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NAS CECIL FIELD, FL
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REMEDIAL ACTION PLAN REVISION 1 FOR NORTH FUEL FARM AREA NAS CECIL FIELD
FL
11/26/1997
ABB ENVIRONMENTAL SERVICES INC



2523-3219

November 26, 1997

Mr. Mike Deliz
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Dear Mr. Deliz:

**Subject: Remedial Action Plan - Revision I
North Fuel Farm Area
NAS Cecil Field, Jacksonville, Florida
Contract No. N62467-89-D-0317/090**

INTRODUCTION

Based on discussions between the Navy and the Florida Department of Environmental Protection (FDEP), ABB Environmental Services, Inc. (ABB-ES) was tasked to collect groundwater samples from the monitoring wells at the JP-5 spill area at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The analytical results from this sampling event will provide groundwater quality information following the Initial Remedial Action completed in 1996.

FIELD INVESTIGATION

In August 1997, ABB-ES collected groundwater samples from monitoring wells CEF-JP5-11, CEF-JP5-14, and CEF-JP5-15 (Figure 1). Table 1 lists the sample identification number, time of sample collection, and the monitoring well details. All groundwater samples were shipped to Quanterra Environmental Services, Tampa, Florida for analysis of MCAWW 239.2 (dissolved lead, and lead), USEPA methods 601/602 (VOAs), 610 (PAHs), and FL-PRO Total Petroleum Hydrocarbons (TPH).

ANALYTICAL RESULTS

Table 2 presents a summary of the laboratory analytical results exceeding the detection limits and also presents a comparison of the contaminant concentrations against the State of Florida Chapter 62-770 criteria. A historical summary of groundwater quality data at monitoring wells CEF-JP5-11, CEF-JP5-14, and CEF-JP5-15 is presented in Table 3.

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The analytical results indicate that benzene, ethylbenzene, total xylenes, and naphthalene exceed the petroleum groundwater contamination cleanup criteria. Benzene was detected in monitoring wells CEF-JP5-14 (170 $\mu\text{g}/\ell$) and CEF-JP5-15 (1.3 $\mu\text{g}/\ell$). Ethylbenzene was detected in monitoring well CEF-JP5-14 at a concentration of 42 $\mu\text{g}/\ell$. Total xylenes exceeded the groundwater cleanup criteria in monitoring wells CEF-JP5-14 (300 $\mu\text{g}/\ell$) and CEF-JP5-15 (97 $\mu\text{g}/\ell$). Naphthalene was the only PAH detected above the groundwater cleanup criteria. It was detected at a concentration of 30 $\mu\text{g}/\ell$ in monitoring well CEF-JP5-15.

RECOMMENDATIONS

Based on the groundwater results presented in this memorandum, and the continued presence of volatile organic compounds in the water table zone (0 to 10 ft. bls.) in monitoring wells CEF-JP5-14 and CEF-JP5-15, the following alternatives are recommended to address remediation of the contaminated groundwater at the JP-5 spill area.

Alternative 1:

- Continue source removal through excavation and treatment of soil at the JP-5 spill area.
- Resample monitoring wells CEF-JP5-14 and CEF-JP5-15 and evaluate if total VOC concentrations have reduced.
- If contaminant concentrations are decreasing, implement a monitoring only plan. If the concentrations are increasing, install three biosparge wells in the area of CEF-JP5-14 and CEF-JP5-15 to an average depth of 25 feet bls.
- Connect the biosparge wells with the remedial system proposed to be installed in the southwest area of NFF (ABB-ES, 1997).

Alternative 2:

- Install three biosparge wells in the area of CEF-JP5-14 and CEF-JP5-15 to an average depth of 25 feet bls.
- Connect the biosparge wells with the remedial system proposed to be installed in the southwest area of NFF (ABB-ES, 1997).

Figure 1 presents the revised biosparging system layout including the location of the biosparge wells, the piping, and the compound. Figure 2 presents the construction details of biosparge wells BS-23, BS-24, and BS-25. Other details of the biosparging system design are listed in Table 4.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1997. *Remedial Action Plan, North Fuel Farm Site, Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina.

Very truly yours,

ABB ENVIRONMENTAL SERVICES, INC.


11-26-97

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TABLES

Table 1. List of Groundwater Samples Collected, August 21-22 1997

North Fuel Farm Area
NAS Cecil Field, Jacksonville, Florida

Sampling Time	Sample ID	Screen Interval, feet bls.
08/21/97 16:30	CEF-JP5-15	0.5 - 5.5
08/21/97 16:40	CEF-JP5-11	0.5 - 5.5
08/22/97 12:25	CEF-JP5-14	1.0 - 11.0

Table 2. Summary of Laboratory Analytical Results for Groundwater Samples, August 1997

North Fuel Farm Area
NAS Cecil Field, Jacksonville, Florida

KEROSENE GROUP ANALYTICAL PARAMETER	SAMPLE DESIGNATION			Regulatory Standard*
	CEF-JP5-11	CEF-JP5-14	CEF-JP5-15	
VOLATILE ORGANIC COMPOUNDS ($\mu\text{g}/\text{l}$)				
Benzene	ND	170	1.3	1
Ethylbenzene	1.5	42	23	30
Toluene	ND	ND	16	40
Xylenes (total)	1.9	300	97	20
POLYNUCLEAR AROMATIC HYDROCARBONS ($\mu\text{g}/\text{l}$)				
1-Methylnaphthalene	2.0	ND	21	NA
2-Methylnaphthalene	ND	ND	13	NA
Naphthalene	3.1	ND	30	20
Total Petroleum Hydrocarbon (mg/l)	ND	2.1	ND	5
METALS ($\mu\text{g}/\text{l}$)				
Lead (filtered/unfiltered)	9.2/76.4	12.3/23	ND	15/NA

Notes:

a = groundwater cleanup target levels for resource protection/recovery, Table V, FDEP 1997, Petroleum Contamination Site Cleanup Criteria.

NA = not available.

$\mu\text{g}/\text{l}$ = micrograms per liter.

mg/l = milligrams per liter.

Table 3. Groundwater Quality Data for 1994/1995/1997

**North Fuel Farm Area
NAS Cecil Field, Jacksonville, Florida**

Kerosene Group Analytical Parameter¹	1994	1995	1997	Regulatory Standard
CEF-JP5-11²				
TVOCs	FP	NS	3.4	50
Benzene	FP	NS	ND	1
total naphthalenes	FP	NS	5.1	100
Lead	FP	NS	9.2	15
CEF-JP5-14				
TVOCs	220	368	512	50
Benzene	200	160	170	1
total naphthalenes	17.4	NS	ND	100
Lead	960	NS	12.3	15
CEF-JP5-15				
TVOCs	119	266	137.3	50
Benzene	1.2	NS	1.3	1
total naphthalenes	81	NS	64	100
Lead	46	NS	ND	15

Notes:

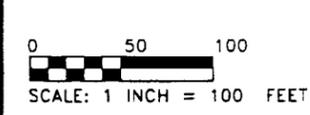
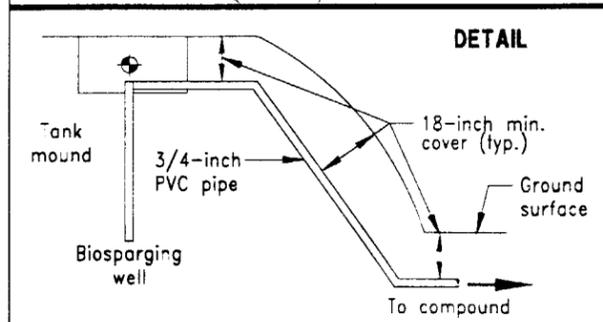
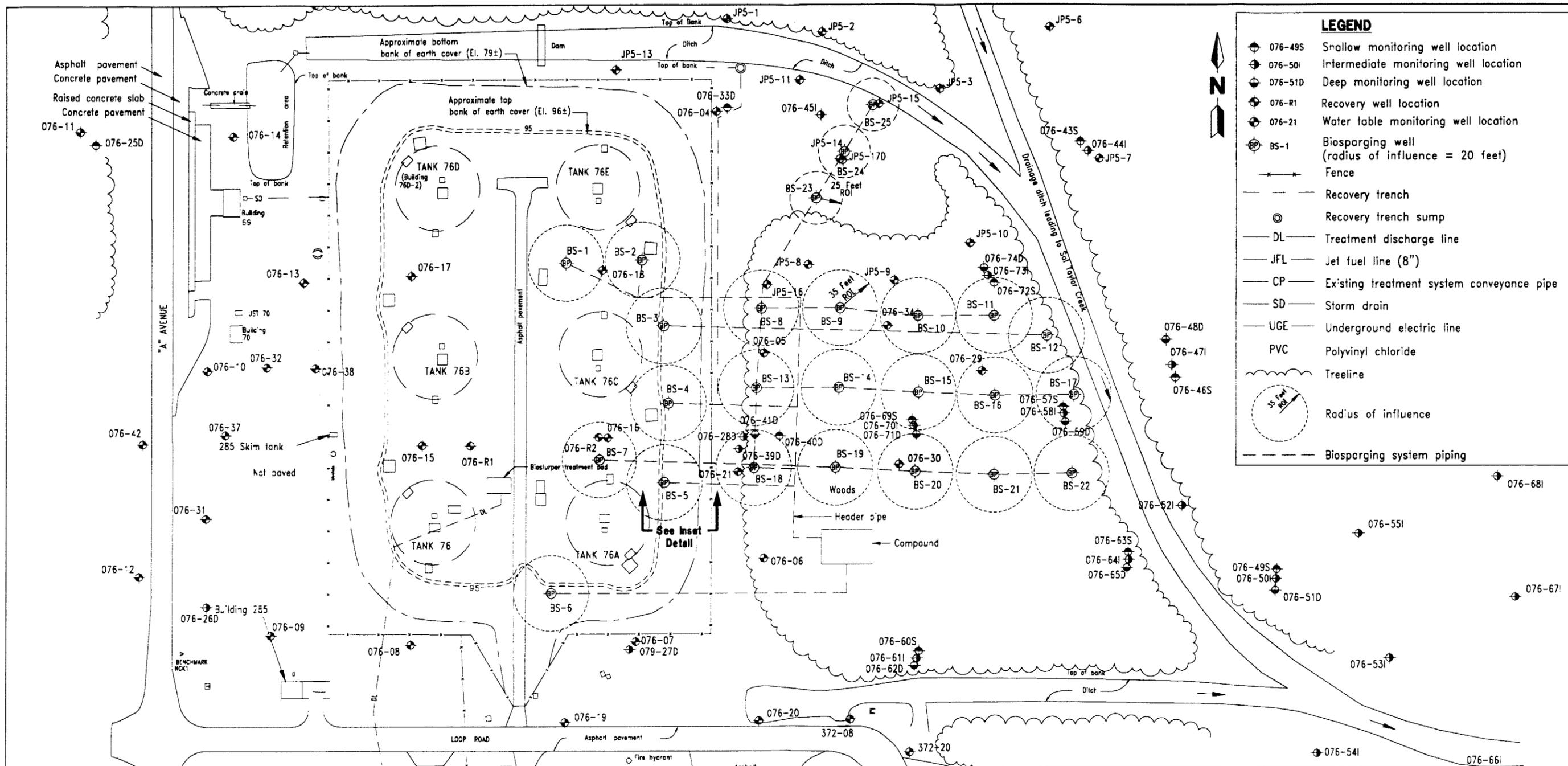
- 1 = All units are in $\mu\text{g}/\text{L}$.
- 2 = monitoring well JP5-11 was destroyed in 1995 during soil excavation and a new JP5-11 was installed in early 1997.
- FP = free product encountered at the monitoring well
- NA = Not available
- NS = Not sampled
- ND = non-detect
- $\mu\text{g}/\text{L}$ = micrograms per liter

Table 4. Details of Biosparging System Design

North Fuel Farm Area
NAS Cecil Field, Jacksonville, Florida

Biosparging Well Number	Location	Construction Details		Air Injection Pressure, psig	Biosparging Air Flow, cfm
		Total Depth, feet bgs	Screen Interval, feet bgs		
BS-1 to BS-7	Eastern half of the tank mound	70	67 - 70	21	5 to 7
BS-8 to BS-22	Outside the tank mound	55	52 - 55	21	5 to 7
BS-23 to BS-25	JP-5 Spill Area	27	24 - 27	15	3 to 5
<p>If BS-1 through BS-22 were installed: Total air flow = 154 cfm Injection Pressure = 21 psig Safety Factor = 2 Design Air Flow = 2 x 154 cfm = 308 cfm Design Pressure = 2 x 21 = 42 = 50 psig</p> <p>Hence use 50 psig compressor with a capacity of 310 cfm.</p> <p>bgs = below ground surface cfm = cubic feet per minute psig = pounds per square inch gauge</p>		<p>If BS-1 through BS-25 were installed: Total air flow = 211 cfm Injection Pressure = 21 psig Safety Factor = 2 Design Air Flow = 2 x 211 cfm = 422 cfm Design Pressure = 2 x 21 = 42 = 50 psig</p> <p>Hence use 50 psig compressor with a capacity of 425 cfm.</p>			

FIGURES



- NOTES:**
- All piping is 3/4-inch Schedule 80 polyvinyl chloride.
 - Use 18-inch minimum cover.
 - See Figure 9-3 for well vault details.
 - See Figure 9-5 for compound details.
 - Use existing monitoring wells as reference points to locate header.

FIGURE 1
BIOSPARGING SYSTEM LAYOUT
(REVISION 1)

REMEDIAL ACTION PLAN

NORTH FUEL FARM SITE
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

