

N60200.AR.001542  
NAS CECIL FIELD, FL  
5090.3a

SITE ASSESSMENT REPORT FOR BUILDING 617 TANK 617 BASE REALIGNMENT AND  
CLOSURE UNDERGROUND STORAGE TANK AND ABOVEGROUND STORAGE TANK  
GREY SITES REVISION 1 NAS CECIL FIELD FL  
11/1/1998  
HARDING LAWSON ASSOCIATES

**SITE ASSESSMENT REPORT**  
**BUILDING 617, TANK 617**  
**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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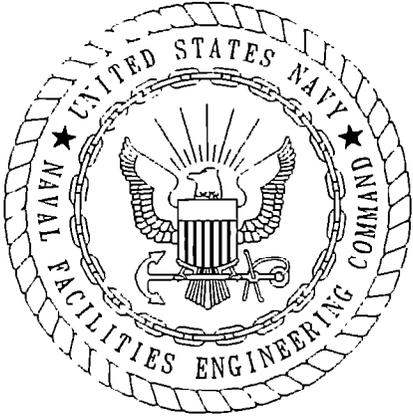
**Prepared for:**

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**Naval Facilities Engineering Command**  
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**November 1998**

**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: November 3, 1998

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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Jacksonville, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
BEI	Bechtel Environmental, Inc.
bls	below land surface
CSR	confirmatory sampling report
FDEP	Florida Department of Environmental Protection
HLA	Harding Lawson Associates
KAG	Kerosene Analytical Group
NAS	Naval Air Station
OVA	organic vapor analyzer
ppm	parts per million
SA	site assessment

## 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 617 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 617 was an underground storage tank located at Building 617, which was used for maintenance of transportation equipment, Bomb Dummy Unit operations, and Aviation Weapons Support Equipment operations (Figure 1). The UST, which was installed in 1958, has a 5,000-gallon capacity and is used to store fuel oil for on-site heating (ABB Environmental Services, Inc. [ABB-ES], 1997a). A contamination assessment plan for the assessment of soil and groundwater at Tank 617 was prepared by HLA (then ABB-ES) in November 1996 (ABB-ES, 1996). Results of the contamination assessment are presented in the Confirmatory Sampling Report (CSR), which recommended that additional soil assessment be conducted to delineate the extent of excessively contaminated soil (ABB-ES, 1997b).

Tank 617 was removed by Bechtel Environmental, Inc. (BEI), on April 7, 1997. No soil was removed from the site at that time. A Closure Report was prepared for Tank 617 and submitted to the Florida Department of Environmental Protection (BEI, 1997).

## 2.0 FIELD INVESTIGATION

The SA for Tank 617 was initiated in October 1997 and included

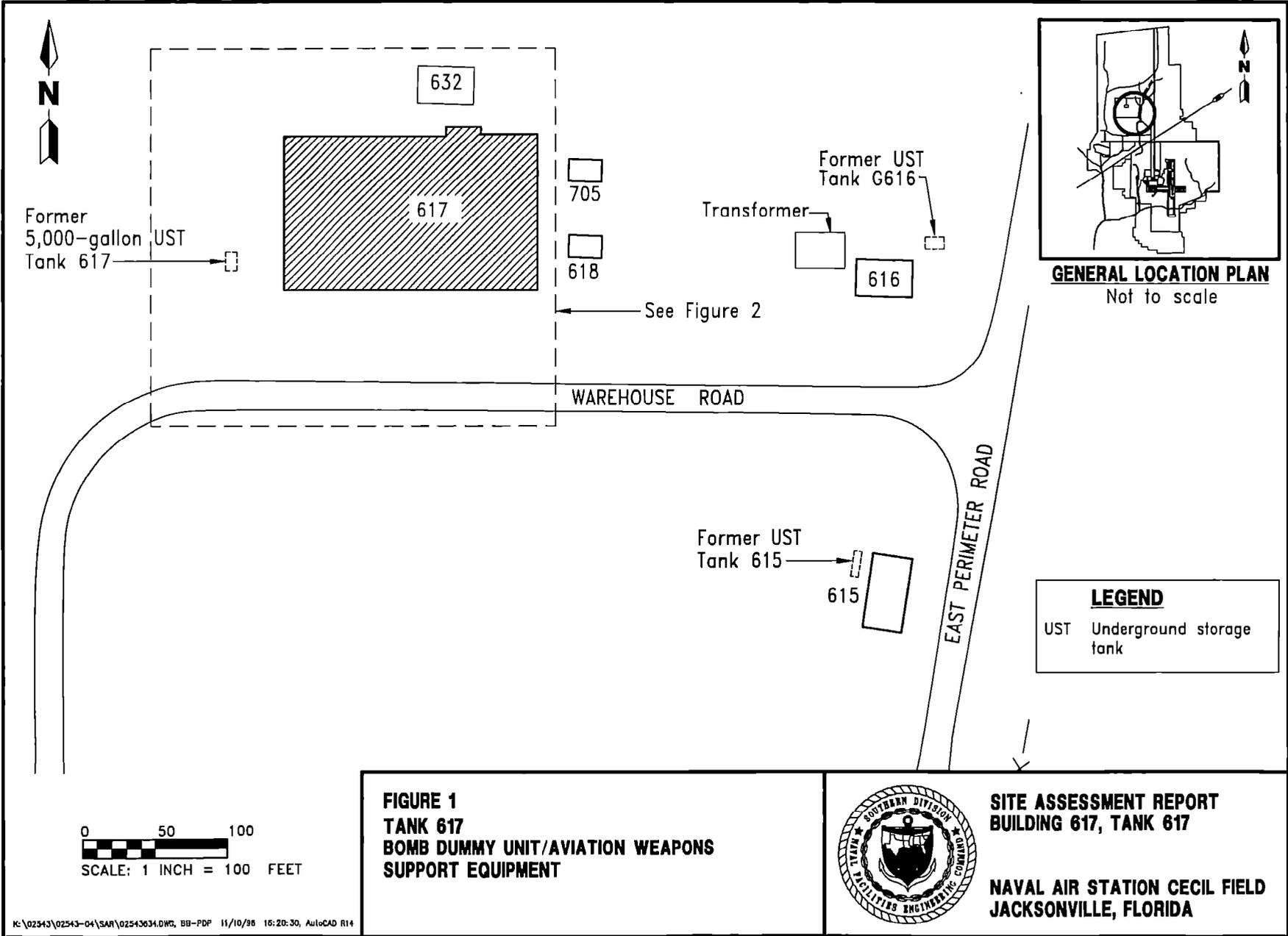
- the advancement of thirteen soil borings to the water table, and
- collection and analysis of two subsurface soil samples.

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). Two subsurface soil samples were collected on April 15, 1998, at soil boring locations with varying levels of contamination and analyzed for the Kerosene Analytical Group (KAG) parameters. Samples CEF-617-SB1H and CEF-617-SB2M were collected from 3 to 4 feet bls. A general site plan indicating the location of the soil borings is presented on Figure 2.

Monitoring well CEF-617-1S was installed during the confirmatory sampling. Monitoring well construction detail is presented in Appendix A.

## 3.0 SCREENING AND ANALYTICAL RESULTS

Groundwater flow direction at the Tank 617 site is to the southeast, based on the U.S. Geological Survey groundwater model for NAS Cecil Field.

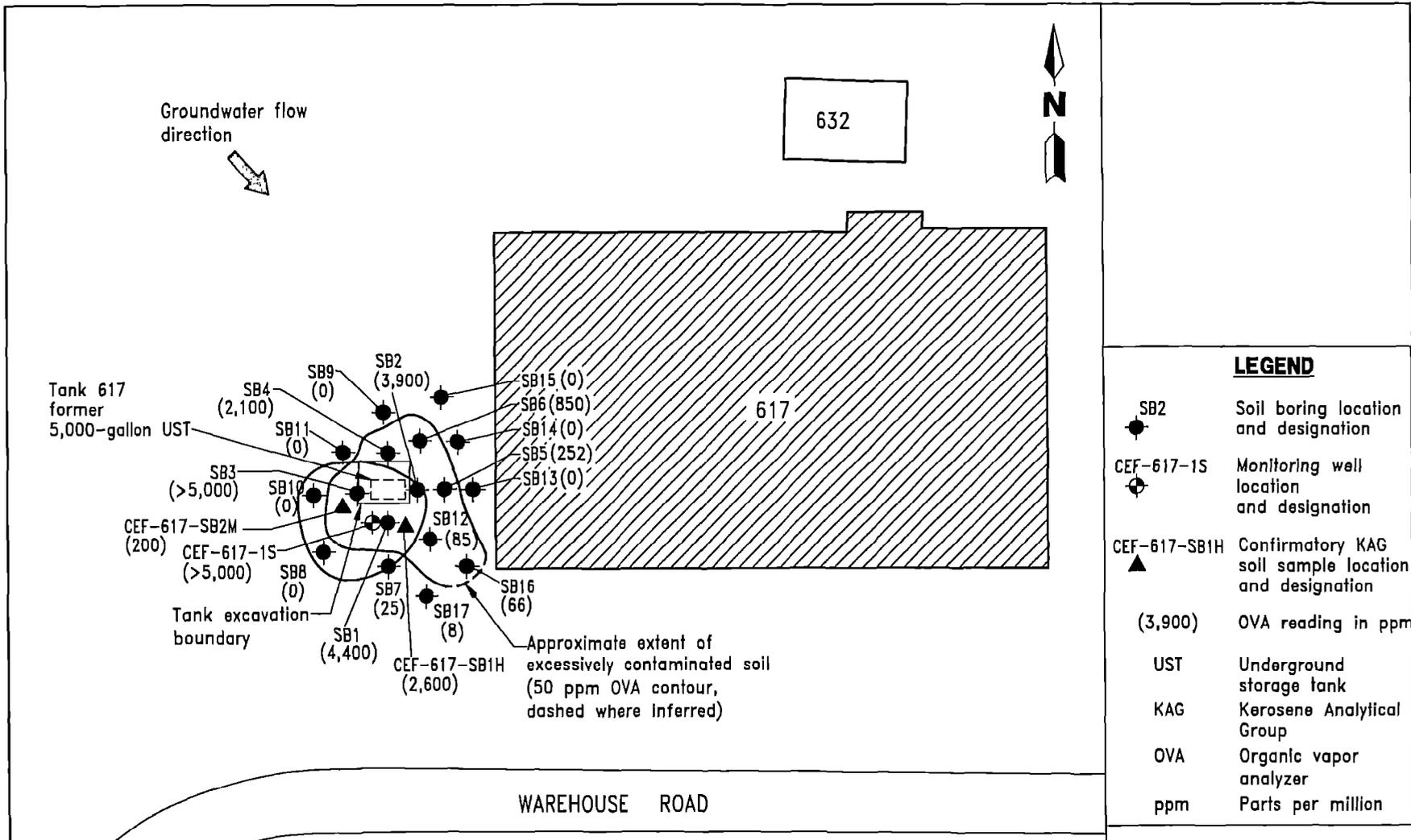


**FIGURE 1**  
**TANK 617**  
**BOMB DUMMY UNIT/AVIATION WEAPONS**  
**SUPPORT EQUIPMENT**



**SITE ASSESSMENT REPORT**  
**BUILDING 617, TANK 617**

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



0 25 50  
SCALE: 1 INCH = 50 FEET

**FIGURE 2  
TANK 617  
SOIL BORING AND MONITORING WELL LOCATIONS**



**SITE ASSESSMENT REPORT  
BUILDING 617, TANK 617**

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

Excessively contaminated soil (greater than 50 parts per million [ppm] on an OVA) was detected in 4 of 13 soil borings advanced during the SA. The highest OVA reading (850 ppm) was detected at 3 feet bls from a sample collected from soil boring SB6. The extent of excessively contaminated soil is presented on Figure 2. The soil OVA data are summarized in Table 1 and presented on Figure 2.

No contaminants were detected above Florida Department of Environmental Protection (FDEP) soil cleanup target levels in the subsurface soil samples collected for KAG analysis. Subsurface soil analytical results are summarized in Table 2 and presented in Appendix B.

Groundwater contaminants were not detected at concentrations greater than FDEP cleanup target levels. Groundwater analytical results are summarized in Table 3 and presented in Appendix B.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Data obtained during the SA at the Tank 617 site provided an adequate assessment of the horizontal and vertical extent of excessively contaminated soil. No contaminants were detected above FDEP soil cleanup target levels in the subsurface soil samples collected for KAG analysis.

No contaminants were detected above the regulatory standard specified in Chapter 62-770, Florida Administrative Code, in the groundwater sample collected from monitoring well CEF-617-1S.

It is recommended that no further action take place at the Tank 617 site.

**Table 1  
Soil Screening Results**

Site Assessment Report  
Building 617, Tank 617  
Naval Air Station Cecil Field  
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB1	1	900	0	900
	3	4,400	0	4,400
	5	3,500	0	3,500
	6.5 (wet)	2,000	0	2,000
SB2	1	0	--	0
	3	3,900	0	3,900
	5	3,600	0	3,600
	6.5 (wet)	2,400	0	2,400
SB3	1	1,500	0	1,500
	3	>5,000	0	>5,000
	5	>5,000	0	>5,000
	6.5 (wet)	3,900	0	3,900
SB4	1	2,100	0	2,100
	3	170	0	170
	5	2,100	0	2,100
	6.5 (wet)	400	0	400
CEF-617-1S	1	3,100	0	3,100
	3	>5,000	0	>5,000
	5	4,000	0	4,000
	11 (wet)	32	0	32
SB5	1	0	--	0
	3	300	48	252
	4 (wet)	230	--	230
SB6	1	0	--	0
	3 (refusal, wood)	900	50	850
SB7	1	50	32	18
	3	50	25	25
	4 (wet)	13	--	13
SB8	1	0	--	0
	3 (wet)	0	--	0
SB9	1	0	--	0
	3 (wet)	0	--	0
SB10	1	0	--	0
	3 (wet)	0	--	0

See notes at end of table.

**Table 1 (Continued)  
Soil Screening Results**

Site Assessment Report  
Building 617, Tank 617  
Naval Air Station Cecil Field  
Jacksonville, Florida

Location	OVA Concentration (ppm)			
	Depth (feet bls)	Unfiltered	Filtered	Actual
SB11	1	0	—	0
	3 (wet)	0	—	0
SB12	1	120	35	85
	3	35	8	27
	4 (wet)	15	—	15
SB13	1	0	—	0
	3 (wet)	0	—	0
SB14	1	0	—	0
	3	0	—	0
	4 (wet)	0	—	0
SB15	1	0	—	0
	3 (wet)	0	—	0
SB16	1	90	24	66
	3 (wet)	34	—	34
SB17	1	8	—	8
	3 (wet)	4	--	4

Notes: Soil samples were collected on January 23, 1997, and October 29, 1997.  
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.  
-- = filtered readings were not collected.  
> = greater than.

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

Site Assessment Report  
Building 617, Tank 617  
Naval Air Station Cecil Field  
Jacksonville, Florida

Compound	CEF-617-SB1H (3 to 4 feet bls; OVA = 2,600 ppm)	CEF-617-SB2M (3 to 4 feet bls; OVA = 200 ppm)	Soil Cleanup Target Levels <sup>1</sup>
<b><u>Volatile Organic Aromatics (USEPA Method 8020) (mg/kg)</u></b>			
No compounds detected			
<b><u>Polynuclear Aromatic Hydrocarbons (USEPA Method 8310) (mg/kg)</u></b>			
Dibenz(a,h)anthracene	0.007	ND	0.1/14
Fluoranthene	0.009	ND	2,800/550
Pyrene	0.010	ND	2,200/570
<b><u>Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (mg/kg)</u></b>			
TRPH	14	28	350/340

<sup>1</sup> Chapter 62-770, Florida Administrative Code: Direct Exposure, Table I; Leachability, Table V.

Notes: Soil samples were collected on April 15, 1998.

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.  
ND = not detected.

**Table 3**  
**Summary of Groundwater Analytical Detections**

Site Assessment Report  
 Building 617, Tank 617  
 Naval Air Station Cecil Field  
 Jacksonville, Florida

Compound	Monitoring Well CEF-617-1S	Groundwater Cleanup Target Levels <sup>1</sup>
<b><u>Volatile Organic Aromatics (USEPA Method 601/602) (µg/l)</u></b>		
Methyl tert-butyl ether	2.7	35
Toluene	1.2	40
Xylenes	19	20
<b><u>Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (µg/l)</u></b>		
1-Methylnaphthalene	5.6	NA
2-Methylnaphthalene	5.7	NA
Naphthalene	3.9	20
Phenanthrene	4.8	210
<b><u>Total Recoverable Petroleum Hydrocarbons (TRPH) (FL-PRO) (µg/l)</u></b>		
TRPH	0.81	5
<b><u>Lead (µg/l)</u></b>		
Lead	10	15
Dissolved lead	ND	15
<sup>1</sup> Chapter 62-770, Florida Administrative Code.  Notes: Groundwater samples were collected on August 7, 1997.  USEPA = U.S. Environmental Protection Agency. µg/l = micrograms per liter. NA = not applicable. FL-PRO = Florida-Petroleum Residual Organics. ND = not detected.		

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 SAR was developed for the Tank 617 site at Naval Air Station Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.



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

11-23-98

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. 1997a. *Base Realignment and Closure Tank Management Plan, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina (January).
- ABB-ES. 1997b. *Confirmatory Sampling Report, Building 617, Tank 617, 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 (November).
- Bechtel Environmental, Inc. 1997. DO #59: *Closure Report for Above Storage Tank/Underground Storage Tank Removals, Naval Air Station Cecil Field, Jacksonville, Florida*. (July).

**APPENDIX A**  
**MONITORING WELL CONSTRUCTION DETAIL**

TITLE: NAS Cecil Field		LOG of WELL: CEF-617-IS	BORING NO. CEF-617-IS
CLIENT: SOUTHDIVNAVFACENCOM			PROJECT NO: 8542-03
CONTRACTOR: GEOTEK		DATE STARTED: 2-24-97	COMPLTD: 2-24-97
METHOD: 6.25" HSA	CASE SIZE: 2"	SCREEN INT.: 3-13	PROTECTION LEVEL: D
TOC ELEV.: FEET.	MONITOR INST.: FID	TOT DPTH: 14 FEET.	DPTH TO ∇ 2.10 FEET.
LOGGED BY: J Koch	WELL DEVELOPMENT DATE: 3-3-97		SITE: Building 617

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
3,100				SILTY SAND: Light brown to dark brown, fine grain, strong petroleum odor.		SM	posthole	
>5,000			SILTY SAND: As above, strong petroleum odor.	posthole				
100% 4,000			SILTY SAND: Light brown to dark grey, fine grain, strong petroleum odor.	1,1,1,1				
50% 32			SILTY SAND: Light brown to dark brown, fine grain, no petroleum odor.	1,3,2,5				
5								
10								
15								
20								

**APPENDIX B**  
**ANALYTICAL DATA**

NAS CECIL FIELD -- TANK 617  
 SOIL DATA -- KEROSENE ANALYTICAL GROUP -- REPORT REQ NO. 9955

Lab Sample Number:	A8D1701010		A8D1701010	
Site	UST GREY		UST GREY	
Locator	CEF-617-SB1H		CEF-617-SB2M	
Collect Date:	15-APR-98		15-APR-98	
	VALUE	DL	VALUE	DL

UST GREY						
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Benzené	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	1.2 U	ug/kg	1.2
Acenaphthene	240 U	ug/kg	240	240 U	ug/kg	240
Acenaphthylene	240 U	ug/kg	240	240 U	ug/kg	240
Anthracene	240 U	ug/kg	240	240 U	ug/kg	240
Benzo (a) anthracene	6 U	ug/kg	6	5.9 U	ug/kg	5.9
Benzo (a) pyrene	6 U	ug/kg	6	5.9 U	ug/kg	5.9
Benzo (b) fluoranthene	6 U	ug/kg	6	5.9 U	ug/kg	5.9
Benzo (g,h,i) perylene	6 U	ug/kg	6	5.9 U	ug/kg	5.9
Benzo (k) fluoranthene	6 U	ug/kg	6	5.9 U	ug/kg	5.9
Chrysene	24 U	ug/kg	24	24 U	ug/kg	24
Dibenzo (a,h) anthracene	7.1	ug/kg	6	5.9 U	ug/kg	5.9
Fluoranthene	8.5	ug/kg	6	5.9 U	ug/kg	5.9
Fluorene	240 U	ug/kg	240	240 U	ug/kg	240
Indeno (1,2,3-cd) pyrene	6 U	ug/kg	6	5.9 U	ug/kg	5.9
Naphthalene	240 U	ug/kg	240	240 U	ug/kg	240
Phenanthrene	240 U	ug/kg	240	240 U	ug/kg	240
Pyrene	9.8 J	ug/kg	6	5.9 U	ug/kg	5.9
FLA PRD						
TPH C8-C40	14	mg/kg	12	28	mg/kg	12

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

NAS CECIL FIELD -- TANK 617  
 UST GREY ANALYTICAL PARAMETERS -- REPORT NO. 9492

Lab Sample Number:	B7C2001620	B7C2001620
Site	BRACGREY	BRACGREY
Locator	CEF6171S	CEF6171S
Collect Date:	18-MAR-97	18-MAR-97
VALUE	QUAL UNITS	DL

BRACGREY ANALYTICAL PARAMETERS

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
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	5.6	ug/l	2	-		
2-Methylnaphthalene	5.7	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	3.2	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	10	ug/l	5	-		
Methyl tert-butyl ether	2.7	ug/l	1	-		
Methylene chloride	1 U	ug/l	1	-		
Naphthalene	3.9	ug/l	2	-		
Phenanthrene	4.8	ug/l	2	-		
Pyrene	.2 U	ug/l	.2	-		
Tetrachloroethene	1 U	ug/l	1	-		
Toluene	1.2	ug/l	1	-		
Total petroleum hydrocarbons	.81	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 617  
 UST GREY ANALYTICAL PARAMETERS -- REPORT NO. 9492

Lab Sample Number:	B7C2001620	B7C2001620
Site	BRACGREY	BRACGREY
Locator	CEF6171S	CEF6171S
Collect Date:	18-MAR-97	18-MAR-97

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Xylenes (total)	19		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