/19/07	05/29/08	11/10/08	07/24/09	01/21/10
			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	0.40 U	0.11 U	0.12 U
Toluene	40	400	0.3 U	0.3 U	0.2 U	0.25 U	0.28 U	NA	NA	NA	NA
Ethylbenzene	30	300	0.2 U	0.2 U	0.3 U	0.99 U	0.34 U	NA	NA	NA	NA
Xylenes, total	20	200	0.3 U	0.3 U	0.3 U	0.6 U	0.38 U	NA	NA	NA	NA

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

NADC = Natural Attenuation Default Concentration from Chapter 62-777, F.A.C.

VOCs = Volatile organic compounds.

µg/L = Micrograms per liter.

Bold indicates concentration greater than FDEP GCTL.

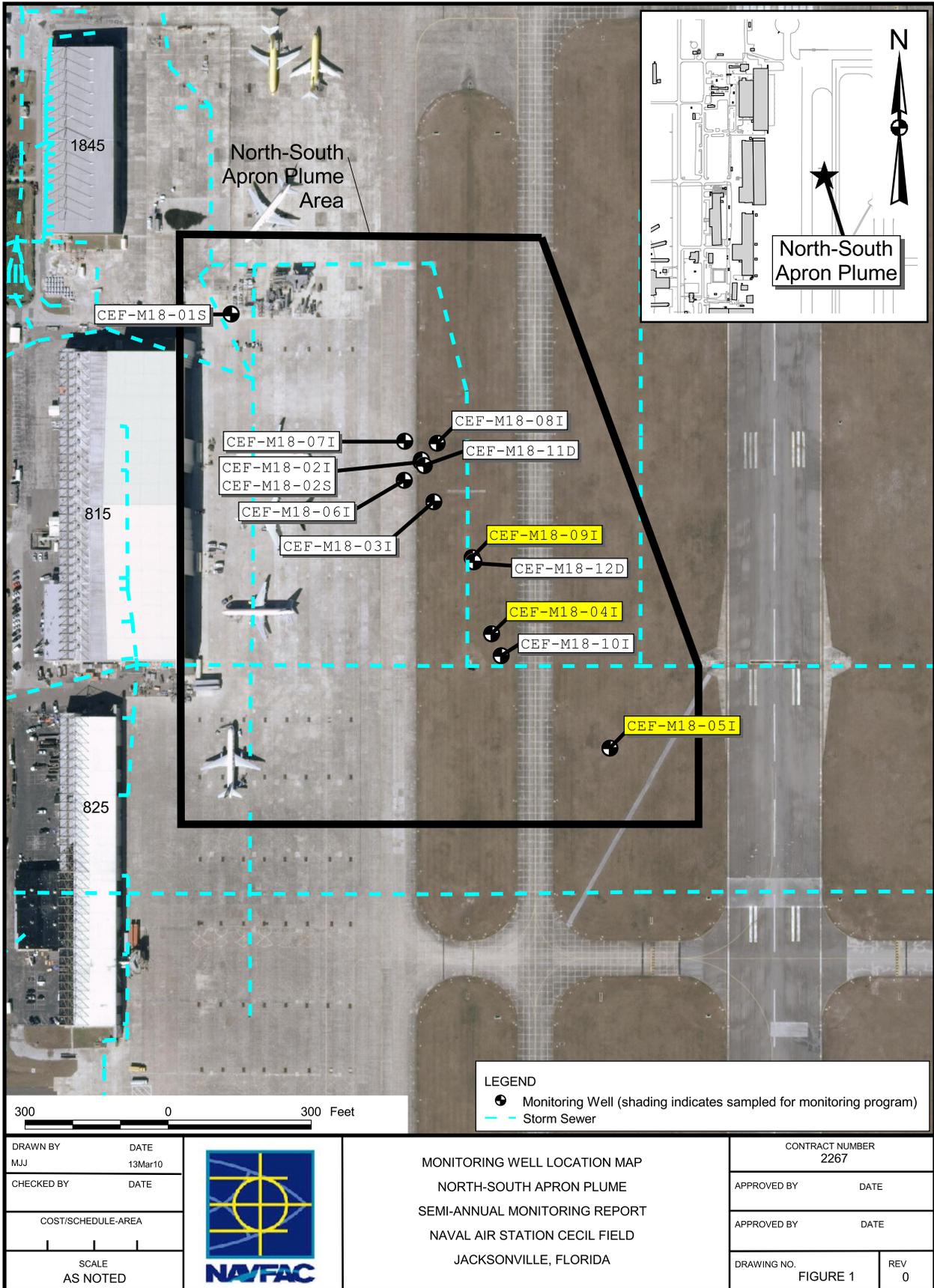
U = Not detected at detection limit shown.

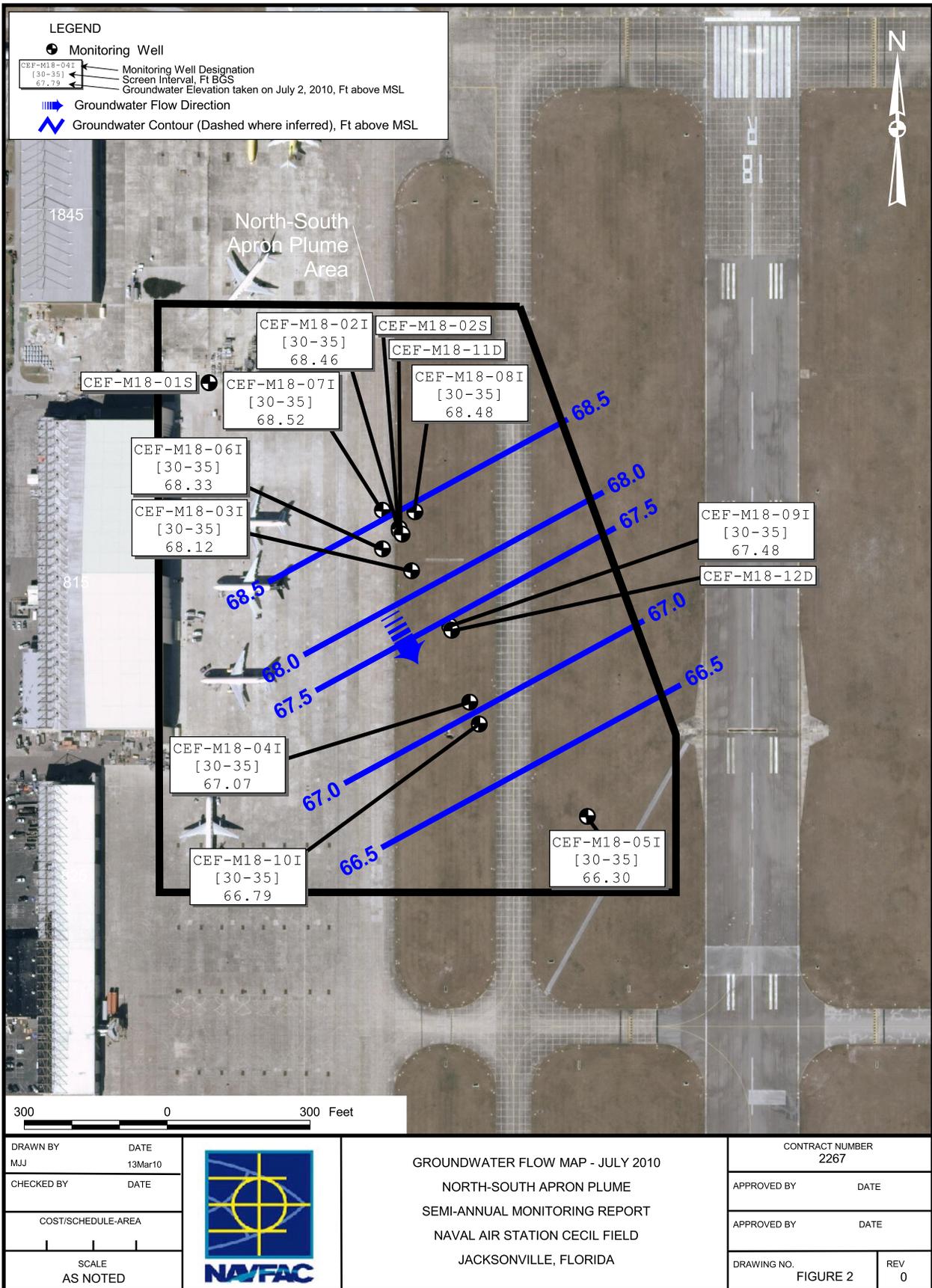
I = Reported value is between laboratory method detection limit and laboratory practical quantitation limit.

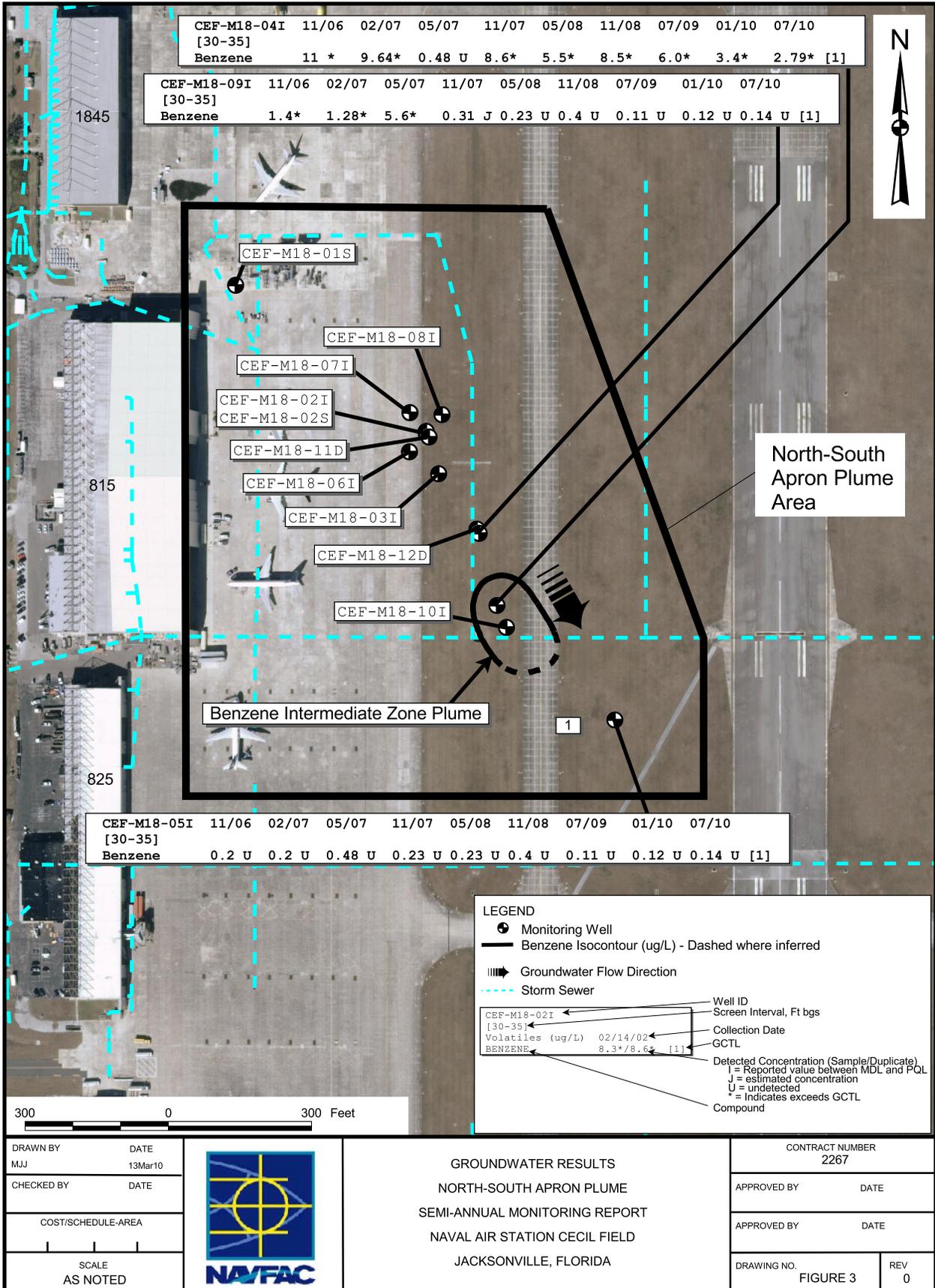
J = Estimated value.

NA# = Not analyzed.

FIGURES







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

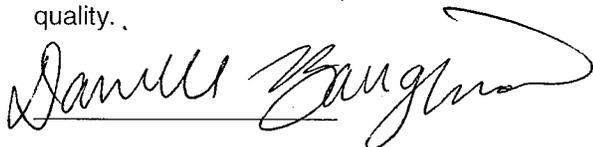
ATTACHMENT B
LABORATORY ANALYTICAL REPORT

EXECUTIVE SUMMARY

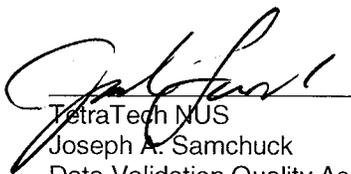
Laboratory Performance Issues: None to report.

Other Factors Affecting Data Quality: None to 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) Quality Systems Manual (QSM) (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech NUS
Danielle Baughman
Project Engineer



TetraTech 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 $r < 0.995$ / ICP PDS Recovery Noncompliance
- 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 encompass a number of issues; e.g. chromatography,interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DOT 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: 02267 SDG: CTOJM09CF005 FRACTION: OV MEDIA: WATER	NSAMPLE	CEF-M18-04I-20100702			CEF-M18-05I-20100702			CEF-M18-09I-20100702			CEF-M18-DUPLICATE-01-2010		
	LAB_ID	1007025-04			1007025-02			1007025-03			1007025-01		
	SAMP_DATE	7/2/2010			7/2/2010			7/2/2010			7/2/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										CEF-M18-05I-20100702		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
BENZENE	2.79			0.3	U		0.3	U		0.3	U		

PROJ_NO: 02267 SDG: CTOJM09CF005 FRACTION: OV MEDIA: WATER	NSAMPLE	TRIPBLANK_20100702		
	LAB_ID	1007025-05		
	SAMP_DATE	7/2/2010		
	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
BENZENE	0.3	U		

PROJ_NO: 02267 SDG: CTOJM09CF005 FRACTION: OS MEDIA: WATER	NSAMPLE	CEF-059-028-015-20100701			CEF-815-05S-20100701			CEF-815-1S-20100701			CEF-815-DUPLICATE01-20100		
	LAB_ID	1007021-01			1007021-04			1007021-03			1007021-02		
	SAMP_DATE	7/1/2010			7/1/2010			7/1/2010			7/1/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
DUP_OF										CEF-059-028-015-20100701			
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
NAPHTHALENE	0.0185	U		110			31.3			0.0185	U		

PROJ_NO: 02267 SDG: CTOJM09CF005 FRACTION: OS MEDIA: WATER	NSAMPLE	CEF-815-NG-12S-20100701		
	LAB_ID	1007021-05		
	SAMP_DATE	7/1/2010		
	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
DUP_OF				
PARAMETER	RESULT	VQL	QLCD	
NAPHTHALENE	0.0185	U		

APPENDIX B
RESULTS AS REPORTED BY THE LABORATORY

APPENDIX C
SUPPORT DOCUMENTATION

Sample Delivery Group Assignment Form

CLIENT: Tetra Tech NUS, Inc. (T010)
 PROJECT NAME: CTO JM09_2010
 SDG #: CTOJM09CF_005
 MATRIX: Water

QC LEVEL: EDD/IVQS
 Report Due: 7/19/2010
 Client Sample Count:

Sample Type	Sampled	Received	Lab ID	Client ID	SW8260B	SW8270C
Client Sample	7/1/2010	7/2/2010	1007021-01	CEF-059-028-015-20100701		X
Client Sample	7/1/2010	7/2/2010	1007021-02	CEF-815-DUPLICATE01-20100701		X
Client Sample	7/1/2010	7/2/2010	1007021-03	CEF-815-1S-20100701		X
Client Sample	7/1/2010	7/2/2010	1007021-04	CEF-815-05S-20100701		X
Client Sample	7/1/2010	7/2/2010	1007021-05	CEF-815-NG-12S-20100701		X
Trip Blank	7/1/2010	7/2/2010	1007021-06	TRIP BLANK		Cancelled
Client Sample	7/2/2010	7/3/2010	1007025-01	CEF-M18-DUPLICATE-01-20100702	X	
Client Sample	7/2/2010	7/3/2010	1007025-02	CEF-M18-05I-20100702	X	
Client Sample	7/2/2010	7/3/2010	1007025-03	CEF-M18-09I-20100702	X	
Client Sample	7/2/2010	7/3/2010	1007025-04	CEF-M18-04I-20100702	X	
Trip Blank	7/2/2010	7/3/2010	1007025-05	TRIP BLANK	X	

Sample Delivery Group Case Narrative

Receipt Information

The samples were received within the preservation guidelines for the associated methods. The information associated with sample receipt and the Sample Delivery Group (SDG) are included within section 4 of this package, which also provides information on the link between the client sample ID listed on the COC and laboratory's assigned unique sample ID or WorkOrder #. The sample is tracked through the laboratory for all analysis via the assigned WorkOrder #.

All samples that were received were analyzed and none of the samples were placed on hold without analyses. There were no subcontracted analyses for this SDG.

A sample labeled Trip Blank was received in the shipment sent on 7/1/10 and was marked on the CoC as requiring SW8270C for Naphthalene only. As per the client, the Trip Blank was not to be analyzed for SW8270C.

Changes to the Revision

The package was revised to include Analysis Data Sheets that reported the Detection Limit, Limit of Detection and Limit of Quantitation. Only the Analysis Data Sheets were replaced.

Analytical Information

All samples were prepped (where applicable) and analyzed within the standard allowed holding times, unless noted within the exceptions listed below. The laboratory analyzed all samples within the program and method guidelines. The following information is provided specific to individual methods:

Chromatographic Flags for Manual Integration:

The following letters are used to denote manual integrations on the laboratory's raw data in association with chromatographic integrations:

- A:** The peak was manually integrated as it was not integrated in the original chromatogram.
- B:** The peak was manually integrated due to resolution or coelution issues in the original chromatogram.
- C:** The peak was manually integrated to correct the baseline from the original chromatogram.
- D:** The peak was manually integrated to identify the correct peak as the wrong peak was identified in the original chromatogram.
- E:** The peak was manually integrated to include the entire peak as the original chromatogram only integrated part of the peak.

SW8260B (Benzene):

No anomalies or deviations are noted.

SW8270C (Naphthalene):

No anomalies or deviations are noted.

Data Qualifiers

As applicable and where required, the following general qualifiers are associated with the sample results. Additional qualifiers will be specified within the reporting sections of the data package or within the body of the Case Narrative.

Analytical Report Terms and Qualifiers

- MDL:** The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDL is determined from analysis of a sample containing the analyte in a given matrix. For DoD QSM 4.1 reporting purposes, this definition is also applied to the reported Detection Limit (DL).
- LOD:** The Limit of Detection is an estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte- and matrix-specific and may be laboratory-dependent. This definition is further clarified in the DoD QSM 4.1 revisions as the smallest amount or concentration of a substance that must be present in a sample in order to be detected at a high level of confidence (99%). At the LOD, the false negative rate (Type II error) is 1%.
- LOQ:** The Limit of Quantitation is the minimum level, concentration, or quantity of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. This term is further clarified within the DoD QSM 4.1 as the lowest concentration that produces a quantitative result within specified limits of precision and bias.
- *:** A failing quality control criteria is associated with the reported result.
- B:** The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero. **For Florida DEP reports this qualifier is "V".**
- D:** When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".
- E:** The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound. **For Florida DEP reports this qualifier is "L".**
- H1:** The result was analyzed outside of the EPA recommended holding time.

- H2:** The result was extracted outside of the EPA recommended holding time
- J:** The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The mass spectral data pass the identification criteria showing that the compound is present, but the calculated result is less than the EQL. One should feel confident that the result is greater than zero and less than the EQL. **For Florida DEP reports this qualifier is "J".**
- M:** Indicates that the sample matrix interfered with the quantitation of the analyte. In dual column analysis the result is reported from the column with the lower concentration. In metals, the qualifier indicates that the parameters MDL/RL has been raised.
- N:** The MS/MSD accuracy and/or precision are outside criteria. The predigested spike recovery is not within control limits for the associated parameter.
- P:** The associated numerical value is an estimated quantity. There is greater than a 40% difference between the two GC columns for the detected concentrations. The higher of the two values is reported unless matrix interference is obvious or for HPLC analysis where the primary column is reported.
- Q:** The RPD and/or percent recovery failed in the associated Blank Spike and/or Blank Spike Duplicate.
- R:** The RPD and/or percent recovery failed in the associated Matrix Spike and/or Matrix Spike Duplicate.
- U:** The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the DL.
- X:** The parameter shows a potential positive bias on a reported concentration due to an ICV or CCV exceeding the upper control limit on the high side.
- Y:** The parameter shows a potential negative bias on a reported concentration due to an ICV or CCV exceeding the lower control limit on the low side.

LIMS Definitions / Naming Conventions:

The following are general naming conventions that are used throughout the laboratory; however, on a method by method basis, there are additional QAQC items that are named in a consistent format.

- BLK:** LIMS assigns a unique identifier to the Method Blank by naming it as the letters BLK appended to the Batch ID. A Method Blank is an analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The Method Blank is used to assess for possible

contamination during preparation and/or analysis steps. Method Blanks within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally.

- BS:** LIMS assigns a unique identifier to the Blank Spike by naming it as the letters BS appended to the Batch ID. The Blank Spike or Lab Control Sample is a controlled analyte-free matrix, which is spiked with known and verified concentrations of target analytes. Spiking concentrations can be referenced in the method SOP. The BS is used to evaluate the viability of analytes taken through the entire prep (when applicable) and analytical process. Blank Spikes within a Batch or Analytical sequence will be appended with a numerical value beginning with 1 that will increase incrementally. A duplicate Blank Spike will be designated as a BSD.
- MS:** The LIMS assigns each Client sample with a unique identifier. The Matrix Spike is designated with a MS at the end of the sample's unique identifier. The Matrix Spike sample is used to assess the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. A duplicate Matrix Spike will be designated as a MSD.
- IDs:** The LIMS assigns each Client sample with a unique identifier. The letter "RE" may potentially be appended to the end of the LIMS Sample ID. And "RE" implies that the sample was either re-prepped, re-analyzed straight, or re-analyzed at a dilution. Subsequent re-analysis for the sample will be appended with a numerical value beginning with 1 that will increase incrementally. Eg: RE1, RE2, RE3, etc.

Statement of Data Authenticity:

I certify that, based upon my inquiry of those individuals immediately responsible for obtaining the information and to the best of my knowledge, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in this Case Narrative, as verified by my signature below. During absences, Ms. Marcia K. McGinnity is authorized to sign this Statement of Data Authenticity.



Mr. Rick D. Davis
Laboratory Technical Director / VP Operations



PROJECT NO: <u>112602867</u>	FACILITY: <u>Cecil Field N/S Apron</u>	PROJECT MANAGER <u>Rob Simcik</u>	PHONE NUMBER <u>412 921-8163</u>	LABORATORY NAME AND CONTACT: <u>Empirical Labs / Kim Kostzer</u>
SAMPLERS (SIGNATURE) 		FIELD OPERATIONS LEADER <u>Jeff Krone</u>	PHONE NUMBER <u>904 699-7423</u>	ADDRESS <u>621 Mainstream Dr Suite 270</u>
CARRIER/WAYBILL NUMBER <u>8660 17302790</u>			Fedex Airbill	CITY, STATE <u>Nashville, TN 37208</u>

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

CONTAINER TYPE
PLASTIC (P) or GLASS (G)

PRESERVATIVE USED

DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS	COMMENTS
7/2	0000	CEF-M18-Duplicate #1-20100702					G	3	X	Cool to 4° C -01 1067025 -02 -03 -04 -05
7/2	1006	CEF-M18-05I-20100702				GW	G	3	X	
7/2	1232	CEF-M18-09I-20100702				GW	G	3	X	
7/2	1307	CEF-M18-04I-20100702				GW	G	3	X	
		Trip Blank ✓				QC		2	X	

1. RELINQUISHED BY 	DATE <u>7/2/10</u>	TIME <u>1100</u>	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE <u>7-3-10</u>	TIME <u>0930</u>
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY 	DATE	TIME

COMMENTS



PROJECT NO: <u>112602267</u>	FACILITY: <u>Cecil Field</u> <u>815 Wash Back</u>	PROJECT MANAGER <u>Rob Simcik</u>	PHONE NUMBER <u>412 921-8163</u>	LABORATORY NAME AND CONTACT: <u>Empirical Labs/ Kim Kostzer</u>
SAMPLERS (SIGNATURE) 		FIELD OPERATIONS LEADER <u>Jeff Krone</u>	PHONE NUMBER <u>904 699-7473</u>	ADDRESS <u>(62) Mainstream Drive Suite 270</u>
CARRIER/WAYBILL NUMBER <u>8660 1730 27 89</u>			CITY, STATE <u>Nashville, TN 37208</u>	

DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)		PRESERVATIVE USED	COMMENTS
7/1	1041	CEF-054-028-015-20100701				GW	G	2	X			Cool to 4°C -01
7/1	0000	CEF-815-Duplicate #1-20100701				GW	G	2	X			1007021-02
7/1	1208	CEF-815-1\$-20100701				GW	G	2	X			.03
7/1	1249	CEF-815-05\$-20100701				GW	G	2	X			-04
7/1	1318	CEF-815-NG-12\$-20100701				GW	G	2	X			-05
7/1		Trip blank				QC	G	2	X			-06

TYPE OF ANALYSIS
METALS BY ICP
SW 816/8270C

1. RELINQUISHED BY 	DATE <u>7/1/10</u>	TIME <u>1630</u>	1. RECEIVED BY 	DATE <u>7/2/10</u>	TIME <u>1230</u>
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

CTOJM09CF_005

HOLD TIME

SDG CTOJM09CF0

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	UG/L	CEF-815-NG-12S-201007	1007021-05	NM	07/01/2010	07/06/2010	07/06/2010	5	0	5
	UG/L	CEF-815-DUPLICATE01-2	1007021-02	NM	07/01/2010	07/06/2010	07/06/2010	5	0	5
	UG/L	CEF-815-1S-20100701	1007021-03	NM	07/01/2010	07/06/2010	07/06/2010	5	0	5
	UG/L	CEF-815-05S-20100701	1007021-04RE1	NM	07/01/2010	07/06/2010	07/07/2010	5	1	6
	UG/L	CEF-815-05S-20100701	1007021-04	NM	07/01/2010	07/06/2010	07/06/2010	5	0	5
	UG/L	CEF-059-028-015-201007	1007021-01	NM	07/01/2010	07/06/2010	07/06/2010	5	0	5
OV	UG/L	TRIP BLANK	1007025-05	NM	07/02/2010	07/08/2010	07/09/2010	6	1	7
OV	UG/L	CEF-M18-DUPLICATE-01-	1007025-01	NM	07/02/2010	07/08/2010	07/09/2010	6	1	7
OV	UG/L	CEF-M18-09I-20100702	1007025-03	NM	07/02/2010	07/08/2010	07/09/2010	6	1	7
OV	UG/L	CEF-M18-05I-20100702	1007025-02	NM	07/02/2010	07/08/2010	07/09/2010	6	1	7
OV	UG/L	CEF-M18-04I-20100702	1007025-04	NM	07/02/2010	07/08/2010	07/09/2010	6	1	7

ANALYSIS SEQUENCE SUMMARY

SW8270D

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CF_005

Client: Tetra Tech NUS, Inc. (T010)

Project: CTO JM09 2010

Sequence: 0F18028

Instrument: MS-BNA4

Calibration: 0180002

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0F18028-TUN1	SEQ-TUN1.D	06/28/10 13:05
Cal Standard	0F18028-CAL1	SEQ-CAL1.D	06/28/10 13:23
Cal Standard	0F18028-CAL2	SEQ-CAL2.D	06/28/10 13:57
Cal Standard	0F18028-CAL3	SEQ-CAL3.D	06/28/10 14:32
Cal Standard	0F18028-CAL4	SEQ-CAL4.D	06/28/10 15:06
Cal Standard	0F18028-CAL5	SEQ-CAL5.D	06/28/10 15:41
Cal Standard	0F18028-CAL6	SEQ-CAL6.D	06/28/10 16:15
Cal Standard	0F18028-CAL7	SEQ-CAL7.D	06/28/10 16:50
Cal Standard	0F18028-CAL8	SEQ-CAL8.D	06/28/10 17:24
Cal Standard	0F18028-CAL9	SEQ-CAL9.D	06/28/10 17:58
Cal Standard	0F18028-CALA	SEQ-CALA.D	06/28/10 18:32
Cal Standard	0F18028-CALB	SEQ-CALB.D	06/28/10 19:06
Initial Cal Check	0F18028-ICV1	SEQ-ICV1.D	06/28/10 19:40

INITIAL CALIBRATION DATA (Continued)

SW8270D

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CF_005

Client: Tetra Tech NUS, Inc. (T010)

Project: CTO JM09_2010

Calibration: 0180002

Instrument: MS-BNA4

Matrix: Water

Calibration Date: 6/28/2010 1:21:33PM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acenaphthene	0.6843662	4.089875	9.098727	0.1235025			CCC (30)	
Acenaphthylene	1.03395	5.426133	8.716819	0.1278145			15	
Anthracene	0.9753837	5.42048	12.969	0.1080631			15	
Benzo(a)anthracene	0.8407703	11.41209	20.39036	7.739572E-02			15	
Benzo(a)pyrene	0.99216	7.147693	24.45936	7.256003E-02			CCC (30)	
Benzo(b)fluoranthene	1.090184	7.02488	23.61173	0.1151915			15	
Benzo(g,h,i)perylene	1.070497	5.555724	26.80146	7.817751E-02			15	
Benzo(k)fluoranthene	1.095974	5.741823	23.70809	0.1299211			15	
Chrysene	0.8368241	7.631494	20.48909	8.649425E-02			15	
Dibenz(a,h)anthracene	1.007054	6.830493	26.42427	5.976237E-02			15	
Fluoranthene	1.015998	6.024858	16.20245	7.774786E-02			CCC (30)	
Fluorene	0.7092772	4.40414	10.32818	0.1206732			15	
2-Fluorobiphenyl	0.7723392	5.16539	7.676909	0.1212934			15	
2-Fluorophenol							15	
Indeno(1,2,3-cd)pyrene	1.002614	8.296918	26.37036	6.493991E-02			15	
1-Methylnaphthalene	0.6415101	5.849649	7.190182	9.074068E-02			15	
2-Methylnaphthalene	0.7209612	4.438382	7.029636	5.474195E-02			15	
Naphthalene	1.119336	3.941696	6.027364	0.1044206			15	
Nitrobenzene-d5							15	
Phenanthrene	1.001893	4.414811	12.82673	0.1013149			15	
Phenol-d6							15	
Pyrene	1.043553	6.463486	16.82373	8.083199E-02			15	
Terphenyl-d14	0.7240882	6.643793	17.50091	5.789483E-02			15	
2,4,6-Tribromophenol	0.119438	22.23675	10.94855	0.1332675	0.9995851		0.995	
Acenaphthene-d10							15	
Chrysene-d12							15	

INITIAL CALIBRATION CHECK

SW8270D

Laboratory: <u>Empirical Laboratories, LLC</u>	SDG: <u>CTOJM09CF_005</u>
Client: <u>Tetra Tech NUS, Inc. (T010)</u>	Project: <u>CTO JM09 2010</u>
Instrument ID: <u>MS-BNA4</u>	Calibration: <u>0180002</u>
Lab File ID: <u>SEQ-ICV1.D</u>	Calibration Date: <u>06/28/10 13:21</u>
Sequence: <u>0F18028</u>	Injection Date: <u>06/28/10</u>
Lab Sample ID: <u>0F18028-ICV1</u>	Injection Time: <u>19:40</u>

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Naphthalene	A	5.000	4.962	1.119336	1.110799		-0.8	20

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

* Values outside of QC limits

ANALYSIS SEQUENCE SUMMARY

SW8270D

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CF_005

Client: Tetra Tech NUS, Inc. (T010)

Project: CTO JM09_2010

Sequence: 0G18803

Instrument: MS-BNA4

Calibration: 0180002

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0G18803-TUN1	SEQ-TUN1.D	07/06/10 14:25
Calibration Check	0G18803-CCV1	SEQ-CCV1.D	07/06/10 14:42
Blank	0G06014-BLK2	G06014B1.D	07/06/10 15:51
LCS	0G06014-BS2	G06014L1.D	07/06/10 16:25
LCS Dup	0G06014-BSD2	G06014L2.D	07/06/10 17:00
CEF-059-028-015-20100701	1007021-01	0702101.D	07/06/10 17:34
CEF-815-1S-20100701	1007021-03	0702103.D	07/06/10 18:43
CEF-815-05S-20100701	1007021-04	0702104.D	07/06/10 19:17
CEF-815-NG-12S-20100701	1007021-05	0702105.D	07/06/10 19:51
CEF-815-DUPLICATE01-20100701	1007021-02	0702102.D	07/06/10 20:26

CONTINUING CALIBRATION CHECK

SW8270D

Laboratory: <u>Empirical Laboratories, LLC</u>	SDG: <u>CTOJM09CF_005</u>
Client: <u>Tetra Tech NUS, Inc. (T010)</u>	Project: <u>CTO JM09 2010</u>
Instrument ID: <u>MS-BNA4</u>	Calibration: <u>0180002</u>
Lab File ID: <u>SEQ-CCV1.D</u>	Calibration Date: <u>06/28/10 13:21</u>
Sequence: <u>0G18803</u>	Injection Date: <u>07/06/10</u>
Lab Sample ID: <u>0G18803-CCV1</u>	Injection Time: <u>14:42</u>

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Naphthalene	A	5.000	5.018	1.119336	1.123263		0.4	20
2-Fluorobiphenyl	A	5.000	5.383	0.7723392	0.8315318		7.7	20
Terphenyl-d14	A	5.000	5.557	0.7240882	0.8047855		11.1	20

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

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

SW8270D

Laboratory: <u>Empirical Laboratories, LLC</u>	SDG: <u>CTOJM09CF_005</u>
Client: <u>Tetra Tech NUS, Inc. (T010)</u>	Project: <u>CTO JM09_2010</u>
Instrument ID: <u>MS-BNA4</u>	Calibration: <u>0180002</u>
Lab File ID: <u>SEQ-CCV1.D</u>	Calibration Date: <u>06/28/10 13:21</u>
Sequence: <u>0G18806</u>	Injection Date: <u>07/07/10</u>
Lab Sample ID: <u>0G18806-CCV1</u>	Injection Time: <u>12:03</u>

COMPOUND	TYPE	CONC. (ug/mL)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Naphthalene	A	5.000	5.122	1.119336	1.146713		2.4	20
2-Fluorobiphenyl	A	5.000	5.517	0.7723392	0.8522103		10.3	20
Terphenyl-d14	A	5.000	5.467	0.7240882	0.7917319		9.3	20

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

* Values outside of QC limits

Field Duplicate Calculations

Parameters	Original Sample	Duplicate Sample	RPD
	CEF-059-028-015-2010070 20100		
NAPHTHALENE	0.0926	0.0926	0.00

ANALYSIS SEQUENCE SUMMARY

SW8260B

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CF_005

Client: Tetra Tech NUS, Inc. (T010)

Project: CTO JM09_2010

Sequence: 0F17504

Instrument: MS-VOA3

Calibration: 0176003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	0F17504-TUN1	SEQ-TUN1.D	06/23/10 11:56
Cal Standard	0F17504-CAL1	SEQ-CAL1.D	06/23/10 12:26
Cal Standard	0F17504-CAL2	SEQ-CAL2.D	06/23/10 12:56
Cal Standard	0F17504-CAL3	SEQ-CAL3.D	06/23/10 13:26
Cal Standard	0F17504-CAL4	SEQ-CAL4.D	06/23/10 13:56
Cal Standard	0F17504-CAL5	SEQ-CAL5.D	06/23/10 14:26
Cal Standard	0F17504-CAL6	SEQ-CAL6.D	06/23/10 14:56
Cal Standard	0F17504-CAL7	SEQ-CAL7.D	06/23/10 15:26
Cal Standard	0F17504-CAL8	SEQ-CAL8.D	06/23/10 15:56
Cal Standard	0F17504-CAL9	SEQ-CAL9.D	06/23/10 16:26
Initial Cal Check	0F17504-ICV1	SEQ-ICV1.D	06/23/10 16:56
Cal Standard	0F17504-CALA	SEQ-CALA.D	06/23/10 17:26
Cal Standard	0F17504-CALB	SEQ-CALB.D	06/23/10 17:57
Cal Standard	0F17504-CALC	SEQ-CALC.D	06/23/10 18:27
Cal Standard	0F17504-CALD	SEQ-CALD.D	06/23/10 18:57
Cal Standard	0F17504-CALE	SEQ-CALE.D	06/23/10 19:27
Cal Standard	0F17504-CALF	SEQ-CALF.D	06/23/10 19:57
Cal Standard	0F17504-CALG	SEQ-CALG.D	06/23/10 20:27
Cal Standard	0F17504-CALH	SEQ-CALH.D	06/23/10 20:57
Cal Standard	0F17504-CALI	SEQ-CALI.D	06/23/10 21:27

INITIAL CALIBRATION DATA (Continued)

SW8260B

Laboratory: Empirical Laboratories, LLC

SDG: CTOJM09CF_005

Client: Tetra Tech NUS, Inc. (T010)

Project: CTO JM09 2010

Calibration: 0176003

Instrument: MS-VOA3

Matrix: Water

Calibration Date: 6/25/2010 9:59:36AM

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	LIMIT	Q
Acetone	7.253642E-02	18.95544	5.621	8.050008E-02	0.9987883		0.995	
Acrolein	4.204751E-02	5.646703	5.446333	3.690176E-02			15	
Acrylonitrile	9.964702E-02	5.519988	6.325	6.542213E-02			15	
Benzene	0.8891624	5.855588	12.334	9.620145E-03			15	
Bromobenzene	0.6124253	5.291253	17.38767	1.611948E-02			15	
Bromochloromethane	0.1279747	4.742927	10.04244	6.325874E-02			15	
Tert-Amyl Methyl Ether	0.6260509	11.25287	12.668	3.235534E-02			15	
Bromodichloromethane	0.2839346	6.942077	13.311	2.023993E-02			15	
Bromoform	0.3130452	19.49766	16.67644	2.075329E-02	0.9992913		SPCC (0.1)	
Bromomethane	0.1520118	16.78038	4.587445	7.488093E-02		0.999775	0.99	
Bromofluorobenzene	0.8343518	3.974044	17.215	2.234535E-02			15	
n-Butylbenzene	1.286954	10.75476	18.582	1.827712E-02			15	
2-Butanone	0.095236	10.95653	9.2825	0.3732811	0.9997827		0.995	
sec-Butylbenzene	1.65336	11.16434	18.12489	7.224488E-03			15	
tert-Butylbenzene	1.514307	5.889765	18.253	0.0175468			15	
Carbon disulfide	0.6399809	5.472097	6.885667	4.510075E-02			15	
Carbon tetrachloride	0.2481609	12.4516	12.29578	1.783201E-02			15	
Chlorobenzene	1.4152	11.48369	16.27	1.629381E-02			SPCC (0.3)	
Chloroethane	0.1466068	10.27688	4.757334	6.590424E-02			15	
Chloroform	0.4141635	9.074872	10.18978	3.215137E-02			CCC (20)	
2-Chloroethyl vinyl ether	0.1196553	28.07579	13.89178	5.532227E-02	0.9988268		0.995	
Chloromethane	0.2208697	16.66918	3.910667	0.155472		0.9998537	SPCC (0.1)	
1-Chlorohexane	0.5584774	6.748727	16.22933	8.219464E-03			15	
2-Chlorotoluene	1.442478	7.079318	17.60678	1.477394E-02			15	
4-Chlorotoluene	1.486733	7.248058	17.663	1.394193E-02			15	
Cyclohexane	0.2847172	12.85866	12.19175	2.950494E-02			15	
Dibromochloromethane	0.4698346	9.514434	15.26533	1.323839E-02			15	
1,2-Dibromo-3-chloropropane	0.1243549	22.95406	18.94167	6.468553E-03	0.9975687		0.995	
1,2-Dibromoethane (EDB)	0.509507	4.080081	15.49711	1.255806E-02			15	
Dibromomethane	0.1618893	5.455831	13.13633	9.443551E-03			15	
1,2-Dichlorobenzene	1.048073	5.188883	18.55722	1.294672E-02			15	
1,3-Dichlorobenzene	1.120096	8.423402	18.21033	5.496229E-03			15	

INITIAL CALIBRATION CHECK

SW8260B

Laboratory: <u>Empirical Laboratories, LLC</u>	SDG: <u>CTOJM09CF_005</u>
Client: <u>Tetra Tech NUS, Inc. (T010)</u>	Project: <u>CTO JM09_2010</u>
Instrument ID: <u>MS-VOA3</u>	Calibration: <u>0176003</u>
Lab File ID: <u>SEQ-ICV1.D</u>	Calibration Date: <u>06/25/10 09:59</u>
Sequence: <u>0F17504</u>	Injection Date: <u>06/23/10</u>
Lab Sample ID: <u>0F17504-ICV1</u>	Injection Time: <u>16:56</u>

COMPOUND	TYPE	CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	ICV	ICAL	ICV	MIN (#)	ICV	LIMIT (#)
Benzene	A	100.0	103.1	0.8891624	0.9169227		3.1	20
Bromofluorobenzene	A	30.00	29.47	0.8343518	0.8194904		-1.8	20
Dibromofluoromethane	A	30.00	29.12	0.2731964	0.2651368		-3.0	20
1,2-Dichloroethane-d4	A	30.00	29.85	5.966788E-02	5.937004E-02		-0.5	20
Toluene-d8	A	30.00	29.31	2.168887	2.119274		-2.3	20

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

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

SW8260B

Laboratory: <u>Empirical Laboratories, LLC</u>	SDG: <u>CTOJM09CF_005</u>
Client: <u>Tetra Tech NUS, Inc. (T010)</u>	Project: <u>CTO JM09_2010</u>
Instrument ID: <u>MS-VOA3</u>	Calibration: <u>0176003</u>
Lab File ID: <u>SEQ-CCVE.D</u>	Calibration Date: <u>06/25/10 09:59</u>
Sequence: <u>0G19103</u>	Injection Date: <u>07/08/10</u>
Lab Sample ID: <u>0G19103-CCV1</u>	Injection Time: <u>19:41</u>

COMPOUND	TYPE	CONC. (ug/L)		RESPONSE FACTOR			% DIFF / DRIFT	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Benzene	A	100.0	100.5	0.8891624	0.8940369		0.5	20
Bromofluorobenzene	A	30.00	30.39	0.8343518	0.8451155		1.3	20
Dibromofluoromethane	A	30.00	28.44	0.2731964	0.2590432		-5.2	20
1,2-Dichloroethane-d4	A	30.00	28.14	5.966788E-02	5.597697E-02		-6.2	20
Toluene-d8	A	30.00	27.31	2.168887	1.974267		-9.0	20

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

* Values outside of QC limits

Field Duplicate Calculations

Parameters	Original Sample	Duplicate Sample	RPD
	CEF-M18-05I-20100702	CEF-M18-DUPLICATE-01-2010	
BENZENE	1	1	0.00

