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NAS CECIL FIELD, FL
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CONFIRMATORY SAMPLING REPORT FOR SOUTH FUEL FARM OIL-WATER SEPARATOR SFF-OW BASE REALIGNMENT AND CLOSURE UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GREY SITES NAS CECIL FIELD FL

5/1/1999

HARDING LAWSON ASSOCIATES

CONFIRMATORY SAMPLING REPORT

SOUTH FUEL FARM OIL-WATER SEPARATOR, SFF-OW

BASE REALIGNMENT AND CLOSURE

UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK GRAY SITES

NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA

Unit Identification Code: N60200

Contract No.: N62467-89-D-0317/149

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May 1999

Revision 0.0

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-0317/149 are complete and accurate and comply with all requirements of this contract.

DATE: May 14, 1999

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Task Order Manager

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

(DFAR 252.227-7036)

TABLE OF CONTENTS

Confirmatory Sampling Report
South Fuel Farm Oil-Water Separator, SFF-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Chapter	Title	Page No.
1.0	INTRODUCTION	1
2.0	FIELD INVESTIGATION	1
3.0	SCREENING AND ANALYTICAL RESULTS	3
4.0	CONCLUSIONS AND RECOMMENDATIONS	3

APPENDICES

Appendix A: Monitoring Well Installation Detail
Appendix B: Analytical Data

LIST OF FIGURES

Confirmatory Sampling Report
South Fuel Farm Oil-Water Separator, SFF-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Figure	Title	Page No.
1	Monitoring well and Soil Boring Locations	2

LIST OF TABLES

Table	Title	Page No.
1	Soil Screening Results	4
2	Summary of Subsurface Soil Analytical Detections	5
3	Summary of Groundwater Analytical Results	6

GLOSSARY

bls	below land surface
FDEP	Florida Department of Environmental Protection
OVA	organic vapor analyzer
TRPH	total recoverable petroleum hydrocarbons

1.0 INTRODUCTION

Harding Lawson Associates, under contract to the Southern Division, Naval Facilities Engineering Command, has completed confirmatory sampling for oil-water separator, SFF-OW at Naval Air Station Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations.

Oil-water separator, SFF-OW was located at the north end of the South Fuel Farm (Figure 1). The location of the former oil-water separator is also within the area of ongoing remediation of the South Fuel Farm (Figure 1). The remediation system is biosparging and bioventing and is treating contaminated soil and groundwater. The oil-water separator was installed in 1989 and had a 1,000-gallon capacity.

Oil-water separator, SFF-OW was removed by Bechtel Environmental, Inc. on April 30, 1997. A Closure Report was prepared and submitted to Florida Department of Environmental Protection (FDEP) in July 1997. No contaminated soil was detected during removal of the oil-water separator.

2.0 FIELD INVESTIGATION

The confirmatory sampling for oil-water separator, SFF-OW was initiated in July, 1998 and included

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

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).

One subsurface soil sample was collected on October 13, 1998 and analyzed for the Used Oil Group parameters. Sample CEF-SFF-SB1 was collected from 7 feet bls at the location of soil screening boring SB1.

One monitoring well, CEF-SFFOW-1S, was installed at the location of soil boring SB1 which had the highest OVA reading (greater than 5,000 ppm at the water table). A groundwater sample was collected from this well and analyzed for the Used Oil Group parameters. A general site plan indicating the location of the soil borings and monitoring wells is presented on Figure 1. The monitoring well installation detail is included in Appendix A.

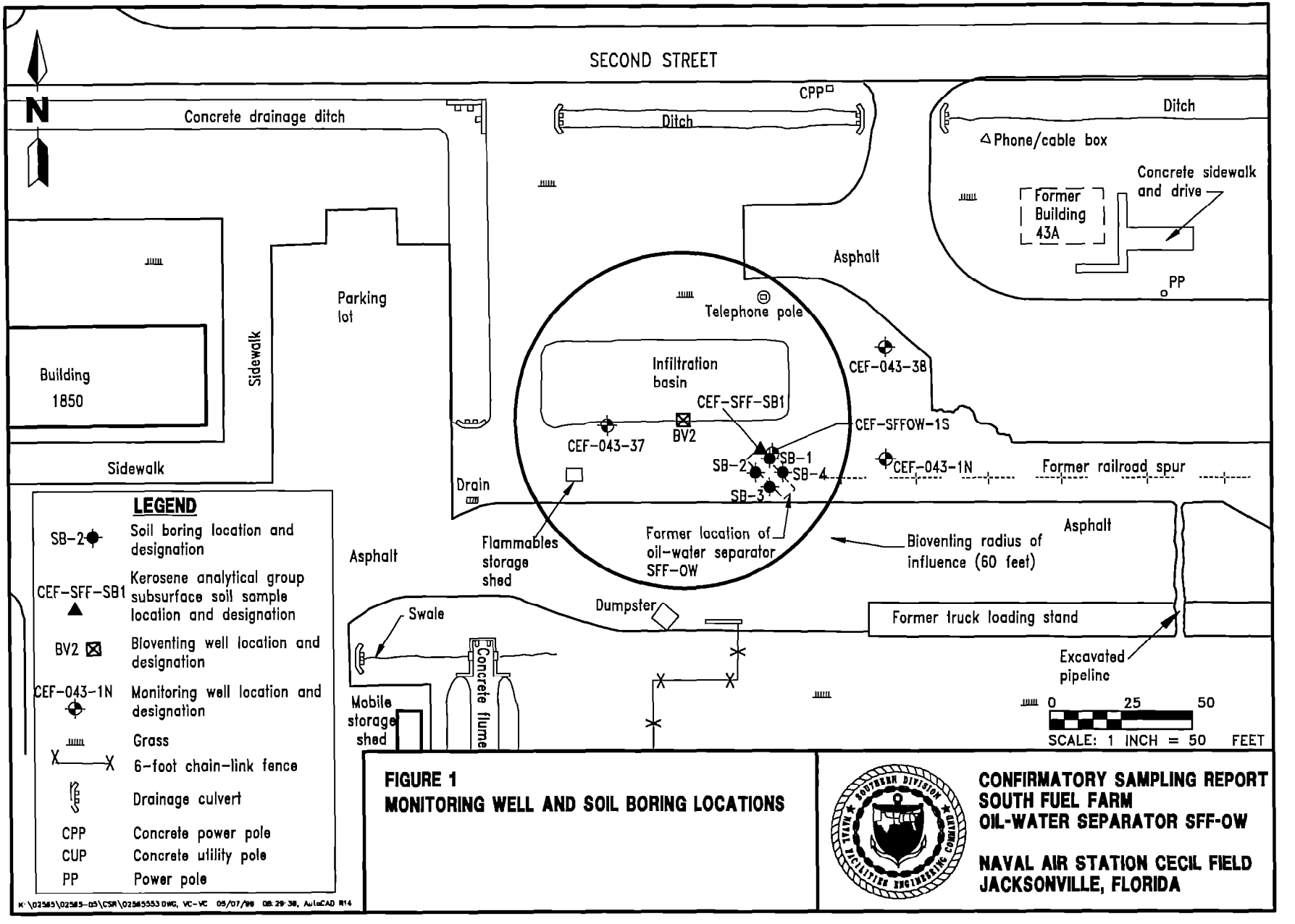

FIGURE 1
MONITORING WELL AND SOIL BORING LOCATIONS

CONFIRMATORY SAMPLING REPORT
SOUTH FUEL FARM
OIL-WATER SEPARATOR SFF-OW

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil (greater than 50 parts per million on an OVA) was detected in three of the four soil borings advanced during the confirmatory sampling. The soil OVA data are summarized in Table 1 and presented on Figure 1.

TRPH was the only contaminant detected above FDEP soil cleanup target levels in the subsurface soil sample collected for used oil analysis. Subsurface soil analytical results are summarized in Table 2 and presented in Appendix B.

Ethylbenzene, xylene, acenaphthene, and naphthalene were detected above FDEP groundwater cleanup target levels in the groundwater sample collected from monitoring well CEF-SFFOW-1S. A summary of the groundwater analytical results is presented in Table 3. The complete analytical data set is presented in Appendix B.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling of oil-water separator, SFF-OW indicated the presence of soil and groundwater contamination at levels above cleanup target levels. However, the location of the former oil-water separator is within the area of the South Fuel Farm biosparging and bioventing remediation system. Therefore, ongoing remediation is treating soil and groundwater contamination and it is recommended that no further action (other than to continue operating the remediation system) take place at the oil-water separator, SFF-OW site.

Table 1
Soil Screening Results

Confirmatory Sampling Report
Oil-Water Separator, SFF-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB1	1	3	0	3
	3	6	0	6
	5	350	0	350
	7	3,000	0	3,000
	8 (wet)	>5,000	0	>5,000
SB2	1	0	--	0
	3	0	--	0
	5	0	--	0
SB3	3	240	0	240
	5	410	0	410
SB4	3	2,000	0	2,000
	5	1,500	0	1,500

Notes: Soil samples were filtered with carbon to determine the methane concentration.

OVA = organic vapor analyzer.
ppm = parts per million.
bls = below land surface.
wet = soil sample was completely saturated when analyzed.
> = greater than.
-- = filtered readings were not collected.

Table 2
Summary of Subsurface Soil Analytical Detections

Confirmatory Sampling Report
Oil-Water Separator, SFF-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-SFF-SB1 (7 ft bls; OVA = 3,000 ppm)	Soil Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 8020) (mg/kg)		
Not detected.		
Polynuclear Aromatic Hydrocarbons (USEPA Method 8310) (mg/kg)		
2-Methylnaphthalene	2.1	NA
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/kg)		
TRPH	**1,400**	350/340
Inorganic Analytes (mg/kg)		
Chromium	6.4	290/TCLP
Lead	14 J	500/TCLP
Mercury	0.016 J	3.7/TCLP

[1] Chapter 62-770, Florida Administrative Code: Direct Exposure 1/Leachability, Table V.

Notes: Bold indicates concentration exceeds cleanup target level.

ft = feet.
bls = below land surface.
OVA = organic vapor analyzer.
ppm = parts per million.
USEPA = U.S. Environmental Protection Agency.
mg/kg = milligrams per kilogram.
NA = not applicable.
FL=PRO = Florida-Petroleum Residual Organics.
TCLP = toxicity characteristic leaching procedure.
J = estimated value.

Table 3
Summary of Groundwater Analytical Results

Confirmatory Sampling Report
Oil-Water Separator, SFF-OW
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-SFFOW-1S	Groundwater Cleanup Target Levels[1]
Volatile Organic Aromatics (USEPA Method 601/602) (μg/ℓ)		
Ethylbenzene	**92**	30
Xylenes	**176**	20
Polynuclear Aromatic Hydrocarbons (USEPA Method 625) (μg/ℓ)		
Acenaphthene	**22**	20
Anthracene	0.5	2,100
Benzo(a)anthracene	0.06 J	0.2
Benzo(a)pyrene	0.05 J	0.2
Chrysene	0.1	5
Fluorene	5	280
Benzo(g,h,i)perylene	0.15 J	210
Naphthalene	**170**	20
Phenanthrene	3	210
1-Methylnaphthalene	220	NA
2-Methylnaphthalene	150	NA
Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/ℓ)		
TRPH	0.4	5
Inorganic Analytes (μg/ℓ)		
Not detected.		

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

Notes: USEPA = U.S. Environmental Protection Agency.
μg/ℓ = micrograms per liter.
J = estimated value.
NA = not applicable.
FL-PRO = Florida Petroleum Residual Organics.
mg/ℓ = milligrams per liter.

APPENDIX A

MONITORING WELL INSTALLATION DETAIL

TITLE: NAS Cecil Field, SFF Site Assessment Report		LOG of WELL: CEF-SFFo/w-1S	BORING NO. CEF-SFFo/w-1S
CLIENT: SOUTHDIVNAVFACENGCOM			PROJECT NO: 02565.03
CONTRACTOR: U.S. Probe and Drill		DATE STARTED: 09-23-98	COMPLTD: 09-23-98
METHOD: HSA	CASE SIZE: 2in.	SCREEN INT.: 4-14 ft.	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 14.5FT.	DPTH TO ∇ 5.34 FT.
LOGGED BY: H.Hooper	WELL DEVELOPMENT DATE: 09-25-98		SITE: SFF

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									
4					SILTY SAND: brown, silty fine sand.			posthole	
5									∇
6									
7								*	
								**	
8									
9									
10									
11									
12									
13					<> Soil description taken from posthole and auger.				
					* no split spoon samples taken				
14					** no OVA readings taken				
15									

HARDING LAWSON ASSOCIATES

APPENDIX B

ANALYTICAL DATA

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT SFF
SUBSURFACE SOIL -- ANALYTICAL DATA -- REPORT REQUEST NO. 10550

Lab Sample Number:	JR36657			
Site	UST GREY			
Locator	CEF-SFF-SB1			
Collect Date:	13-OCT-98			
	VALUE	QUAL	UNITS	DL
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-Dichlorobenzene	390	U	ug/kg	390
1,2-Dichloroethane	120	U	ug/kg	120
1,2-Dichloropropane	120	U	ug/kg	120
1,3-Dichlorobenzene	390	U	ug/kg	390
1,4-Dichlorobenzene	390	U	ug/kg	390
Benzene	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	120	U	ug/kg	120
Chloroform	120	U	ug/kg	120
Chloromethane	120	U	ug/kg	120
Dibromochloromethane	120	U	ug/kg	120
Ethyl benzene	120	U	ug/kg	120
Methyl chloride	120	U	ug/kg	120
Tetrachloroethene	120	U	ug/kg	120
Toluene	120	U	ug/kg	120
Trichloroethene	120	U	ug/kg	120
Vinyl chloride	120	U	ug/kg	120
cis-1,3-Dichloropropene	120	U	ug/kg	120
m,p-Xylene	120	U	ug/kg	120
o-Xylene	120	U	ug/kg	120
trans-1,2-Dichloroethene	120	U	ug/kg	120
trans-1,3-Dichloropropene	120	U	ug/kg	120
BRAC SEMIVOLATILES				
Phenol	390	U	ug/kg	390
bis(2-Chloroethyl)ether	390	U	ug/kg	390
1,3-Dichlorobenzene	390	U	ug/kg	390
1,4-Dichlorobenzene	390	U	ug/kg	390
1,2-Dichlorobenzene	390	U	ug/kg	390
N-Nitroso-di-n-propylamine	390	U	ug/kg	390
Hexachloroethane	390	U	ug/kg	390
Nitrobenzene	390	U	ug/kg	390
Isophorone	390	U	ug/kg	390
2-Nitrophenol	390	U	ug/kg	390
2,4-Dimethylphenol	390	U	ug/kg	390
bis(2-Chloroethoxy) methane	390	U	ug/kg	390
2,4-Dichlorophenol	390	U	ug/kg	390
1,2,4-Trichlorobenzene	390	U	ug/kg	390
Naphthalene	390	U	ug/kg	390
Hexachlorobutadiene	390	U	ug/kg	390
4-Chloro-3-methylphenol	390	U	ug/kg	390

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT SFF
SUBSURFACE SOIL -- ANALYTICAL DATA -- REPORT REQUEST NO. 10550

Lab Sample Number:	JR36657			
Site	UST GREY			
Locator	CEF-SFF-SB1			
Collect Date:	13-OCT-98			
	VALUE	QUAL	UNITS	DL
2-Methylnaphthalene	2100		ug/kg	390
2,4,6-Trichlorophenol	390	U	ug/kg	390
2-Chloronaphthalene	390	U	ug/kg	390
Dimethylphthalate	390	U	ug/kg	390
Acenaphthylene	390	U	ug/kg	390
2,4-Dinitrophenol	1900	U	ug/kg	1900
3- & 4-Methylphenol (2)	390	U	ug/kg	390
4-Nitrophenol	390	U	ug/kg	390
2,4-Dinitrotoluene	390	U	ug/kg	390
Diethylphthalate	390	U	ug/kg	390
4-Chlorophenyl-phenylether	390	U	ug/kg	390
Fluorene	390	U	ug/kg	390
4,6-Dinitro-2-methylphenol	1200	U	ug/kg	1200
4-Bromophenyl-phenylether	390	U	ug/kg	390
Hexachlorobenzene	390	U	ug/kg	390
Pentachlorophenol	390	U	ug/kg	390
Phenanthrene	390	U	ug/kg	390
Anthracene	390	U	ug/kg	390
Di-n-butylphthalate	390	U	ug/kg	390
Fluoranthene	390	U	ug/kg	390
Pyrene	390	U	ug/kg	390
3,3-Dichlorobenzidine	780	U	ug/kg	780
Benzo (a) anthracene	390	U	ug/kg	390
Chrysene	390	U	ug/kg	390
bis(2-Ethylhexyl) phthalate	390	U	ug/kg	390
Di-n-octylphthalate	390	U	ug/kg	390
Benzo (b) fluoranthene	390	U	ug/kg	390
Benzo (k) fluoranthene	390	U	ug/kg	390
Benzo (a) pyrene	390	U	ug/kg	390
Indeno (1,2,3-cd) pyrene	390	U	ug/kg	390
Dibenzo (a,h) anthracene	390	U	ug/kg	390
Benzo (g,h,i) perylene	390	U	ug/kg	390
FLA PRO				
TPH C8-C40	1400		mg/kg	39
Arsenic	1	U	mg/kg	1
Barium	47	U	mg/kg	47
Cadmium	2	U	mg/kg	2
Chromium	6.4		mg/kg	2
Lead	14	J	mg/kg	8
Mercury	.016	J	mg/kg	.01
Selenium	5	U	mg/kg	5
Silver	5	U	mg/kg	5

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

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT SFF
GROUNDWATER -- ANALYTICAL DATA -- REPORT REQUEST NO. 10577

Lab Sample Number:	JR42212			
Site	UST GREY			
Locator	CEF-SFF-OW1S			
Collect Date:	18-NOV-98			
	VALUE	QUAL	UNITS	DL
BRAC VOLATILES				
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
1,2-Dichloroethane	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1
1,3-Dichlorobenzene	1	U	ug/l	1
1,4-Dichlorobenzene	1	U	ug/l	1
Benzene	1	U	ug/l	1
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
Chloroethane	2	U	ug/l	2
Chloroform	1	U	ug/l	1
Chloromethane	2	U	ug/l	2
Dibromochloromethane	1	U	ug/l	1
Ethyl benzene	92		ug/l	1
Methyl chloride	2	U	ug/l	2
Tetrachloroethene	1	U	ug/l	1
Toluene	2		ug/l	1
Trichloroethene	1	U	ug/l	1
Vinyl chloride	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1
m,p-Xylene	130		ug/l	1
o-Xylene	46		ug/l	1
trans-1,2-Dichloroethene	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1
PAHs				
Acenaphthene	22		ug/l	.5
Acenaphthylene	1	U	ug/l	1
Anthracene	.5		ug/l	.05
Benzo (a) anthracene	.06	J	ug/l	.05
Benzo (b) fluoranthene	.1	U	ug/l	.1
Benzo (k) fluoranthene	.05	U	ug/l	.05
Benzo (a) pyrene	.05	J	ug/l	.05
Chrysene	.1		ug/l	.05
Dibenzo (a,h) anthracene	.1	U	ug/l	.1
Fluoranthene	.1	U	ug/l	.1
Fluorene	5		ug/l	.1
Indeno (1,2,3-cd) pyrene	.05	U	ug/l	.05
Benzo (g,h,i) perylene	.15	J	ug/l	.1
Naphthalene	170		ug/l	.5
Phenanthrene	3		ug/l	.05
Pyrene	.05	U	ug/l	.05

NAS CECIL FIELD -- OIL/WATER SEPARATOR AT SFF
GROUNDWATER -- ANALYTICAL DATA -- REPORT REQUEST NO. 10577

Lab Sample Number:	JR42212			
Site	UST GREY			
Locator	CEF-SFF-OW1S			
Collect Date:	18-NOV-98			
	VALUE	QUAL	UNITS	DL
1-Methylnaphthalene	220		ug/l	.5
2-Methylnaphthalene	150		ug/l	.5
FLA PRO				
TPH C8-C40	.4		mg/l	.2
Arsenic	.01	U	mg/l	.01
Barium	.1	U	mg/l	.1
Cadmium	.001	U	mg/l	.001
Chromium	.01	U	mg/l	.01
Lead	.005	U	mg/l	.005
Mercury	.0002	U	mg/l	.0002
Selenium	.01	U	mg/l	.01
Silver	.01	U	mg/l	.01

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