

N60200.AR.000741  
NAS CECIL FIELD, FL  
5090.3a

CONTAMINATION ASSESSMENT REPORT ADDENDUM FOR S-3 CRASH SITE NAS CECIL  
FIELD FL  
8/1/1995  
ABB ENVIRONMENTAL SERVICES INC

**CONTAMINATION ASSESSMENT REPORT ADDENDUM  
S-3 CRASH SITE**

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

**Unit Identification Code: N60200**

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

**Prepared by:**

**ABB Environmental Services, Inc.  
2590 Executive Center Circle, East  
Tallahassee, Florida 32301**

**Prepared for:**

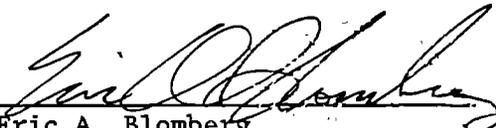
**Department of the Navy, Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Drive  
North Charleston, South Carolina 29418**

**Bryan Kizer, Code 1842, Engineer-in-Charge**

**August 1995**



This document that describes the Contamination Assessment of the S-3 Crash Site, Naval Air Station Cecil Field, Jacksonville, Florida has been prepared under the direction of a Florida-Registered Professional Geologist. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

  
Eric A. Blomberg  
Professional Geologist No. 1695

Date: 8-22-95



CERTIFICATION OF TECHNICAL  
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., 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: August 18, 1995

NAME AND TITLE OF CERTIFYING OFFICIAL: Rao Angara  
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Eric Blomberg  
Project Technical Lead

(DFAR 252.227-7036)

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Naval Air Station Cecil Field  
Jacksonville, Florida

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## GLOSSARY

ABB-ES            ABB Environmental Services, Inc.

CA                contamination assessment  
CAR                contamination assessment report

ESE                Environmental Science and Engineering, Inc.

FAC                Florida Administrative Code  
FDEP               Florida Department of Environmental Protection  
FID                flame ionization detector

ICP                inductively coupled plasma

NAS                Naval Air Station  
NTU                nephelometric turbidity units

OVA                organic vapor analyzer

ppb                parts per billion  
ppm                parts per million  
PVC                polyvinyl chloride

SOUTHNAV-  
FACENGCOC       Southern Division, Naval Facilities Engineering Command

## 1.0 INTRODUCTION

The S-3 Crash Site is located in a wooded area in the northern part of Naval Air Station (NAS) Cecil Field on the east side of A Avenue (Figure 1-1). The site was identified in December 1991 when an S-3 aircraft lost control during "touch and go" maneuvers and crashed in a wooded area along A Avenue. The aircraft ignited on impact and most of the fuel on board was believed to have been burned. The crash site covers an area of approximately 65 feet by 200 feet.

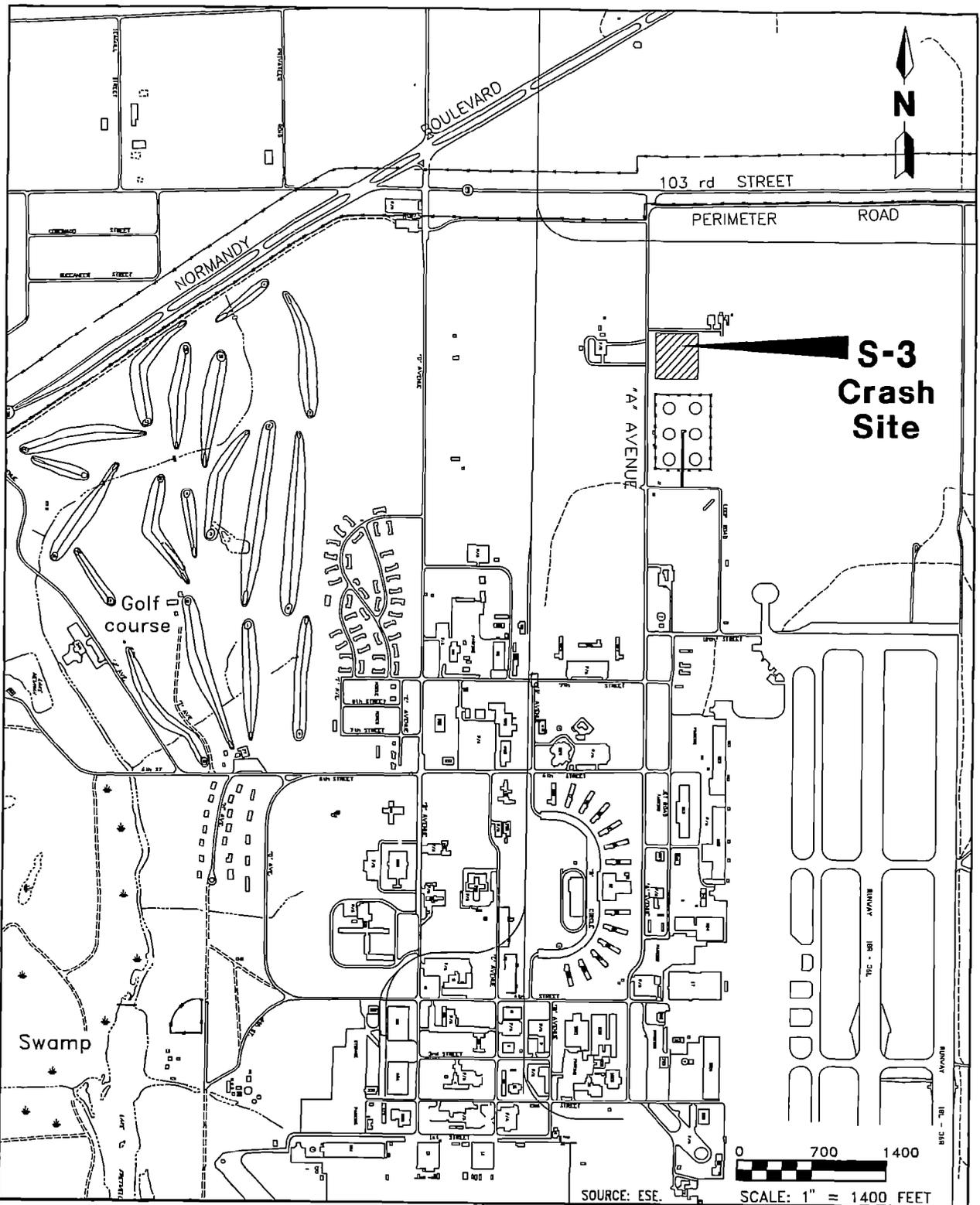
A contamination assessment (CA) was conducted at the S-3 Crash Site by Environmental Science and Engineering, Inc. (ESE) in August and September 1993 to determine if soil and groundwater had been impacted by petroleum contamination. A contamination assessment report (CAR) was prepared in February 1994 by ESE and submitted to Florida Department of Environmental Protection (FDEP) for review.

The CA included the completion of 20 soil borings and the installation of one temporary monitoring well. Two soil samples were collected from each soil boring, and headspace analysis was performed on each sample using an organic vapor analyzer (OVA) with a flame ionization detector (FID). Only two of the 20 soil borings had OVA readings above 50 parts per million (ppm), which is considered to be excessively contaminated per Chapter 62-770, Florida Administrative Code (FAC). One groundwater sample was collected from the temporary monitoring well and analyzed for the kerosene analytical group parameters. The results of the groundwater analysis indicated that lead was the only analyte detected above the Florida groundwater guidance criteria. The concentration of lead was 120 parts per billion (ppb), which exceeded the Florida groundwater guidance criteria concentration of 50 ppb. The CAR recommended that the excessively contaminated soil be excavated for proper disposal as required in Chapter 62-770 FAC. No recommendations were made to address the elevated lead concentration in groundwater.

In a letter from FDEP (see Appendix A) dated May 6, 1994, additional field investigation was requested before the CAR could be approved. The requested field investigation included the installation of one shallow temporary groundwater monitoring well and collection of one groundwater sample for the analysis of lead.

ABB-ES was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct additional field investigations and develop an addendum to the CAR for the S-3 Crash Site.

1.1 PURPOSE. The purpose of this addendum is to report the results of the additional field investigations requested by FDEP in their comments on the S-3 Crash Site CAR. Based on the results of the investigation, a recommendation will be made for remedial actions at the S-3 Crash Site.



**FIGURE 1-1  
S-3 CRASH SITE LOCATION**



**CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
S-3 CRASH SITE**

**NAS CECIL FIELD  
JACKSONVILLE, FLORIDA**

H:/CECIL/CRASHSTE/NP/08-15-95

1.2 SCOPE. The scope of the additional investigations requested by FDEP included:

- installation of one shallow temporary groundwater monitoring well and
- collection of filtered and unfiltered groundwater samples for the analysis of total and dissolved lead.

## 2.0 FIELD INVESTIGATION

Monitoring Well Installation and Sampling. One temporary monitoring well (CEF-USTS3-1) was installed by ABB Environmental Services, Inc. (ABB-ES) on March 2, 1995, approximately 8 feet northeast of the previous location of temporary monitoring well TMW-1A (Figure 2-1). The well was installed using 6.25-inch inside diameter hollow stem augers. The well was constructed of 2-inch inside diameter, flush-threaded, schedule 40, polyvinyl chloride (PVC) screen and riser. The screen was composed of 0.010 inch slotted PVC and was installed between 1.5 and 11.5 feet below land surface. A 20/30 grade silica sand filter pack and a bentonite seal were installed around the well. The well was not grouted to the surface so it could be easily abandoned after sampling. The lithologic log and monitoring well construction diagram for well CEF-USTS3-1 are presented in Appendix B. The newly installed well was purged under low-flow conditions (to minimize turbidity) and sampled for lead on April 30, 1995. The well was purged with a peristaltic pump for 4 hours and the lowest measured turbidity was 80 nephelometric turbidity units (NTUs). Since the turbidity could not be reduced after extensive purging, both filtered and unfiltered groundwater samples were collected. Monitoring well development and groundwater sampling logs can be found in Appendix C.

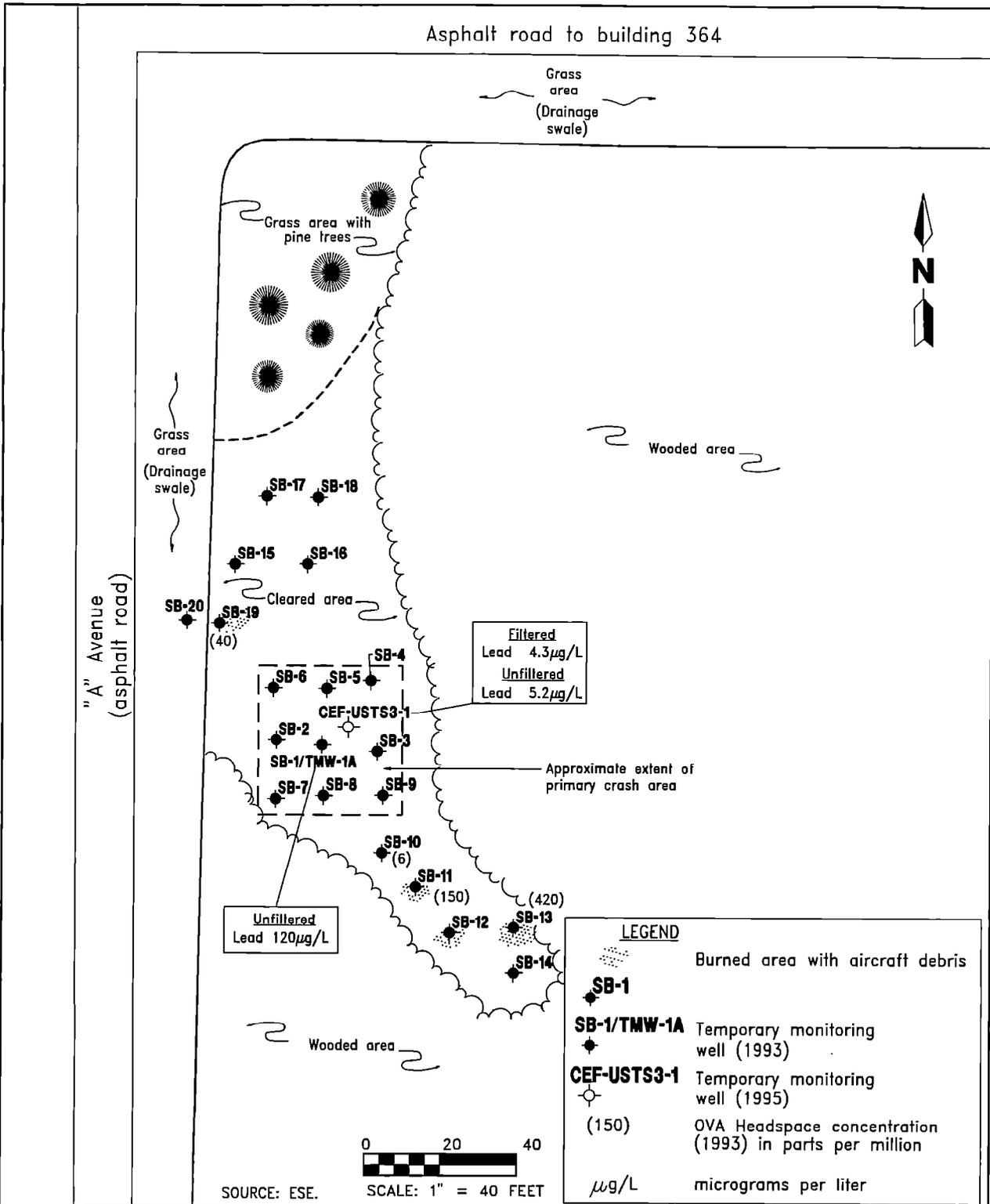
FDEP requested that the groundwater sample be analyzed for lead by USEPA method 239.2; however, due to a miscommunication, the groundwater sampled was analyzed for lead by USEPA trace inductively coupled plasma (ICP) method 6010. Although this was not the requested analysis, the detection limit was 3.0 ppb which was well below the Florida groundwater guidance criteria of 50 ppb.

## 3.0 CONTAMINATION ASSESSMENT RESULTS

The results of the groundwater analysis indicated a lead concentration of 5.2 ppb in the unfiltered sample and a lead concentration of 4.3 ppb in the filtered sample. Both lead concentrations are below the Florida groundwater guidance criteria of 50 ppb. Laboratory analytical data are included in Appendix D.

## 4.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

4.1 SUMMARY. The following is a summary of the additional field investigation conducted by ABB-ES at the S-3 Crash Site.



**FIGURE 2-1  
SOIL BORING AND TEMPORARY  
MONITORING WELL LOCATIONS**



**CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
S-3 CRASH SITE**

**NAS CECIL FIELD  
JACKSONVILLE, FLORIDA**

H/CECIL/S-3/NP-NAB/08-18-95

- One temporary monitoring well (CEF-USTS3-1) was installed near the former temporary monitoring well location TMW-1A.
- Groundwater from the newly installed temporary monitoring well was sampled and analyzed for lead.

4.2 CONCLUSIONS. The additional field investigation at the S-3 Crash Site indicates lead concentration in both filtered and unfiltered groundwater samples is below Florida groundwater guidance criteria concentration of 50 ppb.

4.3 RECOMMENDATIONS. Based on the results of the additional investigation, the Navy recommends a "No Further Action Proposed" for the S-3 Crash Site after the soil excavation recommended in the February 1994 CAR has been completed. The CAR recommended that the upper one foot of soil be excavated from the two isolated areas (SB-11 and SB-13) where the OVA readings were greater than 50 ppm. It is the Navy's opinion that, during the two years since the CA field investigation, the amount of excessively contaminated soil has been further reduced through biodegradation. Therefore, the Navy recommends that these two areas be screened with an OVA prior to the soil excavation to assess if excessively contaminated soil still warrants removal.

**APPENDIX A**

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP)  
COMMENTS**



Lawton Chiles  
Governor

# Florida Department of Environmental Protection

Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Virginia B. Wetherell  
Secretary

May 11, 1994

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

Mr. Basit Ghori  
Environmental Department  
Box 126  
Cecil Field, FL 32215

Dear Mr. Ghori:

Department personnel have completed the technical review of the Contamination Assessment Report, S-3 Crash Site, NAS Cecil Field. I have enclosed a memorandum addressed to me from Mr. Michael J. Deliz. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-3935.

Sincerely,

Eric S. Nuzie  
Federal Facilities Coordinator

ESN/st

Enclosure

cc: Mike Deliz  
Bryan Kizer  
Alan Shoultz  
Brian Cheary  
Bart Reedy  
Jerry Young  
John Mitchell

RECEIVED  
ENVIRONMENTAL DEPT.  
1994 MAY 19 AM 11:35

# Memorandum

# Florida Department of Environmental Protection

TO: Eric S. Nuzie, Federal Facilities Coordinator  
Bureau of Waste Cleanup

THROUGH: Dr. James J. Crane, Administrator  
Technical Review Section *JJC*

Tim J. Bahr, P.G., Professional Geologist II *TJB*  
Technical Review Section

FROM: Michael J. Deliz, P.G., Technical Review Section *mjd*  
Bureau of Waste Cleanup

DATE: May 6, 1994

SUBJECT: Contamination Assessment Report, dated February 1994  
S-3 Crash Site, Naval Air Station Cecil Field, Florida

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I have completed the review of the Contamination Assessment Report (CAR) and No Further Action (NFA) proposal dated February 1994 (received March 21, 1994), submitted for the above-referenced facility. The NFA cannot be approved at this time because of the presence of excessive lead in temporary monitoring well TMW-1A. The amount of lead, 120 parts per billion exceeds the allowable limit for a NFA. I agree with the proposed excavation and proper disposal of excessively contaminated soils as required by Chapter 17-770, Florida Administrative Code (F.A.C.), and that confirmatory headspace samples be taken following excavation. Therefore, in order to fully meet the requirements of Rule 17-770.600(7), F.A.C., the following supplemental data is requested:

1. A shallow groundwater monitoring well should be installed in the approximate location of TMW-1A. This well should be designed to bracket the water table and be sampled and analyzed by EPA Methods 239.2. Care should be taken in trying to obtain a turbid-free sample. In order to achieve a non-turbid sample, a quiescent sampling technique is suggested.
2. The results of the supplemental assessment should be submitted to the Department within 90 days. An expedited assessment is desirable, so that this site can become a Category 4 Site (Dark Green) under the BRAC Cleanup Plan (BCP) and the Environmental Baseline Survey (EBS) and be considered suitable for transfer.

**APPENDIX B**

**LITHOLOGIC LOG AND WELL CONSTRUCTION DIAGRAM**

PROJECT: NAS Cecil Field RI QUs 3,4,5,6		LOG of WELL: CEF-USTS3-1		BORING NO.	
CLIENT: SOUTHDIIVNAVAFACENGCOM		PROJECT NO: 8500-08		DATE STARTED: 03-02-95	
DRILLING SUBCONTRACTOR: Groundwater Protection Inc.		SITE: Site 3		COMPLETED: 03-02-95	
METHOD: Mobile Drill B-58/4.25"HSA		WELL CASE DIAM: 2"		MONITOR INST. Microtip-PID	
TOC ELEVATION: FT. NGVD		SCREEN INT.: 1.5-11.5 FT.		SCREEN SLOT SIZE: 0.010"	
GROUND ELEV.: FT. NGVD		NORTHING:		EASTING:	
WELL DEVELOP. DATE: 03-02-95		TOTAL DEPTH: 12.5 FT. BLS		DEPTH TO $\nabla$ 2 FT. BLS	
				LOGGED BY: B. McGuffee	

DEPTH FT.	SAMPLE INTERVAL RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0			0-12.5 Sand (SP), 100% quartz, dark brown to light brown, fine-grained, sub-angular to sub-rounded, poorly sorted, silty.		SP		
5						groundwater encountered	
10						post hole to 4' b/s.	
15							
20			End of boring: 12.5' b/s.				

**APPENDIX C**

**MONITORING WELL DEVELOPMENT AND GROUNDWATER SAMPLING LOGS**



MONITORING WELL DEVELOPMENT DATA

WELL: CEP-UST53-1 TIME BEGAN: 0830 24APR SITE NAME: NAS Cecil Field  
 DATE: 29 APR 95 TIME ENDED: 1800 30APR PROJECT: AZ OUE 3456  
 STATIC WATER LEVEL (ft): 5.08' b/c NUMBER OF DRUMS: N/A PROJECT NUMBER: 8520.22  
 WELL DESIGN DEPTH (ft): 14.44' w/c DRUM DESIGNATIONS: N/A FIELD PERSONNEL: Bob [unclear]  
 WELL VOLUME (gal): 1.31 SHEET NO. 1 OF 2

7113195

Post-It® Fax Note	7671	Date	3	# of Pages	1
To	Eric	From	Nana		
Co./Dept		Co.			
Phone #		Phone #			
Fax #		Fax #			

JRE	pH	CONDUCTIVITY	TURBIDITY	REMARKS
		(MICROSIEMENS)	(NTU)	
				peristaltic
0830	6.10	233	7200	
0900	6.12	240	7200	well slow recovery rate
0930	6.07	241	7200	
0940	-	-	-	PUMP failure
1015	6.11	241	7200	Remove Drumment
1045	5.96	246	7200	None on Bottom
1115	5.95	247	7200	
1145	5.93	244	7200	
1215	5.84	233	7200	
1245	5.80	227	7200	
1315	5.81	218	7200	
1345	5.83	215	7200	
1415	5.79	209	7200	
1500	5.70	195	7200	
1530	5.73	190	7200	Clearing
1600	5.65	187	138.5	
1630	5.66	170	111.8	
1700	5.65	173	102.8	
1130	5.64	170	98.1	
1800	5.61	169	93.8	STOP PURGE
0845	5.67	146	135	
0915	5.66	140	7200	
0945	5.62	144	7200	
1015	5.69	152	7200	
1045	5.64	138	7200	
1130	5.69	124	7200	Clearing



GROUNDWATER SAMPLING LOG

CLIENT ABB-ES  
 SITE UST  
 WELL NUMBER CEF-UST53-1  
 JOBNUMBER 8520.22

TOTAL WELL DEPTH 14.44 TOC  
 WELL DIAMETER 2"  
 BOREHOLE DIAMETER 1.4" INCH

MIN NUMBER WELL VOL TO BE PURGED 5  
 VOL PER VERTICAL FT CASING (GAL) 14  
 VOL PER FT BOREHOLE (LESS CASING)(GAL) N/A

STATIC WATER LEVEL (FT) 5.08  
 STANDING WATER COLUMN (FT) 9.36

AMT ONE WELL VOL (GAL) 1.31  
 TOTAL GAL TO BE PURGED 6.55

PURGING SYSTEM peristaltic  
 SAMPLING SYSTEM trailer

DATE	TIME	AMOUNT PURGED (GAL)	FIELD PARAMETERS MEASURED					COMMENTS	SAMPLER
			EC(umhos)	pH	TEMP(°F)	TURBIDITY(NTU)	PID(ppm)		
30/1/95	1400	Initial	120	5.62	74.8	80.6	0		SM
	1430	2	123	5.65	74.9	81.3			
	1500	4	126	5.60	74.9	80.6			
	1530	6	120	5.57	74.8	82.0			
	1600	8	119	5.62	75.0	81.8			
	1630	10	119	5.63	74.8	80.8			
	1700	12	122	5.59	74.6	82.3			
	1730	14	124	5.67	74.5	81.2			
	1800	16	123	5.62	74.4	82.1		End purge / Sample well	

NOTE: S

TURBIDITY:

JUL-13-95 THU 01:55 PM

P.01

**APPENDIX D**  
**LABORATORY ANALYTICAL DATA**

NAS CECIL FIELD -- S-3 CRASH SITE  
LEAD

Lab Sample Number:	A5E0200070	A5E0200070	A5E0200070
Site	CECIL8	CECIL8	CECIL8
Locator	CEF-UST-H31	CEF-UST-H31	CEF-UST-H31
Collect Date:	30-APR-95	30-APR-95	30-APR-95
VALUE	QUAL UNITS	DL	VALUE
			QUAL UNITS
			DL

Lead	.0052	mg/l	.003	93.79	PERCE	96.17	PERCE
Lead DISS	.0043	mg/l	.003	86.61	PERCE	98.04	PERCE

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