N60200.AR.003082
NAS CECIL FIELD, FL
5090.3a

SECOND SEMI-ANNUAL FIRST YEAR GROUNDWATER MONITORING LETTER REPORT FOR BUILDING 80 TANK 80 NAS CECIL FIELD FL

9/20/2001

TETRA TECH NUS INC

Document Tracking Number 01JAX0088

September 20, 2001

Project Number 0486

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

Reference: Clean Contract Number N62467-94-D-0888
Contract Task Order Number 0121

Subject: Groundwater Monitoring Report, 2nd Semi-Annual, 1st Year (March 2001)
Building 80, Tank 80
Former Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this semi-annual Groundwater Monitoring Report for the referenced Contract Task Order (CTO) for the Building 80, Tank 80 site. This groundwater monitoring report was prepared 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 monitor groundwater associated with this site semi-annually. The guidance document for this report is Chapter 62-770, Florida Administrative Code (FAC). The sampling program was accomplished in general accordance with the Natural Attenuation Monitoring Plan (MONA) Approval Order signed by the Florida Department of Environmental Protection (FDEP) on September 30, 1999 (Attachment A).

This report summarizes the fieldwork and analytical results for the subject site for the six months preceding the sampling event conducted in March 2001. Figure 1 shows the location of the site. The work was performed in general accord with the Base-wide Generic Work Plan Volumes I and II (TtNUS, 1998).

FIELD OPERATIONS

Water level measurements were recorded from each of the monitoring wells prior to sample collection. The depth to water ranged from 6.38 feet (ft) below top of casing (btoc) (CEF-80-14S) to 6.50 ft btoc (CEF-80-8S). The depth-to-water measurements, along with top-of-casing elevations, were used to calculate groundwater elevations.

Groundwater samples were collected from three shallow monitoring wells (CEF-80-8S, CEF-80-9S and CEF-80-14S) on March 6, 2001 (Figure 1). Following collection, the samples were placed on ice and subsequently shipped under chain-of-custody to Accura Laboratories in

Norcross, Georgia. The laboratory analyzed the samples for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method SW846 8260B and polynuclear aromatic hydrocarbons (PAHs) by USEPA Method SW846 8270C. The reported detection limits for these methods meet the requirements for the similar methods recommended in the SAR.

RESULTS

Groundwater elevation data from this event and the previous sampling event are shown on Table 1. The groundwater flow direction with elevation data is shown on Figure 2. Based on these data, the inferred direction of groundwater flow is to the southwest.

Compounds of concern (COC) reported by the laboratory for the groundwater samples collected for this sampling event were compared to FDEP Groundwater Cleanup Target Levels (GCTLs) and Natural Attenuation Default Source Concentrations (NADSCs). The data and comparable standards are indicated on Table 2, and the results are illustrated on Figure 2. The results for the sample collected from monitoring well CEF-80-14S (source area well) indicate naphthalene group concentrations that: 1) have increased since the last sampling event, 2) exceeded GCTLs, 3) did not exceed NADSCs. The benzene concentration reported for the sample from the source well exceeded the GCTL, but it is decreased from the concentration reported for the last sampling event. COCs were detected in the samples collected from the other two wells, but at concentrations below GCTLs and NADSCs. A copy of the laboratory report for the March 6, 2001 sampling event is provided as Attachment B.

CONCLUSIONS and RECOMMENDATIONS

The source area well, CEF-80-14S, has been sampled twice (September 2000 and March 2001). The GCTLs for the naphthalene group compounds and benzene were exceeded during each sampling event. While the benzene concentration is below the milestone objective and decreasing, the naphthalene group compounds have increased such that naphthalene and 2-methylnaphthalene concentrations have exceeded the respective milestone objectives (Table 2). The MONA Approval Order suggests that corrective actions may be recommended, if applicable, when the milestones are exceeded. However, since only two rounds of monitoring data have been reported, TtNUS recommends at least one more sampling event to gauge whether the petroleum concentrations in the source well have reached a peak or if they will continue to increase.

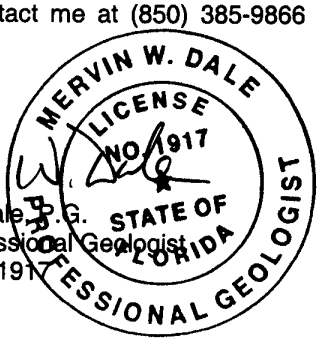
For both sampling events, the perimeter wells indicate little to no impact from petroleum. The detected COCs for those wells show no GCTLs have been equaled or exceeded. However, the groundwater flow direction for the last event was approximately to the northwest and for this event it is approximately to the southwest. Considering the spatial orientation of the perimeter wells to the source well, they should be monitoring a flow direction between west-northwest and west-southwest. TtNUS recommends adding two shallow wells to the monitoring program downgradient of the source well to provide adequate coverage of the perimeter. Figure 3 shows the proposed well sites.

If you have any questions with regard to this submittal, please contact me at (850) 385-9866 extension 24.

Sincerely,

Paul E. Galligan, P.G.
Task Order Manager

Mervin W. Dale, P.G.
Florida Professional Geologist
P.G. No. 000191



PEC/lm

Attachments (7)

cc: N. Ugolini, SOUTHDIV
D. Vaughn-Wright, USEPA
D. Wroblewski, TtNUS (cover letter only)
M. Perry, TtNUS (unbound)

bcc: M. Dale, TtNUS
R. Simcik, TtNUS (bookcase file)
J. Johnson, TtNUS (Information Repository)

TABLES

Table 1
Water Table Elevation Data

Semi-Annual Groundwater Monitoring Report
Building 80, Tank 80
Naval Air Station Cecil Field
Jacksonville, Florida

Monitoring Well Identification	Well Depth (feet, BTOC)	Top-of-Casing Elevation (feet, msl)	September 25, 2000		March 6, 2001	
			Depth to Water (feet, BTOC)	Water-Level Elevation (feet, msl)	Depth to Water (feet, BTOC)	Water-Level Elevation (feet, msl)
CEF-80-8S	13.10	78.58	3.48	75.10	6.50	72.08
CEF-80-9S	14.00	78.64	3.84	74.80	6.49	72.15
CEF-80-14S	12.90	78.57	3.22	75.35	6.38	72.19

Notes: msl - mean sea level.
BTOC = below top of casing.
NM = not measured.

Table 2
Summary of Detections in Groundwater

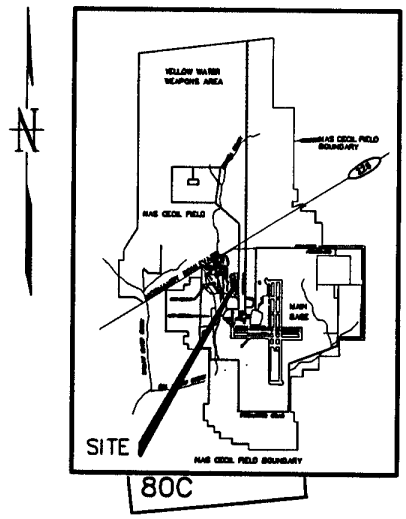
Semi-Annual Groundwater Monitoring Report
Building 80, Tank 80
Naval Air Station Cecil Field
Jacksonville, Florida

Compounds Detected	Source Area Well		Perimeter Monitoring Wells				Milestone Objectives after the 1st Year	NADSC/GCTL (see notes 1 & 2)
	CEF-80-14S		CEF-80-8S		CEF-80-9S			
	9/25/2000	3/6/2001	9/25/2000	3/6/2001	9/25/2000	3/6/2001		
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270C[3]) (µg/L)								
Acenaphthene	2.3	7.1	<1	<1	<1	<1	None	200\20
Fluorene	2.8	6	<1	<1	<1	<1	None	2800\280
Benzo(a)pyrene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.25	20\0.2
1-Methylnaphthalene	**34**	**69**	<1	<1	<1	<1	100	200\20
2-Methylnaphthalene	**34**	**84**	<1	<1	<1	<1	70	200\20
Naphthalene	**62**	**93**	<1	<1	<1	<1	60	200\20
Phenanthrene	1.7	3.6	<1	<1	<1	<1	None	2100\210
Volatile Organic Compounds (USEPA Method 8260B[4]) (µg/L)								
1,1 Dichloroethane	1.4	<1	1.4	<1	<1	<1	None	700\70
Benzene	**5.8**	**2.8**	0.68J	<1	0.5J	<1	None	100\1
Chlorobenzene	3.5	<1	9.1	1.8	<1	<1	None	1,000\100
Methyl-tert-butyl ether	<10	<10	<10	<10	<10	<10	None	500\50
Trichloroethene	0.64J	<1	<1	<1	<1	<1	None	300\3
Methylene Chloride	<5	<5	<5	<5	<5	3.6J	None	500\5
Ethylbenzene	7.5	<1	<1	<1	<1	<1	35	300\3

Notes:
[1]GCTL=Groundwater Cleanup Target Levels based on Chapter 62-770, Florida Administrative Code. (F.A.C.)
[2]NADSC=Natural Attenuation Default Source Concentrations as promulgated in Chapter 62-770.690.
[3]USEPA Method 8270C provides data at detection limits necessary to meet MONA recommendations to use USEPA Method 8310.
[4]USEPA Method 8260B provides data at detection limits necessary to meet MONA recommendations to use USEPA Method 602.
J = estimated; < = less than; and, µg/L = micrograms per liter.

FIGURES

S:\PROJECTS\NASCF\CT0121\CADD\BLDG 80\0486-80SP



CEF-80-9S

CEF-80-14S

BUILDING 80

CEF-80-8S

FORMER LOCATION
OF TANK 80
1,000 GALLON UST

APPROXIMATE TANK
REMOVAL EXCAVATION
BOUNDARY

LEGEND

CEF-80-9S MONITORING WELL LOCATION

0 15 30
APPROXIMATE SCALE in FEET

DRAWN BY CW DATE 12/27/00	MONITORING WELL LOCATION MAP BUILDING 80 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. N0486	
CHECKED BY DATE		APPROVED BY DATE	
COST/SCHED-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 1	REV. 0

FORM CADD NO. SDIV_AV.DWG - REV 0 - 1/20/98

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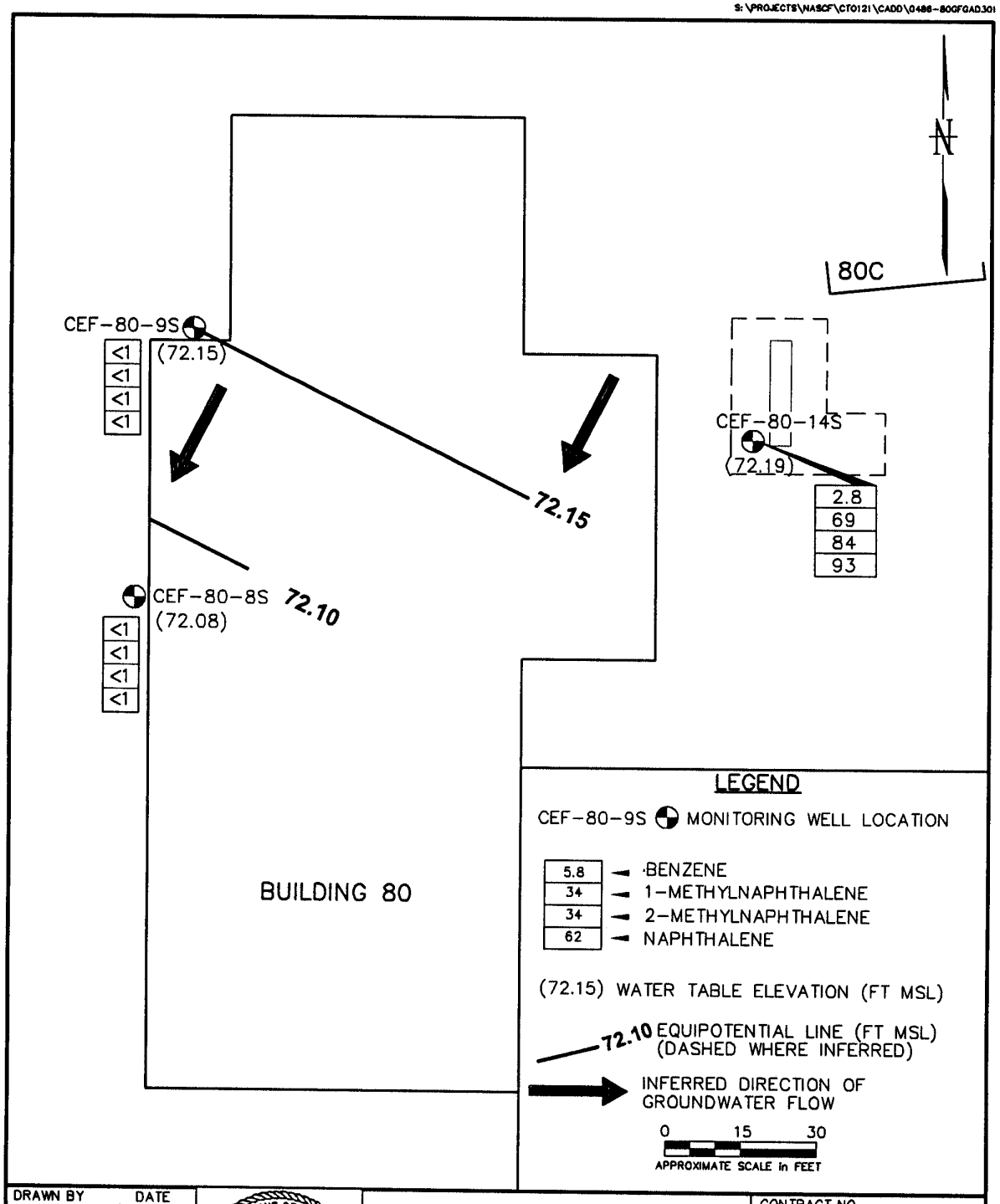
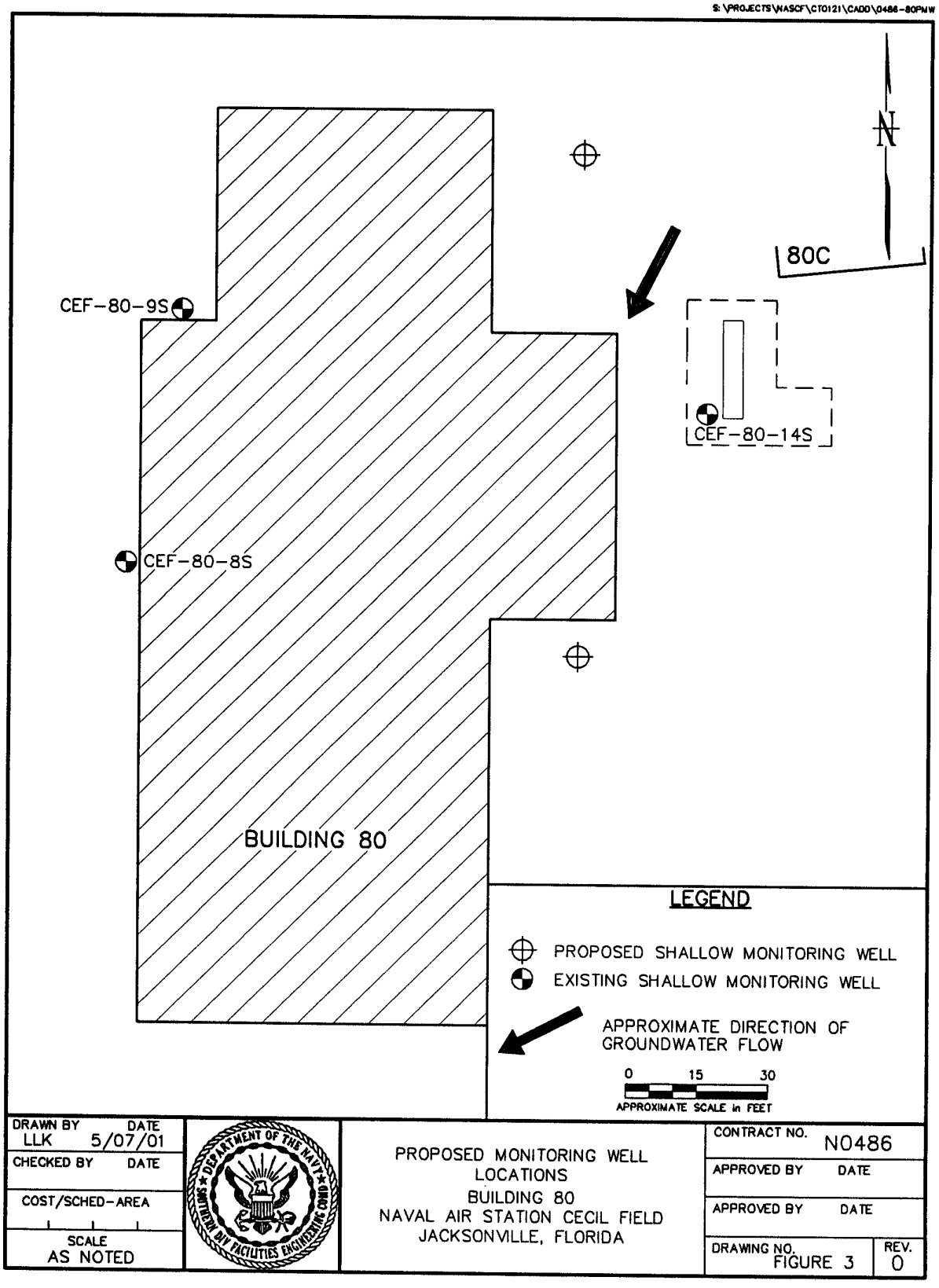


DRAWN BY LLK DATE 5/07/01		GROUNDWATER ELEVATION CONTOUR MAP AND LABORATORY ANALYTICAL RESULTS - MARCH 6, 2001 BUILDING 80 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. N0486
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 REV. 0

FORM CADD NO. SDIV_AV.DWG - REV 0 - 1/20/98


S:\PROJECTS\WASCF\CTO121\CADD\0486-80PMW
N
80C
CEF-80-9S
CEF-80-14S
CEF-80-8S
BUILDING 80
LEGEND
PROPOSED SHALLOW MONITORING WELL
EXISTING SHALLOW MONITORING WELL
APPROXIMATE DIRECTION OF GROUNDWATER FLOW
0 15 30
APPROXIMATE SCALE in FEET
DRAWN BY LLK DATE 5/07/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED
DEPARTMENT OF THE NAVY NAVAL AIR FACILITIES ENGINEERING COMMAND
PROPOSED MONITORING WELL LOCATIONS
BUILDING 80
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA
CONTRACT NO. N0486
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 3
REV. 0

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

September 30, 1999

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Commanding Officer
Mr. Bryan Kizer, Code 1842
SOUTHNAVFACENGCOM
Post Office Box 190010
North Charleston, South Carolina 29419-0068

Subject: Natural Attenuation Monitoring Plan Approval Order
Facility 80, Tank 80
Naval Air Station Cecil Field, Florida

Dear Mr. Kizer:

The Bureau of Waste Cleanup has completed the review of the Site Assessment Report Addendum and Natural Attenuation Monitoring Plan dated June 1999 (received July 6, 1999), submitted for this site. Pursuant to Rule 62-770.690, Florida Administrative Code (F.A.C.), the Department of Environmental Protection 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.

Monitoring Wells	Contaminants of Concern	Frequency	Duration
MW-80-8S, MW-80-9S, and MW-80-14S	Ethylbenzene, Naphthalene, 1-Methylnapthalene, 2-Methylnapthalene, and Benzo(a)pyrene	Semi-annual	One Year

If concentrations of chemicals of concern in any of the designated wells increase above the action levels listed below, the well or wells must be resampled no later than 30 days after the

initial positive results are known. If the results of the resampling confirm the initial sampling results, then a proposal must be submitted, as described in Rule 62-770.690(7)(f), F.A.C.

Contaminated wells:
MW-80-14S: 300 µg/l Ethylbenzene; 200 µg/l 1- Methylnapthalene, 200 µg/l 2-Methylnapthalene, 200 µg/l Naphthalene, and 20 µg/l Benzo(a)pyrene.

Perimeter wells :
MW-80-14S and MW-80-14S: 30 µg/l Ethylbenzene; 20 µg/l 1- Methylnapthalene, 20 µg/l 2-Methylnapthalene, 20 µg/l Naphthalene, and .2 µg/l Benzo(a)pyrene.

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

Ethylbenzene	MW-80-14S
End of year 1	35 µg/l
End of year 2	30 µg/l
End of year 3	20 µg/l
End of year 3	<20 µg/l
End of year 3	<20 µg/l

Naphthalene	MW-80-14S
End of year 1	60 µg/l
End of year 2	50 µg/l
End of year 3	40 µg/l
End of year 4	30 µg/l
End of year 5	<20 µg/l

1-Methyl Naphthalene	MW-80-14S
End of year 1	100 µg/l
End of year 2	80 µg/l
End of year 3	60 µg/l
End of year 4	40 µg/l
End of year 5	<20 µg/l

2-Methyl Naphthalene	MW-80-14S
End of year 1	70 µg/l
End of year 2	55 µg/l
End of year 3	35 µg/l
End of year 4	25 µg/l
End of year 5	<20 µg/l

Benzo(a)pyrene	MW-80-14S
End of year 1	0.25 µg/l
End of year 2	0.21 µg/l
End of year 3	<0.20µg/l
End of year 4	<0.20µg/l
End of year 5	<0.20 µg/l

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 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.

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, Florida Statutes (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, Naval Air Station Cecil Field, shall mail a copy of the request to Commanding Officer, Naval Air Station Cecil Field at the time of filing. Timely filing a request for an extension of time tolls the time period within which a petition for administrative hearing must be 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, Naval Air Station Cecil Field, shall mail a copy of the petition to Commanding Officer, Naval Air

Station Cecil Field at the time of filing. Failure to file a petition within this time period shall waive the

right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to 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 and Natural Attenuation Monitoring Plan should be directed to Michael J. Deliz, P.G. at (850) 921-9991. 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/mjd

cc: Brian Cheary, FDEP Northeast District Office
Norm Hatch, CH2MHILL
Debbie Vaughn-Wright, USEPA – Atlanta
John Flowe, City of Jacksonville
Scott Glass, SOUTHNAVFACENGCOM

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 Date

ATTACHMENT B

GROUNDWATER ANALYTICAL REPORT

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 27206
Client Project: Cecil Field, Bldg. 80 / CTO 121 / 0486
CTO Manager: Paul Calligan

The following items were noted concerning this project:

1. The following samples were received by Accura Analytical Laboratory on 03/07/01 at 0930:

Client I.D.	Laboratory I.D.
CEF-80-GW-8S-02	AC09281
CEF-80-GW-9S-02	AC09282
CEF-80-GW-14S-02	AC09283
CEF-80-GW-DUP1-02	AC09284

2. The sample cooler temperature was noted to be 2^{0}C upon receipt.

3. The "J" values noted for the VOC and PAH results indicate estimated concentrations that were above the method detection limits, but below the reporting limits.

4. The pH of the samples was 1.0 for the VOC analysis.

5. Project Specific QC for the PAH analysis consists of LCS/LCSD due to limited sample volume. Note that LCS/LCSD recoveries are reported as MS/MSD recoveries on the QC spreadsheet.

6. The following spike recoveries were outside the project specified limits due to the fact that in the presence of Hydrochloric Acid, (sample preservative), 2-Chloroethylvinylether breaks down:

   VOC – SW-846-8260B
   Matrix Spike / Matrix Spike Duplicate - 2-Chloroethylvinylether

7. The relative percent difference between the matrix spike and matrix spike duplicate was outside the project specified limit for the following analyte:

   VOC – SW-846-8260B
   2-Chloroethylvinylether

Quality Assurance

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071, Phone (770)449-8800, FAX (770)449-5477
FL Certification # E87429 NC Certification # 483 SC Certification # 98015 USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: **AC09281** **Accura Project #:** **27206**

Client: **Tetra Tech Nus -Tallahassee** Date Sampled: 3/6/01

Client Contact: PAUL CALLIGAN Date Received: 3/7/01

Client Project Number: CTO 121 / 0486 Date Reported: 6/15/01

Client Project Name: CECIL FIELD, BLDG. 80 Sample Matrix: WATER

Client Sample ID: **CEF-80-GW-8S-02**

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		0.2
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0

Bromomethane	<RL	1.0
Carbon tetrachloride	<RL	1.0
Chlorobenzene	1.8	1.0
Chloroform	<RL	1.0
Chloromethane	<RL	1.0
Ethylbenzene	<RL	1.0
Methylene chloride	<RL	5.0
Methyl-tert-butyl ether (MTBE)	<RL	10
Tetrachloroethene	<RL	1.0
Toluene	<RL	1.0
trans-1,2-Dichloroethene	<RL	1.0
Trichloroethene	<RL	1.0
Vinyl chloride	<RL	1.0
Xylenes (Total)	<RL	2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl (Range 43-111)	89		
Nitrobenzene-d5 (Range 37-104)	97		
p-Terphenyl-d14 (Range 15-132)	77		

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	82		
4-Bromofluorobenzene (86-112)	89		
Toluene-d8 (84-108)	101		

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LABORATORY REPORT

Accura Sample ID #: **AC09282** **Accura Project #:** **27206**

Client: **Tetra Tech Nus -Tallahassee** Date Sampled: 3/6/01

Client Contact: PAUL CALLIGAN Date Received: 3/7/01

Client Project Number: CTO 121 / 0486 Date Reported: 6/15/01

Client Project Name: CECIL FIELD, BLDG. 80 Sample Matrix: WATER

Client Sample ID: **CEF-80-GW-9S-02**

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		0.2
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0

Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	3.6	J	5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
Trichloroethene	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl (Range 43-111)	90		
Nitrobenzene-d5 (Range 37-104)	91		
p-Terphenyl-d14 (Range 15-132)	83		

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	87		
4-Bromofluorobenzene (86-112)	94		
Toluene-d8 (84-108)	100		

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LABORATORY REPORT

Accura Sample ID #: **AC09283** **Accura Project #:** **27206**

Client: **Tetra Tech Nus -Tallahassee** Date Sampled: 3/6/01

Client Contact: PAUL CALLIGAN Date Received: 3/7/01

Client Project Number: CTO 121 / 0486 Date Reported: 6/15/01

Client Project Name: CECIL FIELD, BLDG. 80 Sample Matrix: WATER

Client Sample ID: **CEF-80-GW-14S-02**

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	69		1.0
2-Methylnaphthalene	84		1.0
Acenaphthene	7.1		1.0
Acenaphthylene	<RL		1.0
Anthracene	0.31	J	1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		0.2
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	6.0		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	93		1.0
Phenanthrene	3.6		1.0
Pyrene	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	2.8		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0

Bromomethane	<RL	1.0
Carbon tetrachloride	<RL	1.0
Chlorobenzene	<RL	1.0
Chloroform	<RL	1.0
Chloromethane	<RL	1.0
Ethylbenzene	<RL	1.0
Methylene chloride	<RL	5.0
Methyl-tert-butyl ether (MTBE)	<RL	10
Tetrachloroethene	<RL	1.0
Toluene	<RL	1.0
trans-1,2-Dichloroethene	<RL	1.0
Trichloroethene	<RL	1.0
Vinyl chloride	<RL	1.0
Xylenes (Total)	<RL	2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl (Range 43-111)	93		
Nitrobenzene-d5 (Range 37-104)	95		
p-Terphenyl-d14 (Range 15-132)	40		

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	91		
4-Bromofluorobenzene (86-112)	96		
Toluene-d8 (84-108)	94		

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LABORATORY REPORT

Accura Sample ID #: **AC09284** **Accura Project #:** **27206**

Client: **Tetra Tech Nus -Tallahassee** Date Sampled: 3/6/01

Client Contact: PAUL CALLIGAN Date Received: 3/7/01

Client Project Number: CTO 121 / 0486 Date Reported: 6/15/01

Client Project Name: CECIL FIELD, BLDG. 80 Sample Matrix: WATER

Client Sample ID: **CEF-80-GW-DUP1-02**

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	67		1.0
2-Methylnaphthalene	84		1.0
Acenaphthene	6.9		1.0
Acenaphthylene	<RL		1.0
Anthracene	0.49	J	1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		0.2
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	5.8		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	89		1.0
Phenanthrene	3.4		1.0
Pyrene	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	2.8		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0

Bromomethane	<RL		1.0
Carbon tetrachloride	<RL		1.0
Chlorobenzene	<RL		1.0
Chloroform	<RL		1.0
Chloromethane	<RL		1.0
Ethylbenzene	<RL		1.0
Methylene chloride	4.2	J	5.0
Methyl-tert-butyl ether (MTBE)	<RL		10
Tetrachloroethene	<RL		1.0
Toluene	<RL		1.0
trans-1,2-Dichloroethene	<RL		1.0
Trichloroethene	<RL		1.0
Vinyl chloride	<RL		1.0
Xylenes (Total)	<RL		2.0

ANALYSIS: X B/N Sample Surrogates (Waters Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl (Range 43-111)	93		
Nitrobenzene-d5 (Range 37-104)	85		
p-Terphenyl-d14 (Range 15-132)	40		

ANALYSIS: X VOC Sample Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (78-128)	85		
4-Bromofluorobenzene (86-112)	98		
Toluene-d8 (84-108)	98		

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LABORATORY REPORT

Accura Sample ID #: **AC09285** **Accura Project #:** **27206**

Client: **Tetra Tech Nus -Tallahassee** Date Sampled: 3/7/01

Client Contact: PAUL CALLIGAN Date Received: 3/7/01

Client Project Number: CTO 121 / 0486 Date Reported: 6/15/01

Client Project Name: CECIL FIELD, BLDG. 80 Sample Matrix: WATER

Client Sample ID: **METHOD BLANK**

ANALYSIS: PAH's - Low Level Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1-Methylnaphthalene	<RL		1.0
2-Methylnaphthalene	<RL		1.0
Acenaphthene	<RL		1.0
Acenaphthylene	<RL		1.0
Anthracene	<RL		1.0
Benzo(a)anthracene	<RL		1.0
Benzo(a)pyrene	<RL		0.2
Benzo(b)fluoranthene	<RL		1.0
Benzo(g,h,i)perylene	<RL		1.0
Benzo(k)fluoranthene	<RL		1.0
Chrysene	<RL		1.0
Dibenz(a,h)anthracene	<RL		1.0
Fluoranthene	<RL		1.0
Fluorene	<RL		1.0
Indeno(1,2,3-cd)pyrene	<RL		1.0
Naphthalene	<RL		1.0
Phenanthrene	<RL		1.0
Pyrene	<RL		1.0

ANALYSIS: VOC's - Cecil Field(25 ml purge) Method Ref: 8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: ug/L

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,1,1-Trichloroethane	<RL		1.0
1,1,2,2-Tetrachloroethane	<RL		1.0
1,1,2-Trichloroethane	<RL		1.0
1,1-Dichloroethane	<RL		1.0
1,1-Dichloroethene	<RL		1.0
1,2-Dichloroethane	<RL		1.0
1,2-Dichloropropane	<RL		1.0
1,3-Dichloropropene	<RL		1.0
2-Chloroethylvinyl ether	<RL		10
Acrolein	<RL		10
Acrylonitrile	<RL		10
Benzene	<RL		1.0
Bromodichloromethane	<RL		1.0
Bromoform	<RL		1.0

Bromomethane	<RL	1.0
Carbon tetrachloride	<RL	1.0
Chlorobenzene	<RL	1.0
Chloroform	<RL	1.0
Chloromethane	<RL	1.0
Ethylbenzene	<RL	1.0
Methylene chloride	<RL	5.0
Methyl-tert-butyl ether (MTBE)	<RL	10
Tetrachloroethene	<RL	1.0
Toluene	<RL	1.0
trans-1,2-Dichloroethene	<RL	1.0
Trichloroethene	<RL	1.0
Vinyl chloride	<RL	1.0
Xylenes (Total)	<RL	2.0

ANALYSIS: X Base Neutral QC Surrogates (W Method Ref: 8270C

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/17/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
2-Fluorobiphenyl (Range 57-102)	90		
Nitrobenzene-d5 (Range 50-103)	103		
p-Terphenyl-d14 (Range 64-113)	89		

ANALYSIS: X VOC QC Surrogates-Waters Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 3/9/01 Date Analyzed: 3/9/01 Result Units: %

Analyte Name	Analytical Results	Qualifier	Reported Detection Limits
1,2-Dichloroethane-d4 (78-114)	83		
4-Bromofluorobenzene (85-111)	91		
Toluene-d8 (88-106)	97		