

N60200.AR.001672
NAS CECIL FIELD, FL
5090.3a

SITE ASSESSMENT REPORT FOR BUILDING 428 TANK 428 BASE REALIGNMENT AND
CLOSURE UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK
GREY SITES REVISION 1 NAS CECIL FIELD FL
2/1/1999
HARDING LAWSON ASSOCIATES

SITE ASSESSMENT REPORT
BUILDING 428, TANK 428
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-0317/090

Prepared by:

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

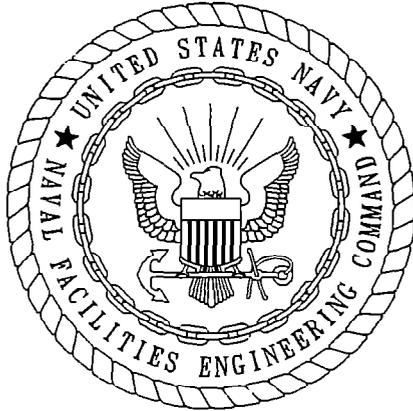
Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Bryan Kizer, Code 1842, Engineer-in-Charge

February 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: February 16, 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)

TABLE OF CONTENTS

Site Assessment Report
Building 428, Tank 428
Naval Air Station Cecil Field
Jacksonville, Florida

<u>Chapter</u>	<u>Title</u>	<u>Page No.</u>
1.0	INTRODUCTION	1
2.0	FIELD INVESTIGATION	1
3.0	SCREENING AND ANALYTICAL RESULTS	4
4.0	CONCLUSIONS AND RECOMMENDATIONS	4
5.0	PROFESSIONAL REVIEW CERTIFICATION	8

REFERENCES

APPENDICES

- Appendix A: Closure Assessment Report
- Appendix B: Monitoring Well Installation Detail
- Appendix C: Groundwater Analytical Data

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
FDEP	Florida Department of Environmental Protection
GCTL	groundwater cleanup target level
HLA	Harding Lawson Associates
ISI	Innovative Services International, Inc.
KAG	Kerosene Analytical Group
MONA	monitoring only for natural attenuation
$\mu\text{g}/\ell$	micrograms per liter
NAS	Naval Air Station
OVA	organic vapor analyzer
SA	site assessment
SCTL	soil cleanup target level
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank

LIST OF FIGURES

Site Assessment Report
Building 428, Tank 428
Naval Air Station Cecil Field
Jacksonville, Florida

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1	Tank 428, Base Family Housing	2
2	Soil Boring and Monitoring Well Locations	3

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
1	Soil Screening Results	5
2	Summary of Subsurface Soil Analytical Detections	6
3	Summary of Groundwater Analytical Detections	7

1.0 INTRODUCTION

Harding Lawson Associates (HLA), under contract to the Southern Division, Naval Facilities Engineering Command, has completed the site assessment (SA) for Tank 428 at Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. This report summarizes the related field operations, results, conclusions, and recommendations of the SA.

Tank 428 was an underground storage tank (UST) located on the north side of Building 428, a duplex for family housing (Figure 1). The UST, which was installed in 1955, had a 350-gallon capacity and was used to store fuel oil for on-site heating (ABB Environmental Services, Inc. [ABB-ES], 1997). Tank 428 was removed by Innovative Services International, Inc. (ISI), on July 10, 1995. A closure assessment report (Appendix A) was prepared for Tank 428 and submitted to the Florida Department of Environmental Protection (FDEP) (ISI, 1995). The closure assessment report indicated that groundwater contamination was present above State target levels and that excessively contaminated soil was present at the site but did not indicate whether or not the excessively contaminated soil was removed. Therefore, to evaluate the current soil and groundwater conditions, the petroleum subcommittee (selected by the NAS Cecil Field partnering team) identified locations for soil screening and monitoring well installation. A contamination assessment plan for the Tank 428 site was prepared by HLA (then ABB-ES) in November 1996 (ABB-ES, 1996).

2.0 FIELD INVESTIGATION

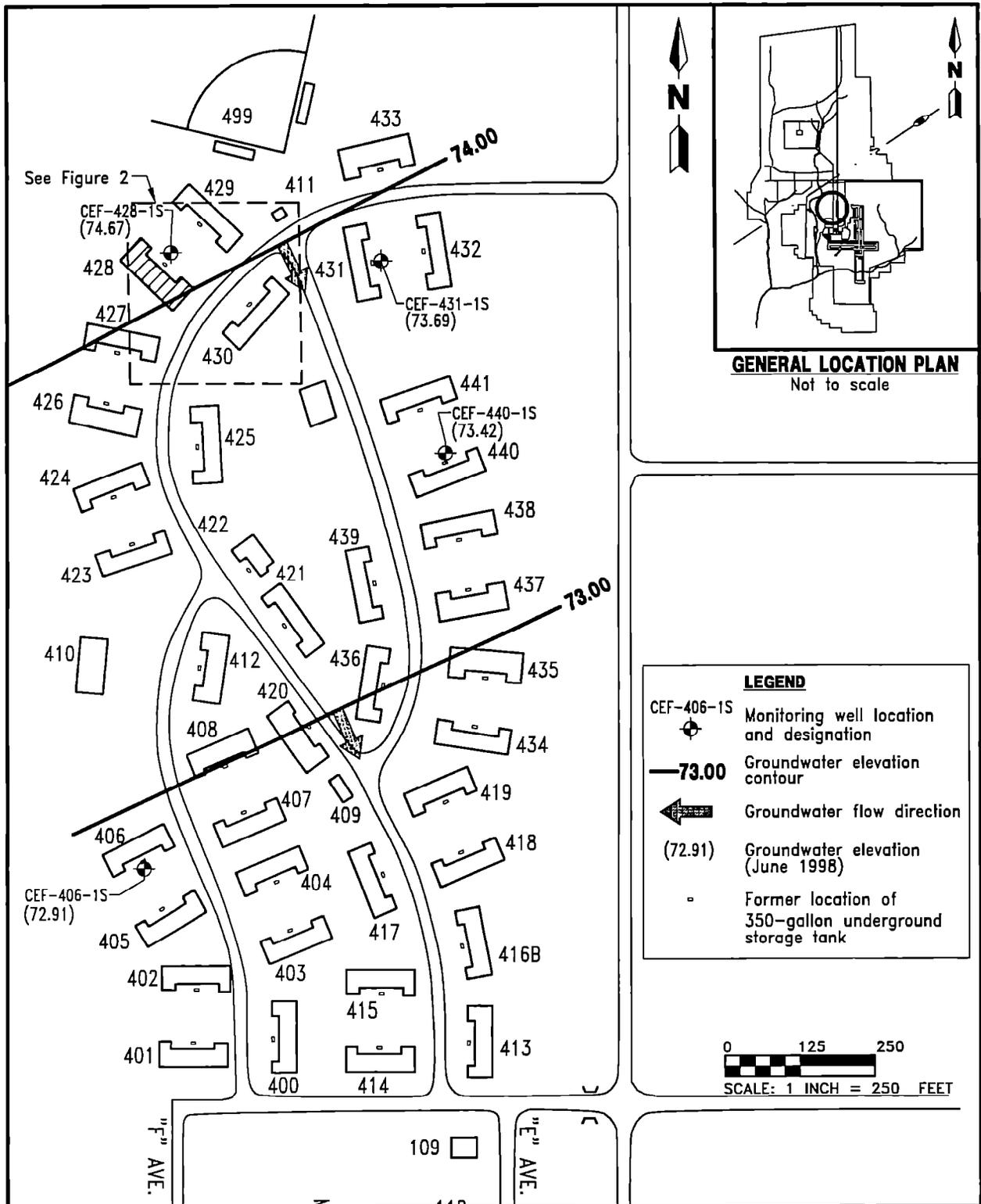
The SA at Tank 428 was initiated in June 1997 and included

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

Soil samples were collected 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, CEF-428-SB1, was collected from 3 feet bls in the center of the tank excavation boundary and analyzed for the Kerosene Analytical Group (KAG) parameters.

Two monitoring wells, CEF-428-1S and CEF-428-2S, were hand installed (the locations were inaccessible to a drill rig) at the former UST location to a depth of 6 feet bls. Monitoring well CEF-428-2S, the downgradient well, was located based on the groundwater flow direction, which is shown on Figure 1. Groundwater samples were collected and analyzed for the KAG parameters. A general site plan indicating the location of the two monitoring wells and the four soil borings is presented on Figure 2. The monitoring well installation detail is included in Appendix B.



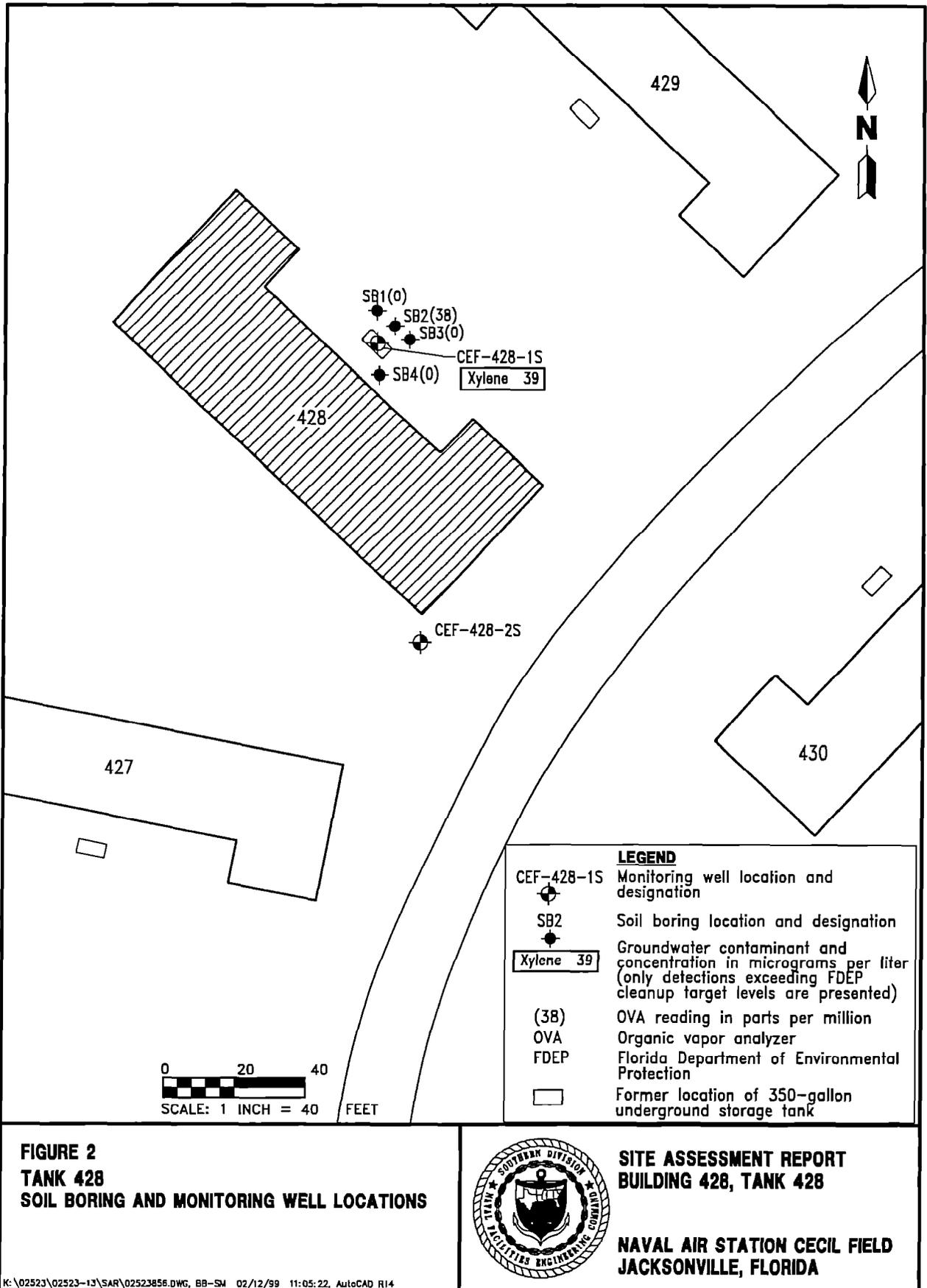
**FIGURE 1
TANK 428
BASE FAMILY HOUSING**



**SITE ASSESSMENT REPORT
BUILDING 428, TANK 428**

**NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA**

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**FIGURE 2
TANK 428
SOIL BORING AND MONITORING WELL LOCATIONS**



**SITE ASSESSMENT REPORT
BUILDING 428, TANK 428**

**NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA**

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3.0 SCREENING AND ANALYTICAL RESULTS

Excessively contaminated soil was not detected in soil samples collected from the unsaturated zone during the confirmatory sampling. The soil OVA data are summarized in Table 1.

No contaminants were detected above soil cleanup target levels (SCTLs) in subsurface soil sample CEF-428-SB1. Analytical results are summarized in Table 2 and presented in Appendix C.

Contaminant concentrations in groundwater (with the exception of the xylene concentration) were below the regulatory standards for Class G-II groundwater as specified in Chapter 62-770 of the Florida Administrative Code (Table 3). Xylene was detected in monitoring well CEF-428-1S at a concentration of 39 micrograms per liter ($\mu\text{g}/\ell$), which exceeds the FDEP groundwater cleanup target level (GCTL) of 20 $\mu\text{g}/\ell$. No contamination was detected in the downgradient monitoring well CEF-428-2S. The complete analytical data set is presented in Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the confirmatory sampling at the Tank 428 site did not indicate the presence of excessively contaminated soil.

No contaminants were detected in subsurface soil sample CEF-428-SB1 above SCTLs.

Xylene was detected above the FDEP GCTL in monitoring well CEF-428-1S.

Based on the presence of groundwater contaminants above FDEP GCTLs, it is recommended that monitoring only for natural attenuation (MONA) be implemented at the Tank 428 site. For the MONA, monitoring wells CEF-428-1S and CEF-428-2S should be monitored for volatile organic compounds (U.S. Environmental Protection Agency [USEPA] Method 602) and semivolatile organic compounds (USEPA Method 610) on a semiannual basis. The groundwater monitoring should continue until contaminant concentrations are below FDEP cleanup target levels for two consecutive sampling events.

**Table 1
Soil Screening Results**

Site Assessment Report
Building 428, Tank 428
Naval Air Station Cecil Field
Jacksonville, Florida

Location	OVA Concentration (ppm)			Actual
	Depth (feet bls)	Unfiltered	Filtered	
SB-1	1	0	-	0
	3 (wet)	0	-	0
SB-2	1	38	0	38
	3 (wet)	0	-	0
SB-3	1	0	-	0
	3 (wet)	0	-	0
SB-4	1	0	-	0
	3 (wet)	0	-	0

Notes: All soil samples were collected on June 5 and 13, 1997.
Soil samples were filtered with carbon to determine the methane concentration.

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

**Table 2
Summary of Subsurface Soil Analytical Detections**

Site Assessment Report
Building 428, Tank 428
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	CEF-428-SB1 (3 feet bls; OVA = 0 ppm)	Soil Cleanup Target Levels ¹
<u>Volatile Organic Aromatics (USEPA Method 8020) (mg/kg)</u>		
No compounds detected		
<u>Polynuclear Aromatic Hydrocarbons (USEPA Method 8310) (mg/kg)</u>		
Anthracene	0.023	19,000/2,000
Chrysene	0.045	140/80
Indeno(1,2,3-cd)pyrene	0.0055	1.5/28
Benzo(g,h,i)perylene	0.009	2,300/13,000
<u>Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/kg)</u>		
TRPH	270	350/340
¹ Chapter 62-770, Florida Administrative Code: Direct Exposure I/Leachability, Table V. Notes: bls = below land surface. OVA = organic vapor analyzer. ppm = parts per million. USEPA = U.S. Environmental Protection Agency. mg/kg = milligrams per kilogram. FL-PRO = Florida-Petroleum Residual Organics.		

**Table 3
Summary of Groundwater Analytical Detections**

Site Assessment Report
Building 428, Tank 428
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Monitoring Wells			Groundwater Cleanup Target Levels ¹
	ISI Temporary Well	CEF-428-1S	CEF-428-2S	
<u>Volatile Organic Aromatics (USEPA Method 601/602) (µg/l)</u>				
Ethylbenzene	18	2.9	ND	30
Toluene	ND	1.5	ND	40
Xylenes	280	39	ND	20
<u>Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/l)</u>				
Naphthalene	69	ND	ND	20
1-Methylnaphthalene	730	35	ND	NA
2-Methylnaphthalene	1,100	22	ND	NA
Acenaphthene	85	ND	ND	20
Fluorene	120	ND	ND	280
Phenanthrene	290	ND	ND	210
<u>Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/l)</u>				
TRPH	178	3.3	ND	5
<u>Lead (USEPA Method 239.2) (µg/l)</u>				
Lead	9	ND	NS	15

¹ Chapter 62-770, Florida Administrative Code.

Notes: Groundwater samples were collected by ISI on May 5, 1995, and by HLA on August 6, 1997.
TRPH was analyzed by USEPA Method 418.1 during the 1995 sampling event.

ISI = Innovative Services International, Inc.
USEPA = U.S. Environmental Protection Agency.
µg/l = micrograms per liter.
ND = compound not detected.
NA = no applicable standard.
FL-PRO = Florida-Petroleum Residual Organics.
mg/l = milligrams per liter.
NS = not sampled.
HLA = Harding Lawson Associates.

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 428 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

2-19-99

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).

Innovative Services International, Inc. 1995. *Closure Report for Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida*.

APPENDIX A
CLOSURE ASSESSMENT REPORT



Florida Department of Environmental Regulation

Twin Towers Office Bldg • 2600 West Stone Road • Tallahassee, Florida 32399-2410

DER Form #	17-761A(2)(a)
Form #	Closure Assessment Form
Effective Date	December 10 1991
DER Application No.	

Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assessment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type
Complete All Applicable Blanks

1. Date: July 10, 1995
2. DER Facility ID Number: N/A 3. County: Duval
4. Facility Name: Naval Air Station - Cecil Field Enlisted Housing Unit # 428
5. Facility Owner: U.S. Navy
6. Facility Address: Naval Air Station - Cecil Field
7. Mailing Address: Naval Air Station - Cecil Field
8. Telephone Number: (____) _____ 9. Facility Operator: U.S. Navy
10. Are the Storage Tank(s): (Circle one or both) A. Aboveground or B. Underground
Type of Product(s) Stored: #2 Heating Oil
12. Were the Tank(s): (Circle one) A. Replaced B. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks Closed: One (1) 14. Age of Tanks: Unknown

Facility Assessment Information

Yes No Not Applicable

- | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | 1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | | 2. Was a Discharge Reporting Form submitted to the Department?
If yes, When: _____ Where: _____ |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Is the depth to ground water less than 20 feet? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Are monitoring wells present around the storage system?
If yes, specify type: <input type="checkbox"/> Water monitoring <input type="checkbox"/> Vapor monitoring |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 5. Is there free product present in the monitoring wells or within the excavation? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline?
Specify sample type: <input type="checkbox"/> Vapor Monitoring wells <input type="checkbox"/> Soil sample(s) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene?
Specify sample type: <input type="checkbox"/> Vapor Monitoring wells <input checked="" type="checkbox"/> Soil sample(s) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels?
(See target levels on reverse side of this form and supply laboratory data sheets) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | 10. Are any potable wells located within 1/4 of a mile radius of the facility? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | | 11. Is there a surface water body within 1/4 mile radius of the site? If yes, indicate distance: _____ |

17-761.900(1)
 Closure Assessment Form
 Department of Environmental Protection
 100 North Salisbury Street
 Raleigh, NC 27601
 Printed on Recycled Paper

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner

Date



 Signature of Person Performing Assessment

7/12/55

 Date

 Professional Geologist

 Title of Person Performing Assessment

State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):

- a. Benzene 1 ug/l
- b. Total VOA 50 ug/l
 - Benzene
 - Toluene
 - Total Xylenes
 - Ethylbenzene
- c. Methyl Tertiary-Butyl Ether (MTBE) 50 ug/l

2. For kerosene/diesel (EPA Method 610):

- a. Polynuclear Aromatic Hydrocarbons (PAHS)
(Best achievable detection limit, 10 ug/l maximum)



DER Form #	17-761.800(5)
Underground Storage Tank Installation & Removal Form for Certified Contractors	
Effective Date	December 10, 1990
DER Approval No.	(Filled in by DER)

Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 489.113, Florida Statutes (Certified contractors as defined in Section 17-761.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards.

General Facility Information

1. DER Facility Identification No.: N/A
2. Facility Name: Naval Air Station - Cecil Field Enlist Telephone: (____) _____
3. Street Address (physical location): Naval Air Station - Cecil Field Housing #42B
4. Owner Name: U.S. Navy Telephone: (____) _____
5. Owner Address: Naval Air Station - Cecil Field
6. Number of Tanks: a. Installed at this time _____ b. Removed at this time One
7. Tank(s) Manufactured by: Unknown
8. Date Work Initiated: _____ 9. Date Work Completed: _____

Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

1. The tanks and piping are corrosion resistant and approved for use by State and Federal Laws.
2. Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications.
3. Tanks and piping pretested and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications.
4. Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1746, STI (Steel Tank Institute) R892-89 and the manufacturer's specifications.
5. Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87.
6. Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-761.640, Florida Administrative Code (F.A.C.)
7. Spill and overflow protection devices installed in accordance with Section 17-761.500, F.A.C.
8. Secondary containment installed for tanks and piping as applicable in accordance with Section 17-761.500, F.A.C.

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these institutions.

Underground Pollutant Tank Removal Checklist

- Closure assessment performed in accordance with Section 17-761.800, F.A.C.
- Underground tank removed and disposed of as specified in API 1604 in accordance with Section 17-761.800, F.A.C.

DER Form	17-761.500(5)
Underground Storage Tank Installation & Removal Form for Certified Contractors	
Effective Date	December 10, 1990
DER Approval No.	Printed by DER

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 489 and Section 376.303, Florida Statutes and Chapter 17-761, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM); Petroleum Equipment Institute (PEI); Steel Tank Institute (STI); Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

Robert Boardman

(Type or Print)

Certified Pollutant Tank Contractor Name
Pollutant Storage System Specialty Contractor License Number (PSSSC)

FCC 054952

PSSSC Number

[Signature]

Certified Tank Contractor Signature

7-12-95

Date

Vernon McKinnow

(Type or Print)

Field Supervisor Name

7-12-95

Date

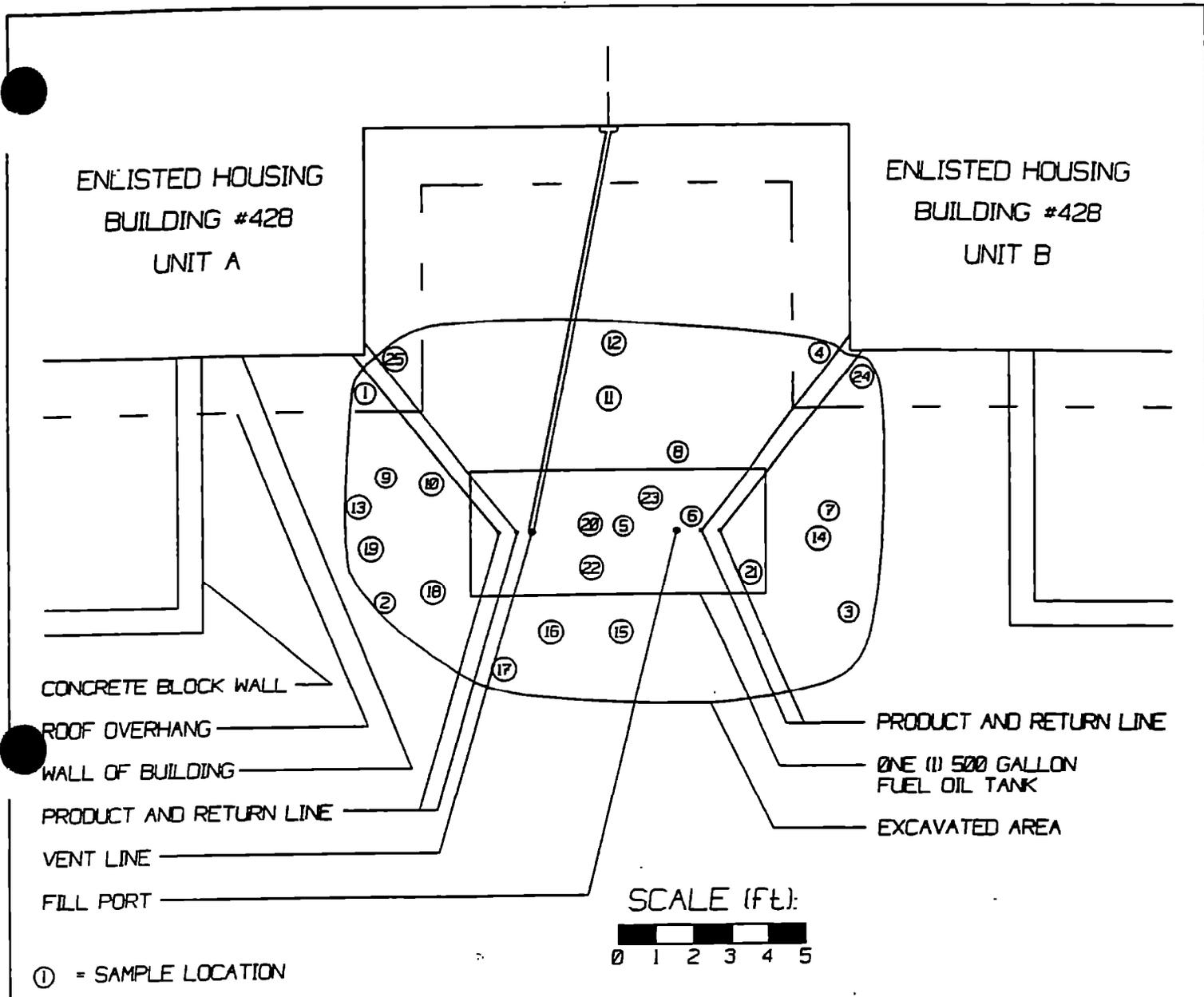
[Signature]

Field Supervisor Signature

7-12-95

Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the top of page one.



SAMPLE #	HC READING	DEPTH	SAMPLE #	HC READING	DEPTH	SAMPLE #	HC READING	DEPTH
1	65.0	1'	10	21.0	25'	18	156	25-30'
2	6.1	1'	11	117.0	2'	19	15.0	4.5'
3	16.0	1'	12	1.7	25'	20	65.3	4.5'
4	6.7	1'	13	8.0	25'	21	14.4	4.5'
5	122	1'	14	1.4	15'	22	66.5	4'
6	13.0	1'	15	8.4	25'	23	111.2	4.5'
7	11.0	1'	16	8.3	25-30'	24	20.0	1'
8	1.0	2'	17	6.1	25-30'	25	2.0	1'
9	11.0	25'						

ALL SAMPLES ANALYZED WITH A THERMO ENVIRONMENTAL INSTRUMENTS MODEL 5828 PHOTOIONIZATION DETECTOR.



**INNOVATIVE
SERVICES
INTERNATIONAL, INC.**

SITE PLAN

ENLISTED HOUSING UNIT #428

NAVAL AIR STATION
CECIL FIELD
JACKSONVILLE, FLORIDA

IS1100014396
 Attn: RON BOARDMAN

P.O. BOX 150016
 NAS CECIL FIELD, FL
 32215

Page 7
 16 May 1995
 Report J5-05-070-03
 LAB ID. 82223/E82101

Sample Description:
 CECIL FIELD TANK PULLS / N.A.S. CECIL FIELD
 BLDG. 428 MONITOR WELL
 GROUNDWATER

SAMPLE ID.: 428
 COLLECTED: 05/05/95 15:30
 RECEIVED: 05/05/95
 COLLECTED BY: J. BAKER

Parameter	Result	Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Job: MONWEL MONITOR WELL ANALYSIS							
Hydrocarbons, Total IR	178	µg/L	418.1	0.200	05/12/95	05/12/95	AM
Lead, Total	0.009	µg/L	239.2	0.005	05/09/95	05/11/95	KAC
Polynuclear Aromatics			625\8270				
Naphthalene	69	µg/L		20	05/11/95	05/16/95	AT
Acenaphthylene	BDL	µg/L		20	05/11/95	05/16/95	AT
1-Methylnaphthalene	730	µg/L		20	05/11/95	05/16/95	AT
2-Methylnaphthalene	1100	µg/L		20	05/11/95	05/16/95	AT
Acenaphthene	85	µg/L		20	05/11/95	05/16/95	AT
Fluorene	120	µg/L		20	05/11/95	05/16/95	AT
Phenanthrene	290	µg/L		20	05/11/95	05/16/95	AT
Anthracene	BDL	µg/L		20	05/11/95	05/16/95	AT
Fluoranthene	BDL	µg/L		20	05/11/95	05/16/95	AT
Pyrene	BDL	µg/L		20	05/11/95	05/16/95	AT
Benzo(a)anthracene	BDL	µg/L		20	05/11/95	05/16/95	AT
Chrysene	BDL	µg/L		20	05/11/95	05/16/95	AT
Benzo(b)fluoranthene	BDL	µg/L		20	05/11/95	05/16/95	AT
Benzo(k)fluoranthene	BDL	µg/L		20	05/11/95	05/16/95	AT
Benzo(a)pyrene	BDL	µg/L		20	05/11/95	05/16/95	AT
Indeno(1,2,3-c,d)pyrene	BDL	µg/L		20	05/11/95	05/16/95	AT
Dibenzo(a,h)anthracene	BDL	µg/L		20	05/11/95	05/16/95	AT
Benzo(g,h,i)perylene	BDL	µg/L		20	05/11/95	05/16/95	AT
Surrogates							
Nitrobenzene-d5	98	Min: 35		Max: 114			
2-Fluorobiphenyl	87	Min: 43		Max: 116			
4-Terphenyl-d14	89	Min: 33		Max: 141			
Volatile Aromatics			602				
Methyl-tert-butyl ether	BDL	µg/L		50	05/09/95	05/09/95	MD
Benzene	BDL	µg/L		10	05/09/95	05/09/95	MD

ISI100014396
 Attn: RON BOARDMAN
 P.O. BOX 150016
 NAS CECIL FIELD, FL
 32215

Page 8
 16 May 1995
 Report J5-05-070-03
 LAB ID. 82223/EB2101

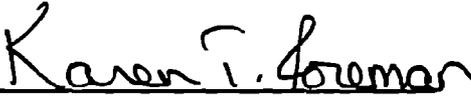
Parameter	Result	Units	Method	Det. Limit	Extracted	Analyzed	Analyst
Toluene	BDL	µg/L		10	05/09/95	05/09/95	MD
Ethyl benzene	18	µg/L		10	05/09/95	05/09/95	MD
Xylene, Total	280	µg/L		10	05/09/95	05/09/95	MD
Chlorobenzene	BDL	µg/L		10	05/09/95	05/09/95	MD
1,4-Dichlorobenzene	BDL	µg/L		10	05/09/95	05/09/95	MD
1,3-Dichlorobenzene	BDL	µg/L		10	05/09/95	05/09/95	MD
1,2-Dichlorobenzene	BDL	µg/L		10	05/09/95	05/09/95	MD
Surrogates							
Bromobenzene	94.0	Min: 70		Max: 130			
Volatile Halocarbons			601				
Dichlorodifluoroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Chloromethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Bromomethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Vinyl chloride	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Chloroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Methylene chloride	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Trichlorofluoroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,1-Dichloroethene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,1-Dichloroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
total-1,2-Dichloroethene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Chloroform	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,2-Dichloroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,1,1-Trichloroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Carbon tetrachloride	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Bromodichloromethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,2-Dichloropropane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
trans-1,3-Dichloropropene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Trichloroethene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Dibromochloromethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,1,2-Trichloroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
cis-1,3-Dichloropropene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
2-Chloroethylvinyl ether	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Bromoform	BDL	µg/L		1.0	05/10/95	05/10/95	MD

IS1100014396
Attn: RON BOARDMAN

P.O. BOX 150016
WAS CECIL FIELD, FL
32215

Page 9
16 May 1995
Report J5-05-070-03
LAB ID. 82223/EB2101

Parameter	Result	Units	Method	Det. Limit	Extracted	Analyzed	Analyst
1,1,2,2-Tetrachloroethane	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Tetrachloroethene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Chlorobenzene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,3-Dichlorobenzene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,2-Dichlorobenzene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
1,4-Dichlorobenzene	BDL	µg/L		1.0	05/10/95	05/10/95	MD
Surrogates							
Bromobenzene	93.0	Min: 70		Max: 130			


Karen Foreman, Laboratory Director

APPENDIX B
MONITORING WELL INSTALLATION DETAIL

TITLE: CAS Cecil Field, Bldg. 428, Site Assessment Report		LOG of WELL: CEF-428-1S	BORING NO. CEF-428-1S
CLIENT: SOUTHIOVNAVFACENGCOM			PROJECT NO: 02523.13
CONTRACTOR: ABB-ES		DATE STARTED: 08-04-97	COMPLTD: 08-04-97
METHOD: POSTHOLE	CASE SIZE: 2in.	SCREEN INT.: 0.5-5.5 ft.	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: FID	TOT DPTH: 6.0FT.	DPTH TO ∇ 2.5 FT.
LOGGED BY: J. Koch	WELL DEVELOPMENT DATE: 08-05-97		SITE: Building 428

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA			
1				0	SILTY SAND: dark brown to black, fine grain.	[Hatched Pattern]	SM	[Blows/6-in scale]	[Well Data scale]			
2												
3				110	SILTY SAND: dark, brown, fine grain, petroleum odor.							
4												
5				270	SILTY SAND: dark brown, fine grain, strong petroleum odor.							
6												
7					* no split spoon samples taken				*			
8					** OVA readings taken from posthole and auger cuttings				**			
9												
10												

TITLE: CAS Cecil Field, Bldg. 428, Site Assessment Report		LOG of WELL: CEF-428-2S	BORING NO. CEF-428-2S
CLIENT: SOUTHDIVNAVFACENGCOM		PROJECT NO: 02523.13	
CONTRACTOR: HLA		DATE STARTED: 07-10-98	COMPLTD: 07-10-98
METHOD: POSTHOLE	CASE SIZE: 2in.	SCREEN INT.: 0.5-5.5 ft.	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: FID	TOT DPTH: 6.0FT.	DPTH TO ∇ N/A FT.
LOGGED BY: N/A	WELL DEVELOPMENT DATE: N/A		SITE: Building 428

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1			<> see note SILTY SAND: dark brown to black, fine gran.		SM		
2							
3			SILTY SAND: dark brown, fine grain.				
4							
5			SILTY SAND: dark brown, fine grain.				
6							
7			<> soil descriptions taken from CEF-428-1S * no split spoon samples taken			*	
8							
9							
10							

APPENDIX C
GROUNDWATER ANALYTICAL DATA

NAS CECIL FIELD -- TANK 428
GROUNDWATER ANALYTICAL DATA -- REPORT REQUEST NO. 10195

Lab Sample Number:	B7H0701520	ABG1101380
Site	BRACGREY	UST GREY
Locator	CEF-428-1S	CEF-428-2S
Collect Date:	06-AUG-97	10-JUL-98

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
BETX AND DICHLOROBENZENES								
Benzene	1	U	ug/L	1	1	U	ug/l	1
Ethylbenzene	2.9		ug/L	1	1	U	ug/l	1
Toluene	1.5		ug/L	1	1	U	ug/l	1
Xylenes (total)	39		ug/L	1	1	U	ug/l	1
Chlorobenzene	1	U	ug/L	1	1	U	ug/l	1
1,2-Dichlorobenzene	1	U	ug/L	1	1	U	ug/l	1
1,3-Dichlorobenzene	1	U	ug/L	1	1	U	ug/l	1
1,4-Dichlorobenzene	1	U	ug/L	1	1	U	ug/l	1
PAHS								
Acenaphthene	2	U	ug/L	2	1	U	ug/l	1
Acenaphthylene	2	U	ug/L	2	1	U	ug/l	1
Anthracene	2	U	ug/L	2	1	U	ug/l	1
Benzo (a) anthracene	.1	U	ug/L	.1	.1	U	ug/l	.1
Benzo (b) fluoranthene	.1	U	ug/L	.1	.1	U	ug/l	.1
Benzo (k) fluoranthene	.15	U	ug/L	.15	.05	U	ug/l	.05
Benzo (a) pyrene	.1	U	ug/L	.1	.1	U	ug/l	.1
Chrysene	.1	U	ug/L	.1	.1	U	ug/l	.1
Dibenzo (a,h) anthracene	.2	U	ug/L	.2	.1	U	ug/l	.1
Fluoranthene	.2	U	ug/L	.2	.1	U	ug/l	.1
Fluorene	2	U	ug/L	2	1	U	ug/l	1
Indeno (1,2,3-cd) pyrene	.1	U	ug/L	.1	.1	U	ug/l	.1
Benzo (g,h,i) perylene	.2	U	ug/L	.2	.1	U	ug/l	.1
Naphthalene	2	U	ug/L	2	1	U	ug/l	1
Phenanthrene	2	U	ug/L	2	1	U	ug/l	1
Pyrene	.2	U	ug/L	.2	.1	U	ug/l	.1
1-Methylnaphthalene	35		ug/L	2	1	U	ug/l	1
2-Methylnaphthalene	22		ug/L	2	1	U	ug/l	1
FLA PRO								
TPH C8-C40	-				.5	U	mg/l	.5
Lead	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 -- FACILITY 428
 SUBSURFACE SOIL -- ANALYTICAL DATA -- REPORT REQUEST NO. 10707

Lab Sample Number: JR50531
 Site: UST GREY
 Locator: CEF-428-SB1
 Collect Date: 20-JAN-99

VALUE QUAL UNITS DL

BRAC VOLATILES

1,1,1-Trichloroethane	1 U	ug/kg	1
1,1,2,2-Tetrachloroethane	2 U	ug/kg	2
1,1,2-Trichloroethane	1 U	ug/kg	1
1,1-Dichloroethane	1 U	ug/kg	1
1,1-Dichloroethene	1 U	ug/kg	1
1,2-Dichloroethane	1 U	ug/kg	1
1,2-Dichloropropane	1 U	ug/kg	1
Benzene	1 U	ug/kg	1
Bromodichloromethane	1 U	ug/kg	1
Bromoform	1 U	ug/kg	1
Bromomethane	1 U	ug/kg	1
Carbon tetrachloride	1 U	ug/kg	1
Chlorobenzene	1 U	ug/kg	1
Chloroethane	1 U	ug/kg	1
Chloroform	1 U	ug/kg	1
Chloromethane	1 U	ug/kg	1
Dibromochloromethane	1 U	ug/kg	1
Ethyl benzene	1 U	ug/kg	1
Methylene chloride	3 J	ug/kg	3
Tetrachloroethene	1 U	ug/kg	1
Toluene	1 U	ug/kg	1
Trichloroethene	1 U	ug/kg	1
Vinyl chloride	1 U	ug/kg	1
cis-1,3-Dichloropropene	1 U	ug/kg	1
m,p-Xylene	2 U	ug/kg	2
o-Xylene	1 U	ug/kg	1
trans-1,2-Dichloroethene	1 U	ug/kg	1
trans-1,3-Dichloropropene	1 U	ug/kg	1

PAHs

Acenaphthene	19 U	ug/kg	19
Acenaphthylene	39 U	ug/kg	39
Anthracene	2 U	ug/kg	2
Benzo (a) anthracene	23	ug/kg	1.9
Benzo (b) fluoranthene	3 U	ug/kg	3
Benzo (k) fluoranthene	2 U	ug/kg	2
Benzo (a) pyrene	2 U	ug/kg	2
Chrysene	45	ug/kg	1.9
Dibenzo (a,h) anthracene	3.9 U	ug/kg	3.9
Fluoranthene	3.9 U	ug/kg	3.9
Fluorene	3.9 U	ug/kg	3.9
Indeno (1,2,3-cd) pyrene	5.5	ug/kg	1.9
Benzo (g,h,i) perylene	9 J	ug/kg	3.9
Naphthalene	19 U	ug/kg	19
Phenanthrene	1.9 U	ug/kg	1.9
Pyrene	1.9 U	ug/kg	1.9
1-Methylnaphthalene	19 U	ug/kg	19
2-Methylnaphthalene	19 U	ug/kg	19

NAS CECIL FIELD -- FACILITY 428
SUBSURFACE SOIL -- ANALYTICAL DATA -- REPORT REQUEST NO. 10707

Lab Sample Number: JR50531
Site: UST GREY
Locator: CEF-428-SB1
Collect Date: 20-JAN-99

VALUE	QUAL	UNITS	DL
-------	------	-------	----

FLA PRO			
TPH C8-C40	270	mg/kg	7.7

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