N60200.AR.001988
NAS CECIL FIELD, FL
5090.3a

"SITE ASSESSMENT REPORT FOR BUILDING 190 TANKS G190A, 190RI AND 190U BASE REALIGNMENT AND CLOSURE UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES NAS CECIL FIELD FL"
7/1/1999
HARDING LAWSON ASSOCIATES

SITE ASSESSMENT REPORT

BUILDING 190, TANKS G190A, 190RI, AND 190U

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/090

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July 1999

Revision 1.0

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/090 are complete and accurate and comply with all requirements of this contract.

DATE: July 30, 1999

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric A. Blomberg, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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Naval Air Station Cecil Field
Jacksonville, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AST	aboveground storage tank
bls	below land surface
CSR	confirmatory sampling report
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
KAG	Kerosene Analytical Group
OVA	organic vapor analyzer
SA	site assessment
TRPH	total recoverable petroleum hydrocarbons
UST	underground storage tank

1.0 INTRODUCTION

Harding Lawson Associates (HLA), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the site assessment (SA) for Tanks G190A, 190RI, and 190U at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the SA.

Tank G190A is an aboveground storage tank (AST) located at Building 190, which was constructed as the Message Center and Telex Exchange for the Base (Figure 1). The AST, which was installed in 1991, has a 1,500-gallon capacity and is used to store diesel fuel for an emergency generator (ABB Environmental Services, Inc. [ABB-ES], 1997). Records indicate that the AST replaced Tank 190U, a 5,000-gallon diesel fuel underground storage tank (UST), but no tank closure information is available for the UST. Tank 190RI, a 1,000-gallon fuel oil UST, was located west of Tank G190A before it was removed in 1995 (Figure 2). A Contamination Assessment Plan for the assessment of soil and groundwater at Tank G190A was prepared by HLA (then ABB-ES) in November 1996 (ABB-ES, 1996). Results of the contamination assessment for Tank G190A are presented in the Confirmatory Sampling Report (CSR), which recommended that an additional SA be conducted to delineate the extent of excessively contaminated soil (ABB-ES, 1998).

2.0 FIELD INVESTIGATION

The SA for Tanks G190A and 190RI was initiated in October 1997 and included

- the advancement of twenty soil borings to the water table,
- collection and analysis of four subsurface soil samples, and
- the installation of one monitoring well.

Soil samples were collected from each boring at depth intervals of 1 foot below land surface (bls) and every 2 feet thereafter to the water table. These samples were screened for hydrocarbon vapors with an organic vapor analyzer (OVA).

Four subsurface soil samples were collected in May and September 1998 and May 1999 at soil boring locations with varying levels of contamination and analyzed for the Kerosene Analytical Group (KAG) parameters. Samples CEF-190-SB3 and CEF-190-SB5 were collected from 3 to 4 feet bls. Sample location CEF-190-SB5 was resampled in May 1999 for TRPH and SPLP analysis. A general site plan indicating the location of the soil borings is presented on Figure 2.

One monitoring well, CEF-190-2S was installed in the source area and sampled for the KAG parameters. Two other monitoring wells CEF-190-1S (BRAC) and CEF-190-1S (UST) were previously installed and still present at the site. Monitoring well locations are presented in Figure 2 and construction details are located in Appendix B.

Groundwater flow direction is to the west. Groundwater elevation contours are presented in Figure 2.

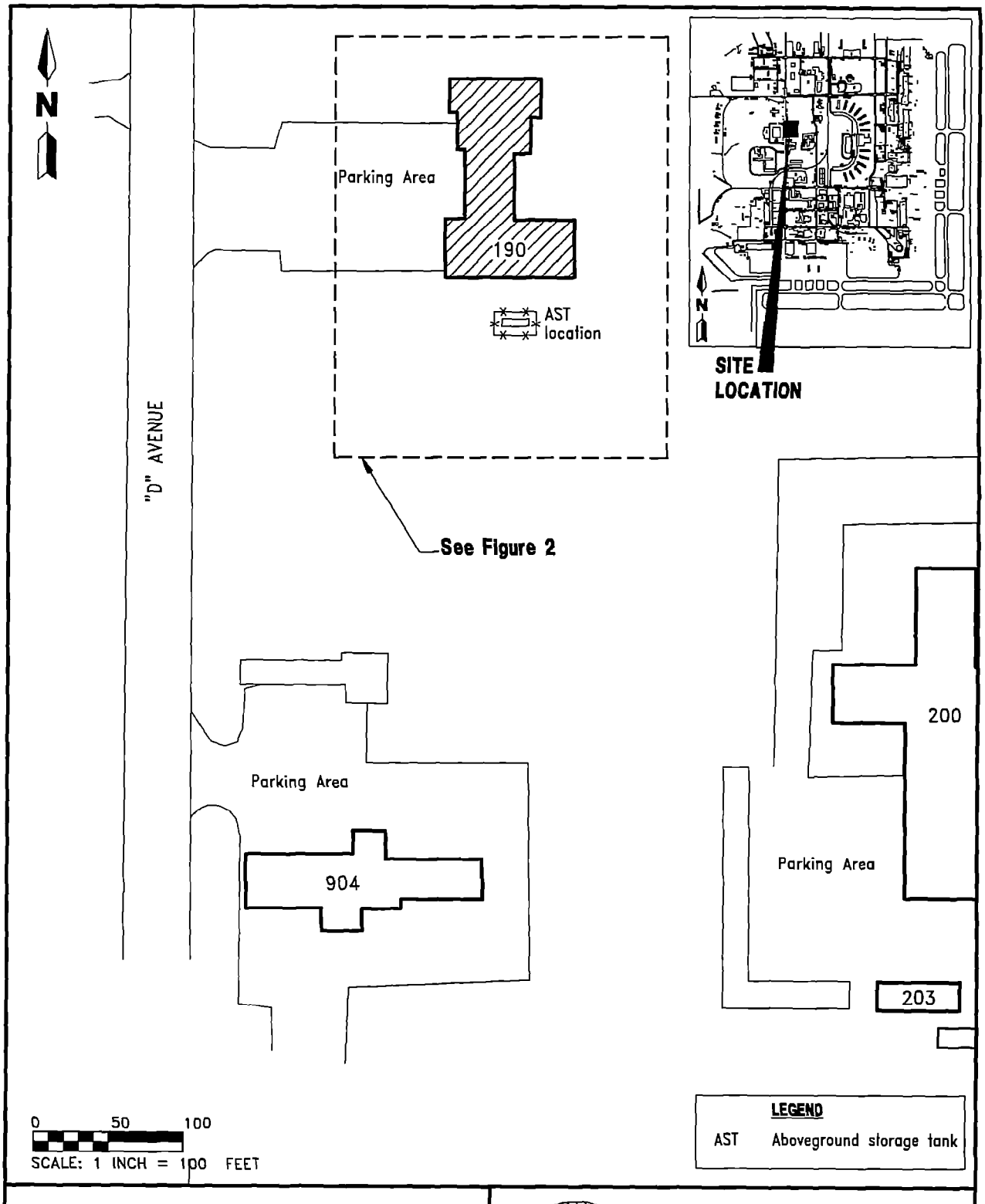

FIGURE 1
TELEPHONE SERVICE BUILDING

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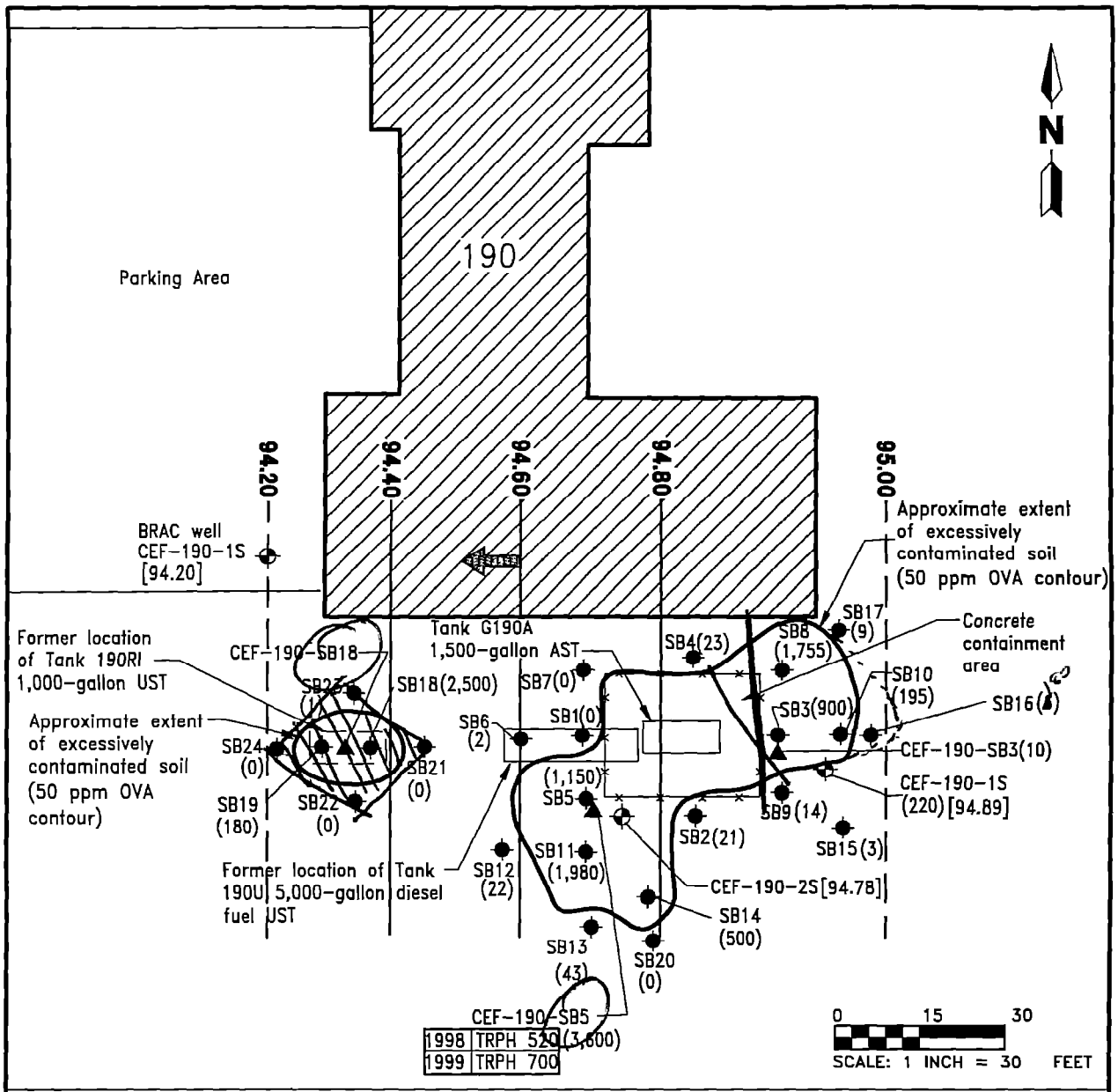
SITE ASSESSMENT REPORT
BUILDING 190, TANK G190A,
190 RI, AND 190 U

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA



LEGEND

CEF-190-1S	Monitoring well location and designation	1998 TRPH 520	Year, compound and concentration in mg/kg of KAG parameters which exceed cleanup target levels.
SB1	Soil boring location and designation	94.20	Groundwater elevation contour (dashed where inferred)
CEF-190-SB5	Confirmatory KAG soil sample location and designation	[94.78]	Groundwater elevation in relation to arbitrary 100-foot reference
	Groundwater flow direction		

(0)	OVA reading in ppm
AST	Aboveground storage tank
UST	Underground storage tank
OVA	Organic vapor analyzer
ppm	parts per million
KAG	Kerosene Analytical Group
mg/kg	Milligrams per kilogram
TRPH	Total recoverable petroleum hydrocarbons

FIGURE 2
SOIL BORING AND MONITORING WELL LOCATIONS

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SITE ASSESSMENT REPORT
BUILDING 190, TANK G190A, 190RI, AND 190U

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil (greater than 50 parts per million on an OVA) was detected in seven soil borings advanced during the SA. The extent of excessively contaminated soil is presented on Figure 2. The soil OVA data are summarized in Table 1.

Total recoverable petroleum hydrocarbons (TRPH) and benzo(a)pyrene were the only contaminants detected above Florida Department of Environmental Protection (FDEP) soil cleanup target levels in the subsurface soil samples collected for KAG analysis. Soil boring sample location CEF-190-SB5 was resampled in May 1999 for TRPH and the results indicated that TRPH was still present at a concentration above cleanup target levels. TRPH was not detected during the SPLP analysis of the soil sample CEF-190-SB5. Subsurface soil analytical results are summarized in Table 2 and presented in Appendix B.

No contaminants were detected above regulatory criteria in groundwater samples collected from the temporary monitoring well for Tank 190RI and monitoring wells CEF-190-1S (BRAC), CEF-190-1S and CEF-190-2S. Monitoring well CEF-190-2S was resampled for USEPA Method 602 due to evaluated detection levels. No contaminants were detected in this sample. Groundwater analytical results are summarized in Table 3 and presented in Appendix B.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Groundwater flow direction at Building 190 has been inferred to be to the east.

Data obtained during the SA at the Tanks G190A, 190RI, and 190U sites provided an adequate assessment of the horizontal and vertical extent of excessively contaminated soil. TRPH and benzo(a)pyrene were the only KAG parameters detected in subsurface soil that exceeded FDEP cleanup target levels.

Although TRPH was detected at concentrations above the cleanup target level in subsurface soil sample CEF-190-SB5, TRPH was not detected in the SPLP analysis of the same soil sample. No contaminants were detected above cleanup target levels in the groundwater samples collected from site monitoring wells. Therefore, it is recommended that no further action take place at the Tanks G190A, 190RI, and 190U site.

Table 1
Soil Screening Results

Site Assessment Report
Building 190, Tanks G190A, 190RI, and 190U
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB1	1	0	–	0
	3	0	–	0
	5 (wet)	310	0	310
SB2	1	0	–	0
	3	21	0	21
	5 (wet)	12	0	12
SB3	1	0	–	0
	3	900	0	900
	5 (wet)	240	0	240
SB4	1	0	–	0
	3	0	–	0
	5 (moist)	23	0	23
CEF-190-1S	1	0	–	0
	3	220	0	220
	5 (wet)	350	0	350
	11 (wet)	50	0	50
SB5	1	80	0	80
	3	1,200	50	1,150
	4.5 (wet)	>5,000	0	>5,000
SB6	1	0	–	0
	3	2	0	2
	3.5 (refusal)	–	–	–
SB7	1	0	–	0
	3	0	–	0
	5 (wet)	0	–	0
SB8	1	1,800	45	1,755
	3	0	–	0
	5 (wet)	60	0	60
SB9	1	0	–	50
	3	0	–	0
	4.5 (wet)	14	0	14
SB10	1	4	–	4
	3	210	15	195
	4.5 (wet)	480	440	40

See notes at end of table.

Table 1 (Continued)
Soil Screening Results

Site Assessment Report
Building 190, Tanks G190A, 190RI, and 190U
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB11	1	32	0	32
	3	2,000	20	1,980
	4.5 (wet)	500	28	472
SB12	1	22	–	22
	3	0	–	0
SB13	1	7	–	7
	3	43	–	43
SB14	1	3	–	3
	3	500	0	500
SB15	1	0	–	0
	3	3	–	3
SB16	1	6	–	6
	2.5	180	0	180
SB17	1	0	–	0
	3	9	–	9
SB18	1	36	–	36
	3	2,500	0	2,500
SB19	1	180	0	180
	3	60	0	60
SB20	1	0	–	0
	3	0	–	0
SB21	1	0	–	0
	3	0	–	0
SB22	1	0	–	0
	3	2	–	2

Notes: Soil samples were collected in February 1997, October 1997, and September 1998.
Soil samples were filtered with carbon to determine the methane concentration.

OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
– = readings were not collected.
wet = soil sample was completely saturated when analyzed.
moist = soil sample was partially saturated when analyzed.
refusal = subsurface obstruction encountered.

Table 2
Summary of Subsurface Soil Analytical Detections

Site Assessment Report
Building 190, Tanks G190A, 190RI, and 190U
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Soil Boring Sample Identification, Sample Depth, and OVA Concentration			Soil Cleanup Target Levels[1]
	CEF-190-SB3 (3 to 4 feet bls; OVA = 10 ppm)	CEF-190-SB5 (3 to 4 feet bls; OVA = 3,600 ppm)	CEF-190-SB18 (3 feet bls; OVA = 2,500 ppm)	
Volatile Organic Aromatics (USEPA Method 8020) (mg/kg)				
Xylenes	ND	0.017	ND	290/0.3
Polynuclear Aromatic Hydrocarbons (USEPA Method 8310) (mg/kg)				
Benzo(a)anthracene	ND	0.110	0.570	1.4/2.9
Benzo(a)pyrene	ND	**0.150**	**0.220**	0.1/7.8
Benzo(b)fluoranthene	ND	0.130	0.410	1.4/9.8
Benzo(g,h,i)perylene	ND	0.085	ND	2,300/13,000
Benzo(k)fluoranthene	ND	0.052	0.034	15/25
Chrysene	ND	ND	0.360	140/80
Dibenz(a,h)anthracene	ND	0.066	0.035	0.1/14
Fluoranthene	ND	0.220	0.870	2,800/550
Indeno(1,2,3-cd)pyrene	ND	0.070	0.058	1.5/28
Phenanthrene	ND	ND	0.180	1,900/120
Pyrene	ND	0.410	ND	2,200/570
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/kg)				
TRPH	ND	**520/[2]700**	110	350/340

[1] Chapter 62-770, Florida Administrative Code: Direct Exposure, Table I/Leachability, Table V.
[2] Sample location CEF-190-SB5 was resampled in May 1999 for TRPH.

Notes: Soil samples were collected on May 28 and September 14, 1998.
Bold indicates that the concentration exceeds Chapter 62-770, Florida Administrative Code, cleanup target level.

OVA = organic vapor analyzer.
bls = below land surface.
ppm = parts per million.
USEPA = U.S. Environmental Protection Agency.
mg/kg = milligrams per kilogram.
ND = not detected.
FL-PRO = Florida-Petroleum Residual Organics.

Table 3
Summary of Groundwater Analytical Detections

Site Assessment Report
Building 190, Tanks G190A, 190RI, and 190U
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Temporary Well for Tank 190RI	BRAC Well CEF-190-1S	UST Well CEF-190-1S	CEF-190-2S	CEF-190-SB5 SPLP for TRPH	Groundwater Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 601/602) (μg/ℓ)						
Methylene chloride	ND	ND	2	ND	NA	NA
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (μg/ℓ)						
Fluorene	ND	ND	ND	0.2	NA	280
Total Recoverable Petroleum Hydrocarbons (FL-PRO) (mg/ℓ)						
TRPH	ND	ND	ND	ND	ND	5

[1] Chapter 62-770, Florida Administrative Code.

Notes: USEPA = U.S. Environmental Protection Agency.
μg/ℓ = micrograms per liter.
FL-PRO = Florida Petroleum Residual Organic.
ND = not detected.
NA = not applicable.

5.0 PROFESSIONAL REVIEW CERTIFICATION

The SA contained in this report was prepared using sound hydrogeologic principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This SA report was developed for the Building 190 site at NAS Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

Eric A. Blomberg
Professional Geologist
P.G. No. 0001695

7-29-99
Date

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1996. *Contamination Assessment Plan, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), North Charleston, South Carolina (November).

ABB-ES. 1997. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).

ABB-ES. 1998. *Confirmatory Sampling Report, Building 190, Tank G190A, Base Realignment and Closure, Underground Storage Tank and Aboveground Storage Tank Grey Sites, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (April).

APPENDIX A

MONITORING WELL INSTALLATION DETAIL

TITLE: NAS Cecil Field BRAC		LOG of WELL: CEF-190-1S	BORING NO. CEF-190-1S
CLIENT: SOUTHDIVNAVFACENGCOM			PROJECT NO: 02523-28
CONTRACTOR: Custom Drilling		DATE STARTED: 12-3-97	COMPLTD: 12-3-97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 2-12	PROTECTION LEVEL: .010 in.
TOC ELEV.: FEET.	MONITOR INST.: PID	TOT DPTH: 12 FEET.	DPTH TO ▽ 3 FEET.
LOGGED BY: R. Holloway	WELL DEVELOPMENT DATE:		SITE: Facility 190

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	SILTY SAND: quartz, dark yellowish brown to very dark gray, fine- to very fine-grained, sub-angular to sub-rounded, wet at 3' bls.		SM	posthole	
				0				posthole	▽
5				0				6,8,11,9	
				0				7,5,5,6	
				0				7,11,11,12	
10				0				11,12,9,8	
					TD = 12' bls				
15									

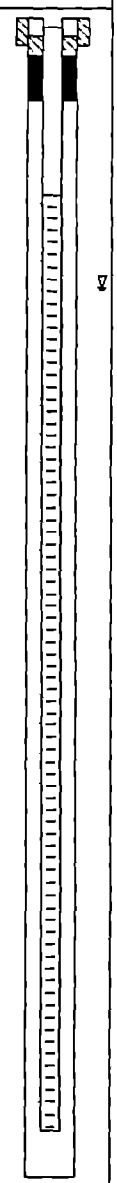
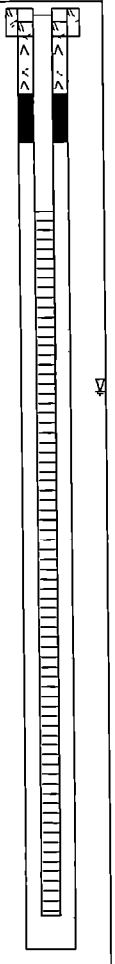


 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Cecil Field, Bldg. 190 Site Assessment Report	LOG of WELL: CEF-190-2S	BORING NO. CEF-190-2S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 02523-12
CONTRACTOR: Groundwater Protection Services	DATE STARTED: 05-11-99	COMPLTD: 05-11-99
METHOD: HSA	CASE SIZE: 2in.	SCREEN INT.: 3-13 ft	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 13.5FT.	DPTH TO ▽ 5.60 FT.
LOGGED BY: H.Hooper	WELL DEVELOPMENT DATE: 05-12-99	SITE: Building 190

DEPTH FT	LABORATORY SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					<> See Note		SM	posthole	
1									
2									
3				0					
4				0	SILTY SAND- dark brown silty fine sand.			posthole	
5									
6				0				* **	
7									
8				20	SILTY SAND- dark brown silty fine sand				
9									
10									
11				10	<> Soil description taken from posthole and auger				
					* no split spoon samples taken				
12					** OVA readings taken at borehole				
13									
14									
15									
16									
17									
18									
19									
20									



HARDING LAWSON ASSOCIATES

APPENDIX B

ANALYTICAL DATA

NAS Cecil Field - Tank G190 Site Assessment Report - Ground Water

Sample Identifier	CEF-190-2S	CEF-190-2S	CEF1901S
Sample Collect Date	6/24/99	5/20/99	3/26/97
Analyte			
BRAC Semivolatiles			
1,2-Dichlorobenzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
1,3-Dichlorobenzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
1,4-Dichlorobenzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
2-Methylnaphthalene	--	1. U ug/l (1.)	2. U ug/l (2.)
Acenaphthene	--	0.5 U ug/l (0.5)	2. U ug/l (2.)
Acenaphthylene	--	1. U ug/l (1.)	2. U ug/l (2.)
Anthracene	--	0.05 U ug/l (0.05)	2. U ug/l (2.)
Benzo (a) Anthracene	--	--	0.1 U ug/l (0.1)
Benzo (a) Pyrene	--	0.05 U ug/l (0.05)	0.1 U ug/l (0.1)
Benzo (b) Fluoranthene	--	0.1 U ug/l (0.1)	0.1 U ug/l (0.1)
Benzo (g,h,i) Perylene	--	0.1 U ug/l (0.1)	0.2 U ug/l (0.2)
Benzo (k) Fluoranthene	--	0.05 U ug/l (0.05)	0.15 U ug/l (0.15)
Chrysene	--	0.05 U ug/l (0.05)	0.1 U ug/l (0.1)
Dibenzo (a,h) anthracene	--	0.1 U ug/l (0.1)	0.2 U ug/l (0.2)
Fluoranthene	--	0.1 U ug/l (0.1)	0.2 U ug/l (0.2)
Fluorene	--	0.2 ug/l (0.1)	2. U ug/l (2.)
Indeno (1,2,3-cd) pyrene	--	0.05 U ug/l (0.05)	0.1 U ug/l (0.1)
Naphthalene	--	0.5 U ug/l (0.5)	2. U ug/l (2.)
Phenanthrene	--	1. U ug/l (1.)	2. U ug/l (2.)
Pyrene	--	0.05 U ug/l (0.05)	0.2 U ug/l (0.2)
BRAC Volatiles			
1,1,1-Trichloroethane	--	50. U ug/l (50.)	1. U ug/l (1.)
1,1,2,2-Tetrachloroethane	--	50. U ug/l (50.)	1. U ug/l (1.)
1,1,2-Trichloroethane	--	50. U ug/l (50.)	1. U ug/l (1.)
1,1-Dichloroethane	--	50. U ug/l (50.)	1. U ug/l (1.)
1,1-Dichloroethene	--	50. U ug/l (50.)	1. U ug/l (1.)
1,2-Dichloroethane	--	50. U ug/l (50.)	1. U ug/l (1.)

Sample Identifier	CEF-190-2S	CEF-190-2S	CEF1901S
Sample Collect Date	6/24/99	5/20/99	3/26/97
Analyte			
1,2-Dichloropropane	--	50. U ug/l (50.)	1. U ug/l (1.)
Benzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
Bromodichloromethane	--	50. U ug/l (50.)	1. U ug/l (1.)
Bromoform	--	50. U ug/l (50.)	1. U ug/l (1.)
Bromomethane	--	50. U ug/l (50.)	1. U ug/l (1.)
Carbon tetrachloride	--	50. U ug/l (50.)	1. U ug/l (1.)
Chlorobenzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
Chloroethane	--	100. U ug/l (100.)	1. U ug/l (1.)
Chloroform	--	50. U ug/l (50.)	1. U ug/l (1.)
Chloromethane	--	100. U ug/l (100.)	1. U ug/l (1.)
cis 1,3-Dichloropropene	--	50. U ug/l (50.)	1. U ug/l (1.)
Dibromochloromethane	--	50. U ug/l (50.)	1. U ug/l (1.)
Ethylbenzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
m,p-Xylene	2. U ug/L (2.)	50. U ug/l (50.)	--
Methylene chloride	--	100. U ug/l (100.)	2. ug/l (1.)
o-Xylene	1. U ug/L (1.)	50. U ug/l (50.)	--
Tetrachloroethene	--	50. U ug/l (50.)	1. U ug/l (1.)
Toluene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
trans 1,2-Dichloroethene	--	50. U ug/l (50.)	1. U ug/l (1.)
trans 1,3-Dichloropropene	--	50. U ug/l (50.)	1. U ug/l (1.)
Trichloroethene	--	50. U ug/l (50.)	1. U ug/l (1.)
Vinyl chloride	--	50. U ug/l (50.)	1. U ug/l (1.)

BTEX and Petroleum Hydrocarbons

Benzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
Ethylbenzene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
m,p-Xylene	2. U ug/L (2.)	50. U ug/l (50.)	--
Methyl tert-butyl ether	2. U ug/L (2.)	100. U ug/l (100.)	1. U ug/l (1.)
Toluene	1. U ug/L (1.)	50. U ug/l (50.)	1. U ug/l (1.)
Total Petroleum Hydrocarbons	--	--	0.5 U mg/l (0.5)
Xylenes (total)	--	--	1. U ug/l (1.)

Sample Identifier	CEF-190-2S	CEF-190-2S	CEF1901S
Sample Collect Date	6/24/99	5/20/99	3/26/97
Analyte			
Metals			
Lead	--	--	5. U ug/l (5.)
PAHs			
1-Methylnaphthalene	--	1. U ug/l (1.)	2. U ug/l (2.)
2-Methylnaphthalene	--	1. U ug/l (1.)	2. U ug/l (2.)
Acenaphthene	--	0.5 U ug/l (0.5)	2. U ug/l (2.)
Acenaphthylene	--	1. U ug/l (1.)	2. U ug/l (2.)
Anthracene	--	0.05 U ug/l (0.05)	2. U ug/l (2.)
Benzo (a) Anthracene	--	--	0.1 U ug/l (0.1)
Benzo (a) Pyrene	--	0.05 U ug/l (0.05)	0.1 U ug/l (0.1)
Benzo (b) Fluoranthene	--	0.1 U ug/l (0.1)	0.1 U ug/l (0.1)
Benzo (g,h,i) Perylene	--	0.1 U ug/l (0.1)	0.2 U ug/l (0.2)
Benzo (k) Fluoranthene	--	0.05 U ug/l (0.05)	0.15 U ug/l (0.15)
Chrysene	--	0.05 U ug/l (0.05)	0.1 U ug/l (0.1)
Dibenzo (a,h) anthracene	--	0.1 U ug/l (0.1)	0.2 U ug/l (0.2)
Fluoranthene	--	0.1 U ug/l (0.1)	0.2 U ug/l (0.2)
Fluorene	--	0.2 ug/l (0.1)	2. U ug/l (2.)
Indeno (1,2,3-cd) pyrene	--	0.05 U ug/l (0.05)	0.1 U ug/l (0.1)
Naphthalene	--	0.5 U ug/l (0.5)	2. U ug/l (2.)
Phenanthrene	--	1. U ug/l (1.)	2. U ug/l (2.)
Pyrene	--	0.05 U ug/l (0.05)	0.2 U ug/l (0.2)

Footnotes: Values in parentheses are detection limits

NAS Cecil Field - Tank G190 - Site Assessment Report - Soils

Sample Identifier	CEF-190-SB5	CEF-190-SB5EXTR
Sample Collect Date	5/11/1999	5/11/1999
Analyte		

All Analyses

Percent Solids	90. Percent (0.01)	--
Total Petroleum Hydrocarbons (C8-C40)	700. mg/kg (37.)	0.4 U mg/l (0.4)

Footnotes: Values in parentheses are detection limits

NAS Cecil Field

Sample Identifier	**CF1901S**
Sample Collect Date	**12/22/97**
Analyte	

BRAC Grey Sites - Organics

1,1,1-Trichloroethane	**1. U ug/l**	**(1.)**
1,1,2,2-Tetrachloroethane	**1. U ug/l**	**(1.)**
1,1,2-Trichloroethane	**1. U ug/l**	**(1.)**
1,1-Dichloroethane	**1. U ug/l**	**(1.)**
1,1-Dichloroethene	**1. U ug/l**	**(1.)**
1,2-Dichlorobenzene	**5. U ug/l**	**(5.)**
1,2-Dichloroethane	**1. U ug/l**	**(1.)**
1,2-Dichloropropane	**1. U ug/l**	**(1.)**
1,3-Dichlorobenzene	**5. U ug/l**	**(5.)**
1,4-Dichlorobenzene	**5. U ug/l**	**(5.)**
2-Methylnaphthalene	**5. U ug/l**	**(5.)**
Acenaphthene	**5. U ug/l**	**(5.)**
Acenaphthylene	**5. U ug/l**	**(5.)**
Anthracene	**5. U ug/l**	**(5.)**
Benzene	**1. U ug/l**	**(1.)**
Bromodichloromethane	**1. U ug/l**	**(1.)**
Bromoform	**1. U ug/l**	**(1.)**
Bromomethane	**2. U ug/l**	**(2.)**
Carbon tetrachloride	**1. U ug/l**	**(1.)**
Chlorobenzene	**1. U ug/l**	**(1.)**
Chloroethane	**2. U ug/l**	**(2.)**
Chloroform	**1. U ug/l**	**(1.)**
Chloromethane	**1. U ug/l**	**(1.)**
Chrysene	**5. U ug/l**	**(5.)**
cis 1,3-Dichloropropene	**1. U ug/l**	**(1.)**
Dibromochloromethane	**1. U ug/l**	**(1.)**
Ethylbenzene	**1. U ug/l**	**(1.)**

Sample Identifier	CF1901S	
Sample Collect Date	12/22/97	
Analyte		
Fluoranthene	5. U ug/l	(5.)
Fluorene	5. U ug/l	(5.)
Methylene chloride	3. U ug/l	(3.)
Naphthalene	5. U ug/l	(5.)
Phenanthrene	5. U ug/l	(5.)
Pyrene	5. U ug/l	(5.)
Tetrachloroethene	3. U ug/l	(3.)
Toluene	1. U ug/l	(1.)
trans 1,2-Dichloroethene	1. U ug/l	(1.)
trans 1,3-Dichloropropene	1. U ug/l	(1.)
Trichloroethene	1. U ug/l	(1.)
Vinyl chloride	1. U ug/l	(1.)

BRAC Pesticides and PCBs

4,4-DDD	0.05 U ug/l	(0.05)
4,4-DDE	0.05 U ug/l	(0.05)
4,4-DDT	0.05 U ug/l	(0.05)
Aldrin	0.05 U ug/l	(0.05)
alpha-BHC	0.05 U ug/l	(0.05)
alpha-Chlordane	1. U ug/l	(1.)
Aroclor-1016 + Aroclor-1242	1. U ug/l	(1.)
Aroclor-1221	1. U ug/l	(1.)
Aroclor-1232	1. U ug/l	(1.)
Aroclor-1248	1. U ug/l	(1.)
Aroclor-1254	1. U ug/l	(1.)
Aroclor-1260	1. U ug/l	(1.)
beta-BHC	0.05 U ug/l	(0.05)
Dieldrin	0.05 U ug/l	(0.05)
Endosulfan I	0.05 U ug/l	(0.05)
Endosulfan II	0.05 U ug/l	(0.05)
Endosulfan sulfate	0.05 U ug/l	(0.05)
Endrin	0.05 U ug/l	(0.05)

Sample Identifier	CF1901S
Sample Collect Date	12/22/97
Analyte	
Endrin aldehyde	0.05 U ug/l (0.05)
Endrin ketone	0.05 U ug/l (0.05)
gamma-BHC (Lindane)	0.05 U ug/l (0.05)
gamma-Chlordane	1. U ug/l (1.)
Heptachlor	0.05 U ug/l (0.05)
Heptachlor epoxide	0.05 U ug/l (0.05)
Methoxychlor	0.05 U ug/l (0.05)
Toxaphene	2. U ug/l (2.)

BRAC Semivolatiles

1,2,4-Trichlorobenzene	5. U ug/l (5.)
1,2-Dichlorobenzene	5. U ug/l (5.)
1,3-Dichlorobenzene	5. U ug/l (5.)
1,4-Dichlorobenzene	5. U ug/l (5.)
2,4,6-Trichlorophenol	5. U ug/l (5.)
2,4-Dichlorophenol	5. U ug/l (5.)
2,4-Dimethylphenol	5. U ug/l (5.)
2,4-Dinitrophenol	5. U ug/l (5.)
2,4-Dinitrotoluene	5. U ug/l (5.)
2,6-Dinitrotoluene	5. U ug/l (5.)
2-Chloronaphthalene	5. U ug/l (5.)
2-Methylnaphthalene	5. U ug/l (5.)
2-Methylphenol	5. U ug/l (5.)
2-Nitroaniline	5. U ug/l (5.)
2-Nitrophenol	5. U ug/l (5.)
3,3-Dichlorobenzidine	20. U ug/l (20.)
3-Nitroaniline	5. U ug/l (5.)
4-Bromophenyl-phenylether	5. U ug/l (5.)
4-Chloroaniline	5. U ug/l (5.)
4-Chlorophenyl-phenylether	5. U ug/l (5.)
4-Nitroaniline	5. U ug/l (5.)
4-Nitrophenol	5. U ug/l (5.)

Sample Identifier	CF1901S
Sample Collect Date	12/22/97
Analyte	
Acenaphthene	5. U ug/l (5.)
Acenaphthylene	5. U ug/l (5.)
Anthracene	5. U ug/l (5.)
bis(2-Chloroethoxy) methane	5. U ug/l (5.)
bis(2-Chloroethyl) ether	5. U ug/l (5.)
bis(2-Ethylhexyl) phthalate	5. U ug/l (5.)
Carbazole	5. U ug/l (5.)
Chrysene	5. U ug/l (5.)
Di-n-butyl phthalate	5. U ug/l (5.)
Di-n-octyl phthalate	5. U ug/l (5.)
Fluoranthene	5. U ug/l (5.)
Fluorene	5. U ug/l (5.)
Hexachlorobenzene	5. U ug/l (5.)
Hexachlorobutadiene	5. U ug/l (5.)
Hexachlorocyclopentadiene	5. U ug/l (5.)
Hexachloroethane	5. U ug/l (5.)
Isophorone	5. U ug/l (5.)
N-Nitroso-di-n-propylamine	5. U ug/l (5.)
Naphthalene	5. U ug/l (5.)
Nitrobenzene	5. U ug/l (5.)
Pentachlorophenol	5. U ug/l (5.)
Phenanthrene	5. U ug/l (5.)
Phenol	5. U ug/l (5.)
Pyrene	5. U ug/l (5.)

Metals

Antimony	0.006 U mg/l (0.006)
Arsenic	0.01 U mg/l (0.01)
Barium	0.1 U mg/l (0.1)
Beryllium	0.001 U mg/l (0.001)
Cadmium	0.001 U mg/l (0.001)
Chromium	0.01 U mg/l (0.01)

Sample Identifier	CF1901S
Sample Collect Date	12/22/97
Analyte	
Copper	0.05 U mg/l (0.05)
Lead	0.005 U mg/l (0.005)
Mercury	0.0002 U mg/l (0.0002)
Nickel	0.01 U mg/l (0.01)
Selenium	0.01 U mg/l (0.01)
Silver	0.01 U mg/l (0.01)
Thallium	0.002 U mg/l (0.002)
Zinc	0.1 U mg/l (0.1)

Footnotes: Values in parentheses are detection limits

NAS Cecil Field - Tank G190 Site Assessment Report - Soils

Sample Identifier	CEF-190-SB18	CEF-190-SB3	CEF-190-SB5	CEF-190-SB5C
Sample Collect Date	9/14/98	5/28/98	5/28/98	5/28/98
Analyte				
BRAC Semivolatiles				
1,2-Dichlorobenzene	120. U ug/kg (120.)	--	--	--
1,3-Dichlorobenzene	120. U ug/kg (120.)	--	--	--
1,4-Dichlorobenzene	120. U ug/kg (120.)	--	--	--
2-Methylnaphthalene	170. U ug/kg (170.)	--	--	--
Acenaphthene	170. U ug/kg (170.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Acenaphthylene	33. U ug/kg (33.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Anthracene	170. U ug/kg (170.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Benzo (a) Anthracene	570. ug/kg (17.)	6.2 U ug/kg (6.2)	110. ug/kg (29.)	--
Benzo (a) Pyrene	220. ug/kg (17.)	6.2 U ug/kg (6.2)	150. ug/kg (29.)	--
Benzo (b) Fluoranthene	410. ug/kg (33.)	6.2 U ug/kg (6.2)	130. ug/kg (29.)	--
Benzo (g,h,i) Perylene	33. U ug/kg (33.)	6.2 U ug/kg (6.2)	85. J ug/kg (29.)	--
Benzo (k) Fluoranthene	340. ug/kg (17.)	6.2 U ug/kg (6.2)	52. ug/kg (29.)	--
Chrysene	360. ug/kg (17.)	25. U ug/kg (25.)	120. U ug/kg (120.)	--
Dibenzo (a,h) anthracene	35. J ug/kg (33.)	6.2 U ug/kg (6.2)	66. ug/kg (29.)	--
Fluoranthene	870. ug/kg (33.)	6.2 U ug/kg (6.2)	220. ug/kg (29.)	--
Fluorene	33. U ug/kg (33.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Indeno (1,2,3-cd) pyrene	58. ug/kg (17.)	6.2 U ug/kg (6.2)	70. ug/kg (29.)	--
Naphthalene	170. U ug/kg (170.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Phenanthrene	180. ug/kg (17.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Pyrene	17. U ug/kg (17.)	6.2 U ug/kg (6.2)	410. ug/kg (29.)	--
BRAC Volatiles				
1,1,1-Trichloroethane	120. U ug/kg (120.)	--	--	--
1,1,2,2-Tetrachloroethane	120. U ug/kg (120.)	--	--	--
1,1,2-Trichloroethane	120. U ug/kg (120.)	--	--	--
1,1-Dichloroethane	120. U ug/kg (120.)	--	--	--
1,1-Dichloroethene	120. U ug/kg (120.)	--	--	--
1,2-Dichloroethane	120. U ug/kg (120.)	--	--	--

Sample Identifier	CEF-190-SB18	CEF-190-SB3	CEF-190-SB5	CEF-190-SB5C
Sample Collect Date	9/14/98	5/28/98	5/28/98	5/28/98
Analyte				
1,2-Dichloropropane	120. U ug/kg (120.)	--	--	--
Benzene	120. U ug/kg (120.)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)
Bromodichloromethane	120. U ug/kg (120.)	--	--	--
Bromoform	120. U ug/kg (120.)	--	--	--
Bromomethane	120. U ug/kg (120.)	--	--	--
Carbon tetrachloride	120. U ug/kg (120.)	--	--	--
Chlorobenzene	120. U ug/kg (120.)	--	--	--
Chloroethane	240. U ug/kg (240.)	--	--	--
Chloroform	120. U ug/kg (120.)	--	--	--
Chloromethane	240. U ug/kg (240.)	--	--	--
cis 1,3-Dichloropropene	120. U ug/kg (120.)	--	--	--
Dibromochloromethane	120. U ug/kg (120.)	--	--	--
Ethylbenzene	120. U ug/kg (120.)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)
m,p-Xylene	120. U ug/kg (120.)	--	--	--
Methylene chloride	240. U ug/kg (240.)	--	--	--
o-Xylene	120. U ug/kg (120.)	--	--	--
Tetrachloroethene	120. U ug/kg (120.)	--	--	--
Toluene	120. U ug/kg (120.)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)
trans 1,2-Dichloroethene	120. U ug/kg (120.)	--	--	--
trans 1,3-Dichloropropene	120. U ug/kg (120.)	--	--	--
Trichloroethene	120. U ug/kg (120.)	--	--	--
Vinyl chloride	120. U ug/kg (120.)	--	--	--
BTEX and Petroleum Hydrocarbons				
Benzene	120. U ug/kg (120.)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)
Ethylbenzene	120. U ug/kg (120.)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)
m,p-Xylene	120. U ug/kg (120.)	--	--	--
Methyl tert-butyl ether	240. U ug/kg (240.)	--	--	--
Toluene	120. U ug/kg (120.)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)	1.2 U ug/kg (1.2)
Xylenes (total)	--	1.2 U ug/kg (1.2)	17. J ug/kg (1.2)	1.3 J ug/kg (1.2)
PAHs				

Sample Identifier	CEF-190-SB18	CEF-190-SB3	CEF-190-SB5	CEF-190-SB5C
Sample Collect Date	9/14/98	5/28/98	5/28/98	5/28/98
Analyte				
1-Methylnaphthalene	170. U ug/kg (170.)	--	--	--
2-Methylnaphthalene	170. U ug/kg (170.)	--	--	--
Acenaphthene	170. U ug/kg (170.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Acenaphthylene	33. U ug/kg (33.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Anthracene	170. U ug/kg (170.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Benzo (a) Anthracene	570. ug/kg (17.)	6.2 U ug/kg (6.2)	110. ug/kg (29.)	--
Benzo (a) Pyrene	220. ug/kg (17.)	6.2 U ug/kg (6.2)	150. ug/kg (29.)	--
Benzo (b) Fluoranthene	410. ug/kg (33.)	6.2 U ug/kg (6.2)	130. ug/kg (29.)	--
Benzo (g,h,i) Perylene	33. U ug/kg (33.)	6.2 U ug/kg (6.2)	85. J ug/kg (29.)	--
Benzo (k) Fluoranthene	340. ug/kg (17.)	6.2 U ug/kg (6.2)	52. ug/kg (29.)	--
Chrysene	360. ug/kg (17.)	25. U ug/kg (25.)	120. U ug/kg (120.)	--
Dibenzo (a,h) anthracene	35. J ug/kg (33.)	6.2 U ug/kg (6.2)	66. ug/kg (29.)	--
Fluoranthene	870. ug/kg (33.)	6.2 U ug/kg (6.2)	220. ug/kg (29.)	--
Fluorene	33. U ug/kg (33.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Indeno (1,2,3-cd) pyrene	58. ug/kg (17.)	6.2 U ug/kg (6.2)	70. ug/kg (29.)	--
Naphthalene	170. U ug/kg (170.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Phenanthrene	180. ug/kg (17.)	250. U ug/kg (250.)	1200. U ug/kg (1200.)	--
Pyrene	17. U ug/kg (17.)	6.2 U ug/kg (6.2)	410. ug/kg (29.)	--

Footnotes: Values in parentheses are detection limits

NAS Cecil Field

Sample Identifier	**CEF-190-SB5**
Sample Collect Date	**5/11/99**
Analyte	

All Analyses

Percent Solids	**90. Percent (0.01)**
Total Petroleum Hydrocarbons (C8-C40)	**0.4 U mg/l (0.4)**

Footnotes: Values in parentheses are detection limits

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

November 27, 1995

Innovative Services International, Inc.
P.O. Box 150016
Jacksonville, FL 32215

Attn: Ron Boardman

Reference: FCEL Lab #9511-53
Cecil Field (Building 190 - 1195)
Sample collected 1600 hr. on 11-02-95
Sample received 0939 hr. on 11-02-95
(1) H_2O from Temp. Well

PARAMETER		METHOD	# 1	DATE/TIME	ANALYST
Lead	mg/L	EPA 239.2	0.00938	11-6/1417	AWW

Respectfully submitted:

Adolph W. Wollitz
Laboratory Director
FHRS Lab #E82102
FHRS Lab #82110
EPA #FL00062
DEP Comp QAPP # 8702226

AWW/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

November 27, 1995

Client: I.S.I.

Sample I.D.: Building 190 - 1195 (Cecil Field)

Sample Matrix: Liquid

Lab #: 9511-53

Date Received: 11-3-95

Date Completed: 11-9-95

Sample Collection: 11-2-95

Analytical Summary

Parameter		Method	Results
TRPH	mg/L	EPA 418.1	< 0.020

Respectfully submitted,

Barry C. Byrd, Jr., MS
Laboratory Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

November 27, 1995

Client: I.S.I.

Lab #: 9511-53

Sample I.D.: Building 190 - 1195 (Cecil Field)

Date Received: 11-3-95

Sample Matrix: Liquid

Date Completed: 11-14-95

Sample Collection: 11-2-95

Analytical Summary
Volatile Hydrocarbons
Method 601 - 602

Parameter	Results ug/L	Parameter	Results ug/L
Benzene	ND	Bromobenzene	ND
Bromodichloromethane	ND	Bromomethane	ND
Bromoform	ND		
Chloroethane	ND	Carbon tetrachloride	ND
Carbon tetrachloride	ND	Chlorobenzene	ND
Chloroform	ND	Chloromethane	ND
2-Chlorotoluene	ND	4-Chlorotoluene	ND
2-Chloroethylvinyl ether	ND		
Dibromochloromethane	ND	1,2-Dibromoethane	ND
Dibromomethane	ND	1,2 Dichlorobenzene	ND
1,3 Dichlorobenzene	ND	1,4 Dichlorobenzene	ND
Dichlorodifluoromethane	ND	1,1-Dichloroethane	ND
1,2-Dichloroethane	ND	1,1-Dichloroethene	ND
tr-1,2-Dichloroethene	ND	Dichloromethane	ND
1,2-Dichloropropane	ND	t-1,3-Dichloropropene	ND
Ethyl Benzene	ND		
1,1,1,2-Tetrachloroethane	ND	1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND	Toluene	ND
1,1,1-Trichloroethane	ND	1,1,2-Trichloroethane	ND
Trichloroethene	ND	Trichlorofluoromethane	ND *
1,2,3-Trichloropropane	ND		
Vinyl Chloride	ND *	MTBE	ND *
Total Xylenes	ND		

Note:
ND = (None detected. lower detectable limit = 1 ug/L)
ND * = (None detected. lower detectable limit = 20 ug/L)
J = (Peak detected. below detection limit. value suspect)
B = (This parameter also found in the blank)
NA = (This parameter was not analyzed)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp DAPP # 87D222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
(904) 725-4847 • Fax (904) 725-2215

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

November 27, 1995

Client: I.S.I.

Sample I.D.: Building 190 - 1195 (Cecil Field)

Sample Matrix: Liquid

Lab #: 9511-53

Date Received: 11-3-95

Date Completed: 11-14-95

Sample Collection: 11-2-95

Polynuclear Aromatic Hydrocarbons
EPA Method 610

PARAMETER	RESULTS
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND *
Benzo (j) fluoranthene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenzo (a,h) anthracene	ND *
Fluoranthene	ND
Fluorene	ND
Indeno (1,2,3-cd) pyrene	ND *
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

Note:
ND = (None detected, lower detectable limit = 5 ug/L)
ND ** = (None detected, lower detectable limit = 25 ug/L)
J = (Peak detected, below detection limit, value suspect)
B = (This parameter also found in the blank)
NA = (This parameter was not analyzed)

Respectfully submitted,

Barry C. Byrd, Jr., MS
Technical Director
DEP Comp QAPP # 870222G

BCB/tb

8818 Arlington Expressway • Jacksonville, Florida 32211
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