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NAS CECIL FIELD, FL
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"FIRST SEMI-ANNUAL SECOND YEAR GROUNDWATER MONITORING LETTER REPORT FOR BUILDING 860 TANKS 860 A, B AND D NAS CECIL FIELD FL"
11/5/2002
TETRA TECH NUS INC

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November 5, 2002

Project Number N4093

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

Reference: CLEAN Contract Number N62467-94-D-0888
Contract Task Order Number 0209

Subject: Groundwater Monitoring Report
1st Semi-Annual Report, 2nd Year (July 2002)
Building 860 –Tanks 860 A/B/D
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Groundwater Monitoring Report for the referenced Contract Task Order (CTO). This report was prepared by TtNUS for the U.S. Navy Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. The objective of this task is to semi-annually monitor groundwater associated with the site. The guidance document for this report is Chapter 62-770 of the Florida Administrative Code (FAC). The sampling program was accomplished in general accordance with the Natural Attenuation Monitoring Only Plan (MOP) Approval Order that was issued by the Florida Department of Environmental Protection (FDEP) on April 6, 2001 (Attachment A). This report summarizes the fieldwork and analytical results for the subject site that was conducted in July 2002. The work was performed in general accordance with the Base-wide Generic Work Plan Volumes I and II (TtNUS, 1998).

FIELD OPERATIONS

Figure 1 shows the location of the site. On July 25, 2002, water level measurements were obtained from eight monitoring wells prior to sample collection.

Groundwater samples were collected on July 25, 2002 from five monitoring wells in general accordance with the MOP Approval Order and were analyzed for total recoverable petroleum hydrocarbons (TRPH). Those wells included CEF-860-2S (perimeter well), CEF-860-3S (contaminated well), CEF-860-4S (contaminated well), CEF-860-7S (perimeter well), and CEF-860-8S (perimeter well).

Following collection efforts, the groundwater samples were shipped on ice and under chain-of-custody to Accutest Laboratories in Orlando, Florida, for analysis. The samples were analyzed using the Florida Petroleum Range Organics (FL-PRO) method for TRPH.

Upon analyzing the data for the July 25, 2002 sampling event, it was discovered that monitoring well CEF-860-2S exhibited a TRPH concentration greater than its action level. In accordance with the MOP approval order, TtNUS collected a second sample from this well on October 3, 2002, to determine if the TRPH concentration verified the previous result. Following collection efforts, the samples were shipped on ice and under chain-of-custody to the same laboratory facility for analysis using the Florida Petroleum Range Organics (FL-PRO) method for TRPH.

RESULTS

Figure 2 illustrates the groundwater elevations as measured on July 25, 2002. The groundwater contours indicate the flow is to the northwest. Table 1 provides the water table elevation data for the event. The depth to water ranged from 6.12 to 7.05 feet (ft) below top of casing (btoc). The depth-to-water measurements, along with top-of-casing elevations, were used to calculate groundwater elevations.

The laboratory report for the July 2002 event is provided in Attachment B, and the results are summarized in Table 2. The laboratory data indicates that TRPH concentrations were below the applicable groundwater cleanup target levels (GCTLs) in three of the five monitoring wells that were sampled. Perimeter monitoring well CEF-860-2S exhibited a concentration of 7.07 milligrams per liter (mg/L) for TRPH, which exceeds the applicable action level of 5 mg/L. Contaminated monitoring well CEF-860-3S exhibited a TRPH concentration of 8.72 mg/L, which exceeds the GCTL for TRPH of 5 mg/L, but is less than the applicable action level of 50 mg/L. Figure 3 depicts TRPH concentrations that were detected in the groundwater samples collected.

The laboratory results of the October 2002 sampling of monitoring well CEF-860-2S are provided in Attachment B and summarized in Table 2. The TRPH concentration detected in CEF-860-2S was significantly lower than that reported in the July 2002 event. The level decreased from 7.07 to 0.295 mg/L, a value that is less than the action level for perimeter wells on this site.

The historical laboratory data for the site is included on Table 3. This table indicates the historical TRPH data for perimeter well CEF-860-2S has been generally less than the GCTL, except in the August 2001 and July 2002 events. The historical data for the contaminated well CEF-860-4S indicates that the TRPH concentration for that well has decreased below GCTLs and remained so for the last three monitoring events. The historical data for the contaminated well CEF-860-3S indicates a decrease in concentration of TRPH below the GCTL; however, this latest event indicates the concentration has exceeded the GCTL for TRPH. TRPH has not been detected in excess of GCTLs in the downgradient perimeter wells (CEF-860-7S and CEF-860-8S).

CONCLUSIONS AND RECOMMENDATIONS

Groundwater flow direction to the northwest has remained generally unchanged for this site.

Since contaminated well CEF-860-4S has not exceeded the TRPH GCTL for three consecutive events and its downgradient perimeter well, CEF-860-7S, has shown no appreciable petroleum impact above GCTLs, TtNUS recommends deleting these wells from the current MOP Approval Order.

Historically, as is shown in Table 3, perimeter well CEF-860-2S has been reported to have fluctuations of TRPH concentrations. Its TRPH concentration in excess of GCTLs is what warranted re-sampling the well in September of 2001 following the semi-annual event in August of the same year and again this year. The fluctuation of TRPH concentrations leads TtNUS to conclude that the monitoring well is seasonally influenced and does not typically contain elevated TRPH concentrations that pose a viable threat to the receptors in the area.

Because there are still exceedances of FDEP GCTLs in at least one well on this site, TtNUS recommends continued monitoring at this site for another year.

We appreciate the opportunity to submit this report. If you have any questions with regard to this submittal, or if TtNUS can be of assistance in any other way, please contact me at (813)-806-0405.

Sincerely,

Paul E. Calligan

Paul Calligan, P.G.
Task Order Manager

Debbie Wroblewski

Debbie Wroblewski
Program Manager

PC/md

Attachments (9)

pc: W. Hansel, SOUTHNAVFACENGCOM (CD only)
D. Taylor, USEPA
M. Perry, TtNUS (unbound)
D. Wroblewski, TtNUS (cover letter only)
Project File - CTO 0209

TABLES

TABLE 1

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

Monitoring Well Identification	Total Depth (ft, btoc)	Screened Interval (ft, btoc)	Top of Casing Elevation (ft, msl)	February 18, 2001		August 6, 2001		February 1, 2002		July 25, 2002	
				Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)	Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)	Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)	Depth to Water (ft, btoc)	Water Level Elevation (ft, msl)
CEF-860-1S	15	5-15	74.63	7.30	67.33	6.05	68.58	6.60	68.03	7.05	67.58
CEF-860-2S	14	4-14	73.53	6.41	67.12	5.30	68.23	5.93	67.60	6.35	67.18
CEF-860-3S	14	4-14	73.73	6.58	67.15	5.44	68.29	6.09	67.64	6.45	67.28
CEF-860-4S	14	4-14	74.35	6.98	67.37	5.76	68.59	6.44	67.91	6.86	67.49
CEF-860-5S	14	4-14	74.46	7.02	67.44	5.84	68.62	6.51	67.95	6.84	67.62
CEF-860-6S	14	4-14	74.02	6.41	67.61	5.23	68.79	5.89	68.13	6.27	67.75
CEF-860-7S	14	4-14	73.35	6.19	67.16	5.00	68.35	5.72	67.63	6.12	67.23
CEF-860-8S	14	4-14	73.35	6.70	66.65	5.51	67.84	6.22	67.13	6.63	66.72

NOTES:
Elevation is referenced to 1988 National Geodetic VerticalDatum.
msl = mean sea level

TABLE 2

SUMMARY OF DETECTIONS
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

	Contaminated Monitoring Wells		Perimeter Monitoring Wells			Action Levels for Perimeter Wells/ Contaminated Wells	Milestone Objective for Contaminated Wells
Location	CEF-860-3S	CEF-860-4S	CEF-860-2S	CEF-860-7S	CEF-860-8S		
Sample Date	25-Jul-02	25-Jul-02	25-Jul-02	25-Jul-02	25-Jul-02		
Total Petroleum Hydrocarbons (mg/L)							
TRPH	8.72	1.09	**7.07**	0.26U	1.21	5/50	11

Re-sampling Event	Contaminated Monitoring Wells		Perimeter Monitoring Wells			Action Levels for Perimeter Wells/ Contaminated Wells	Milestone Objective for Contaminated Wells
Location	CEF-860-3S	CEF-860-4S	CEF-860-2S	CEF-860-7S	CEF-860-8S		
Sample Date	3-Oct-02	3-Oct-02	3-Oct-02	3-Oct-02	3-Oct-02		
Total Petroleum Hydrocarbons (mg/L)							
TRPH	NS	NS	0.295	NS	NS	5/50	11

NOTES:
Bold values are greater than action levels.
NS = not sampled
U = undetected at detection limit shown

TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-1S		
Sample Number		CEF-860-1S	CEF-860-GW-1S-03	CEF-860-GW-DU06
Sample Date		10-Jul-98	10-May-00	10-May-00
Well Depth (ft)		15	15	15
Volatile Organic Compounds (µg/L)				
Ethylbenzene	30	21	NM	NM
Xylenes	20	1.7	NM	NM
Semivolatile Organic Compounds (µg/L)				
1-Methylnaphthalene	20	**40**	2 U	2 U
2-Methylnaphthalene	20	**45**	2 U	2 U
Acenaphthene	20	2 U	2 U	2 U
Anthracene	2100	3	2 U	2 U
Benzo(g,h,I)perlyene	210	0.2 U	0.2 U	0.2 U
Naphthalene	20	**27**	2 U	2 U
Phenanthrene	210	2.6	2 U	2 U
Pyrene	210	3	2 U	2 U
Total Petroleum Hydrocarbons (mg/L)				
TRPH	5	**12**	3.33	2.88

See notes at end of table.

TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-2S					
Sample Number		CEF-860-GW-2S-01	CEF-860-GW-2S	CEF-860-GW-2S-01A	CEF-860-2S-05	CEF-860-2S-06	CEF-860-2S-06A
Sample Date		6-Oct-99	6-Aug-01	11-Sep-01	1-Feb-02	25-Jul-02	3-Oct-02
Well Depth (ft)		14	14	14	14	14	14
Volatile Organic Compounds (µg/L)							
Ethylbenzene	30	1 U	NM	NM	NM	NM	NM
Xylenes	20	3 U	NM	NM	NM	NM	NM
Semivolatile Organic Compounds (µg/L)							
1-Methylnaphthalene	20	1 U	NM	NM	NM	NM	NM
2-Methylnaphthalene	20	1 U	NM	NM	NM	NM	NM
Acenaphthene	20	1 U	NM	NM	NM	NM	NM
Anthracene	2100	1 U	NM	NM	NM	NM	NM
Benzo(g,h,I)perlyene	210	0.16 U	NM	NM	NM	NM	NM
Naphthalene	20	1 U	NM	NM	NM	NM	NM
Phenanthrene	210	1 U	NM	NM	NM	NM	NM
Pyrene	210	1 U	NM	NM	NM	NM	NM
Total Petroleum Hydrocarbons (mg/L)							
TRPH	5	1.09	**17.4**	0.215	0.559	**7.07**	0.295

See notes at end of table.

TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-3S				
Sample Number		CEF-860-GW-3S-01	CEF-860-GW-3S-03	CEF-860-GW-3S	CEF-860-3S-05	CEF-860-3S-06
Sample Date		7-Oct-99	10-May-00	6-Aug-01	1-Feb-02	25-Jul-02
Well Depth (ft)		14	14	14	14	14
Volatile Organic Compounds (µg/L)						
Ethylbenzene	30	1 U	NM	NM	NM	NM
Xylenes	20	3 U	NM	NM	NM	NM
Semivolatile Organic Compounds (µg/L)						
1-Methylnaphthalene	20	1.1 U	2 U	NM	NM	NM
2-Methylnaphthalene	20	1.1 U	2 U	NM	NM	NM
Acenaphthene	20	1.1 U	2 U	NM	NM	NM
Anthracene	2100	1 U	2 U	NM	NM	NM
Benzo(g,h,I)perlyene	210	0.17 U	0.2 U	NM	NM	NM
Naphthalene	20	1.1 U	2 U	NM	NM	NM
Phenanthrene	210	1.1 U	2 U	NM	NM	NM
Pyrene	210	1 U	2 U	NM	NM	NM
Total Petroleum Hydrocarbons (mg/L)						
TRPH	5	**6.86**	**13.6**	**5.62**	0.975	**8.72**

See notes at end of table.

TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-4S				
Sample Number		CEF-860-GW-4S-01	CEF-860-GW-4S-03	CEF-860-GW-4S	CEF-860-GW-4S	CEF-860-4S-06
Sample Date		7-Oct-99	10-May-00	6-Aug-01	1-Feb-02	25-Jul-02
Well Depth (ft)		14	14	14	14	14
Volatile Organic Compounds (µg/L)						
Ethylbenzene	30	1 U	NM	NM	NM	NM
Xylenes	20	3 U	NM	NM	NM	NM
Semivolatile Organic Compounds (µg/L)						
1-Methylnaphthalene	20	1 U	2 U	NM	NM	NM
2-Methylnaphthalene	20	1 U	2 U	NM	NM	NM
Acenaphthene	20	1 U	2 U	NM	NM	NM
Anthracene	2100	1 U	2 U	NM	NM	NM
Benzo(g,h,I)perlyene	210	0.44 J	0.2 U	NM	NM	NM
Naphthalene	20	1 U	2 U	NM	NM	NM
Phenanthrene	210	1 U	2 U	NM	NM	NM
Pyrene	210	1 U	2 U	NM	NM	NM
Total Petroleum Hydrocarbons (mg/L)						
TRPH	5	**26**	**10.9**	0.389	0.364	1.09

See notes at end of table.

TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-5S			CEF-860-6S	
Sample Number		CEF-860-GW-5S-01	CEF-860-GW-DU02	CEF-860-GW-5S-03	CEF-860-GW-6S-02	CEF-860-GW-DU03-02
Sample Date		6-Oct-99	6-Oct-99	10-May-00	18-Feb-00	18-Feb-00
Well Depth (ft)		14	14	14	14	14
Volatile Organic Compounds (µg/L)						
Ethylbenzene	30	1 U	1 U	NM	1 U	1 U
Xylenes	20	3 U	3 U	NM	3 U	3 U
Semivolatile Organic Compounds (µg/L)						
1-Methylnaphthalene	20	16.5	11	10	1 U	1 U
2-Methylnaphthalene	20	18.1	11.8	12.7	1 U	1 U
Acenaphthene	20	13.4	9.8	2 U	1 U	1 U
Anthracene	2100	1 U	1 U	2 U	1 U	1 U
Benzo(g,h,I)perlyene	210	0.15 U	0.15 U	0.2 U	0.16 U	0.16 U
Naphthalene	20	**21.7**	15.5	13.8	1 U	1 U
Phenanthrene	210	2.6	1.8	2 U	1 U	1 U
Pyrene	210	1 U	1 U	2 U	1 U	1 U
Total Petroleum Hydrocarbons (mg/L)						
TRPH	5	**13.5**	**16.5**	**5.48**	0.25 U	0.28 U

See notes at end of table.

TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-7S				
Sample Number		CEF-860-GW-7S-02	CEF-860-GW-7S	CEF-860-GW-DUP1	CEF-860-GW-7S	CEF-860-7S-06
Sample Date		18-Feb-00	6-Aug-01	6-Aug-01	1-Feb-02	25-Jul-02
Well Depth (ft)		14	14	14	14	14
Volatile Organic Compounds (µg/L)						
Ethylbenzene	30	1 U	NM	NM	NM	NM
Xylenes	20	3 U	NM	NM	NM	NM
Semivolatile Organic Compounds (µg/L)						
1-Methylnaphthalene	20	NM	NM	NM	NM	NM
2-Methylnaphthalene	20	NM	NM	NM	NM	NM
Acenaphthene	20	NM	NM	NM	NM	NM
Anthracene	2100	NM	NM	NM	NM	NM
Benzo(g,h,I)perlyene	210	NM	NM	NM	NM	NM
Naphthalene	20	NM	NM	NM	NM	NM
Phenanthrene	210	NM	NM	NM	NM	NM
Pyrene	210	NM	NM	NM	NM	NM
Total Petroleum Hydrocarbons (mg/L)						
TRPH	5	0.28 U	0.25 U	0.25 U	0.28 U	0.26 U

See notes at end of table.

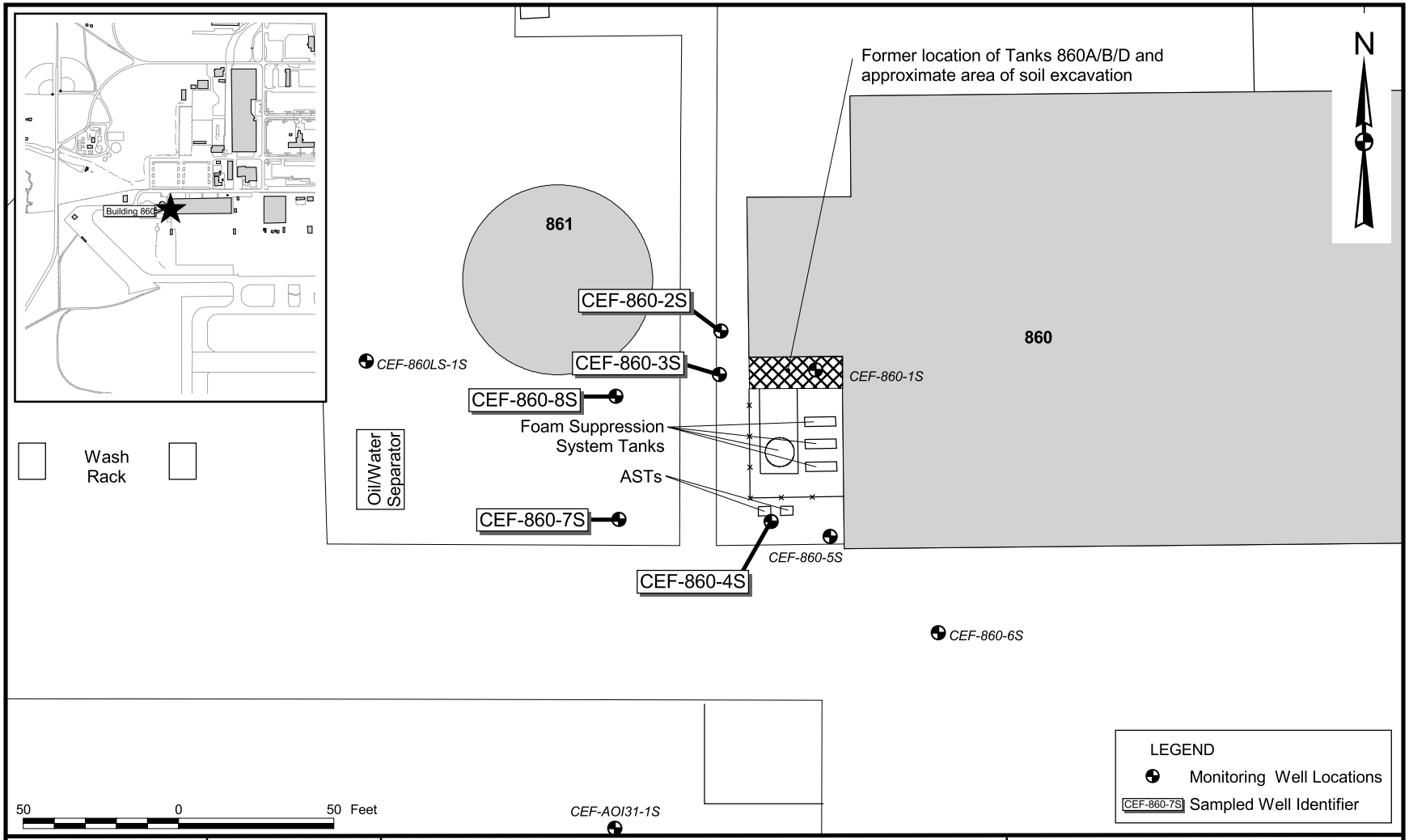
TABLE 3

HISTORICAL ANALYTICAL DATA
BUILDING 860 TANKS A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILE, FLORIDA

Location	**FDEP GCTLs 62-777, FAC**	CEF-860-8S			
Sample Number		CEF-860-GW-8S-02	CEF-860-GW-8S	CEF-860-GW-8S	CEF-860-8S-06
Sample Date		18-Feb-00	6-Aug-01	1-Feb-02	25-Jul-02
Well Depth (ft)		14	14	14	14
Volatile Organic Compounds (µg/L)					
Ethylbenzene	30	1 U	NM	NM	NM
Xylenes	20	3 U	NM	NM	NM
Semivolatile Organic Compounds (µg/L)					
1-Methylnaphthalene	20	NM	NM	NM	NM
2-Methylnaphthalene	20	NM	NM	NM	NM
Acenaphthene	20	NM	NM	NM	NM
Anthracene	2100	NM	NM	NM	NM
Benzo(g,h,I)perlyene	210	NM	NM	NM	NM
Naphthalene	20	NM	NM	NM	NM
Phenanthrene	210	NM	NM	NM	NM
Pyrene	210	NM	NM	NM	NM
Total Petroleum Hydrocarbons (mg/L)					
TRPH	5	0.907	0.28 U	0.326	1.21

NOTES: **Bold** values are greater than criteria.
U = undetected at detection limit shown
µg/L = micrograms per liter
J = estimated value
NM = not measured

FIGURES

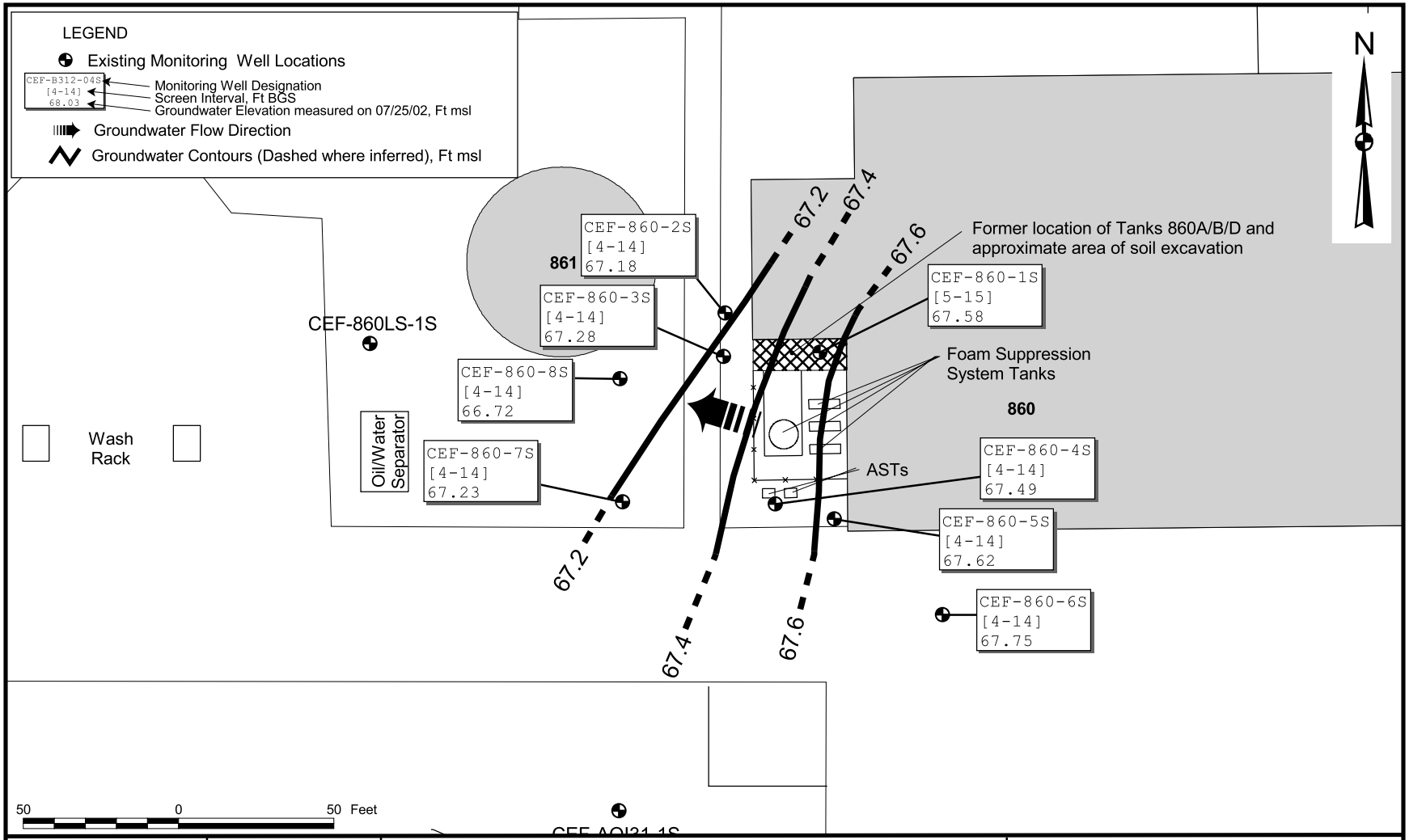


DRAWN BY	DATE
MJJ	20Dec99
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE	AS NOTED

SITE PLAN
BUILDING 860 - TANKS 860A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

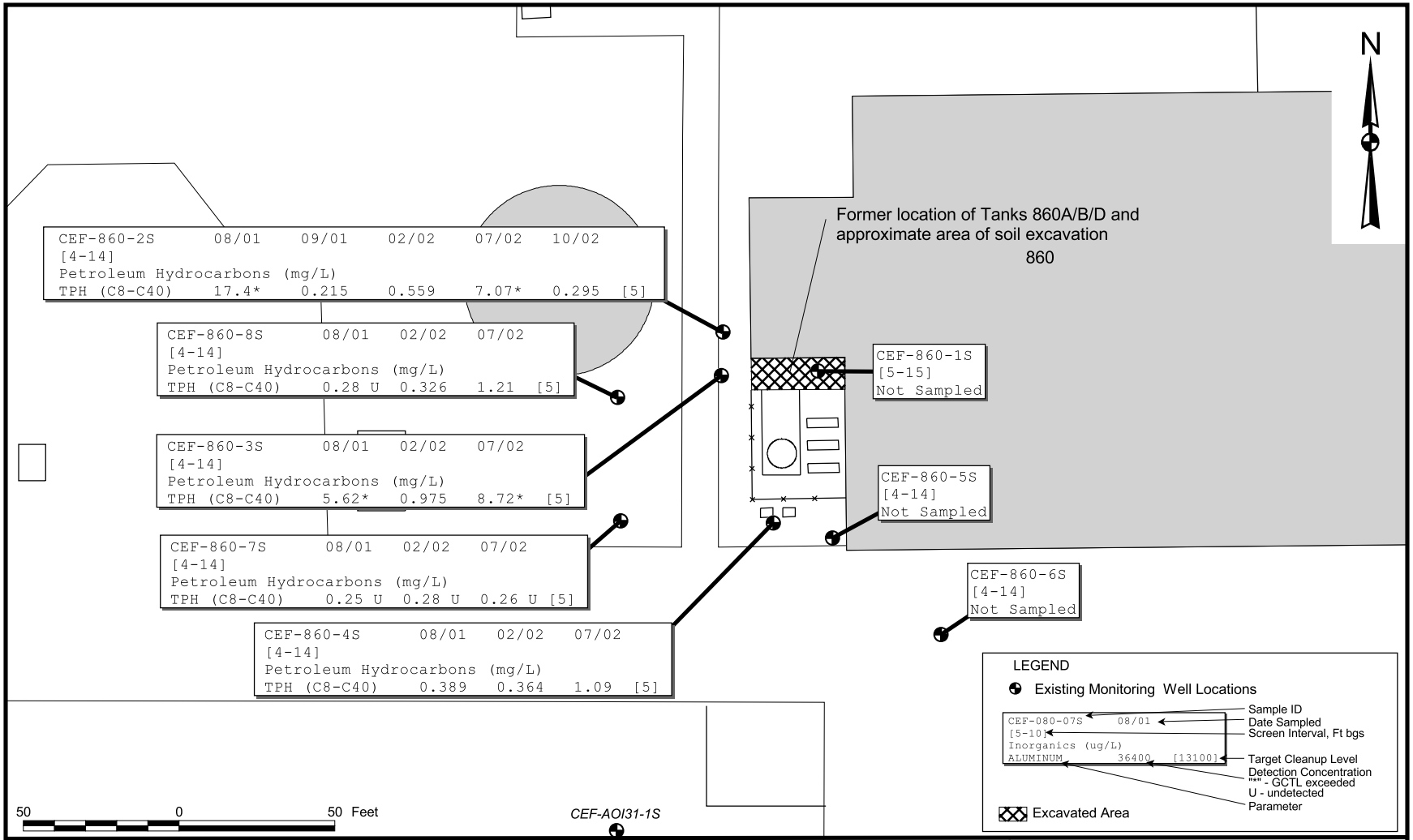
CONTRACT NUMBER	
4093	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV 0

P:\GIS\NAS_CecilField\bldg0860-03.apr 31Oct02 MJJ Site Plan Layout



DRAWN BY MJJ	DATE 11Oct01	GROUNDWATER FLOW MAP BUILDING 860 - TANKS 860A/B/D GROUNDWATER MONITORING REPORT NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER 4093
CHECKED BY	DATE		APPROVED BY DATE
COST/SCHEDULE-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV 0

P:\GIS\NAS_CecilField\bldg0860-03.apr 31Oct02 MJJ PotentiometricLayout



DRAWN BY	DATE
MJJ	11Oct01
CHECKED BY	DATE
COST/SCHEDULE-AREA	
SCALE	AS NOTED

GROUNDWATER TRPH CONCENTRATIONS
BUILDING 860 - TANKS 860A/B/D
GROUNDWATER MONITORING REPORT
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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

P:\GIS\NAS_CecilField\Bldg0860-03.apr 31Oct02 MJJ TagMapLayout

ATTACHMENT A

FDEP MONA APPROVAL ORDER

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 6, 2001

RECEIVED
MAY 30 2001
TETRA TECH NUS
JACKSONVILLE FL

Mr. Nick Ugolini
Code 1843 (UST RPM)
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

RE: **Site Assessment** Report Addendum, Building 860, Tanks 860 A/B/D, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Ugolini:

I have completed the review of the Site Assessment Report Addendum (SARA) and Monitoring Only Proposal (MOP) for Building 860, Tanks 860 A/B/D, Naval Air Station Cecil Field, dated March 2001 (received March 19, 2001), prepared and submitted by Tetra Tech NUS, Inc. The SAR provides adequate evidence that natural attenuation at this site will reduce contaminant concentrations to below groundwater cleanup target levels (GCTLs) in five years. I have attached a Monitoring Only Plan Approval Order signed by Douglas A. Jones specifying the actions to be taken in monitoring the site.

Based on the information provided in the SARA, petroleum contaminated soil has been removed to the extent practicable. Building footings, containment wall footings, a road and the water table has limited further removal of contaminated soil. The contaminated soil remaining does not appear to be at concentrations that would cause groundwater contamination above the Departments GCTLs. Also, most of the contaminated soil remaining on site is located beneath structures that act as a cap to prevent leaching of the contaminants to groundwater. As proposed in the SARA, institutional controls should be put in place to restrict access to the residual contaminated material and restrict the site for industrial use. The restrictions should also require that the roadway and earth cover be maintained in good condition.

If I can be of any further assistance with this matter, please contact me at (850) 488-3693.

Sincerely,

David P. Grabka
Remedial Project Manager

cc: Scott Glass, Southern Division
Debbie Vaughn-Wright, USEPA Region 4
Mark Speranza, TetraTech NUS, Pittsburgh
Sam Ross, CH2M Hill Constructors, Inc.
Mike Fitzsimmons, FDEP Northeast District

TJB TB JJC JJC ESN ESN

Mr. Nick Ugolini
Building 860, Tanks 860 A/B/D
Cecil Field Naval Air Station

P.G. CERTIFICATION

SARA/MOP for Building 860, Tanks 860 A/B/D

I hereby certify that in my professional judgement, the components of this Site Assessment Report Addendum and Monitoring Only Plan for Building 860, Tanks 860 A/B/D, Cecil Field Naval Air Station, Jacksonville, Florida, satisfy the requirements set forth in Chapter 62-770, F.A.C., and that the geological interpretations in this report provide reasonable assurances of achieving the Assessment objectives stated in Chapter 62-770, F.A.C.

____ I personally completed this review.

X This review was conducted by David P. Grabka working under my supervision.

Timothy J. Bahr, P.G.
Professional Geologist Supervisor
Technical Review Section

TIMOTHY J. BAHR
LICENSE
NO. 1209
STATE OF
FLORIDA
PROFESSIONAL GEOLOGIST

4/6/01
Date

Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

April 6, 2001

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Nick Ugolini
Code 1843 (UST RPM)
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

Subject: Natural Attenuation Monitoring Plan Approval Order
Building 860, Tanks 860 A/B/D
Cecil Field Naval Air Station
Jacksonville, Duval County

Dear Mr. Ugolini:

The Bureau of Waste Cleanup has completed the review of the Site Assessment Report Addendum and Natural Attenuation Monitoring Plan dated March 2001 (received March 19, 2001), submitted for the petroleum product discharge discovered at this site. Pursuant to Rule 62-770.690, Florida Administrative Code (F.A.C.), the Department of Environmental Protection (Department) approves the Natural Attenuation Monitoring Plan . Pursuant to Rule 62-770.690(7), F.A.C., you are required to complete the monitoring program outlined below. The first sampling event should be performed within 60 days of receipt of this Natural Attenuation Monitoring Plan Approval Order (Order). Water-level measurements should be made immediately prior to each sampling event. The analytical results (laboratory report), chain of custody, cumulative summary table of the analytical results, site map(s) illustrating the most recent analytical results, and the water-level elevation information (cumulative summary table and most recent flow interpretation map), should be submitted to the Department within 60 days of sample collection.

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

Monitoring Wells	Contaminants of Concern	Frequency	Duration
CEF-860-3S, CEF-860-4S, CEF-860-2S, CEF-860-7S, CEF-860-8S	TRPH	Semi-annual	Five years

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.

The following are the "milestone" objectives that will be used for annual evaluation of remediation progress by natural attenuation. An explanation of the progress relative to these milestone objectives, and the need for corrective action (if applicable), should be provided in the annual evaluation:

TRPH	CEF-860-3S	CEF-860-4S
End of year 1	13 mg/l	13 mg/l
End of year 2	11 mg/l	11 mg/l
End of year 5	<5 mg/l	<5 mg/l

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 a proposal must be submitted to the Department, as described in Rule 62-770.690(7)(f), F.A.C.

Contaminated wells:
CEF-860-3S and CEF-860-4S: 50 mg/l TRPH

Perimeter well (temporary point of compliance):
CEF-860-2S, CEF-860-7S and CEF-860-8S: 5 mg/l TRPH

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

Legal Issues

The Department's Order shall become final unless a timely petition for an administrative proceeding (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 a hearing are set forth below.

Persons affected by this Order have the following options:

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

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

(1) File a petition for administrative hearing with the Department's Office of General Counsel within 21 days of receipt of this Order; or

(2) File a request for an extension of time to file a petition for hearing with the Department's 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 hearing.

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 Hearing

For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) in the Department's 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 Commanding Officer, Southern Division Naval Facilities Engineering Command, shall mail a copy of the request to Commanding Officer, 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 administrative hearing must be made.

How to File a Petition for 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) in the Department's 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 Commanding Officer,

Southern Division Naval Facilities Engineering Command , shall mail a copy of the petition to Commanding Officer, 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 Section 120.54(5)(b)4.a., F.S. (1998, Supp.), and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the FDEP facility number, and the name and address of the facility;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) 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 material facts disputed by the petitioner, 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 administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or an order responding to supplemental information provided pursuant to meetings with the Department.

Judicial Review

Any party to this Order has the right to seek judicial review of 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 clerk of the Department in the Office of General Counsel, 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 clerk of the Department (see below).

Questions

Any questions regarding the Department's review of your Site Assessment Report Addendum should be directed to David P. Grabka at (850) 488-3693. Questions regarding legal issues should be referred to the Department's Office of General Counsel at (850) 488-9314. 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: Mike Fitzsimmons, FDEP Northeast District Office
Scott Glass, Southern Division
Debbie Vaughn-Wright, USEPA Region 4
Mark Speranza, Tetra Tech NUS, Pittsburgh
Sam Ross, CH2M Hill Constructors, Inc.
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)

4/11/01
Date

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

June 21, 2002

Mr. Wayne Hansel
Code ES245 (UST RPM)
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, South Carolina 29419-9010

RE: Groundwater Monitoring Report, 2nd Semi-Annual/Annual Report, 1st Year (February 2002), Building 860 - Tanks 860 A/B/D, Naval Air Station Cecil Field, Jacksonville, Florida

Dear Mr. Ugolini:

I have completed the review of the Groundwater Monitoring Report, 2nd Semi-Annual/Annual Report, 1st Year (February 2002), Building 860 - Tanks 860 A/B/D, Naval Air Station Cecil Field, dated March 26, 2002 (received March 27, 2002), prepared and submitted by Tetra Tech NUS, Inc. Groundwater monitoring should continue as specified in the Natural Attenuation Monitoring Only Plan Approval Order dated April 6, 2001.

If I can be of any further assistance with this matter, please contact me at (850) 921-9991.

Sincerely,

David P. Grabka, P.G.
Remedial Project Manager

cc: [redacted] Southern Division
Dawn Taylor, USEPA Region 4
Mark Speranza, TetraTech NUS, Pittsburgh
Sam Ross, CH2M Hill Constructors, Inc.
Mike Fitzsimmons, FDEP Northeast District

TJB TB JJC JJC ESN ESN

ATTACHMENT B

GROUNDWATER ANALYTICAL REPORTS

RECEIVED
SEP - 4 2002
TETRA TECH NUS
JACKSONVILLE FL

Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Paul Calligan

DATE: August 23, 2002

FROM: Michael T. Akers

CC: File

SUBJECT: Organic Data Validation – TPH
CTO209 – NAS Cecil Field
SDG F14006

SAMPLES: 6/Aqueous

CEF-860-2S-06	CEF-860-3S-06	CEF-860-4S-06
CEF-860-7S-06	CEF-860-8S-06	CEF-860-DUP1-06

OVERVIEW

The sample set for CTO209 SDG F14006; Naval Air Station Cecil Field, Jacksonville, Florida consists of six (6) aqueous environmental samples. The environmental samples were analyzed for Total Petroleum Hydrocarbons (TPH). One duplicate pair was collected and analyzed with this SDG: CEF-860-DUP1-06 / CEF-860-2S-06.

The sample was collected by Tetra Tech NUS on July 25th, 2002 and analyzed by Accutest Laboratories. All analyses were performed in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria and analyzed according to FDEP FL-PRO (TPH) analytical and reporting protocol. The data in this SDG was validated with regard to the following parameters:

* • Data Completeness
* • Holding Times
* • Laboratory method/field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

Total Petroleum Hydrocarbon Fraction

All quality control criteria were met for this fraction.

Field Duplicate Analysis

Parameter	CEF-860-2S-06	CEF-860-DUP1-06	%RPD
TPH	7.07 mg/L	7.14 mg/L	0.99%

No qualifications were made based on field duplicate comparison.

Executive Summary

Laboratory performance: No other factors affected data quality.

Other factors affecting data quality: No other factors affected data quality.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (February, 1996), and the NFESC guidelines "Navy Installation Restoration Chemical Data Quality Manual" (September, 1999). The text of the report has been formulated to address only those problems affecting data quality.

"I attest that the data referenced herein was validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Michael T. Akers
Project Chemist
Tetra Tech NUS, Inc.

PROJ_NO: 4038

SDG: F14006 MEDIA: WATER DATA FRACTION: PET

nsample	CEF-860-2S-06
samp_date	7/25/2002
lab_id	F14006-4
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	CEF-860-DUP1-06

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCARBONS	7.07		

nsample	CEF-860-3S-06
samp_date	7/25/2002
lab_id	F14006-2
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCARBONS	8.72		

nsample	CEF-860-4S-06
samp_date	7/25/2002
lab_id	F14006-3
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCARBONS	1.09		

PROJ_NO: 4038

SDG: F14006 MEDIA: WATER DATA FRACTION: PET

nsample	CEF-860-[illegible]
samp_date	7/25/2002
lab_id	F14006-[illegible]
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCARBONS	0.26	U	

nsample	CEF-860-6S-06
samp_date	7/25/2002
lab_id	F14006-1
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCARBONS	1.21		

nsample	CEF-860-DUP1-06
samp_date	7/25/2002
lab_id	F14006-6
qc_type	NM
units	MG/L
Pct_Solids	0
DUP_OF:	CEF-860-2S-06

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCARBONS	7.14		

F14006

HOLDING TIME
08/21/02

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
%	CEF-860-2S-06	F14006-4	NORMAL	F14006	TPH	07/25/02	08/01/02	08/06/02	7	5	12
%	CEF-860-3S-06	F14006-2	NORMAL	F14006	TPH	07/25/02	08/01/02	08/06/02	7	5	12
%	CEF-860-4S-06	OP5603-MSD	MS	F14006	TPH	07/25/02	08/01/02	08/06/02	7	5	12
%	CEF-860-7S-06	F14006-5	NORMAL	F14006	TPH	07/25/02	08/01/02	08/06/02	7	5	12
%	CEF-860-8S-06	F14006-1	NORMAL	F14006	TPH	07/25/02	08/01/02	08/06/02	7	5	12
%	CEF-860-DUP1-06	F14006-6	NORMAL	F14006	TPH	07/25/02	08/01/02	08/06/02	7	5	12
%	OP5603-BS	OP5603-BS	BSP	F14006	TPH	08/01/02	08/01/02	08/06/02	0	5	5
MG/L	PBL2	OP5603-MB	M_BLANK	F14006	TPH	08/01/02	08/01/02	08/06/02	0	5	5
MG/L	PBLK1	OP5603-MB	M_BLANK	F14006	TPH	08/01/02	08/01/02	08/07/02	0	6	6

Sample Summary

Tetra Tech, NUS

Job No: F14006

NAS Cecil Field-CTO-209
Project No: N4093 WR29

Sample Number	Collected Date	Collected Time By	Received	Matrix Code	Matrix Type	Client Sample ID
F14006-1	07/25/02	09:55 MS	07/26/02	AQ	Ground Water	CEF-860-8S-06
F14006-2	07/25/02	10:05 MS	07/26/02	AQ	Ground Water	CEF-860-3S-06
F14006-3	07/25/02	10:15 MS	07/26/02	AQ	Ground Water	CEF-860-4S-06
F14006-4	07/25/02	10:30 MS	07/26/02	AQ	Ground Water	CEF-860-2S-06
F14006-5	07/25/02	12:00 MS	07/26/02	AQ	Ground Water	CEF-860-7S-06
F14006-6	07/25/02	00:00 MS	07/26/02	AQ	Ground Water	CEF-860-DUP1-06

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-8S-06		
Lab Sample ID:	F14006-1	**Date Sampled:**	07/25/02
Matrix:	AQ - Ground Water	**Date Received:**	07/26/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22546.D	1	08/06/02	ME	08/01/02	OP5603	GOP818
Run #2							

	Initial Volume	Final Volume
Run #1	940 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1.21	0.27	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	92%		55-130%

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

J = Indicates an estimated value
B = Indicates analyte found in [illegible] method blank
N = Indicates presumptive evid[illegible] pound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-3S-06		
Lab Sample ID:	F14006-2	**Date Sampled:**	07/25/02
Matrix:	AQ - Ground Water	**Date Received:**	07/26/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22547.D	4	08/06/02	ME	08/01/02	OP5603	GOP818
Run #2							

	Initial Volume	Final Volume
Run #1	960 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	8.72	1.0	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	72%		55-130%

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

J = Indicates an estimated valu
B = Indicates analyte found in [illegible] method blank
N = Indicates presumptive evid[illegible]pound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-4S-06		
Lab Sample ID:	F14006-3	**Date Sampled:**	07/25/02
Matrix:	AQ - Ground Water	**Date Received:**	07/26/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22558.D	1	08/06/02	ME	08/01/02	OP5603	GOP819
Run #2							

	Initial Volume	Final Volume
Run #1	960 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	1.09	0.26	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	63%		55-130%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-2S-06		
Lab Sample ID:	F14006-4	**Date Sampled:**	07/25/02
Matrix:	AQ - Ground Water	**Date Received:**	07/26/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22561.D	4	08/06/02	ME	08/01/02	OP5603	[illegible]
Run #2							

	Initial Volume	Final Volume
Run #1	930 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	7.07	1.1	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		55-130%

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

J = Indicates an estimated value
B = Indicates analyte found in [illegible] blank
N = Indicates presumptive evidence [illegible]

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-7S-06		
Lab Sample ID:	F14006-5	**Date Sampled:**	07/25/02
Matrix:	AQ - Ground Water	**Date Received:**	07/26/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22562.D	1	08/06/02	ME	08/01/02	OP5603	GOP819
Run #2							

	Initial Volume	Final Volume
Run #1	960 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	ND	0.26	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	89%		55-130%

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

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-DUP1-06		
Lab Sample ID:	F14006-6	**Date Sampled:**	07/25/02
Matrix:	AQ - Ground Water	**Date Received:**	07/26/02
Method:	FLORIDA-PRO SW846 3510C	**Percent Solids:**	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP22563.D	4	08/06/02	ME	08/01/02	OP5603	GOP819
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH (C8-C40)	7.14	1.1	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		55-130%

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

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

Southeast ACCUTEST Laboratories

10/10/02

Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO-209

N4093-WR29(SS)

Accutest Job Number: F14896

Report to:

calliganp@ttnus.com

Total number of pages in report: 19

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certification: Florida DOH E83510

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Sample Summary

Tetra Tech, NUS

Job No: F14896

NAS Cecil Field-CTO-209
Project No: N4093-WR29(SS)

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F14896-1	10/03/02	12:40	CM	10/04/02	AQ	Ground Water	CEF-860-2S-06A

Accutest Laboratories

Report of Analysis

Client Sample ID:	CEF-860-2S-06A		
Lab Sample ID:	F14896-1	Date Sampled:	10/03/02
Matrix:	AQ - Ground Water	Date Received:	10/04/02
Method:	FLORIDA-PRO SW846 3510C	Percent Solids:	n/a
Project:	NAS Cecil Field-CTO-209		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP24339.D	1	10/08/02	SKW	10/07/02	OP6041	GOP860
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	0.295	0.25	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	93%		51-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

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

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Blank Spike Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6041-BS	OP24314.D	1	10/07/02	SKW	10/07/02	OP6041	GOP860

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F14896-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH (C8-C40)	0.85	0.811	95	59-109

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	99%	51-125%

Method Blank Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6041-MB	OP24315.D	1	10/07/02	SKW	10/07/02	OP6041	GOP860

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F14896-1

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

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	96%	51-125%

Method Blank Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6041-MB	OP24388.D	1	10/09/02	SKW	10/07/02	OP6041	GOP863

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F14896-1

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

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	100%	51-125%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6041-MS	OP24335.D	1	10/08/02	SKW	10/07/02	OP6041	GOP860
OP6041-MSD	OP24336.D	1	10/08/02	SKW	10/07/02	OP6041	GOP860
F14888-1	OP24334.D	1	10/08/02	SKW	10/07/02	OP6041	GOP860

The QC reported here applies to the following samples: Method: FLORIDA-PRO

F14896-1

CAS No.	Compound	F14888-1 mg/l	Q	Spike mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (C8-C40)	ND		1.77	1.50	85	1.63	92	8	38-133/23

CAS No.	Surrogate Recoveries	MS	MSD	F14888-1	Limits
84-15-1	o-Terphenyl	86%	92%	82%	51-125%

Semivolatile Surrogate Recovery Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Method: FLORIDA-PRO Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
F14896-1	OP24339.D	93.0
OP6041-BS	OP24314.D	99.0
OP6041-MB	OP24315.D	96.0
OP6041-MB	OP24388.D	100.0
OP6041-MS	OP24335.D	86.0
OP6041-MSD	OP24336.D	92.0

Surrogate Compounds	Recovery Limits
S1 = o-Terphenyl	51-125%

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Check Std:	GOP860-CC823	Injection Date:	10/08/02
Lab File ID:	OP24331.D	Injection Time:	00:51
Instrument ID:	GCOP	Method:	FLORIDA-PRO

	S1 [a] RT
Check Std	4.94

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
ZZZZZZ	OP24332.D	10/08/02	01:13	4.95
ZZZZZZ	OP24333.D	10/08/02	01:34	4.94
F14888-1	OP24334.D	10/08/02	01:55	4.95
OP6041-MS	OP24335.D	10/08/02	02:16	4.94
OP6041-MSD	OP24336.D	10/08/02	02:38	4.94
ZZZZZZ	OP24337.D	10/08/02	02:59	4.94
ZZZZZZ	OP24338.D	10/08/02	03:20	4.94
F14896-1	OP24339.D	10/08/02	03:41	4.94
GOP860-ECC823	OP24340.D	10/08/02	04:03	4.95

Surrogate Compounds

S1 = o-Terphenyl

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Check Std:	GOP860-CC823	Injection Date:	10/07/02
Lab File ID:	OP24313.D	Injection Time:	18:28
Instrument ID:	GCOP	Method:	FLORIDA-PRO

	S1 [a] RT
Check Std	4.94

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
OP6041-BS	OP24314.D	10/07/02	18:49	4.94
OP6041-MB	OP24315.D	10/07/02	19:10	4.94
ZZZZZZ	OP24316.D	10/07/02	19:32	4.94
ZZZZZZ	OP24317.D	10/07/02	19:53	4.94
ZZZZZZ	OP24318.D	10/07/02	20:14	4.95
ZZZZZZ	OP24319.D	10/07/02	20:36	4.94
ZZZZZZ	OP24320.D	10/07/02	20:57	4.94
ZZZZZZ	OP24321.D	10/07/02	21:18	4.94

Surrogate Compounds

S1 = o-Terphenyl

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Check Std:	GOP863-CC823	Injection Date:	10/09/02
Lab File ID:	OP24385.D	Injection Time:	08:49
Instrument ID:	GCOP	Method:	FLORIDA-PRO

	S1 [a] RT
Check Std	4.94

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT
OP6041-MB	OP24388.D	10/09/02	09:53	4.94
ZZZZZZ	OP24389.D	10/09/02	10:14	4.94
ZZZZZZ	OP24390.D	10/09/02	10:36	4.94

Surrogate Compounds

S1 = o-Terphenyl

(a) Retention time from GC signal #1

Initial Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP823-ICC823
Lab FileID: OP22697.D

Response Factor Report FID 2

Method : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title : TPH by FL_PRO
Last Update : Wed Aug 14 11:11:09 2002
Response via : Initial Calibration

Calibration Files
1 =OP22695.D 2 =OP22696.D 3 =OP22697.D
4 =OP22698.D 5 =OP22699.D 6 =OP22700.D

Compound	1	2	3	4	5	6	Avg	%RSD
1) S O-TERPHENYL	3.836	3.827	3.782	3.797	3.957		3.840 E4	1.80
2) H TPH (C8-C40)	3.484	3.427	3.394	3.385	3.519	3.056	3.378 E4	4.91

Average % RSD = 3.4

(#) = Out of Range

FL_PRO_F.M Thu Aug 15 08:40:17 2002

Continuing Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP860-CC823
Lab FileID: OP24331.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\1007PRO\OP24331.D          Vial: 10
Acq On    :  8 Oct 2002  12:51 am                   Operator: stephw
Sample    : CC823-1020                              Inst    : FID 2
Misc      : op6041,gop860,1000,,,1,,water           Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Mon Oct 07 10:41:31 2002
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	61.310	-2.2	104	0.00
2 H	TPH (C8-C40)	1020.000	1032.662	-1.2	101	0.00

Average % D = 1.7

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP22697.D FL_PRO_F.M Tue Oct 08 08:50:42 2002

Continuing Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP860-ECC823
Lab FileID: OP24340.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\1007PRO\OP24340.D          Vial: 10
Acq On    :  8 Oct 2002   4:03 am                   Operator: stephw
Sample    : ECC823-1020                              Inst    : FID 2
Misc      : op6041,gop860,1000,,,1,,water            Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Mon Oct 07 10:41:31 2002
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	61.581	-2.6	104	0.00
2 H	TPH (C8-C40)	1020.000	1036.549	-1.6	101	0.00

Average % D = 2.1

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP22697.D FL_PRO_F.M Tue Oct 08 08:50:43 2002

Continuing Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP860-CC823
Lab FileID: OP24313.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\1007PRO\OP24313.D          Vial: 10
Acq On    :  7 Oct 2002   6:28 pm                   Operator: stephw
Sample    : CC823-1020                               Inst    : FID 2
Misc      : op6027,gop860,30.3,,,1,1,soil            Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Mon Oct 07 10:41:31 2002
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%

       Compound                      Amount  Calc.     %Dev Area% Dev(min)
 ---------------------------------------------------------------------------
 1 S    O-TERPHENYL                   60.000  60.739      -1.2  103   0.00
 2 H    TPH (C8-C40)                1020.000 1026.231      -0.6  100   0.00
---------------------------------------------------------------------------

                                          Average  % D =   0.9
---------------------------------------------------------------------------

   (#) = Out of Range               SPCC's out = 0  CCC's out = 0
    OP22697.D  FL_PRO_F.M       Tue Oct 08 08:50:41 2002
```

Continuing Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP860-CC823
Lab FileID: OP24322.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\1007PRO\OP24322.D          Vial: 10
Acq On    :  7 Oct 2002   9:40 pm                   Operator: stephw
Sample    : CC823-1020                               Inst    : FID 2
Misc      : op6041,gop860,1000,,,1,,water            Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Mon Oct 07 10:41:31 2002
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	61.106	-1.8	103	0.00
2 H	TPH (C8-C40)	1020.000	1029.450	-0.9	100	0.00

Average % D = 1.4

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP22697.D FL_PRO_F.M Tue Oct 08 08:50:42 2002

Continuing Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP863-CC823
Lab FileID: OP24385.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\1009PRO\OP24385.D          Vial: 1
Acq On    :  9 Oct 2002   8:49 am                   Operator: stephw
Sample    : CC823-1020                               Inst    : FID 2
Misc      : op6041,gop863,1000,,,1,,water            Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Wed Oct 09 15:48:11 2002
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	58.540	2.4	99	0.00
2 H	TPH (C8-C40)	1020.000	1037.520	-1.7	101	0.00

Average % D = 2.1

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP22697.D FL_PRO_F.M Wed Oct 09 15:52:45 2002

Continuing Calibration Summary

Job Number: F14896
Account: TETRPAPT Tetra Tech, NUS
Project: NAS Cecil Field-CTO-209

Sample: GOP863-CC823
Lab FileID: OP24391.D

Evaluate Continuing Calibration Report

```
Data File : C:\HPCHEM\2\DATA\1009PRO\OP24391.D          Vial: 7
Acq On    :  9 Oct 2002  10:57 am                   Operator: stephw
Sample    : CC823-1020                              Inst    : FID 2
Misc      : op6041,gop863,1000,,,1,5,water          Multiplr: 1.00
IntFile   : events.e

Method       : C:\HPCHEM\2\METHODS\FL_PRO_F.M (Chemstation Integrator)
Title        : TPH by FL_PRO
Last Update  : Wed Oct 09 15:48:11 2002
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  25%     Max. Rel. Area : 150%
```

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 S	O-TERPHENYL	60.000	61.026	-1.7	103	0.00
2 H	TPH (C8-C40)	1020.000	1028.574	-0.8	100	0.00

Average % D = 1.3

(#) = Out of Range SPCC's out = 0 CCC's out = 0
OP22697.D FL_PRO_F.M Wed Oct 09 15:52:45 2002

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 0302 | PAGE 1 OF 1 | 114896

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N4093	B.860 ABD NASCF	PAUL CALLIGAN	813 806 0202	ACCUTEST Sue Bell
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: Merv Dale	PHONE NUMBER: 904 636 6125	ADDRESS: 4405 Vineland Rd C-15
Charles Mc		CARRIER/WAYBILL NUMBER: Fedex		CITY, STATE: ORLANDO, FL 32811

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: H_2SO_4

	DATE YEAR 2002	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: TRPH	FL-PRO							COMMENTS
1)	10/3	1240	CEF-860-2S-06A	MW-2	—	—	GW	G	2	2								Cool to 4°C
																		N4093-WR29 (SS)

1. RELINQUISHED BY: [signature]	DATE: 10/3/02	TIME: 1600	1. RECEIVED BY: FedEx	DATE: →	TIME
2. RELINQUISHED BY: FedEx	DATE: 10/4/02	TIME: 0950	2. RECEIVED BY: [signature]	DATE: 10/4/02	TIME: 0930
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS: 2.0°

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS 001