

N60200.AR.003286
NAS CECIL FIELD, FL
5090.3a

FIRST SEMI-ANNUAL SECOND YEAR GROUNDWATER MONITORING LETTER REPORT
FOR BUILDING 80 TANK 80 NAS CECIL FIELD FL
4/2/2002
TETRA TECH NUS INC



TETRA TECH NUS, INC.

7018 A.C. Skinner Parkway • Suite 250 • Jacksonville, FL 32256
(904) 281-0400 • FAX (904) 281-0070 • www.tetratech.com

Document Tracking No. 02JAX0063

April 2, 2002

Project Number 4093

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 0209

Subject: Groundwater Monitoring Report, 1st Semi-Annual, 2nd Year (December 2001)
Building 80, Tank 80
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. This groundwater monitoring report was prepared for the U.S. Navy Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGC) 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), and as modified by an FDEP e-mail message dated October 26, 2001 (Attachment B).

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

FIELD OPERATIONS

In accordance with TtNUS' recommendation and FDEP approval of two additional shallow wells for the site, TtNUS mobilized to the site on December 3, 2001 and supervised installation of wells CEF-80-15S and CEF-80-16S. Figure 1 indicates the location of those wells. The boring logs, monitoring well construction sheets, and certificates of conformance for each well are included in Attachment C.

On December 14, 2001, water level measurements were recorded from each of the monitoring wells prior to sample collection. The depth to water ranged from 4.28 feet (ft) below top of casing

Mr. David Grabka
FDEP
April 2, 2002 – Page 2

(btoc) (CEF-80-14S) to 5.05 ft btoc (CEF-80-16S). The depth-to-water measurements, along with top-of-casing elevations, were used to calculate groundwater elevations.

Groundwater samples were collected from five shallow monitoring wells (CEF-80-8S, CEF-80-9S, CEF-80-14S, CEF-80-15S, and CEF-80-16S) on December 14, 2001 (Figure 1). Following collection, the samples were placed on ice and subsequently shipped under chain-of-custody to Accutest Laboratories in Orlando, Florida. The laboratory analyzed the samples for purgeable aromatics by United States Environmental Protection Agency (USEPA) Method SW846 8260B and polynuclear aromatic hydrocarbons (PAHs) by USEPA Method SW846 8270C.

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 the data, the inferred direction of groundwater flow is to the south-southwest.

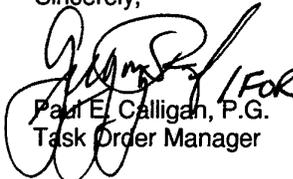
Compounds of concern (COC) reported by the laboratory for the groundwater samples collected for this sampling event were compared to FDEP Groundwater Cleanup Target Levels (GCTLs) and Natural Attenuation Default Source Concentrations (NADSCs). The data and comparable standards are indicated on Table 2, and the results are illustrated on Figure 2. For this sampling event, groundwater analytical results indicated COCs were below method detection limits for all five wells. A copy of the laboratory report for the December 14, 2001 sampling event is provided as Attachment D.

CONCLUSIONS and RECOMMENDATIONS

Results of this sampling event indicate that the groundwater COCs are at lower concentrations than previous events. The source area well, CEF-80-14S, previously sampled on two occasions (September 2000 and March 2001) indicated levels of COCs that exceeded GCTLs in naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and benzene. However, since results of this monitoring event indicate all COCs were below method detection limits for both source and perimeter wells, TtNUS recommends one additional monitoring event to confirm the December 2001 monitoring results.

If you have any questions with regard to this submittal, please contact me at (813) 806-0202.

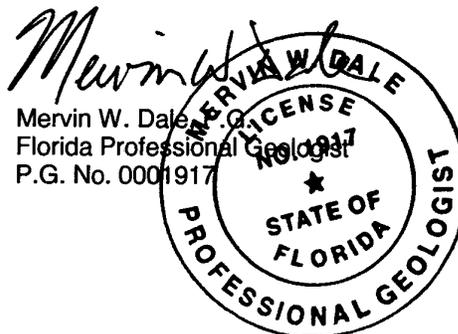
Sincerely,


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

PC/mo

Attachments (9)

cc: W. Hansel, SOUTHDIV
D. Vaughn-Wright, USEPA
D. Wroblewski, TtNUS (cover letter only)
M. Perry, TtNUS (unbound)
Project File – CTO 0209



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		December 14, 2001	
			Depth to Water (feet, btoc)	Water-Level Elevation (feet, msl)	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	4.87	73.71
CEF-80-9S	14.00	78.64	3.84	74.80	6.49	72.15	4.84	73.80
CEF-80-14S	14.70	78.57	3.22	75.35	6.38	72.19	4.28	74.29
CEF-80-15S	12.95	78.54	NA	NA	NA	NA	4.67	73.87
CEF-80-16S	12.88	78.83	NA	NA	NA	NA	5.05	73.78

Notes: msl = mean sea level.
btoc = below top-of-casing.
NA = not applicable.

Table 2
Summary of Detections in Groundwater

Semi-Annual Groundwater Monitoring Report
Building 80, Tank 80
Naval Air Station Cecil Field
Jacksonville, Florida
Page 1 of 2

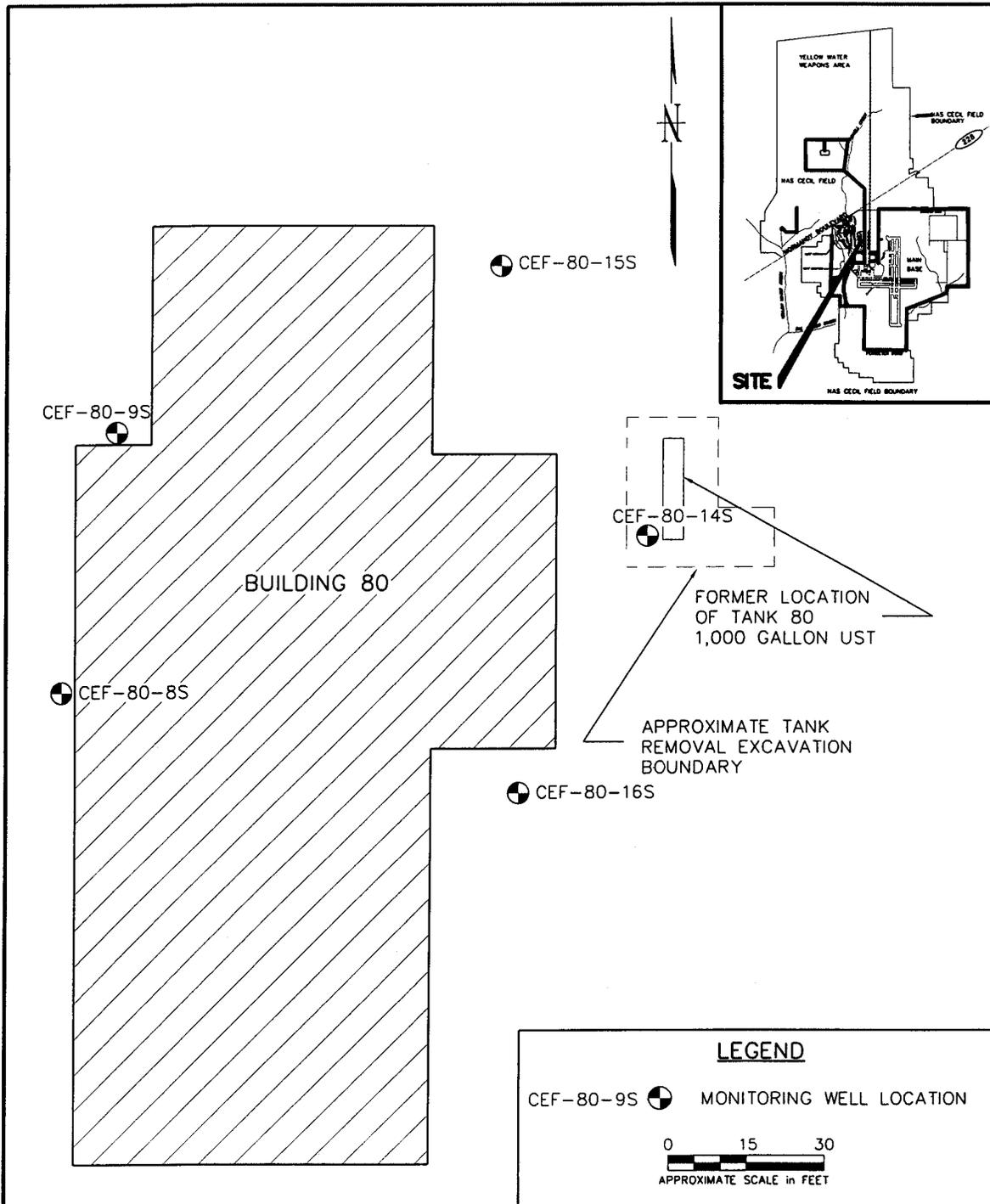
Compounds Detected	Source Area Well			Perimeter Monitoring Wells		
	CEF-80-14S			CEF-80-8S		
	9/25/2000	3/6/2001	12/14/2001	9/25/2000	3/6/2001	12/14/2001
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270C) (µg/L)						
Acenaphthene	2.3	7.1	<4.4	<1	<1	<4.0
Fluorene	2.8	6	<2.2	<1	<1	<2.0
Benzo(a)pyrene	<0.2	<0.2	<0.22	<0.2	<0.2	<0.20
1-Methylnaphthalene	34	69	<2.2	<1	<1	<2.0
2-Methylnaphthalene	34	84	<2.2	<1	<1	<2.0
Naphthalene	62	93	<2.2	<1	<1	<2.0
Phenanthrene	1.7	3.6	<2.2	<1	<1	<2.0
Volatile Organic Compounds (USEPA Method 8260B) (µg/L)						
1,1 Dichloroethane	1.4	<1	NA	1.4	<1	NA
Benzene	5.8	2.8	<1.0	0.68J	<1	<1.0
Chlorobenzene	3.5	<1	<2.0	9.1	1.8	<2.0
Methyl-tert-butyl ether	<10	<10	<2.0	<10	<10	<2.0
Trichloroethene	0.64J	<1	NA	<1	<1	NA
Methylene Chloride	<5	<5	NA	<5	<5	NA
Ethylbenzene	7.5	<1	<2.0	<1	<1	<2.0
See notes at end of table						

Table 2
Summary of Detections in Groundwater

Semi-Annual Groundwater Monitoring Report
Building 80, Tank 80
Naval Air Station Cecil Field
Jacksonville, Florida
Page 2 of 2

Compounds Detected	Perimeter Monitoring Wells					Milestone Objectives at end of 2nd Year for CEF-80-14S	NADSC/GCTL ^{1,2}
	CEF-80-9S			CEF-80-15S	CEF-80-16S		
	9/25/2000	3/6/2001	12/14/2001	12/14/2001	12/14/2001		
Polynuclear Aromatic Hydrocarbons (USEPA Method 8270C) (µg/L)							
Acenaphthene	<1	<1	<4.0	<4.4	<4.4	None	200\20
Fluorene	<1	<1	<2.0	<2.2	<2.2	None	2800\280
Benzo(a)pyrene	<0.2	<0.2	<0.20	<0.22	<0.22	0.21	20\0.2
1-Methylnaphthalene	<1	<1	<2.0	<2.2	<2.2	80	200\20
2-Methylnaphthalene	<1	<1	<2.0	<2.2	<2.2	55	200\20
Naphthalene	<1	<1	<2.0	<2.2	<2.2	50	200\20
Phenanthrene	<1	<1	<2.0	<2.2	<2.2	None	2100\210
Volatile Organic Compounds (USEPA Method 8260B) (µg/L)							
1,1 Dichloroethane	<1	<1	NA	NA	NA	None	700\70
Benzene	0.5J	<1	<1.0	<1.0	<1.0	None	100\1
Chlorobenzene	<1	<1	<2.0	<2.0	<2.0	None	1,000\100
Methyl-tert-butyl ether	<10	<10	<2.0	<2.0	<2.0	None	500\50
Trichloroethene	<1	<1	NA	NA	NA	None	300\3
Methylene Chloride	<5	3.6J	NA	NA	NA	None	500\5
Ethylbenzene	<1	<1	<2.0	<2.0	<2.0	30	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.							
NA= Not Analyzed							
J = estimated; < = less than; and, µg/L = micrograms per liter.							

FIGURES



LEGEND

CEF-80-9S MONITORING WELL LOCATION

0 15 30

 APPROXIMATE SCALE in FEET

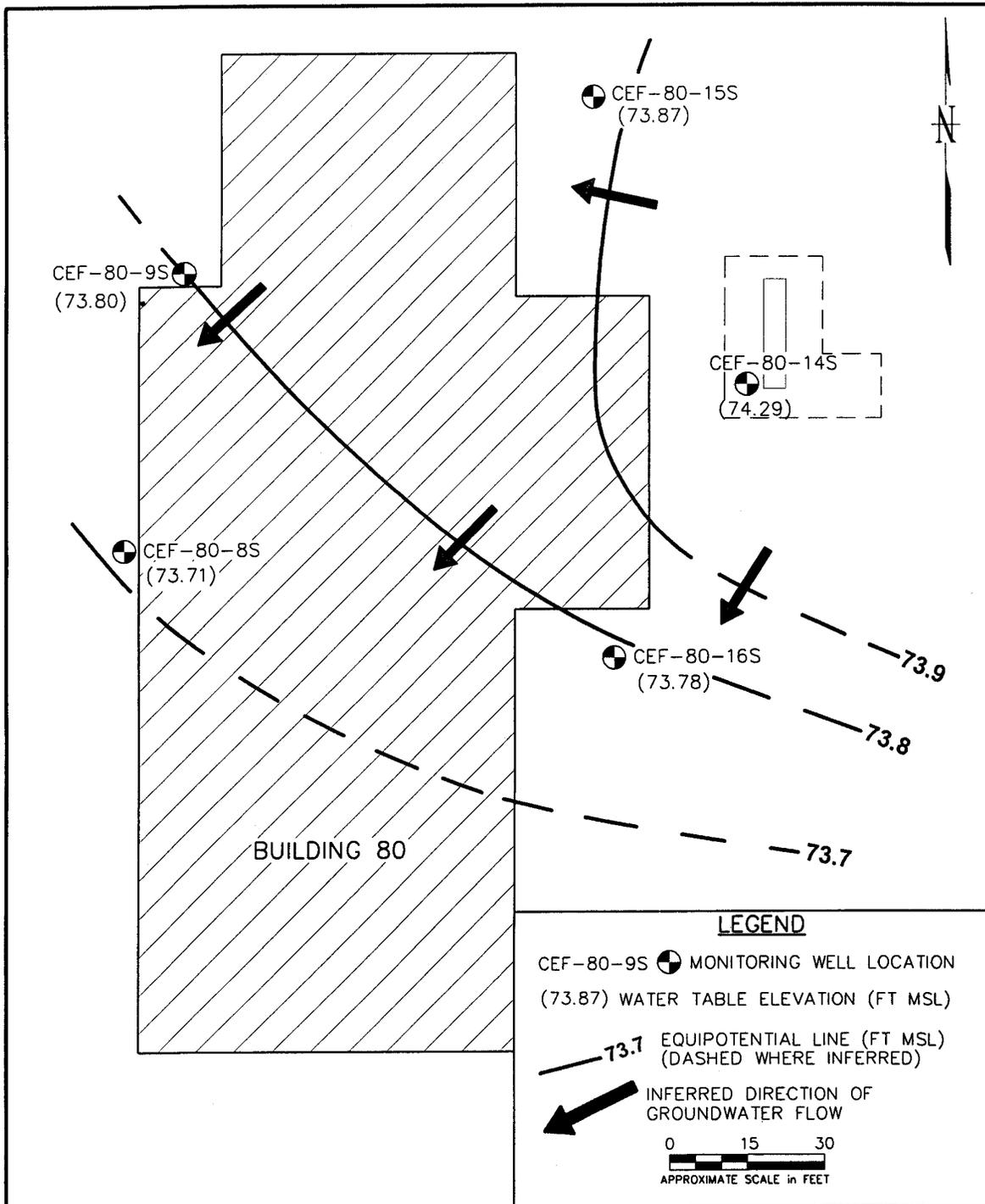
DRAWN BY CW	DATE 12/27/00
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



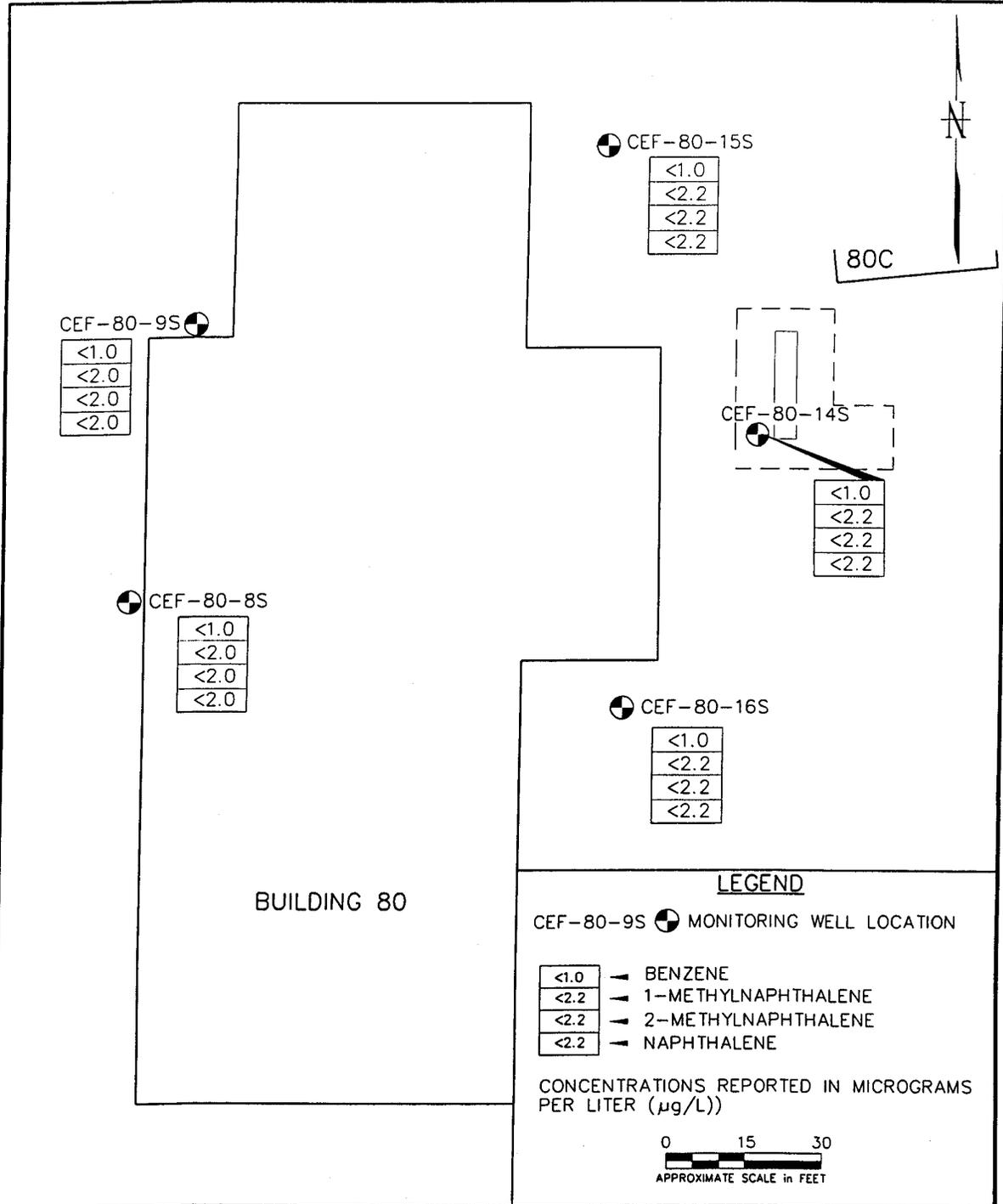
MONITORING WELL LOCATION MAP
BUILDING 80

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO. N0486	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0



DRAWN BY LLK	DATE 4/1/02		GROUNDWATER ELEVATION CONTOUR MAP DECEMBER 2001 BUILDING 80/TANK 80 NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NO. 4093
CHECKED BY <i>MWA</i>	DATE 4/1/02			APPROVED BY DATE
COST/SCHED-AREA	SCALE AS NOTED			APPROVED BY DATE
			DRAWING NO. FIGURE 2	REV. 0



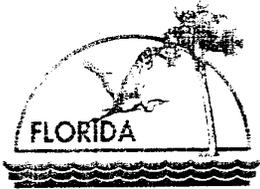
DRAWN BY LLK	DATE 2/21/02
CHECKED BY MWA	DATE 2/25/02
COST/SCHED-AREA	
SCALE AS NOTED	



GROUNDWATER ANALYTICAL RESULTS
DECEMBER 2001
BUILDING 80/TANK 80
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

CONTRACT NO.	4093
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.

<u>Monitoring Wells</u>	<u>Contaminants of Concern</u>	<u>Frequency</u>	<u>Duration</u>
MW-80-8S, MW-80-9S, and MW-80-14S	Ethylbenzene, Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene, 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

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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- Methyl-naphthalene, 200 µg/l 2-Methyl-naphthalene, 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- Methyl-naphthalene, 20 µg/l 2-Methyl-naphthalene, 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:

<u>Ethylbenzene</u>	<u>MW-80-14S</u>
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

<u>Naphthalene</u>	<u>MW-80-14S</u>
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

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<u>1-Methyl Naphthalene</u>	<u>MW-80-14S</u>
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

<u>2-Methyl Naphthalene</u>	<u>MW-80-14S</u>
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

<u>Benzo(a)pyrene</u>	<u>MW-80-14S</u>
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.

Mr. Bryan Kizer
Page Four
September 30, 1999

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

Mr. Bryan Kizer
Page Five
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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.

Mr. Bryan Kizer
Page Six
September 30, 1999

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, SOUTHNAVFACENCOM

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

FDEP E-MAIL APPROVING WELL INSTALLATION

October 26, 2001
OFFICIAL CORRESPONDENCE

Commanding Officer
attn: Mr. Nick Ugolini, Code ES242
Southern Division
Naval Facilities Engineering Command
Post Office Box 190010
North Charleston, SC 29419-9010

Dear Mr. Ugolini,

I have reviewed the Groundwater Monitoring Report, 2nd Semi-Annual, 1st Year, Building 80, Tank 80, Naval Air Station Cecil Field, dated September 20, 2001 (received September 21, 2001). I concur with Tetra Tech NUS's recommendation to install wells northwest and southwest of source well CEF-80-14S and continue monitoring for the parameters specified in the September 30, 1999 Natural Attenuation Monitoring Plan Approval Order.

This electronic message is being sent in lieu of regular mail. If you have any questions concerning this review, please contact me at (850)921-9991.

Sincerely,

David P. Grabka
Remedial Project Manager
MS4535
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Office: 850.488.3935
Direct: 850.921.9991
FAX: 850.922.4939
david.grabka@dep.state.fl.us

ATTACHMENT C

**BORING LOGS, MONITORING WELL CONSTRUCTION SHEETS,
AND CERTIFICATES OF CONFORMANCE**



BORING LOG

PROJECT NAME: Rico, 85 / DEE BORING NUMBER: CEF-880-168
 PROJECT NUMBER: N3996 DATE: 12.3.01
 DRILLING COMPANY: TRANSAMERICAN GEOLOGIST: L. KNIGHT
 DRILLING RIG: GEOPROBE (Track-mounted) DRILLER: O. HEARN

Sample No. and Type or RQD	Depth (FL) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION			U S C S *	Remarks	PID/FID Reading (ppm)							
					Soil Density/ Consistency or Rock Hardness	Color	Material Classification			Sample	sample BZ	Borehole**	Driller BZ**				
				0-1			ASPHALT										
							↑										
				5			SAND w/SOME silt; F/VF; brown-gray.										
							brown-yellow; tan										
				10			↓										
							13.5 EOB										
				15													

* When rock coring, enter rock brokenness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Remarks: _____

Drilling Area Background (ppm): 14.3

Converted to Well: Yes No Well I.D. #: CEF-880-165

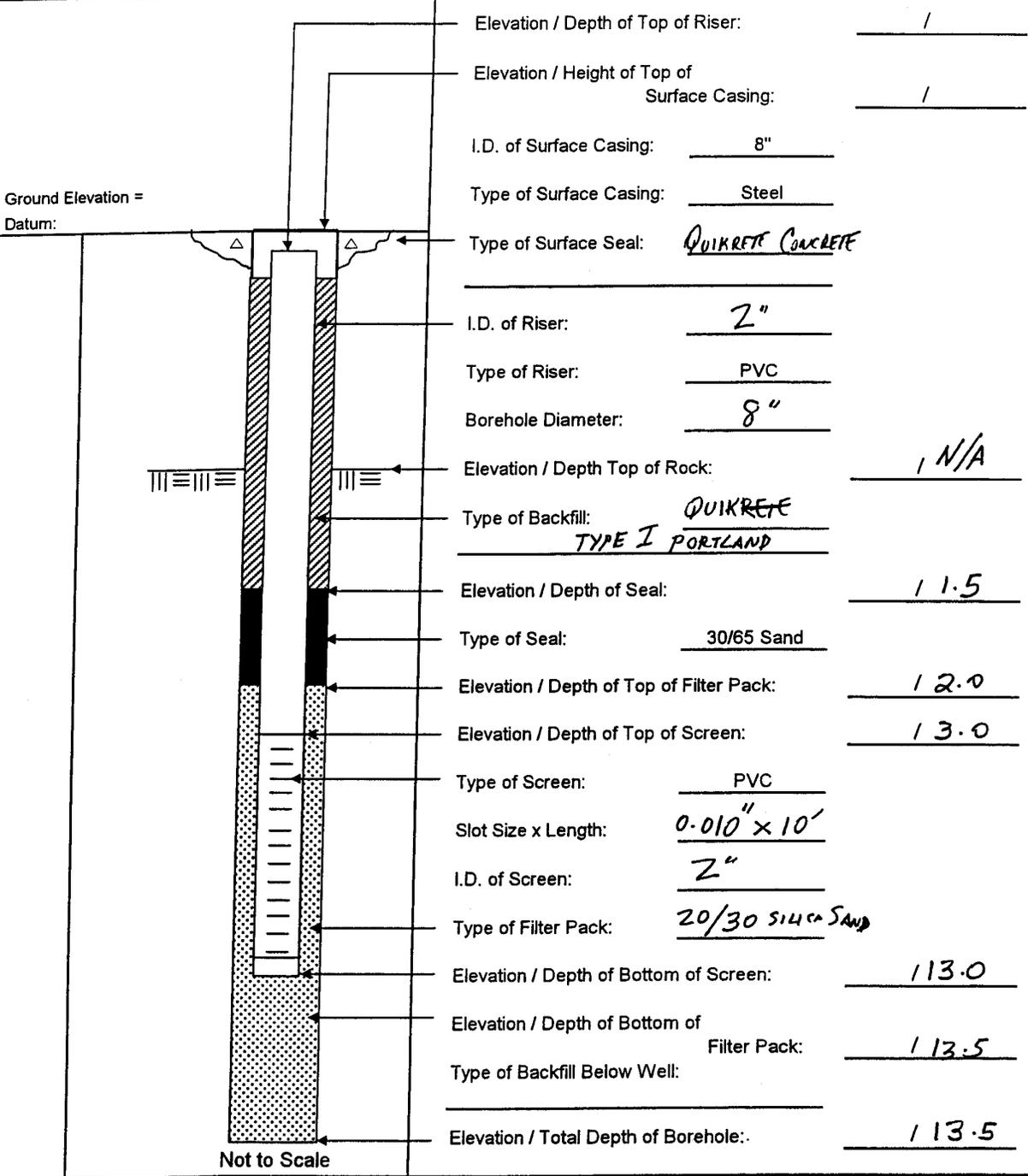


Tetra Tech NUS, Inc.

WELL No.: CEP. 820.158

MONITORING WELL SHEET

PROJECT: N3996 DRILLING Co.: TRANSAMERICAN BORING No.: CEP. 820.158
 PROJECT No.: BLDG. 80 DRILLER: D. HEARNE DATE COMPLETED: 12.3.01
 SITE: BLDG. 80 DRILLING METHOD: HSA NORTHING: _____
 GEOLOGIST: L. KNIGHT DEV. METHOD: Peristaltic EASTING: _____





Tetra Tech NUS, Inc.

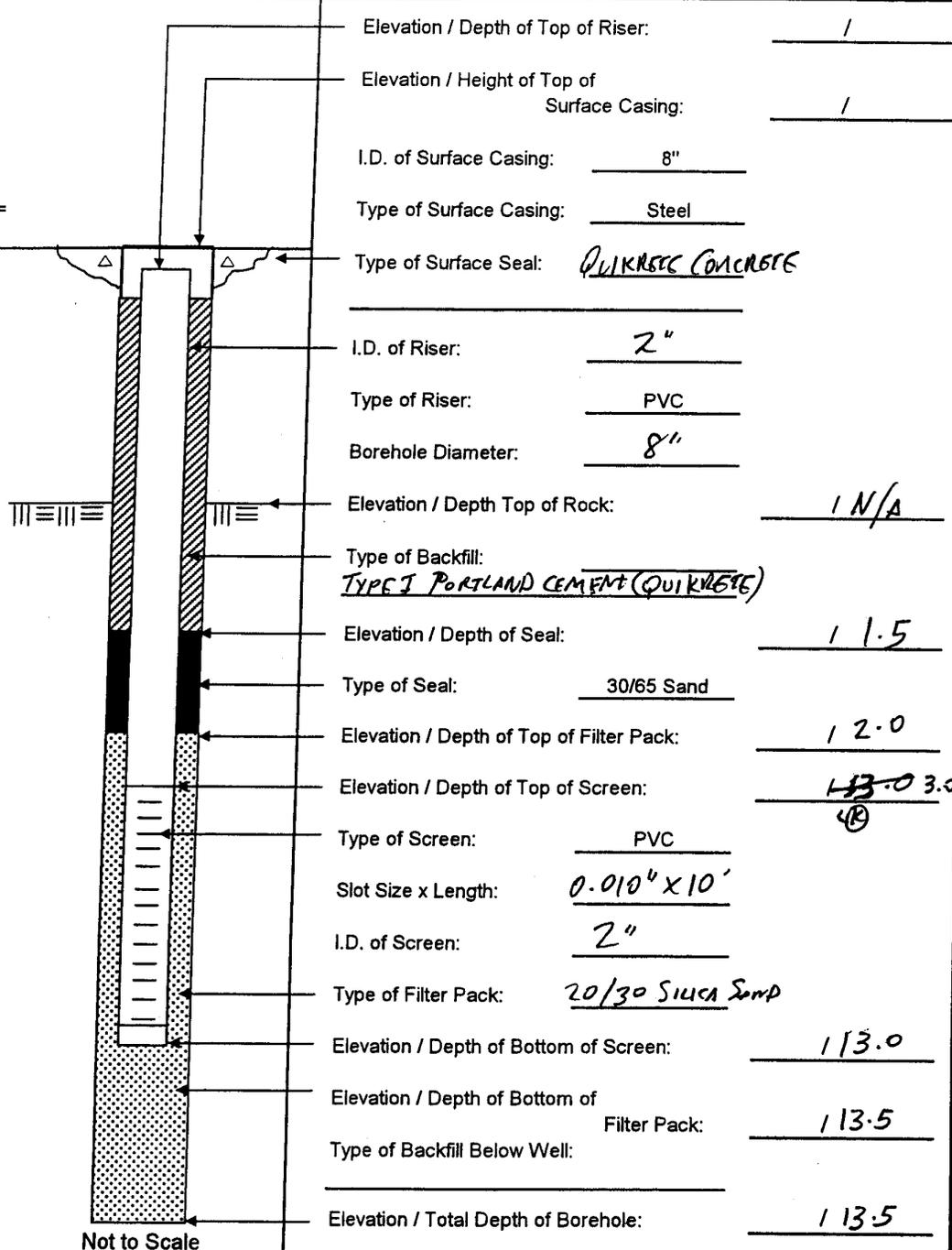
WELL No.:

CEP-880-165

MONITORING WELL SHEET

PROJECT: Blag 86/CEP DRILLING Co.: TRANS/AMERICAN BORING No. CEP-880-165
 PROJECT No.: N3996 DRILLER: D. HEARNE DATE COMPLETED: 12.3.01
 SITE: MW165 DRILLING METHOD: HSA NORTHING: _____
 GEOLOGIST: L. KNIGHT DEV. METHOD: PERISTALTIC EASTING: _____

Ground Elevation = Datum:



Elevation / Depth of Top of Riser: 1

Elevation / Height of Top of Surface Casing: 1

I.D. of Surface Casing: 8"

Type of Surface Casing: Steel

Type of Surface Seal: QUIKRETE CONCRETE

I.D. of Riser: 2"

Type of Riser: PVC

Borehole Diameter: 8"

Elevation / Depth Top of Rock: 1 N/A

Type of Backfill: TYPE I PORTLAND CEMENT (QUIKRETE)

Elevation / Depth of Seal: 1 1.5

Type of Seal: 30/65 Sand

Elevation / Depth of Top of Filter Pack: 1 2.0

Elevation / Depth of Top of Screen: ~~1 3.0~~ 3.0

Type of Screen: PVC

Slot Size x Length: 0.010" x 10'

I.D. of Screen: 2"

Type of Filter Pack: 20/30 SILICA SAND

Elevation / Depth of Bottom of Screen: 1 13.0

Elevation / Depth of Bottom of Filter Pack: 1 13.5

Type of Backfill Below Well: _____

Elevation / Total Depth of Borehole: 1 13.5



MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation: CEF. 80 - 155
Site Name: Bldg. 80
Date Installed: 12.3.01
Project Name: Bldg. 80 MOP

Site Geologist: LOUIS KNIGHT
Drilling Company: TRANSAMERICAN
Driller: D. HEARNE
Project Number: N 3996

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2" SCH 40 PVC	TONEX DRILLING SUPPLIES / ORLANDO, FL	NO
Well Screen	2" SCH 40 PVC	TONEX DRILLING SUPPLIES / ORLANDO, FL	
End Cap	2" SCH 40 PVC	TONEX DRILLING SUPPLIES / ORLANDO, FL	
Drilling Fluid	N/A	N/A	
Drilling Fluid Additives	N/A	N/A	
Backfill Material	N/A	N/A	
Annular Filter Pack	STANDARD / 20/30 SILICA SAND	STANDARD SAND CO.	
Bentonite Seal <u>CHOKESAND</u>	STANDARD / 30-65 SILICA SAND	STANDARD SAND CO.	
Annular Grout	QUIKRETE - TYPE I PORTLAND CEMENT	FLORIDA IRRIGATION	
Surface Cement	QUIKRETE - CONCRETE	FLORIDA IRRIGATION	
Protective Casing	N/A	N/A	
Paint	N/A	N/A	
Rod Lubricant	N/A	N/A	
Compressor Oil	N/A	N/A	
MANHOLE (8" DIAM)	PETROLEUM EQUIPMENT MANUFACTURING Co (PEMCO)	TONEX DRILLING SUPPLIES / ORLANDO, FL	✓

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: Louis Knight



**MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE**

Well Designation: CEF. 80-16 S
 Site Name: Bldg. 80
 Date Installed: 12-3-01
 Project Name: Bldg. 80 MOP

Site Geologist: LOUIS KNIGHT
 Drilling Company: TRANSAMERICAN
 Driller: D. HEARNE
 Project Number: N 3996

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing	2" SCH 40 PVC	TONY DRILLING SUPPLIES / ORLANDO, FL	NO
Well Screen	2" SCH 40 PVC	TONY DRILLING SUPPLIES / ORLANDO, FL	
End Cap	2" SCH 40 PVC	TONY DRILLING SUPPLIES / ORLANDO, FL	
Drilling Fluid	N/A		
Drilling Fluid Additives	N/A		
Backfill Material	N/A		
Annular Filter Pack	STANDARD / 20/30 SILICA SAND	STANDARD SAND CO.	
Bentonite Seal CHOLE SAND	STANDARD / 30-65 SILICA SAND	STANDARD SAND CO.	
Annular Grout	QUIKRETE - TYPE I PORTLAND CEMENT	FLORIDA IRRIGATION	
Surface Cement	QUIKRETE - CONCRETE	FLORIDA IRRIGATION	
Protective Casing	N/A		
Paint	N/A		
Rod Lubricant	N/A		
Compressor Oil	N/A		
MANHOLE (8" DIAM)	PETROLEUM EQUIPMENT MANUFACTURING Co (PEMCO)	TONY DRILLING SUPPLIES / ORLANDO, FL	✓

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist: _____

Louis Knight

ATTACHMENT D

GROUNDWATER ANALYTICAL REPORT



Tetra Tech NUS, Inc.

Internal Correspondence

TO: Mr. Paul Calligan **DATE:** February 12, 2002
FROM: Michael T. Akers **CC:** File
SUBJECT: Organic and Inorganic Data Validation – VOCs and PAHs
CTO209 – NAS Cecil Field
SDG F11819
SAMPLES: 6/Aqueous
CEF-80-GW-8S-01 CEF-80-GW-9S-01 CEF-80-GW-14S-01
CEF-80-GW-15S-01 CEF-80-GW-16S-01 CEF-80-DU01-GW-01

OVERVIEW

The sample set for CTO209 SDG F11819; Naval Air Station Cecil Field, Jacksonville, Florida consists of six (6) aqueous environmental samples. The environmental samples were analyzed for Volatile Organic Compounds (VOCs) and Polycyclic Aromatic Hydrocarbons (PAHs). A set of duplicate samples was also received and analyzed: CEF-80-GW-15S-01 / CEF-80-DU01-GW-01.

The samples were collected by Tetra Tech NUS on December 14, 2001 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 SW-846 Method 8260C and SW-846 Method 8310 (PAHs) analytical and reporting protocols. 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.

Volatiles Fractions

All quality control criteria were met for this fraction.

Polycyclic Aromatic Hydrocarbons Fraction

All quality control criteria were met for this fraction.

Field Duplicate Analysis

Analyte	CEF-80-GW-15S-01	CEF-80-DU01-GW-01	RPD
N/A	N/A	N/A	N/A

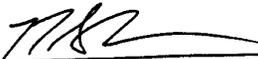
Executive Summary

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.

010209-NAS CECIL FIELD

WATER DATA

Accutest, NJ

SDG: F11819

SAMPLE NUMBER:

SAMPLE DATE:

LABORATORY ID:

QC_TYPE:

% SOLIDS:

UNITS:

FIELD DUPLICATE OF:

CEF-80-DU01-GW-01

12/14/01

F11819-6

NORMAL

0.0 %

UG/L

CEF-80-GW-155-1

CEF-80-GW-14S-01

12/14/01

F11819-3

NORMAL

0.0 %

UG/L

CEF-80-GW-15S-01

12/14/01

F11819-4

NORMAL

0.0 %

UG/L

CEF-80-GW-16S-01

12/14/01

F11819-5

NORMAL

0.0 %

UG/L

VOLATILES	RESULT	QUAL	CODE									
1,2-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,3-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
1,4-DICHLOROBENZENE	2	U		2	U		2	U		2	U	
BENZENE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	2	U		2	U		2	U		2	U	
ETHYLBENZENE	2	U		2	U		2	U		2	U	
METHYL TERT-BUTYL ETHER	2	U		2	U		2	U		2	U	
TOLUENE	2	U		2	U		2	U		2	U	
TOTAL XYLENES	6	U		6	U		6	U		6	U	

010209-NAS CECIL FIELD

WATER DATA

Accutest, NJ

SDG: F11819

SAMPLE NUMBER:

CEF-80-GW-8S-01

CEF-80-GW-9S-01

SAMPLE DATE:

12/14/01

12/14/01

LABORATORY ID:

F11819-1

F11819-2

QC_TYPE:

NORMAL

NORMAL

% SOLIDS:

0.0 %

0.0 %

UNITS:

UG/L

UG/L

FIELD DUPLICATE OF:

	RESULT	QUAL	CODE									
VOLATILES												
1,2-DICHLOROBENZENE	2	U		2	U							
1,3-DICHLOROBENZENE	2	U		2	U							
1,4-DICHLOROBENZENE	2	U		2	U							
BENZENE	1	U		1	U							
CHLOROBENZENE	2	U		2	U							
ETHYLBENZENE	2	U		2	U							
METHYL TERT-BUTYL ETHER	2	U		2	U							
TOLUENE	2	U		2	U							
TOTAL XYLENES	6	U		6	U							

WATER DATA
Accutest, NJ
SDG: F11819

SAMPLE NUMBER:
 SAMPLE DATE:
 LABORATORY ID:
 QC_TYPE:
 % SOLIDS:
 UNITS:
 FIELD DUPLICATE OF:

CEF-80-DU01-GW-01
 12/14/01
 F11819-6
 NORMAL
 0.0 %
 UG/L

CEF-80-GW-14S-01
 12/14/01
 F11819-3
 NORMAL
 0.0 %
 UG/L

CEF-80-GW-15S-01
 12/14/01
 F11819-4
 NORMAL
 0.0 %
 UG/L

CEF-80-GW-16S-01
 12/14/01
 F11819-5
 NORMAL
 0.0 %
 UG/L

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	2	U		2.2	U		2.2	U		2.2	U	
2-METHYLNAPHTHALENE	2	U		2.2	U		2.2	U		2.2	U	
ACENAPHTHENE	4	U		4.4	U		4.4	U		4.4	U	
ACENAPHTHYLENE	4	U		4.4	U		4.4	U		4.4	U	
ANTHRACENE	2	U		2.2	U		2.2	U		2.2	U	
BENZO(A)ANTHRACENE	0.2	U		0.22	U		0.22	U		0.22	U	
BENZO(A)PYRENE	0.2	U		0.22	U		0.22	U		0.22	U	
BENZO(B)FLUORANTHENE	0.2	U		0.22	U		0.22	U		0.22	U	
BENZO(G,H,I)PERYLENE	0.2	U		0.22	U		0.22	U		0.22	U	
BENZO(K)FLUORANTHENE	0.2	U		0.22	U		0.22	U		0.22	U	
CHRYSENE	2	U		2.2	U		2.2	U		2.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U		0.22	U		0.22	U		0.22	U	
FLUORANTHENE	2	U		2.2	U		2.2	U		2.2	U	
FLUORENE	2	U		2.2	U		2.2	U		2.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U		0.22	U		0.22	U		0.22	U	
NAPHTHALENE	2	U		2.2	U		2.2	U		2.2	U	
PHENANTHRENE	2	U		2.2	U		2.2	U		2.2	U	
PYRENE	2	U		2.2	U		2.2	U		2.2	U	

WATER DATA
 Accutest, NJ
 SDG: F11819

SAMPLE NUMBER:
 SAMPLE DATE:
 LABORATORY ID:
 QC_TYPE:
 % SOLIDS:
 UNITS:
 FIELD DUPLICATE OF:

CEF-80-GW-8S-01
 12/14/01
 F11819-1
 NORMAL
 0.0 %
 UG/L

CEF-80-GW-9S-01
 12/14/01
 F11819-2
 NORMAL
 0.0 %
 UG/L

//
 100.0 %

//
 100.0 %

	RESULT	QUAL	CODE									
POLYNUCLEAR AROMATIC HYDROCARBONS												
1-METHYLNAPHTHALENE	2	U		2	U							
2-METHYLNAPHTHALENE	2	U		2	U							
ACENAPHTHENE	4	U		4	U							
ACENAPHTHYLENE	4	U		4	U							
ANTHRACENE	2	U		2	U							
BENZO(A)ANTHRACENE	0.2	U		0.2	U							
BENZO(A)PYRENE	0.2	U		0.2	U							
BENZO(B)FLUORANTHENE	0.2	U		0.2	U							
BENZO(G,H,I)PERYLENE	0.2	U		0.2	U							
BENZO(K)FLUORANTHENE	0.2	U		0.2	U							
CHRYSENE	2	U		2	U							
DIBENZO(A,H)ANTHRACENE	0.2	U		0.2	U							
FLUORANTHENE	2	U		2	U							
FLUORENE	2	U		2	U							
INDENO(1,2,3-CD)PYRENE	0.2	U		0.2	U							
NAPHTHALENE	2	U		2	U							
PHENANTHRENE	2	U		2	U							
PYRENE	2	U		2	U							

HOLDING TIME
01/15/02

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
UG/L	CEF-80-DU01-GW-01	F11819-6	NORMAL	F11819	OV	12/14/01	//	12/20/01	0	0	6
UG/L	CEF-80-GW-14S-01	F11819-3	NORMAL	F11819	OV	12/14/01	//	12/20/01	0	0	6
UG/L	CEF-80-GW-15S-01	F11819-4	NORMAL	F11819	OV	12/14/01	//	12/20/01	0	0	6
UG/L	CEF-80-GW-16S-01	F11819-5	NORMAL	F11819	OV	12/14/01	//	12/20/01	0	0	6
UG/L	CEF-80-GW-8S-01	F11819-1	NORMAL	F11819	OV	12/14/01	//	12/20/01	0	0	6
UG/L	CEF-80-GW-9S-01	F11819-2	NORMAL	F11819	OV	12/14/01	//	12/20/01	0	0	6
UG/L	CEF-80-DU01-GW-01	F11819-6	NORMAL	F11819	PAH	12/14/01	12/21/01	12/26/01	7	5	12
UG/L	CEF-80-GW-14S-01	F11819-3	NORMAL	F11819	PAH	12/14/01	12/21/01	12/26/01	7	5	12
UG/L	CEF-80-GW-15S-01	F11819-4	NORMAL	F11819	PAH	12/14/01	12/21/01	12/26/01	7	5	12
UG/L	CEF-80-GW-16S-01	F11819-5	NORMAL	F11819	PAH	12/14/01	12/21/01	12/26/01	7	5	12
UG/L	CEF-80-GW-8S-01	F11819-1	NORMAL	F11819	PAH	12/14/01	12/21/01	12/26/01	7	5	12
UG/L	CEF-80-GW-9S-01	F11819-2	NORMAL	F11819	PAH	12/14/01	12/21/01	12/26/01	7	5	12

Report of Analysis

Client Sample ID: CEF-80-GW-8S-01
 Lab Sample ID: F11819-1
 Matrix: AQ - Ground Water
 Method: SW846 8260B
 Project: NAS Cecil Field-N4093

Date Sampled: 12/14/01
 Date Received: 12/15/01
 Percent Solids: n/a

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0007653.D	1	12/20/01	JG	n/a	n/a	VB329
Run #2							

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		80-120%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	105%		80-120%

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

000012

Report of Analysis

Client Sample ID: CEF-80-GW-8S-01	
Lab Sample ID: F11819-1	Date Sampled: 12/14/01
Matrix: AQ - Ground Water	Date Received: 12/15/01
Method: EPA 8310 SW846 3510C	Percent Solids: n/a
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE006756.D	1	12/26/01	MRE	12/21/01	OP4416	GEE307
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4.0	ug/l	
208-96-8	Acenaphthylene	ND	4.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	2.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	ND	2.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	48%		33-141%
92-94-4	p-Terphenyl	85%		31-122%

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

Report of Analysis

Client Sample ID:	CEF-80-GW-9S-01	Date Sampled:	12/14/01
Lab Sample ID:	F11819-2	Date Received:	12/15/01
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0007654.D	1	12/20/01	JG	n/a	n/a	VB329
Run #2							

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		80-120%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	107%		80-120%

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

Report of Analysis

Client Sample ID: CEF-80-GW-9S-01	
Lab Sample ID: F11819-2	Date Sampled: 12/14/01
Matrix: AQ - Ground Water	Date Received: 12/15/01
Method: EPA 8310 SW846 3510C	Percent Solids: n/a
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE006757.D	1	12/26/01	MRE	12/21/01	OP4416	GEE307
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4.0	ug/l	
208-96-8	Acenaphthylene	ND	4.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	2.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	ND	2.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	67%		33-141%
92-94-4	p-Terphenyl	78%		31-122%

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

000015

Report of Analysis

Client Sample ID: CEF-80-GW-14S-01	Date Sampled: 12/14/01
Lab Sample ID: F11819-3	Date Received: 12/15/01
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0007655.D	1	12/20/01	JG	n/a	n/a	VB329
Run #2							

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		80-120%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

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

Report of Analysis

Client Sample ID: CEF-80-GW-14S-01	
Lab Sample ID: F11819-3	Date Sampled: 12/14/01
Matrix: AQ - Ground Water	Date Received: 12/15/01
Method: EPA 8310 SW846 3510C	Percent Solids: n/a
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE006758.D	1	12/26/01	MRE	12/21/01	OP4416	GEE307
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4.4	ug/l	
208-96-8	Acenaphthylene	ND	4.4	ug/l	
120-12-7	Anthracene	ND	2.2	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	ug/l	
218-01-9	Chrysene	ND	2.2	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	ug/l	
206-44-0	Fluoranthene	ND	2.2	ug/l	
86-73-7	Fluorene	ND	2.2	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	ug/l	
91-20-3	Naphthalene	ND	2.2	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	ug/l	
85-01-8	Phenanthrene	ND	2.2	ug/l	
129-00-0	Pyrene	ND	2.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		33-141%
92-94-4	p-Terphenyl	85%		31-122%

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

Report of Analysis

Client Sample ID: CEF-80-GW-15S-01
 Lab Sample ID: F11819-4
 Matrix: AQ - Ground Water
 Method: SW846 8260B
 Project: NAS Cecil Field-N4093

Date Sampled: 12/14/01
 Date Received: 12/15/01
 Percent Solids: n/a

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0007656.D	1	12/20/01	JG	n/a	n/a	VB329
Run #2							

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	97%		80-120%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	105%		80-120%

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

Report of Analysis

Client Sample ID:	CEF-80-GW-15S-01	Date Sampled:	12/14/01
Lab Sample ID:	F11819-4	Date Received:	12/15/01
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 8310 SW846 3510C		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE006759.D	1	12/26/01	MRE	12/21/01	OP4416	GEE307
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4.4	ug/l	
208-96-8	Acenaphthylene	ND	4.4	ug/l	
120-12-7	Anthracene	ND	2.2	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	ug/l	
218-01-9	Chrysene	ND	2.2	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	ug/l	
206-44-0	Fluoranthene	ND	2.2	ug/l	
86-73-7	Fluorene	ND	2.2	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	ug/l	
91-20-3	Naphthalene	ND	2.2	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	ug/l	
85-01-8	Phenanthrene	ND	2.2	ug/l	
129-00-0	Pyrene	ND	2.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	64%		33-141%
92-94-4	p-Terphenyl	78%		31-122%

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

Report of Analysis

Client Sample ID: CEF-80-GW-16S-01	Date Sampled: 12/14/01
Lab Sample ID: F11819-5	Date Received: 12/15/01
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0007657.D	1	12/20/01	JG	n/a	n/a	VB329
Run #2							

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		80-120%
17060-07-0	1,2-Dichloroethane-D4	97%		80-120%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	108%		80-120%

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

Report of Analysis

Client Sample ID: CEF-80-GW-16S-01	
Lab Sample ID: F11819-5	Date Sampled: 12/14/01
Matrix: AQ - Ground Water	Date Received: 12/15/01
Method: EPA 8310 SW846 3510C	Percent Solids: n/a
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE006760.D	1	12/26/01	MRE	12/21/01	OP4416	GEE307
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4.4	ug/l	
208-96-8	Acenaphthylene	ND	4.4	ug/l	
120-12-7	Anthracene	ND	2.2	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	ug/l	
218-01-9	Chrysene	ND	2.2	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	ug/l	
206-44-0	Fluoranthene	ND	2.2	ug/l	
86-73-7	Fluorene	ND	2.2	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	ug/l	
91-20-3	Naphthalene	ND	2.2	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	ug/l	
85-01-8	Phenanthrene	ND	2.2	ug/l	
129-00-0	Pyrene	ND	2.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	68%		33-141%
92-94-4	p-Terphenyl	74%		31-122%

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

Report of Analysis

Client Sample ID: CEF-80-DU01-GW-01	Date Sampled: 12/14/01
Lab Sample ID: F11819-6	Date Received: 12/15/01
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	B0007658.D	1	12/20/01	JG	n/a	n/a	VB329
Run #2							

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-90-7	Chlorobenzene	ND	2.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	ug/l	
108-88-3	Toluene	ND	2.0	ug/l	
1330-20-7	Xylene (total)	ND	6.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		80-120%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

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

Report of Analysis

Client Sample ID: CEF-80-DU01-GW-01	Date Sampled: 12/14/01
Lab Sample ID: F11819-6	Date Received: 12/15/01
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 8310 SW846 3510C	
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE006762.D	1	12/26/01	MRE	12/21/01	OP4416	GEE307
Run #2							

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	4.0	ug/l	
208-96-8	Acenaphthylene	ND	4.0	ug/l	
120-12-7	Anthracene	ND	2.0	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	ug/l	
218-01-9	Chrysene	ND	2.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	ug/l	
206-44-0	Fluoranthene	ND	2.0	ug/l	
86-73-7	Fluorene	ND	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	ug/l	
91-20-3	Naphthalene	ND	2.0	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.0	ug/l	
85-01-8	Phenanthrene	ND	2.0	ug/l	
129-00-0	Pyrene	ND	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	65%		33-141%
92-94-4	p-Terphenyl	87%		31-122%

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