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SECOND SEMI-ANNUAL THIRD YEAR GROUNDWATER MONITORING LETTER REPORT
FOR BUILDING 502 TANK 502 NAS CECIL FIELD FL
3/14/2003
TETRA TECH NUS INC



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March 14, 2003

Project Number N4093

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
2nd Semi-Annual/Annual, 3rd Year (December 2002)
Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida

Dear Mr. Grabka:

Tetra Tech NUS, Inc. (TtNUS) is pleased to submit this Semi-Annual/Annual Groundwater Monitoring Report for the referenced Contract Task Order (CTO) for Building 502, Tank 502. This groundwater monitoring report was prepared for the United States 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 quality at the 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 Approval Order (NAMPAO) issued by the Florida Department of Environmental Protection (FDEP) on July 13, 1999 (Attachment A) and as modified by subsequent reports [Harding Lawson Associates (HLA), 2000; TtNUS, 2001].

The fieldwork and analytical results of the groundwater sampling conducted at the site in December 2002 are summarized in this report. The work was performed in general accordance with the Basewide Generic Work Plan Volumes I and II (TtNUS, 1998). The location of the site is presented on Figure 1.

SITE BACKGROUND

Tank Site 502 was formerly a 1000-gallon underground storage tank (UST) located on the west side of Building 502. The UST was removed by Bechtel on April 16, 1997, along with 5 tons of contaminated soil (HLA, 2000). Based on subsequent site investigation results, a monitoring program was approved to sample monitoring wells CEF-502-1S, CEF-502-2S, CEF-502-4S, and CEF-502-5D (FDEP, 1999). Monitoring wells CEF-502-2S and CEF-502-5D were abandoned during the tank removal and were later installed as wells CEF-502-6S and CEF-502-7D, respectively (HLA, 2000). On August 25, 1999, during the first sampling event under the monitoring program, it was discovered that well CEF-502-1S had been



abandoned, and well CEF-502-4S could not be sampled due to low water table conditions. HLA conducted the second event on March 13, 2000 and only sampled wells CEF-502-4S, CEF-502-6S, and CEF-502-7D. The summary table of detections from the second HLA report is included as Attachment B. During March and April of 2001, TtNUS conducted a supplemental site assessment. TtNUS personnel supervised the installation of a replacement well for CEF-502-1S (which is now designated CEF-502-1SR) and sampled the four wells required in the monitoring order. The Site Assessment Report (SAR) Addendum (TtNUS, 2001) recommended several modifications including an additional well (CEF-502-8S) and an additional existing sampling location (CEF-502-3S). The recommendations were approved by the FDEP on August 3, 2001 and were implemented during the next semi-annual sampling event held in December 2001. The subsequent groundwater monitoring report recommended continued monitoring. Therefore, TtNUS conducted the first semi-annual sampling event for the third year of the site's monitoring program during June 2002. The results for this last event, which were reported later in October (TtNUS, 2002), also recommended continued monitoring.

FIELD OPERATIONS

On December 20, 2002, water level measurements were recorded from each of the monitoring wells prior to sample collection. The depth to water ranged from 3.52 feet (ft) below top-of-casing (btoc) (CEF-502-3S) to 4.77 ft btoc (CEF-502-1SR). The depth-to-water measurements, along with top of casing elevations, were used to calculate groundwater elevations and estimate groundwater flow direction.

On December 20, 2002, groundwater samples were collected from five shallow monitoring wells (CEF-502-1SR, CEF-502-3S, CEF-502-4S, CEF-502-6S, and CEF-502-8S) and one deep monitoring well (CEF-502-7D) (Figure 2). Following collection, the samples were placed on ice and subsequently shipped under chain-of-custody to Accutest Laboratory in Orlando, Florida. The laboratory analyzed the samples for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method SW846 8021B, polynuclear aromatic hydrocarbons (PAHs) by USEPA Method SW846 8310, and total recoverable petroleum hydrocarbons (TRPH) by Florida Petroleum Range Organics (FL-PRO). The reported detection limits for these methods meet the requirements for the similar methods recommended in the NAMPAO.

RESULTS

Groundwater elevation data from the December 2002 event and the previous sampling events are shown on Table 1. The groundwater flow direction with elevation data for December 2002 is shown on Figure 2. Based on the data, the inferred direction of groundwater flow has not changed since June 2002 it continues to flow to the south, southwest. However, a significant fluctuation of the water table on the order of approximately 3.5 feet has been recorded over the course of the last three measurements between March and December of 2002 (Table 1).

Concentrations of contaminants of concern (COCs) 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 in Table 2, and the results for naphthalene compounds and TRPH are illustrated on Figure 3. The concentrations of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene reported in monitoring well CEF-502-1SR exceeded their respective GCTLs for the three previous sampling events, but were below their GCTLs for the December 2002 event. The TRPH concentration in monitoring well CEF-502-1SR has decreased since the previous sampling event but still exceeds the GCTL. The concentrations of COCs in all other monitoring wells were below their respective GCTLs during the December 2002 sampling event. A copy of the laboratory report for the December 20, 2002 sampling event is provided as Attachment C.



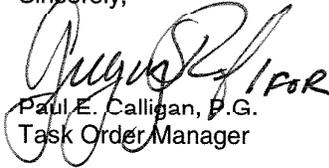
CONCLUSIONS AND RECOMMENDATIONS

A comparison of the results of the December 2002 sampling event with the two previous sampling events indicates that groundwater concentrations of COCs have decreased significantly with a relatively high water table. Since this event is the second semi-annual groundwater monitoring event at the end of year three, an annual evaluation of the milestone objectives is required. Assuming that the milestone objectives specified in the NAMP AO for well CEF-502-2S (Table 3) apply to source well CEF-502-1SR, the concentrations of all COCs are below the milestone objectives specified in the NAMP AO. This suggests that natural attenuation of the COCs is occurring at an acceptable rate.

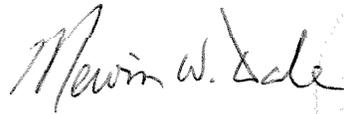
Based on the results of the December 2002 sampling event and a review of historical data for the site, TtNUS recommends that the natural attenuation monitoring program be continued at Building 502.

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

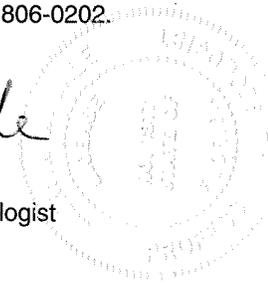
Sincerely,



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



Morvin W. Dale, P.G.
Florida Professional Geologist
P.G. Number 0001917



PC/mwd

Attachments (5)

- c: Mr. W. Hansel, SOUTHNAVFACENGCOM (CD only)
- Ms. D. Vaughn-Wright, USEPA
- Ms. D. Wroblewski, TtNUS (cover letter only)
- Mr. M. Perry, TtNUS (unbound and CD)
- Project File

TABLES

Table 1
Groundwater Elevation and Monitoring Well Construction Data
Semi-Annual/Annual Groundwater Monitoring Report - December 2002
Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida

Well Number	Total Depth (ft, bls)	Top of Casing Elevation (ft NAVD)	April 9, 2001		December 11, 2001		March 4, 2002		June 6, 2002		December 20, 2002	
			Depth to Water (ft btoc)	Water Elevation (ft msl)	Depth to Water (ft btoc)	Water Elevation (ft msl)	Depth to Water (ft btoc)	Water Elevation (ft msl)	Depth to Water (ft btoc)	Water Elevation (ft msl)	Depth to Water (ft btoc)	Water Elevation (ft msl)
CEF-502-1SR	12.48	82.16	6.31	75.85	5.27	76.89	4.65	77.51	8.38	73.78	4.77	77.39
CEF-502-3S	12.22	80.68	5.03	75.65	3.77	76.91	3.03	77.65	7.14	73.54	3.52	77.16
CEF-502-4S	12.36	80.68	5.07	75.61	3.73	76.95	3.02	77.66	7.18	73.50	3.54	77.14
CEF-502-6S	14.80	81.70	5.72	75.98	5.20	76.50	4.64	77.06	7.90	73.80	4.29	77.41
CEF-502-7D	29.95	81.65	6.00	75.65	4.87	76.78	4.21	77.44	7.84	73.81	4.62	77.03
CEF-502-8S	13.57	81.75	NA	NM	4.83	76.92	4.14	77.61	8.00	73.75	4.47	77.28

Notes: bls = below land surface
msl = mean sea level
NAVD = North American Vertical Datum, 1988
NA = not applicable
NM = not measured

Table 2
Summary of Detections in Groundwater

Semi-Annual/Annual Groundwater Monitoring Report-December 2002
Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida
Page 1 of 3

Compounds Detected		GCTL ¹	NADSC ²	Source Well CEF-502-1SR				Perimeter Well CEF-502-3S			
Sample ID: CEF-502-GW-	1SR-02			1SR-03	1SR-04	1SR-05 ³	3S-03	3S-03B	3S-04	3S-05	
Date Sampled	04/09/01			12/11/01	06/06/02	12/20/02	12/11/01	03/04/02	06/06/02	12/20/02	
PAHs (USEPA Method 8270C) (µg/L)											
Acenaphthene	20	200	3.7	5.9	<16	<4.3	1.1 J	<1.0	<4.1	<4.3	
Fluorene	280	280	4.5	5.5	5.6J	<2.1	0.7 J	<1.0	<2.1	<2.2	
Phenanthrene	210	2100	1.7	3.3	<8.2	<2.1	<1.1	<1.0	<2.1	<2.2	
1-Methylnaphthalene	20	200	63	93	84	11.5	28	11	<2.1	<2.2	
2-Methylnaphthalene	20	200	85	130	126	16.4	25	<1.0	<2.1	<2.2	
Naphthalene	20	200	66	96	68.3	8.1	3.4	<1.0	<2.1	<2.2	
VOCs (USEPA Method 8260B) (µg/L)											
Chlorobenzene	100		<1.0	<1.0	<1.0	<1.0	<1.0	NS	<1.0	<1.0	
Benzene	1	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Ethylbenzene	30	300	13	5.9	13.5	3.0	<1.0	NS	<1.0	<1.0	
Total Xylenes	20	200	4.8	1.2 J	5.5	<3.0	<3.0	NS	<3.0	<3.0	
FL-PRO (mg/L)											
TRPH	5	50	24	36	21.2	6.78	1.5	NS	0.743	0.200 J	

See notes at end of table

**Table 2
Summary of Detections in Groundwater**

Semi-Annual/Annual Groundwater Monitoring Report-December 2002
Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida
Page 2 of 3

Compounds Detected	GCTL ¹	NADSC ²	Perimeter Well CEF-502-4S				Source Well CEF-502-6S			
			4S-02	4S-03	4S-04	4S-05	6S-02	6S-03	6S-04	6S-05
			04/10/01	12/11/01	06/06/02	12/20/02	04/09/01	12/11/01	06/06/02	12/20/02
PSHs (USEPA Method 8270C) (µg/L)										
Acenaphthene	20	200	<1.0	<1.3	<4.6	<4.3	1.2	3.8	<4.2	<4.2
Fluorene	280	280	<1.0	<1.3	<2.3	<2.2	0.48 J	2.3	<2.1	<2.1
Phenanthrene	210	2100	<1.0	<1.3	<2.3	<2.2	<1.0	0.89 J	<2.1	<2.1
1-Methylnaphthalene	20	200	<1.0	1.2 J	1.6 J	<2.2	7.4	28	<2.1	2.8
2-Methylnaphthalene	20	200	<1.0	1.6	3.7	<2.2	0.96 J	41	<2.1	7.2
Naphthalene	20	200	<1.0	<1.3	<2.3	<2.2	2.0	5.0	<2.1	0.63 J
VOCs (USEPA Method 8260B) (µg/L)										
Chlorobenzene	100		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	1	10	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	30	300	0.92 J	<1.0	<1.0	<1.0	2.4	0.54 J	<1.0	0.72J
Total Xylenes	20	200	<2.0	<3.0	<3.0	<3.0	<2.0	0.43 J	<3.0	<3.0
FL-PRO (mg/L)										
TRPH	5	50	1.1	0.46 J	0.581	<0.28	1.5	1.5	1.02	0.850

See notes at end of table

Table 2
Summary of Detections in Groundwater

Semi-Annual/Annual Groundwater Monitoring Report-December 2002
Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida
Page 3 of 3

Compounds Detected	GCTL ¹	NADSC ²	Perimeter Well CEF-502-7D				Source Well CEF-502-8S		
			7D-02	7D-03	7D-04	7D-05	8S-03	8S-04	8S-05
			04/09/01	12/11/01	06/06/02	12/20/02	12/11/01	06/06/02	12/20/02
PAHs (USEPA Method 8270C) (µg/L)									
Acenaphthene	20	200	<1.0	<1.1	<4.2	<4.3	<1.1	<4.3	<4.3
Fluorene	280	280	<1.0	<1.1	<2.1	<2.2	<1.1	<2.2	<2.2
Phenanthrene	210	2100	<1.0	<1.1	<2.1	<2.2	<1.1	<2.2	<2.2
1-Methylnaphthalene	20	200	<1.0	<1.1	<2.1	<2.2	<1.1	<2.2	<2.2
2-Methylnaphthalene	20	200	<1.0	<1.1	<2.1	<2.2	<1.1	<2.2	<2.2
Naphthalene	20	200	<1.0	<1.1	<2.1	<2.2	<1.1	<2.2	<2.2
VOCs (USEPA Method 8260B) (µg/L)									
Chlorobenzene	100		<1.0	0.33 J	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	1	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	30	300	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Xylenes	20	200	<1.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
FL-PRO (mg/L)									
TRPH	5	50	<1.0	0.23 J	<0.26	<0.27	0.45 J	0.352	0.364

NOTES:

¹GCTL based on Chapter 62-770, FAC.

J = estimated

NS = not sampled

²NADSC as promulgated in Chapter 62-770.690, FAC.

µg/L = micrograms per liter

< = less than

³Duplicate Sample CEF-502-GW-DU01-05 was collected from this well

mg/L = milligrams per liter

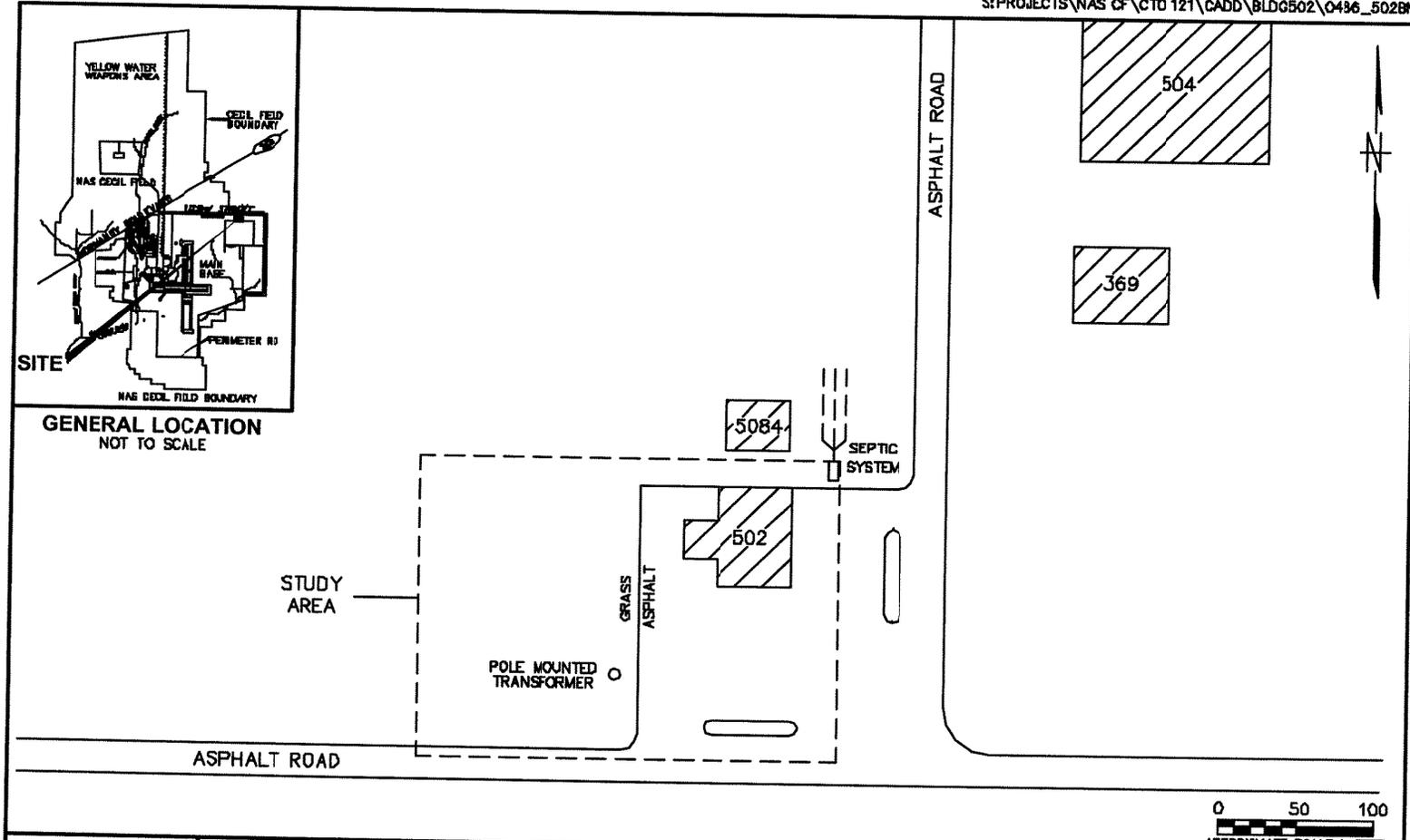
Bold values are above GCTLs.

Table 3
Recommended Milestone Objectives
For Monitoring Well CEF-502-1SR (formerly CEF-502-2S)

Semi-Annual/Annual Groundwater Monitoring Report-December 2002
 Building 502, Tank 502
 Naval Air Station Cecil Field
 Jacksonville, Florida

COCs	Units	End Of				
		Year 1	Year 2	Year 3	Year 4	Year 5
Naphthalene	µg/L	55	45	35	25	<20
1-Methylnaphthalene	µg/L	55	45	35	25	<20
2-Methylnaphthalene	µg/L	74	61	46	31	<20
TRPH	mg/L	20	16	12	8	<5

FIGURES

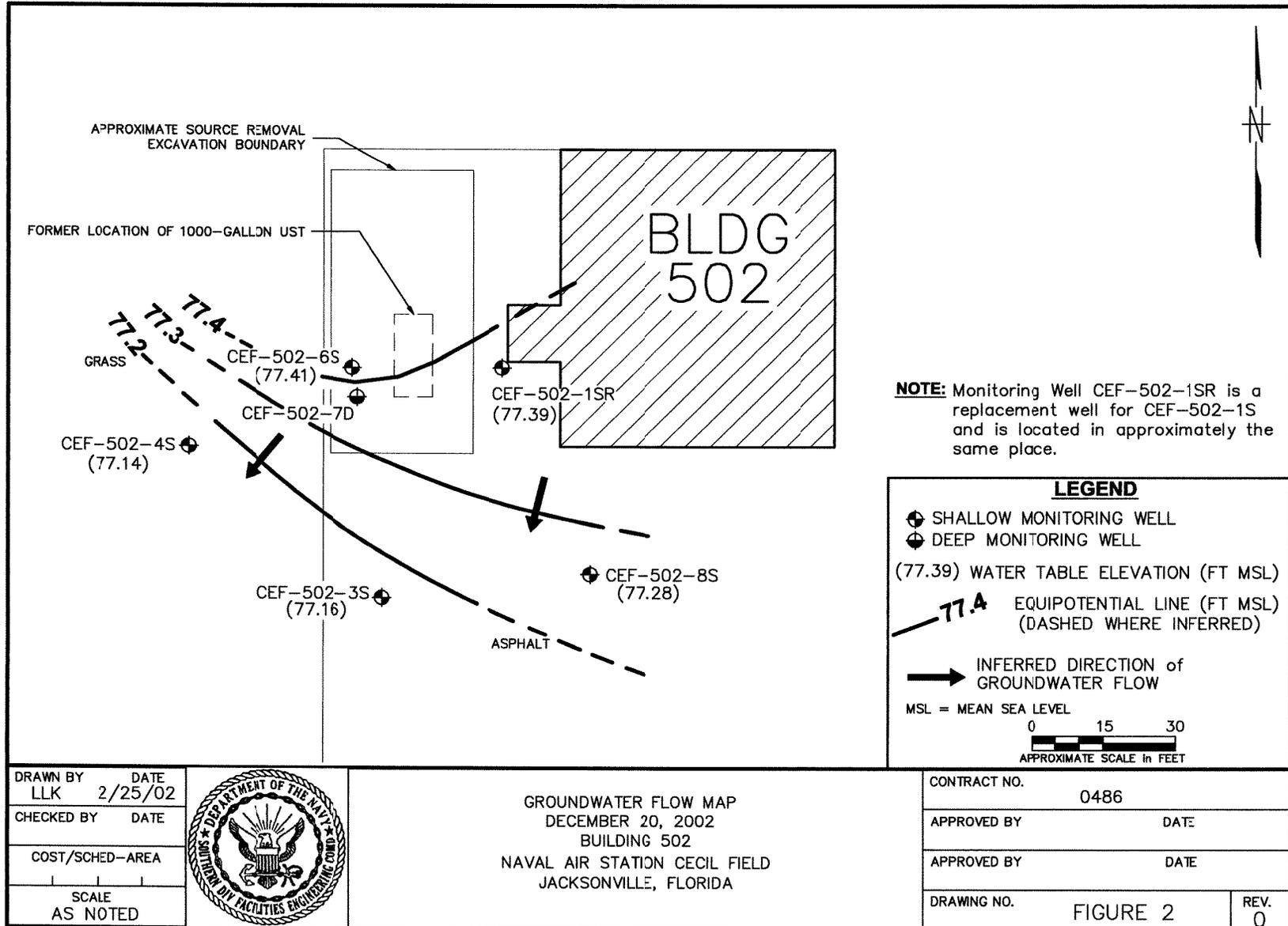


DRAWN BY LLK	DATE 6/13/01
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	

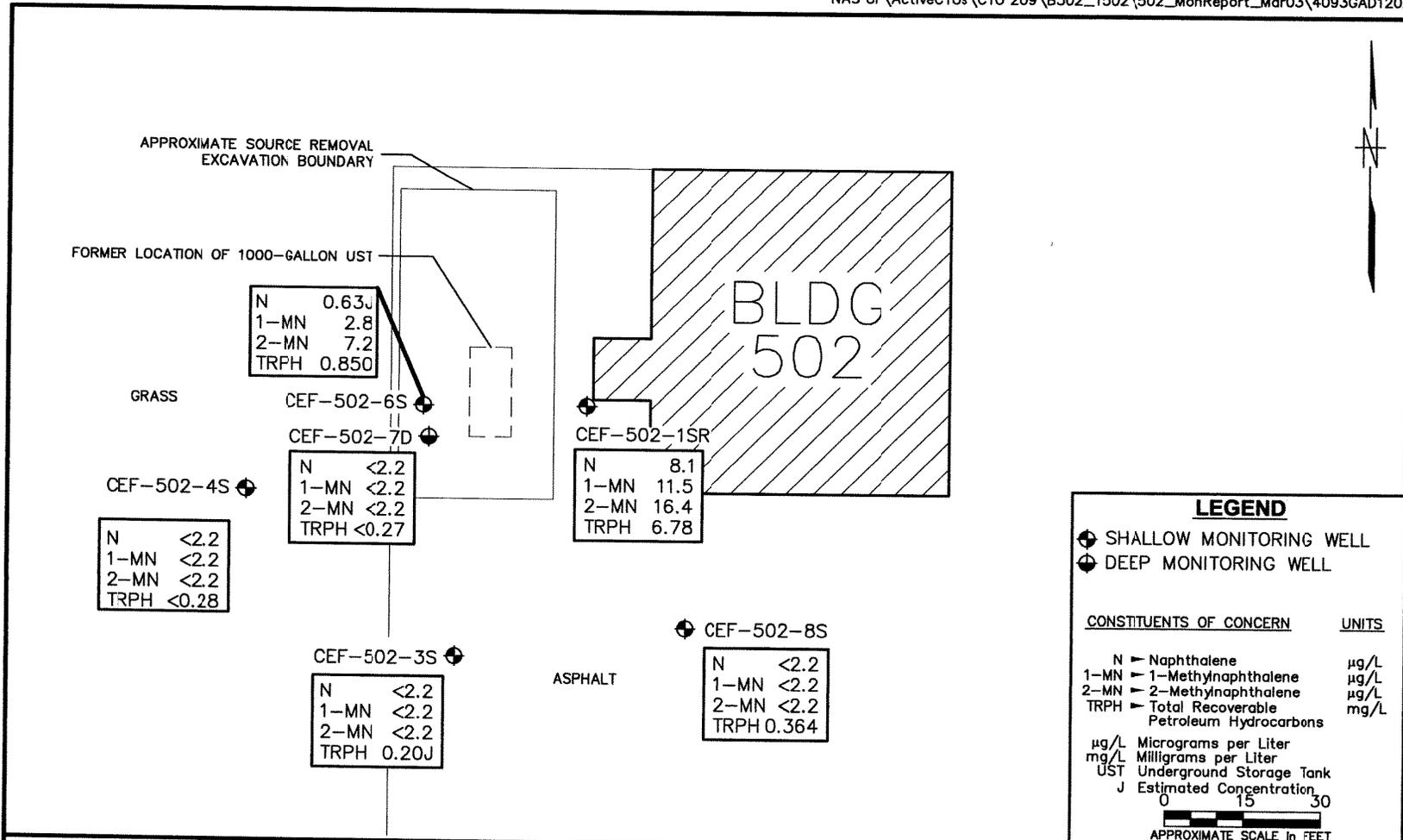


SITE LOCATION MAP
BUILDING 502
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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



NOTE: Monitoring Well CEF-502-1SR is a replacement well for CEF-502-1S and is located in approximately the same place.



DRAWN BY DATE
 LLK 2/25/02

CHECKED BY DATE

COST/SCHED-AREA

SCALE AS NOTED



HYDROCARBON CONCENTRATIONS IN GROUNDWATER
 DECEMBER 20, 2002
 BUILDING 502
 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 NAMPAAO



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

July 13, 1999

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Commanding Officer
Mr. Bryan Kizer, Code 1842
SOUTHNAVFACENGCOM
Post Office Box 190010
North Charleston, SC 29419-9010

RE: Site Assessment Report and Monitoring Only Proposal for
Facility 502, Tank 502, Naval Air Station Cecil Field,
Florida.

Dear Mr. Kizer:

I have reviewed the Site Assessment Report Revision and
Monitoring Only Proposal for Natural Attenuation dated April 1999
(received April 23, 1999), submitted for this site. Based upon
my review and comments, the enclosed Monitoring Only Plan for
Natural Attenuation was signed by Mr. John M. Ruddell, Director
of the Division of Waste Management.

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

Sincerely,

Michael J. Deliz, P.G.
Remedial Project Manager

13-July-99
Date

CC: Debbie Vaughn-Wright, USEPA
John Flowe, City of Jacksonville
Scott Glass, SOUTHNAVFACENGCOM
Dave Kruzicki, NAS Cecil Field
Eric Blomberg, HLA - Tallahassee

TJB JJC JLR ESN RLR EW

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

Mr. Bryan Kizer
Page Two
July 13, 1999

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 62-70.690(7) (F), F.A.C.

Contaminated wells:

CEF-502-1S and CEF-502-2S: 100 µg/l Benzene; 200 µg/l Xylene; 300 µg/l Ethylbenzene; 400 µg/l Toluene; 200 µg/l Naphthalene; and 50 mg/l TRPH.

Perimeter wells:

CEF-502-4S and CEF-502-5D: 1 µg/l Benzene; 20 µg/l Xylene; 30 µg/l Ethylbenzene; 40 µg/l Toluene; 20 µg/l Naphthalene; and 5 mg/l TRPH

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>Benzene</u>	<u>MW-CEF-502-2S</u>
End of year 1	26
End of year 2	13
End of year 3	6
End of year 4	3
End of year 5	<1

<u>Ethylbenzene</u>	<u>MW-CEF-502-2S</u>
End of year 1	60
End of year 2	50
End of year 3	40
End of year 4	30
End of year 5	<30

Mr. Bryan Kizer
Page Three
July 13, 1999

<u>Xylene</u>	<u>MW-CEF-</u> <u>502-2S</u>
End of year 1	150
End of year 2	100
End of year 3	50
End of year 4	20
End of year 5	<20

<u>Naphthalene</u>	<u>MW-CEF-</u> <u>502-2S</u>
End of year 1	150
End of year 2	100
End of year 3	50
End of year 4	20
End of year 5	<20

<u>TRPH</u>	<u>MW-CEF-</u> <u>502-2S</u>
End of year 1	10
End of year 2	8
End of year 3	6
End of year 4	5
End of year 5	<5

If the applicable No Further Action criteria in Rule 62-70.680, F.A.C., are achieved 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 achieved following one year of monitoring, then a report summarizing the monitoring program should be submitted, including a proposal as described in Rule 62-770.690(7)(g).

Persons affected by this Order have the following options:

If you choose to accept the above decision by the Department 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:

ATTACHMENT B

TABLE B-4 FROM HLA JUNE 5, 2000 LETTER REPORT

**Table B-4
Summary of Groundwater Analytical Results**

Building 502, Tank 502
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Source Area Monitoring Wells						Perimeter Monitoring Wells						FL GCTL	Action Levels ¹		1year Milestone Objectives (Source) ¹
	CEF-502-1S		CEF-502-2S		CEF-502-6S		CEF-502-4S		CEF-502-5D		CEF-502-7D			Source	Perimeter	
	Mar-97	Sep-99	Jun-98	Sep-99	Sep-99	Mar-00	Jun-98	Mar-00	Jun-98	Mar-00	Sep-99	Mar-00				
Volatile Organic Aromatics																
Benzene	ND	NS	26	NS	4.8	4.6	ND	1.5	ND	NS	ND	ND	1	100	1	26
Ethylbenzene	19	NS	68	NS	29	29	ND	3.4	ND	NS	ND	ND	30	300	30	60
Toluene	ND	NS	14	NS	ND	3.2	ND	ND	ND	NS	ND	ND	40	400	40	
Xylenes	7.9	NS	180	NS	55	45	ND	ND	ND	NS	ND	ND	20	200	20	150
1,2-Dichlorobenzene	ND	NS	ND	NS	ND	ND	ND	ND	ND	NS	1.1	ND	600			
1,4-Dichlorobenzene	ND	NS	ND	NS	ND	ND	ND	ND	1.3	NS	3.6	2.5	75			
Polynuclear Aromatic Hydrocarbons																
Naphthalene	160	NS	200	NS	70	80	ND	ND	ND	NS	0.8	ND	20	200	20	150
1-Methylnaphthalene	150	NS	200	NS	230	110	1.3	ND	ND	NS	3.4	ND	20			
2-Methylnaphthalene	200	NS	260	NS	200	85	ND	ND	ND	NS	3.2	ND	20			
Anthracene	ND	NS	ND	NS	2	ND	ND	ND	ND	NS	ND	ND				
Fluoranthene	ND	NS	8.3	NS	ND	ND	ND	ND	ND	NS	0.23	ND	280			
Fluorene	ND	NS	ND	NS	11	3.1	ND	ND	ND	NS	ND	ND	280			
Total Recoverable Petroleum Hydrocarbons																
TRPH	7.5	NS	1.3	NS	2.3	1.1	ND	ND	ND	NS	ND	ND	5	50	5	10
Notes:																
VOC and PAH concentrations are in micrograms per liter. TRPH concentrations are in milligrams per liter																
¹ As specified in the Monitoring Only Plan Approval Order (FDEP, July 1999)																
Only detected compounds, and compounds identified as contaminants of concern by FDEP are listed.																
GCTL= groundwater cleanup target level																
ND=not detected																
NS=not sampled (Monitoring wells CEF-502-2S and CEF-502-5D were replaced by monitoring wells CEF-502-6S and CEF-502-7D. Monitoring well CEF-502-4S has very slow recharge)																
Results for current sampling event are shaded																

ATTACHMENT C

GROUNDWATER ANALYTICAL REPORT – DECEMBER 2002

Technical Report for

Tetra Tech, NUS
NAS Cecil Field-N4093
N4093-WR104(SD) CTO-209
Accutest Job Number: F15973

Report to:

Total number of pages in report: 89



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

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK
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Sample Summary

Tetra Tech, NUS

Job No: F15973

NAS Cecil Field-N4093

Project No: N4093-WR104(SD) CTO-209

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F15973-1	12/20/02	10:50 RS	12/21/02	AQ	Ground Water	CEF-502-GW-1SR-05
F15973-2	12/20/02	12:00 RS	12/21/02	AQ	Ground Water	CEF-502-GW-3S-05
F15973-3	12/20/02	15:15 RS	12/21/02	AQ	Ground Water	CEF-502-GW-4S-05
F15973-4	12/20/02	13:10 RS	12/21/02	AQ	Ground Water	CEF-502-GW-6S-05
F15973-5	12/20/02	12:10 RS	12/21/02	AQ	Ground Water	CEF-502-GW-7D-05
F15973-6	12/20/02	10:45 RS	12/21/02	AQ	Ground Water	CEF-502-GW-8S-05
F15973-7	12/20/02	00:00 RS	12/21/02	AQ	Ground Water	CEF-502-GW-DU01-05

Report of Analysis

Client Sample ID:	CEF-502-GW-1SR-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-1	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	EF023090.D	1	01/01/03	CV	n/a	n/a	CEF794
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	3.0	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	123%		74-127%
98-08-8	aaa-Trifluorotoluene	104%		73-135%

(a) All hits confirmed by dual column analysis.

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

Report of Analysis

Client Sample ID: CEF-502-GW-1SR-05	Date Sampled: 12/20/02
Lab Sample ID: F15973-1	Date Received: 12/21/02
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 ^a	EE012338.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

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

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.3	1.1	ug/l	
120-12-7	Anthracene	ND	2.1	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.21	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.21	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.21	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.21	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.21	0.11	ug/l	
218-01-9	Chrysene	ND	2.1	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.21	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.1	0.53	ug/l	
86-73-7	Fluorene	ND	2.1	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.21	0.11	ug/l	
91-20-3	Naphthalene	8.1	2.1	0.53	ug/l	
90-12-0	1-Methylnaphthalene	11.5	2.1	0.53	ug/l	
91-57-6	2-Methylnaphthalene	16.4	2.1	0.53	ug/l	
85-01-8	Phenanthrene	ND	2.1	1.1	ug/l	
129-00-0	Pyrene	ND	2.1	0.53	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		32-142%
92-94-4	p-Terphenyl	73%		30-128%

(a) All hits confirmed by spectral match using a diode array detector.

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

Report of Analysis

Client Sample ID:	CFE-502-GW-1SR-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-1	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO SW846 3510C		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26356.D	5	12/27/02	SKW	12/24/02	OP6642	GOP908
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	6.78	1.3	0.90	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	109%		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

Report of Analysis

Client Sample ID:	CEF-502-GW-3S 05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-2	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF023091.D	1	01/01/03	CV	n/a	n/a	GEF794
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	113%		74-127%
98-08-8	aaa-Trifluorotoluene	96%		73-135%

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

Report of Analysis

Client Sample ID:	CEF-502-GW-3S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-2	Date Received:	12/21/02
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	EE012339.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

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

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.3	1.1	ug/l	
120-12-7	Anthracene	ND	2.2	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	0.11	ug/l	
218-01-9	Chrysene	ND	2.2	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.2	0.54	ug/l	
86-73-7	Fluorene	ND	2.2	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	ND	2.2	0.54	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	0.54	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.54	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.1	ug/l	
129-00-0	Pyrene	ND	2.2	0.54	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		32-142%
92-94-4	p-Terphenyl	84%		30-128%

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

Report of Analysis

Client Sample ID:	CEF-502-GW-3S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-2	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO SW846 3510C		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26357.D	1	12/27/02	SKW	12/24/02	OP6642	GOP908
Run #2							

Run #	Initial Volume	Final Volume
Run #1	900 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	0.200	0.28	0.19	mg/l	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	85%		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

Report of Analysis

Client Sample ID: CEF-502-GW-4S-05	Date Sampled: 12/20/02
Lab Sample ID: F15973-3	Date Received: 12/21/02
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF023092.D	1	01/01/03	CV	n/a	n/a	GEF794
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	111%		74-127%
98-08-8	aaa-Trifluorotoluene	94%		73-135%

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

Report of Analysis

Client Sample ID: CEF-502-GW-4S-05	Date Sampled: 12/20/02
Lab Sample ID: F15973-3	Date Received: 12/21/02
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	EE012341.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

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

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.3	1.1	ug/l	
120-12-7	Anthracene	ND	2.2	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	0.11	ug/l	
218-01-9	Chrysene	ND	2.2	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.2	0.54	ug/l	
86-73-7	Fluorene	ND	2.2	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	ND	2.2	0.54	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	0.54	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.54	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.1	ug/l	
129-00-0	Pyrene	ND	2.2	0.54	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		32-142%
92-94-4	p-Terphenyl	63%		30-128%

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

Report of Analysis

Client Sample ID: CEF-502-GW-4S-05 Lab Sample ID: F15973-3 Matrix: AQ - Ground Water Method: FLORIDA-PRO SW846 3510C Project: NAS Cecil Field-N4093	Date Sampled: 12/20/02 Date Received: 12/21/02 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26339.D	1	12/26/02	SKW	12/24/02	OP6642	GOP907
Run #2							

Run #	Initial Volume	Final Volume
Run #1	880 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	ND	0.28	0.19	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		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

Report of Analysis

Client Sample ID:	CEF-502-GW-6S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-4	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	EF023093.D	1	01/01/03	CV	n/a	n/a	GEF794
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	0.72	1.0	0.50	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	115%		74-127%
98-08-8	aaa-Trifluorotoluene	100%		73-135%

(a) All hits confirmed by dual column analysis.

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

Report of Analysis

Client Sample ID:	CEF-502-GW-6S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-4	Date Received:	12/21/02
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 ^a	FE012342.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

Run #	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.2	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.2	1.1	ug/l	
120-12-7	Anthracene	ND	2.1	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.21	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.21	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.21	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.21	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.21	0.11	ug/l	
218-01-9	Chrysene	ND	2.1	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.21	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.1	0.53	ug/l	
86-73-7	Fluorene	ND	2.1	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.21	0.11	ug/l	
91-20-3	Naphthalene	0.63	2.1	0.53	ug/l	J
90-12-0	1-Methylnaphthalene	2.8	2.1	0.53	ug/l	
91-57-6	2-Methylnaphthalene	7.2	2.1	0.53	ug/l	
85-01-8	Phenanthrene	ND	2.1	1.1	ug/l	
129-00-0	Pyrene	ND	2.1	0.53	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		32-142%
92-94-4	p-Terphenyl	64%		30-128%

(a) All hits confirmed by spectral match using a diode array detector.

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

Report of Analysis

Client Sample ID:	CEF-502-GW-6S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-4	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO SW846 3510C		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26340.D	1	12/26/02	SKW	12/24/02	OP6642	GOP907
Run #2							

Run #	Initial Volume	Final Volume
Run #1	890 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	0.850	0.28	0.19	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	92%		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

Report of Analysis

Client Sample ID: CEF-502-GW-7D-05	Date Sampled: 12/20/02
Lab Sample ID: F15973-5	Date Received: 12/21/02
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8021B	
Project: NAS Cecil Field-N4093	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF023094.D	1	01/01/03	CV	n/a	n/a	GEF794
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	119%		74-127%
98-08-8	aaa-Trifluorotoluene	96%		73-135%

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

Report of Analysis

Client Sample ID: CEF-502-GW-7D-05	Date Sampled: 12/20/02
Lab Sample ID: F15973-5	Date Received: 12/21/02
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	EE012343.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

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

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.3	1.1	ug/l	
120-12-7	Anthracene	ND	2.2	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	0.11	ug/l	
218-01-9	Chrysene	ND	2.2	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.2	0.54	ug/l	
86-73-7	Fluorene	ND	2.2	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	ND	2.2	0.54	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	0.54	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.54	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.1	ug/l	
129-00-0	Pyrene	ND	2.2	0.54	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		32-142%
92-94-4	p-Terphenyl	60%		30-128%

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

Report of Analysis

Client Sample ID: CEF-502-GW-7D-05		Date Sampled: 12/20/02
Lab Sample ID: F15973-5		Date Received: 12/21/02
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: FLORIDA-PRO SW846 3510C		
Project: NAS Cecil Field-N4093		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26342.D	1	12/26/02	SKW	12/24/02	OP6642	GOP907
Run #2							

	Initial Volume	Final Volume
Run #1	910 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units Q
	TPH (C8-C40)	ND	0.27	0.19	mg/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	94%		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

Report of Analysis

Client Sample ID:	CEF-502 CW-8S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-6	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF023095.D	1	01/01/03	CV	n/a	n/a	GEF794
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	114%		74-127%
98-08-8	aaa-Trifluorotoluene	95%		73-135%

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

Report of Analysis

Client Sample ID:	CEF-502-GW-8S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-6	Date Received:	12/21/02
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	EE012344.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

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

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.3	1.1	ug/l	
120-12-7	Anthracene	ND	2.2	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	0.11	ug/l	
218-01-9	Chrysene	ND	2.2	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.2	0.54	ug/l	
86-73-7	Fluorene	ND	2.2	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	ND	2.2	0.54	ug/l	
90-12-0	1-Methylnaphthalene	ND	2.2	0.54	ug/l	
91-57-6	2-Methylnaphthalene	ND	2.2	0.54	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.1	ug/l	
129-00-0	Pyrene	ND	2.2	0.54	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		32-142%
92-94-4	p-Terphenyl	84%		30-128%

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

Report of Analysis

Client Sample ID:	CEF-502-CW 8S-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-6	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO SW846 3510C		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26343.D	1	12/26/02	SKW	12/24/02	OP6642	GOP907
Run #2							

Run #	Initial Volume	Final Volume
Run #1	850 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	0.364	0.29	0.20	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	89%		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

Report of Analysis

Client Sample ID:	CEF-502-CW-DU01-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-7	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	NAS Cecil Field-N4093		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	EF023145.D	1	01/03/03	CV	n/a	n/a	GEF796
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgable Aromatics, Full List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
100-41-4	Ethylbenzene	2.9	1.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
1330-20-7	Xylenes (total)	ND	3.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
352-33-0	1-Chloro-4-fluorobenzene	125%		74-127%
98-08-8	aaa-Trifluorotoluene	105%		73-135%

(a) All hits confirmed by dual column analysis.

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

Report of Analysis

Client Sample ID:	CEF-502-GW-DU01-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-7	Date Received:	12/21/02
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 ^a	EE012347.D	1	12/31/02	MRE	12/26/02	OP6649	GEE536
Run #2							

Run #	Initial Volume	Final Volume
Run #1	900 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.4	1.1	ug/l	
208-96-8	Acenaphthylene	ND	4.4	1.1	ug/l	
120-12-7	Anthracene	ND	2.2	1.1	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.22	0.11	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.22	0.11	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.22	0.11	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.22	0.11	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.22	0.11	ug/l	
218-01-9	Chrysene	ND	2.2	1.1	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.22	0.11	ug/l	
206-44-0	Fluoranthene	ND	2.2	0.56	ug/l	
86-73-7	Fluorene	ND	2.2	1.1	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.22	0.11	ug/l	
91-20-3	Naphthalene	7.0	2.2	0.56	ug/l	
90-12-0	1-Methylnaphthalene	9.1	2.2	0.56	ug/l	
91-57-6	2-Methylnaphthalene	9.0	2.2	0.56	ug/l	
85-01-8	Phenanthrene	ND	2.2	1.1	ug/l	
129-00-0	Pyrene	ND	2.2	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	74%		32-142%
92-94-4	p-Terphenyl	75%		30-128%

(a) All hits confirmed by spectral match using a diode array detector.

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

Report of Analysis

Client Sample ID:	CEF-502-GW-DU01-05	Date Sampled:	12/20/02
Lab Sample ID:	F15973-7	Date Received:	12/21/02
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	FLORIDA-PRO SW846 3510C		
Project:	NAS Cecil Field-N4093		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OP26358.D	5	12/27/02	SKW	12/24/02	OP6642	GOP908
Run #2							

	Initial Volume	Final Volume
Run #1	900 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C8-C40)	6.49	1.4	0.94	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	94%		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



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER 0386

PAGE 1 OF 1

PROJECT NO: N4093		FACILITY: B. 502, T. 502 NASCF		PROJECT MANAGER: P. Calligan		PHONE NUMBER: 813 806 0702		LABORATORY NAME AND CONTACT: ACCUTEST Sue Bell				
SAMPLERS (SIGNATURE): <i>[Signature]</i>		FIELD OPERATIONS LEADER: MERY DACE		PHONE NUMBER: 904 636 6125		ADDRESS: 4405 Vineland Rd		CITY, STATE: ORLANDO, FL 32811				
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day		CARRIER/WAYBILL NUMBER: CLUWIKV		CONTAINER TYPE: PLASTIC (P) or GLASS (G) G G G		PRESERVATIVE USED: HEP Nitro H2SO4		TYPE OF ANALYSIS WCs SW 746 102 15* PAHS SW 846 8210 TRPA FL-PRO				
DATE YEAR: 2002		LOCATION ID: F15973		MATRIX (GW, SO, SW, SD, QC, ETC.):		COLLECTION METHOD: GRAP (G) COMP (C)						No. OF CONTAINERS:
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD (GRAP (G) COMP (C))	No. OF CONTAINERS	TYPE OF ANALYSIS		COMMENTS	
1	12/20 1050	CEF-502-1SR-05	CEF			GW			3	2	2	Cool to 4°C
2	12/20 1200	CEF-502-3S-05	CEF			GW			3	2	2	N4093-WR 104 (SD)
3	12/20 1315	CEF-502-GW-4S-05	CEF			GW			3	2	2	
4	12/20 1310	CEF-502-GW-6S-05	CEF			GW			3	2	2	
5	12/20 1210	CEF-502-GW-7D-05	CEF			GW			3	2	2	
6	12/20 1015	CEF-502-GW-8S-05	CEF			GW			3	2	2	* Report only EPA 602 compounds.
7	12/20 0900	CEF-502-GW-DU-01-05	CEF			GW			3	2	2	
8	12/20 1015	CEF-502-GW-MD01-05	CEF			GW			6	4	4	
1. RELINQUISHED BY: <i>[Signature]</i>				DATE: 12/20/02	TIME: 10:25	1. RECEIVED BY: <i>[Signature]</i>				DATE: 12/20/02	TIME: 16:45	
2. RELINQUISHED BY: <i>[Signature]</i>				DATE: 12/21/02	TIME: 6:30 AM	2. RECEIVED BY: <i>[Signature]</i>				DATE: 12/21/02	TIME: 09:00	
3. RELINQUISHED BY:				DATE:	TIME:	3. RECEIVED BY:				DATE:	TIME:	
COMMENTS												