

N60200.AR.009016
NAS CECIL FIELD
5090.3a

SAMPLING AND ANALYSIS REPORT FACILITY 190 BASE REALIGNMENT AND CLOSURE
ZONE C DEVELOPED NONINDUSTRIAL AREA NAS CECIL FIELD FL
10/1/1998
HARDING LAWSON ASSOCIATES

SAMPLING AND ANALYSIS REPORT
FACILITY 190
BASE REALIGNMENT AND CLOSURE
ZONE C, DEVELOPED NONINDUSTRIAL AREA

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

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

Prepared by:

Harding Lawson Associates
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29419

David Porter, Code 18B2, BRAC Environmental Coordinator

October 1998

Revision 0.0

TABLE OF CONTENTS

Sampling and Analysis Report, Facility 190
Base Realignment and Closure
Zone C, Developed Nonindustrial Area
Naval Air Station Cecil Field
Jacksonville, Florida

<u>Chapter</u>	<u>Title</u>	<u>Page No.</u>
1.0	INTRODUCTION	1
2.0	PHASE II INVESTIGATION	1
3.0	PRELIMINARY RISK EVALUATION	1
3.1	PUBLIC HEALTH PRELIMINARY RISK EVALUATION	3
3.2	ECOLOGICAL PRELIMINARY RISK EVALUATION	3
4.0	CONCLUSIONS AND RECOMMENDATIONS	4
	REFERENCES	4
APPENDIX		
	Appendix A: Soil Boring Logs and Preliminary Risk Evaluation Table	
	Appendix B: Laboratory Analytical Data	

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1	Facility 190, Telephone Service Building, Sample Location Plan	2

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
BCT	Base Realignment and Closure cleanup team
CSR	confirmatory sampling report
EBS	environmental baseline survey
ELCR	excess lifetime cancer risk
FDEP	Florida Department of Environmental Protection
HI	hazard index
HLA	Harding Lawson Associates
HQ	hazard quotient
NAS	Naval Air Station
PRE	preliminary risk evaluation
RBC	risk-based concentration
SAO	sampling and analysis outline
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank

1.0 INTRODUCTION

Harding Lawson Associates (HLA), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the Phase II Sampling and Analysis program for Facility 190 at Naval Air Station (NAS) Cecil Field. This report summarizes the related field operations, results, conclusions, and recommendations of the Phase II investigation.

Facility 190 is referred to as the Telephone Exchange Building in the Environmental Baseline Survey (EBS) Report (ABB Environmental Services, Inc. [ABB-ES], 1994a). Potential environmental concerns identified for the facility in the EBS relate to an abandoned 1,000-gallon underground storage tank (UST) for fuel oil. In addition, two abandoned septic systems were identified on the west side of Building 190 during a records review conducted in 1997, and as-built drawings indicate a 5,000 gallon UST may have been installed near the south end of the building (ABB-ES, 1997a).

The 1,000 gallon UST was removed from the site in 1995. Excessively contaminated soil was detected during confirmatory sampling at this site (ABB-ES, 1997a). The Confirmatory Sampling Report (CSR) indicates that additional samples are required to delineate the extent of petroleum-contaminated soil.

The Base Realignment and Closure cleanup team (BCT) regards septic tank and leachfield systems as potential pathways for contaminants to enter the groundwater. Therefore, a sampling and analysis outline (SAO) for the assessment of groundwater downgradient of the septic systems at Facility 190 was prepared by HLA (then ABB-ES) and approved by the BCT (ABB-ES, 1997b). The results of the Phase II Sampling and Analysis program developed in the SAO are discussed below.

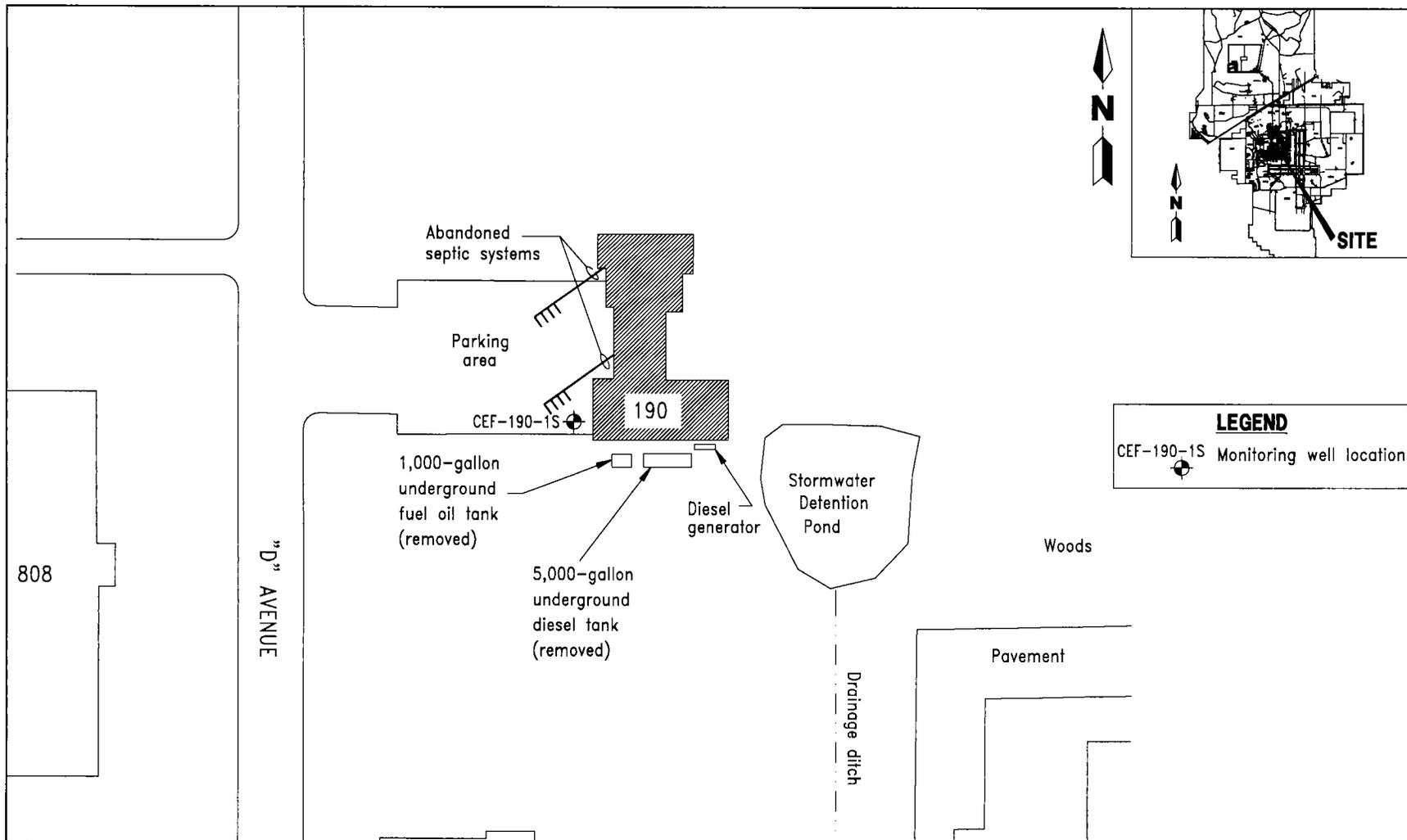
2.0 PHASE II INVESTIGATION

The Phase II investigation included the installation of one shallow groundwater monitoring well and collection and analysis of one groundwater sample. Field activities were undertaken in general conformance with the Project Operations Plan (ABB-ES, 1994b).

A groundwater monitoring well was installed downgradient (south) of the septic leachfields to a depth of 13 feet below land surface. One groundwater sample was collected and analyzed for the full Contract Laboratory Program suite of target compound list organics and target analyte list inorganics. A general site plan indicating the location of the monitoring well is presented on Figure 1. The soil boring log is included in Appendix A.

3.0 PRELIMINARY RISK EVALUATION

A preliminary risk evaluation (PRE) was conducted to assess potential risks to human and ecological receptors posed by contaminants in groundwater, and surface soil. Primary exposure pathways were evaluated to determine those pathways that potentially contribute to human health and ecological risks. The evaluation was



LEGEND
 CEF-190-1S Monitoring well location

0 50 100
 SCALE: 1 INCH = 100 FEET

FIGURE 1
FACILITY 190
TELEPHONE SERVICE BUILDING
SAMPLE LOCATION PLAN



SAMPLING AND ANALYSIS REPORT

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

conducted in general conformance with methodology provided in the U.S. Environmental Protection Agency (USEPA) Region IV memorandum entitled "Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL)" (USEPA, 1994), USEPA Region IV bulletins on ecological risk assessment (USEPA, 1995), and minutes of meetings with the USEPA and the Florida Department of Environmental Protection (FDEP) concerning PREs (ABB-ES, 1995). Site background information and rationale for sample collection and analysis are detailed in the EBS Report (ABB-ES, 1994a) and the SAO (ABB-ES, 1997b).

Inorganic analytes were compared to NAS Cecil Field screening criteria for inorganics established by the NAS Cecil Field partnering team. The NAS Cecil Field screening criteria were determined by using the nonparametric upper-outside value cutoffs as described in *Understanding Robust and Exploratory Data Analysis* (Hoaglin et al., 1983). These screening values were developed from data collected throughout NAS Cecil Field. No risk evaluation is conducted for inorganic analytes detected below NAS Cecil Field screening criteria for inorganics.

3.1 PUBLIC HEALTH PRELIMINARY RISK EVALUATION. All detected analytes were compared to readily available risk-based screening values to assess the likelihood of adverse human health effects associated with potential exposure to groundwater. Risk-based screening values were obtained from USEPA Region III Risk-Based Concentrations (RBCs) (USEPA, 1998) and FDEP Soil and Groundwater Cleanup Target Levels (Florida Administrative Code, 1998). Most screening values published in the references listed above are based on toxicity constants and standard human exposure scenarios and correspond to fixed levels of risk. The designated level of risk for noncarcinogenic chemicals is based on a hazard quotient (HQ) of 1. The level of risk for carcinogenic chemicals is based on an excess lifetime cancer risk (ELCR) of 1×10^{-6} . Cancer and noncancer risks associated with industrial and residential land use are estimated by dividing the maximum detected analyte concentration by the corresponding USEPA Region III RBC value at the designated level of risk (HQ of 1 or ELCR of 1×10^{-6}). For noncarcinogens, the HQs are summed to determine the cumulative noncancer risk or hazard index (HI).

Six inorganic analytes were detected in the groundwater sample collected in the study area. The detected concentrations do not exceed NAS Cecil Field screening criteria for inorganics. Therefore, no ELCR or HI were calculated in association with a potential groundwater exposure scenario. Concentrations of detected analytes in groundwater have been compared with RBCs for tap water and groundwater cleanup target levels (see Appendix A).

3.2 ECOLOGICAL PRELIMINARY RISK EVALUATION. Potential exposure pathways and ecological habitat associated with Facility 190 were characterized by HLA ecological risk assessors in June 1996. Facility 190 is located in a developed area surrounded by maintained grass and pavement. No complete exposure pathways to groundwater were confirmed within the immediate study area. Therefore, no further ecological risk evaluation was conducted.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the information obtained for this assessment, the concentrations of analytes detected in groundwater sampled downgradient of abandoned septic systems at Facility 190 do not represent a hazard to human health or the environment. However, excessively contaminated soil associated with a UST formerly located near the south end of Facility 190 has been identified. The CSR indicates additional sampling is required to delineate the extent of contamination. Therefore, the color classification for Facility 190 should be changed from Gray to 2/Blue to denote a petroleum release.

REFERENCES

- ABB Environmental Services, Inc. (ABB-ES). 1994a. *Base Realignment and Closure Environmental Baseline Survey Report, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOCM), North Charleston, South Carolina (November).
- ABB-ES. 1994b. *Project Operations Plan for Cecil Field and Health and Safety Plan*. Prepared for SOUTHNAVFACENGCOCM, North Charleston, South Carolina (December).
- ABB-ES. 1995. Minutes of September 25, 1995, conference call to discuss preliminary risk evaluations.
- ABB-ES. 1997a. *Confirmatory Sampling Report, Tank G190, Building 190, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOCM, North Charleston, South Carolina (November).
- ABB-ES. 1997b. *Sampling and Analysis Outline, Building 190, Base Realignment and Closure, Zone C, Developed Nonindustrial Area, Group IX, Naval Air Station, Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOCM, North Charleston, South Carolina (June).
- Florida Administrative Code. 1998. *Brownfields Cleanup Criteria Rule: Chapter 62-785*. Tallahassee, Florida.
- Hoaglin, D.C., F. Mosteller, and J.W. Tukey. 1983. *Understanding Robust and Exploratory Data Analysis*. New York: John Wiley and Sons, Inc.
- U.S. Environmental Protection Agency (USEPA). 1994. Memorandum from Region IV. Subject: "Amended Guidance on Preliminary Risk Evaluations (PREs) for the Purpose of Reaching a Finding of Suitability to Lease (FOSL)." Atlanta, Georgia (December 20).
- USEPA. 1995. *Supplemental Guidance to RAGS. Region IV bulletins*. Waste Management Division. Atlanta, Georgia.
- USEPA. 1998. *Risk-Based Concentration Table. Region III*. Philadelphia, Pennsylvania.

APPENDIX A

SOIL BORING LOGS AND PRELIMINARY RISK EVALUATION TABLE

TITLE: NAS Cecil Field BRAC		LOG of WELL: CEF-190-1S	BORING NO. CEF-190-1S
CLIENT: SOUTH DIV NAV FAC ENG COM		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 F.T.	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							6,8,11,9		
0							7,5,5,6		
0							7,11,11,12		
10							11,12,9,8		
					TD = 12' bls				

**Preliminary Human Health Risk Evaluation Table for Analytes Detected in Groundwater
Facility 190, Naval Air Station Cecil Field**

Analyte ¹	Sample		Screening Values		Calculated Risk Values ²	
	CF1901S	BKGRD	GCTL	RBC(T)	ELCR	HQ
Inorganic Analytes						
*Aluminum	300	13100	200	37000	n	
Calcium	50000	81100				
Iron	200	7760	300	11000	n	
Magnesium	1000	10000				
*Manganese	81	96.2	50	840	n	
Sodium	730	16500	160000			

Notes:

¹ All detected analytes are reported. Concentrations and screening values are expressed in ug/l.

² ELCR and HQ are only calculated for analytes detected at concentrations in excess of BKGRD and GCTL.

* = background screening criteria or GCTLs have been exceeded.

BKGRD = NAS Cecil Field Inorganic Background Data Set.

GCTL = Groundwater Cleanup Target Level, Florida Department of Environmental Protection, Chapter 62-785, Florida Administrative Code.

RBC(T) = Risk-based Concentration (Tap Water), USEPA Region III, April 1998.

n = noncarcinogenic risk

ELCR = calculated excess lifetime cancer risk, based on RBC(T) values.

(ELCR = maximum detected concentration/RBC(T) * 1E-06).

HQ = calculated hazard quotient for noncarcinogenic analytes (HQ = maximum detected concentration/RBC(T)).

APPENDIX B

LABORATORY ANALYTICAL DATA

NAS CECIL FIELD -- TANK G190
 UST GREY ANALYTICAL PARAMETERS -- REPORT NO. 9418

Lab Sample Number:	B7C2701410	B7C2701410
Site	BRACGREY	BRACGREY
Locator	CEF1901S	CEF1901S
Collect Date:	26-MAR-97	26-MAR-97

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
BRACGREY ANALYTICAL PARAMETERS						
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	1 U	ug/l	1	-		
1,3-Dichlorobenzene	1 U	ug/l	1	-		
1,4-Dichlorobenzene	1 U	ug/l	1	-		
1,2-Dichloroethane	1 U	ug/l	1	-		
1,2-Dichloropropane	1 U	ug/l	1	-		
1-Methylnaphthalene	2 U	ug/l	2	-		
2-Methylnaphthalene	2 U	ug/l	2	-		
Acenaphthene	2 U	ug/l	2	-		
Acenaphthylene	2 U	ug/l	2	-		
Anthracene	2 U	ug/l	2	-		
Benzene	1 U	ug/l	1	-		
Benzo (a) anthracene	.1 U	ug/l	.1	-		
Benzo (a) pyrene	.1 U	ug/l	.1	-		
Benzo (b) fluoranthene	.1 U	ug/l	.1	-		
Benzo (g,h,i) perylene	.2 U	ug/l	.2	-		
Benzo (k) fluoranthene	.15 U	ug/l	.15	-		
Bromodichloromethane	1 U	ug/l	1	-		
Bromoform	1 U	ug/l	1	-		
Bromomethane	1 U	ug/l	1	-		
Carbon tetrachloride	1 U	ug/l	1	-		
Chlorobenzene	1 U	ug/l	1	-		
Chloromethane	1 U	ug/l	1	-		
Chloroform	1 U	ug/l	1	-		
Chloromethane	1 U	ug/l	1	-		
Chrysene	.1 U	ug/l	.1	-		
Dibenzo (a,h) anthracene	.2 U	ug/l	.2	-		
Dibromochloromethane	1 U	ug/l	1	-		
Dichlorodifluoromethane	1 U	ug/l	1	-		
Ethylbenzene	1 U	ug/l	1	-		
Ethylene dibromide	.02 U	ug/l	.02	-		
Fluoranthene	.2 U	ug/l	.2	-		
Fluorene	2 U	ug/l	2	-		
Indeno (1,2,3-cd) pyrene	.1 U	ug/l	.1	-		
Lead	5 U	ug/l	5	-		
Methyl tert-butyl ether	1 U	ug/l	1	-		
Methylene chloride	2	ug/l	1	-		
Naphthalene	2 U	ug/l	2	-		
Phenanthrene	2 U	ug/l	2	-		
Pyrene	.2 U	ug/l	.2	-		
Tetrachloroethene	1 U	ug/l	1	-		
Toluene	1 U	ug/l	1	-		
Total petroleum hydrocarbons	.5 U	mg/l	.5	-		
Trichloroethene	1 U	ug/l	1	-		
Trichlorofluoromethane	1 U	ug/l	1	-		
Vinyl chloride	1 U	ug/l	1	-		

NAS CECIL FIELD -- TANK G190
 UST GREY ANALYTICAL PARAMETERS -- REPORT NO. 9418

Lab Sample Number:	B7C2701410	B7C2701410
Site	BRACGREY	BRACGREY
Locator	CEF1901S	CEF1901S
Collect Date:	26-MAR-97	26-MAR-97

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Xylenes (total)	1	U	ug/l	1	-			
cis-1,3-Dichloropropene	1	U	ug/l	1	-			
trans-1,2-Dichloroethene	1	U	ug/l	1	-			
trans-1,3-Dichloropropene	1	U	ug/l	1	-			
Lead-DISS	-				5	U	ug/l	5

U = NOT DETECTED J = ESTIMATED VALUE
 UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
 R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- TANK G190
 SOIL DATA -- KEROSENE ANALYTICAL GROUP -- REPORT REQ NO. 10276

Lab Sample Number: JR32141
 Site: UST GREY
 Locator: CEF-190-SB18
 Collect Date: 14-SEP-98

VALUE QUAL UNITS DL

UST COMPOUNDS

Benzene	120	U	ug/kg	120
Ethylbenzene	120	U	ug/kg	120
Toluene	120	U	ug/kg	120
m,p-Xylene	120	U	ug/kg	120
o-Xylene	120	U	ug/kg	120
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-Dichlorobenzene	120	U	ug/kg	120
1,2-Dichloroethane	120	U	ug/kg	120
1,2-Dichloropropane	120	U	ug/kg	120
1,3-Dichlorobenzene	120	U	ug/kg	120
1,4-Dichlorobenzene	120	U	ug/kg	120
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
Dibromochloromethane	120	U	ug/kg	120
Dichlorodifluoromethane	120	U	ug/kg	120
Methylene chloride	240	U	ug/kg	240
Tetrachloroethene	120	U	ug/kg	120
Trichloroethene	120	U	ug/kg	120
Trichlorofluoromethane	240	U	ug/kg	240
Vinyl chloride	120	U	ug/kg	120
cis-1,3-Dichloropropene	120	U	ug/kg	120
trans-1,2-Dichloroethene	120	U	ug/kg	120
trans-1,3-Dichloropropene	120	U	ug/kg	120
1-Methylnaphthalene	170	U	ug/kg	170
2-Methylnaphthalene	170	U	ug/kg	170
Acenaphthene	170	U	ug/kg	170
Acenaphthylene	33	U	ug/kg	33
Anthracene	170	U	ug/kg	170
Benzo (a) anthracene	570		ug/kg	17
Benzo (a) pyrene	220		ug/kg	17
Benzo (b) fluoranthene	410		ug/kg	33
Benzo (g,h,i) perylene	33	U	ug/kg	33
Benzo (k) fluoranthene	340		ug/kg	17
Chrysene	360		ug/kg	17
Dibenzo (a,h) anthracene	35	J	ug/kg	33
Fluoranthene	870		ug/kg	33
Fluorene	33	U	ug/kg	33
Indeno (1,2,3-cd) pyrene	58		ug/kg	17
Naphthalene	170	U	ug/kg	170
Phenanthrene	180		ug/kg	17

NAS CECIL FIELD -- TANK G190
SOIL DATA -- KEROSENE ANALYTICAL GROUP -- REPORT REQ NO. 10276

Lab Sample Number: JR32141
Site: UST GREY
Locator: CEF-190-SB18
Collect Date: 14-SEP-98

VALUE QUAL UNITS DL

Pyrene	17 U	ug/kg	17
FLA PRO TPH C8-C40	110	mg/kg	8

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- TANK 190R1
 SOIL DATA -- KEROSENE ANALYTICAL GROUP -- REPORT REQ NO. 9959

Lab Sample Number:	A8E2901780		A8E2901780		
Site	UST GREY		UST GREY		
Locator	CEF-190-SB3		CEF-190-SB5		
Collect Date:	28-MAY-98		28-MAY-98		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS
					DL

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
UST GREY						
Benzene	1.2 U	ug/kg	1.2	1.2 U	ug/kg	1.2
Ethylbenzene	1.2 U	ug/kg	1.2	1.2 U	ug/kg	1.2
Toluene	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
Acenaphthene	250 U	ug/kg	250	1200 U	ug/kg	1200
Acenaphthylene	250 U	ug/kg	250	1200 U	ug/kg	1200
Anthracene	250 U	ug/kg	250	1200 U	ug/kg	1200
Benzo (a) anthracene	6.2 U	ug/kg	6.2	110	ug/kg	29
Benzo (a) pyrene	6.2 U	ug/kg	6.2	150	ug/kg	29
Benzo (b) fluoranthene	6.2 U	ug/kg	6.2	130	ug/kg	29
Benzo (g,h,i) perylene	6.2 U	ug/kg	6.2	85 J	ug/kg	29
Benzo (k) fluoranthene	6.2 U	ug/kg	6.2	52	ug/kg	29
Chrysene	25 U	ug/kg	25	120 U	ug/kg	120
Dibenzo (a,h) anthracene	6.2 U	ug/kg	6.2	66	ug/kg	29
Fluoranthene	6.2 U	ug/kg	6.2	220	ug/kg	29
Fluorene	250 U	ug/kg	250	1200 U	ug/kg	1200
Indeno (1,2,3-cd) pyrene	6.2 U	ug/kg	6.2	70	ug/kg	29
Naphthalene	250 U	ug/kg	250	1200 U	ug/kg	1200
Phenanthrene	250 U	ug/kg	250	1200 U	ug/kg	1200
Pyrene	6.2 U	ug/kg	6.2	410	ug/kg	29
FLA PRO						
TPH C8-C40	12 U	mg/kg	12	520	mg/kg	23

U = NOT DETECTED J = ESTIMATED VALUE
 UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
 R = RESULT IS REJECTED AND UNUSABLE

NAS CECIL FIELD -- TANK 190
 SOIL DATA -- KEROSENE ANALYTICAL GROUP -- REPORT REQ NO. 10276

Lab Sample Number: JR32141
 Site: UST GREY
 Locator: CEF-190-SB18
 Collect Date: 14-SEP-98

VALUE QUAL UNITS DL

UST COMPOUNDS

Benzene	120 U	ug/kg	120
Ethylbenzene	120 U	ug/kg	120
Toluene	120 U	ug/kg	120
m,p-Xylene	120 U	ug/kg	120
o-Xylene	120 U	ug/kg	120
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-Dichlorobenzene	120 U	ug/kg	120
1,2-Dichloroethane	120 U	ug/kg	120
1,2-Dichloropropane	120 U	ug/kg	120
1,3-Dichlorobenzene	120 U	ug/kg	120
1,4-Dichlorobenzene	120 U	ug/kg	120
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
Dibromochloromethane	120 U	ug/kg	120
Dichlorodifluoromethane	120 U	ug/kg	120
Methylene chloride	240 U	ug/kg	240
Tetrachloroethene	120 U	ug/kg	120
Trichloroethene	120 U	ug/kg	120
Trichlorofluoromethane	240 U	ug/kg	240
Vinyl chloride	120 U	ug/kg	120
cis-1,3-Dichloropropene	120 U	ug/kg	120
trans-1,2-Dichloroethene	120 U	ug/kg	120
trans-1,3-Dichloropropene	120 U	ug/kg	120
1-Methylnaphthalene	170 U	ug/kg	170
2-Methylnaphthalene	170 U	ug/kg	170
Acenaphthene	170 U	ug/kg	170
Acenaphthylene	33 U	ug/kg	33
Anthracene	170 U	ug/kg	170
Benzo (a) anthracene	570	ug/kg	17
Benzo (a) pyrene	220	ug/kg	17
Benzo (b) fluoranthene	410	ug/kg	33
Benzo (g,h,i) perylene	33 U	ug/kg	33
Benzo (k) fluoranthene	340	ug/kg	17
Chrysene	360	ug/kg	17
Dibenzo (a,h) anthracene	35 J	ug/kg	33
Fluoranthene	870	ug/kg	33
Fluorene	33 U	ug/kg	33
Indeno (1,2,3-cd) pyrene	58	ug/kg	17
Naphthalene	170 U	ug/kg	170
Phenanthrene	180	ug/kg	17

NAS CECIL FIELD -- TANK 190
SOIL DATA -- KEROSENE ANALYTICAL GROUP -- REPORT REQ NO. 10276

Lab Sample Number: JR32141
Site: UST GREY
Locator: CEF-190-SB18
Collect Date: 14-SEP-98

VALUE QUAL UNITS DL

Pyrene	17	U	ug/kg	17
FLA PRO TPH C8-C40	110		mg/kg	8

U = NOT DETECTED J = ESTIMATED VALUE
UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R = RESULT IS REJECTED AND UNUSABLE

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

November 27, 1995

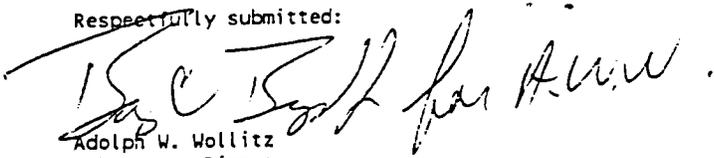
Innovative Services International, Inc.
P.O. Box 150016
Jacksonville, FL 32215

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) H₂O from Temp. Well

<u>PARAMETER</u>		<u>METHOD</u>	<u># 1</u>	<u>DATE/TIME</u>	<u>ANALYST</u>
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 # 870222G

AWW/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

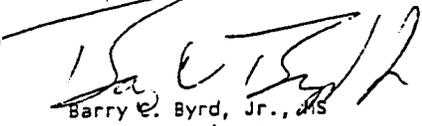
November 27, 1995

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: 11-9-95
Sample Collection: 11-2-95

Analytical Summary

<u>Parameter</u>		<u>Method</u>	<u>Results</u>
TRPH	mg/L	EPA 418.1	< 0.020

Respectfully submitted,



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

BCB/tb

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 = $\frac{1}{20}$ ug/L)
 ND * = (None detected, lower detectable limit = $\frac{20}{20}$ 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 QAPP # 870222G

BCB/tb

FIRST COAST ENVIRONMENTAL LABORATORY, INC.

November 27, 1995

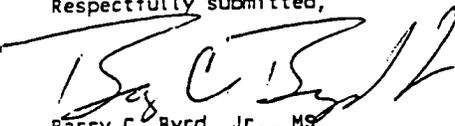
Client: I.S.I. Lab #: 9511-53
Sample I.D.: Building 190 - 1195 (Cecil Field) Date Received: 11-3-95
Sample Matrix: Liquid Date Completed: 11-14-95
Sample Collection: 11-2-95

Polynuclear Aromatic Hydrocarbons EPA Method 610

<u>PARAMETER</u>	<u>RESULTS</u>
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 = $\frac{5}{25}$ ug/L)
ND ** = (None detected. lower detectable limit = $\frac{25}{25}$ 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
(904) 725-4847 • Fax (904) 725-2215