APPENDIX L

Armored Fighting Vehicle Groundwater Investigation Letter Report

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February 9, 2005

BROWN AND CALDWELL

Ms. Meegan Nagy
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814

1017/100739-001

Subject: Final Letter Report--Armored Fighting Vehicle Groundwater Investigation, Former Benicia Arsenal, Benicia, California

Dear Ms. Nagy:

This letter report presents the results of a groundwater investigation downgradient of the Armored Fighting Vehicle (AFV) at the Former Benicia Arsenal (Arsenal), Benicia, California (Figure 1). The work described herein was performed as part of the Benicia Arsenal Environmental Restoration Program, conducted for the U.S. Army Corps of Engineers (USACE) Sacramento District under the Formerly Used Defense Sites (FUDS) program and in accordance with a Work Plan for the Armored Fighting Vehicle Groundwater Investigation[1] (AFV Letter Workplan).

Following the introduction section, the investigative methods, data usability, results, and conclusions of the investigation will be discussed.

INTRODUCTION

The AFV is a World War II era General Grant type tank that was gutted then modified for use as a "popping pot" to destroy unserviceable ordnance. The tank turret was removed and the tank hull was modified to be used as a furnace. A conveyor belt was constructed to feed ordnance to the furnace, and a small fuel line supplied diesel fuel to keep the furnace burning. The diesel fuel was likely supplied by a nearby above ground tank a short distance up hill from the AFV. The AFV site contains one immobilized and demilitarized General Grant Tank. Popping pot operations were stopped periodically to allow the removal of burned fuses and debris. The burned fuses and debris were disposed of adjacent to the AFV.

[1] Brown and Caldwell. 2003. Final Work Plan--Armored Fighting Vehicle Groundwater Investigation, Former Benicia Arsenal, Benicia, California. Prepared for the U.S. Army Corps of Engineers. June 5.

In 2001, Explosive Ordnance Disposal Technology, Inc. (EODT) performed an extensive clearance effort over a two-week period to clear the area around the AFV. EODT removed and inspected 8,445 burned fuses. EODT inspected each fuse and projectile for the presence of explosives or explosive residues and none were present. The tank body prevented the geophysical clearance of approximately 900 square feet. The area under the tank body and within the tank's magnetic influence was not cleared; only surface clearance was performed over this area.

Located on Caltrans property, fill material was placed within the ravine and on top of the AFV by November 2002. These activities were part of a construction project for the expansion of the Benicia-Martinez Bridge. In November 2002, the USACE, Brown and Caldwell, and Caltrans visited the site to determine if access was possible at the AFV location. The Caltrans representative said that the fill in this area commonly contains sandstone boulders up to 2 feet in diameter and larger, and up to 15 feet of boulder-laden fill covers the AFV. The large boulders in the 15 feet of fill material placed on top of the AFV prohibited drilling with a small rig, and the steep incline of the adjacent slopes and access road prohibited access of a larger drill rig. Photo 1 is a panoramic view of the Caltrans construction activities in November 2002. The conical shaped depression in the center of the photo is the location of the buried AFV. The inset photo is a closer view of the depression.

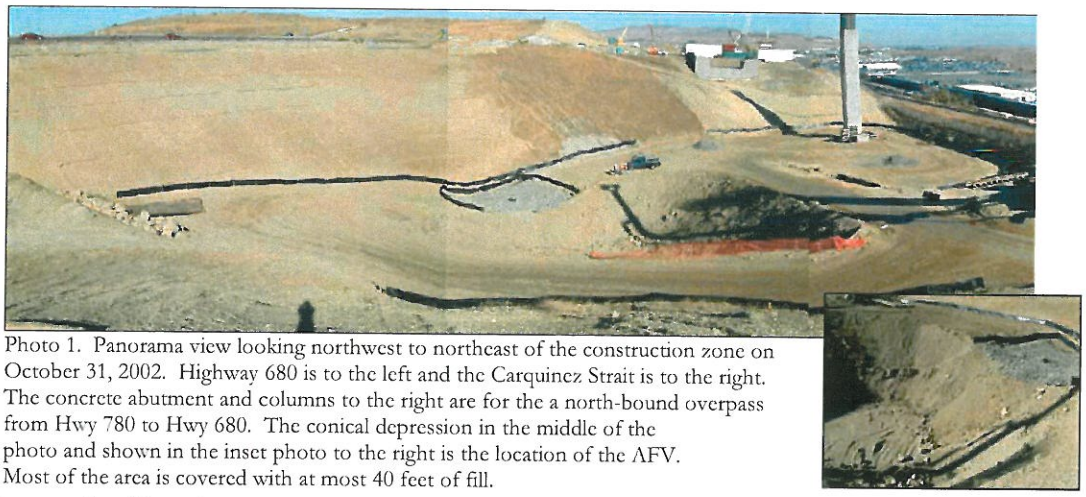


Photo 1. Panorama view looking northwest to northeast of the construction zone on October 31, 2002. Highway 680 is to the left and the Carquinez Strait is to the right. The concrete abutment and columns to the right are for the a north-bound overpass from Hwy 780 to Hwy 680. The conical depression in the middle of the photo and shown in the inset photo to the right is the location of the AFV. Most of the area is covered with at most 40 feet of fill.

Due to the fill and access restrictions, the nearest possible sampling location is approximately 300 feet downgradient of the AFV on Bayshore Road. Because of the distance, groundwater samples were the best method to determine if any of the burnt material has impacted groundwater.

The groundwater sampling locations were located on a 400 foot by 1,700 foot wide strip of land owned by Union Pacific Railroad (UPRR). This strip of land includes the primary freight and Amtrak passenger rail line that crosses the Benicia-Martinez Bridge, Bayshore Road, and two railroad tracks leased by private parties from UPRR. Before sampling could begin, USACE acquired a right-of-entry with UPRR for access to the property.

The purpose of these activities is to determine if past Department of Defense (DoD) activities associated with the AFV have resulted in environmental impacts to groundwater. Three sampling locations (AFVSB001 through AFVSB003) were discussed in the AFV Letter Workplan[1]. However, current Caltrans construction adjacent to Bayshore Road and subsurface utilities on the road prevented the advancement of one of the three borings (AFVSB003). The locations of the two cone penetrometer testing (CPT) borings advanced are shown on Figure 2 and still meet the planned objectives stated above.

INVESTIGATIVE METHOD

The AFV Workplan included two sampling scenarios because the exact nature of the stratigraphy / hydrogeology in the proposed drilling area was not known. Scenario 1 assumed the water-bearing zone (first alluvium) and bedrock are shallow and no Bay Mud is encountered. In this scenario, boring AFVSB002 is advanced past first groundwater to a deeper water-bearing unit to collect the second grab groundwater sample. If Bay Mud was encountered before bedrock, Scenario 2 was to be followed. Scenario 2 assumed that an older alluvial unit underlies the Bay Mud. In this case, boring AFVSB002 is advanced through the Bay Mud to determine if there is another water-bearing alluvial unit beneath or within the Bay Mud and above bedrock. In this case, the grab groundwater sample was to be collected from this water-bearing unit.

Since the AFV Workplan was finalized in June 2003, CPT borings had been advanced at a nearby Expanded Site Inspection (SI) Site, the Post Dumpsite, in May 2004. The Post Dumpsite is approximately 800 feet east of the planned AFV CPT boring locations. The CPT boring logs at the Post Dumpsite indicated that Scenario 1 and Scenario 2 may be encountered at the AFV CPT boring locations; therefore, field personnel were briefed on the findings at the Post Dumpsite and were ready to collect two water samples, one from the shallow water-bearing zone within the first alluvium above the Bay Mud and another water sample from the older alluvium between the Bay Mud and the sandstone bedrock.

On November 7, 2004, Brown and Caldwell conducted this groundwater investigation downgradient of the AFV location. Three borings (AFVSB001, AFBSB002, and AFVSB003) were planned to obtain lithology and groundwater samples. The first boring, AFVSB001, was advanced to 13.8 feet bgs where bedrock was encountered. No groundwater was immediately encountered; therefore, temporary well screen and casing were placed in the borehole to allow groundwater to collect. The second boring, AFVSB002, was also advanced to bedrock at a depth of 37.5 feet bgs. Two water-bearing zones were identified from the CPT log; therefore, two water samples were collected. The third boring, AFVSB003, was not able to be advanced. Caltrans construction in the area prevented the advancement of this boring. Each groundwater sample was analyzed for:

- Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) and zinc;
- total petroleum hydrocarbons (TPH) as diesel and motor oil range organics;
- explosives; and
- nitrates and total dissolved solids (TDS).

Borings were advanced with a CPT rig to first collect lithologic data and then collect a Hydropunch® groundwater sample. The purpose of the Hydropunch® was to collect a one-time groundwater sample to obtain information on contaminants. A detailed methodology for collecting the samples is discussed in the AFV Letter Workplan[1].

There were three deviations made from the AFV Workplan. First, as stated above, Caltrans construction in the area prevented the advancement of one of the three planned borings. Second, the AFV Workplan indicated that only one boring, AFVSB002, would be deepened to find the second water-bearing unit. Since two borings were being advanced instead of three, the findings at the nearby Post Dumpsite indicated a strong possibility that the second water-bearing unit would be encountered, and that there was sufficient budget remaining, both AFV CPT locations were advanced to find the second water bearing unit. Lastly, strategy from the Expanded SI was successful in determining the topography of the sandstone which led to determining preferential flow paths for groundwater. Therefore, both borings were advanced until refusal was reached, which coincided with the top of competent sandstone.

DATA USABILITY

This section summarizes the data quality assessment of analytical results reported for groundwater samples collected during this investigation. Validation and/or verification of the laboratory analytical data were performed per the criteria specified in the Benicia Quality Assurance Project Plan (QAPP[2]).

Soil and water samples were collected by Brown and Caldwell on November 7, 2004. The samples were sent under chain-of-custody by overnight shipment to EMAX Laboratories, Inc. (EMAX) in Torrance, California, a USACE validated laboratory. Data was received in both hard copy and electronic formats. In general, the data collected in support of this investigation are considered usable for the purpose of engineering decision making.

A summary of primary samples and associated quality control (QC) samples are included in Table 1.

Table 1. AFV QC Sample Summary

Explosives (8330)	2	NR	NR
TPH-d/motor oil (8015B)	2	NR	NR
Metals (6010B/7000)	2	NR	NR
Total Dissolved Solids (E160.1)	2	NR	NR
Anions (E300)	2	NR	NR
Total number of analyses	10	NR	NR

NR – Not required when less then 10 primary samples are collected

RESULTS

The first five feet of lithology, hand augered to clear underground utilities, was logged from hand augered cuttings. The lithologic data shows fill material composed of a mixture of clayey silt, sandy silt, silty sand and silt to a depth of approximately 5 feet bgs. This sediment is overlying weathered sandstone bedrock in AFVSB001. Refusal was reached at 13.8 feet bgs. The lithology in AFVSB002 consists of alluvium composed of clay, clayey silts and silt to approximately 11 feet bgs. A small zone of Bay Mud was recorded from about 11 to 13 feet bgs. From

[2] Forsgren Associates/Brown and Caldwell. 2001. Quality Assurance Project Plan, Revision 2. Prepared for the U.S. Army Corps of Engineers. November.

approximately 13 feet to 25 feet bgs older alluvium composed of silty sand, silt, and sandy silt is found. Weathered sandstone bedrock and sandy silt-silty sand units are interbedded between 25 to 28 feet bgs, which change to weathered bedrock. Refusal was reached at 37.57 feet bgs. The CPT logs are included in Attachment A

No groundwater was encountered at AFVSB001, whereas two water-bearing zones were identified in AFVSB002. Depth to weathered sandstone from AFVSB001 to AGVSB002 deepens from 5 feet bgs to 25 feet bgs, which indicates AFVSB002 is within the historic valley and in the path of groundwater flow from the AFV site.

A cross section (Figure 2) was constructed that shows the geology from PZ-19 in the highlands through AFVSB002 to the Post Dumpsite and the Carquinez Strait. Artificial fill and alluvium overlie a small section of Bay Mud. Older alluvium material overlies sandstone. This is consistent with Scenario 1 and Scenario 2, described in the Investigation Methods Section, which describes two separate water-bearing zones. Groundwater samples were collected in both groundwater zones; above and below the Bay Mud (5-10 feet bgs and 18-25 feet bgs).

The analytical results are presented in Attachment B. Petroleum hydrocarbons were detected in both the shallow and deep water samples collected at AFVSB002. Table 2 shows the depth and concentrations of diesel fuel and motor oil in groundwater.

Table 2. TPH Groundwater Results at AFVSB002

5-10	910	3000
18-25	90	160
ESL[3]	640	640

The concentrations of diesel fuel and motor oil in the groundwater sample collected between 5 and 10 feet bgs are both above the Environmental Screening Levels (ESLs)[3] of 640 µg/L for diesel and motor oil range organics. However, the concentrations of diesel fuel and motor oil in the deeper groundwater sample collected between 18-25 feet bgs are not above the ESLs.

[3] California Regional Water Quality Control Board, San Francisco Bay Region. 2003. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater (Interim Final).* July.

Water quality parameters measured included nitrates, chloride (CL), sulfate (SO_4^{-2}) and TDS. Groundwater can be classified into fresh, brackish, saline, or brine water by measuring the TDS. Table 3 shows the classification according to the concentration of TDS.

Table 3. Groundwater Salinity Classification

Fresh water	0 – 1,000
Brackish water	1,000 – 10,000
Saline water	10,000 – 100,000
Brine water	More than 100,000

Source: Driscoll, 1986[4].

Table 4 lists the TDS concentrations of the groundwater samples collected at the AFV. All results were below 1,000 mg/L.

Table 4. Water Quality Parameters at AFVSB002

5-10	96.7	0.187	8.86	743
18-25	115	0.324	38.4	846

Chloride, nitrogen, and sulfate make up part of the solids measured in TDS. These are negatively charged ions (anions) that occur naturally in groundwater. Differences and similarities in anion composition may be used to identify different sources of groundwater. The TDS and anion values suggest that the shallow groundwater at the AFV is fresh water. These results are supported by the Preliminary Conceptual Hydrogeologic Model, which states that groundwater in the Lowland areas is brackish to saline and that groundwater in the Highland areas is fresh[5]. The AFV and the AFV CPT locations are located in the Highlands area.

Metals reported above laboratory method detection limits (MDLs) included arsenic, barium and zinc. These metals decrease in concentration with depth (Table 5).

[4] Driscoll. 1986. Groundwater and Wells. Second Edition. Page 97.
[5] Forsgren Associates/Brown and Caldwell. 2003. Preliminary Conceptual Hydrogeologic Model. Prepared for the U.S. Army Corps of Engineers. Preliminary Draft. July.

Table 5. Detected Metals in Groundwater at AFVSB002			
5-10	0.0168	0.328	0.0118 J
18-25	<0.0015	0.0179	0.00644 J

Caltrans collected two soil samples from the area above the AFV. These sample locations and results are shown on Figure 2. Although antimony, cadmium, copper, lead, nickel, selenium, and zinc were detected at concentrations exceeding ambient metals concentrations[6], the concentrations were all below the Benicia Screening Levels[7] established in soil for the industrial worker (Table 6).

Table 6. Detected Metals in Soil at Caltrans Location 2			
Antimony	**199**	8.52	818
Barium	212	224	124,000
Cadmium	**1.72**	0.866	1,010
Chromium (total)	38.8	75.3	448
Cobalt	19.8	13.3	123,000
Copper*	**90.5**	40.5	75,800
Lead	**154**	20.1	750
Mercury	0.095	0.287	613
Nickel	**41.8**	38.3	40,900
Selenium	**19.1**	0.605	10,200
Vanadium	63.7	92.2	14,300
Zinc	**206**	126	613,000

Bolded values exceed ambient concentrations
** For industrial/commericial workers.

Explosives were not reported above MDLs.

[6] Forsgren Associates/Brown and Caldwell. 2004. Area I 50 Series Complex Site Inspection Report for the Former Benicia Arsenal. Prepared for the U.S. Army Corps of Engineers. October.
[7] Forsgren Associates/Brown and Caldwell. 2002. Assessment Criteria for the Former Benicia Arsenal. Prepared for the U.S. Army Corps of Engineers. March.

CONCLUSIONS

The stratigraphy encountered in boring AFVSB002 does indicate that this boring is within the same alluvial valley as the AFV. In addition, the deep groundwater sample collected beneath the Bay Mud in the older alluvium at AFVSB002 is representative of groundwater downgradient of the AFV.

In the shallow groundwater sample, TPH concentrations exceed ESLs and may be indicative of oils from the roadway and the nearby railroad tracks percolating into shallow groundwater. Arsenic, barium, and zinc were reported in groundwater at low concentrations and may be indicative of ambient or background concentrations or residuals from these oils.

In the deeper water sample, TPH is present below ESLs, explosives were not reported, and zinc and barium, were reported above method detection limits; therefore, there appears to be no significant impact to deeper groundwater in this location.

Please review this letter, and if you have any questions, call me at (916) 853-5325.

Sincerely,

BROWN AND CALDWELL

REGISTERED GEOLOGIST
WENDY LINCK
No. 6934
STATE OF CALIFORNIA

Wendy Linck, P.G.
Project Manager

WL:seg
Enclosures

cc: Ms. Rachel Goldberg, Brown and Caldwell

FIGURES

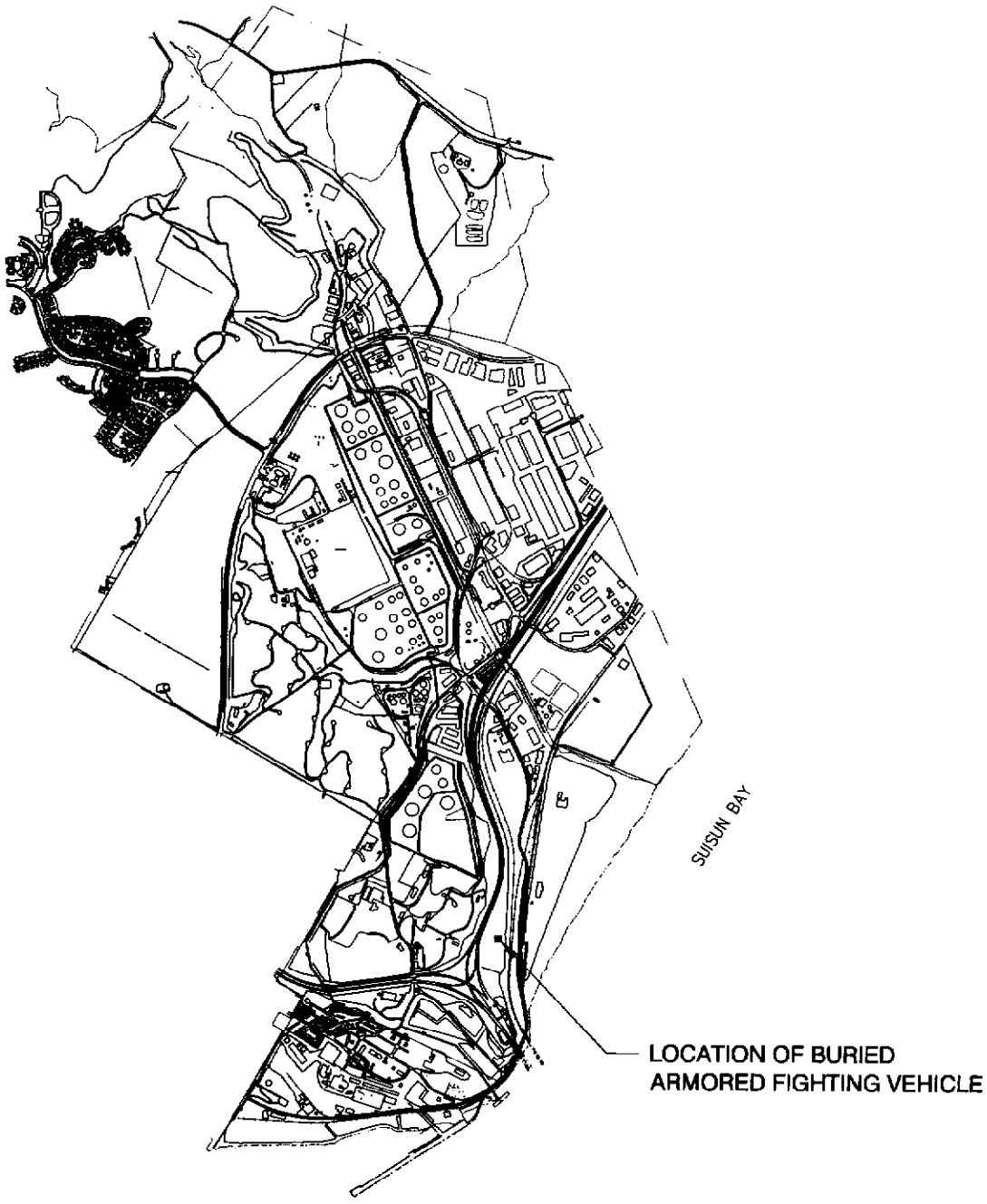


Figure 1
Site Location
Armored Fighting Vehicle Sampling
Letter Report
Benicia Arsenal

Forsgren Associates/Brown and Caldwell
12-7-04 100739 P:\US Army Corps\Benicia Arsenal\Reports\AFV\new-Fig1Arsenal.dwg

NORTH

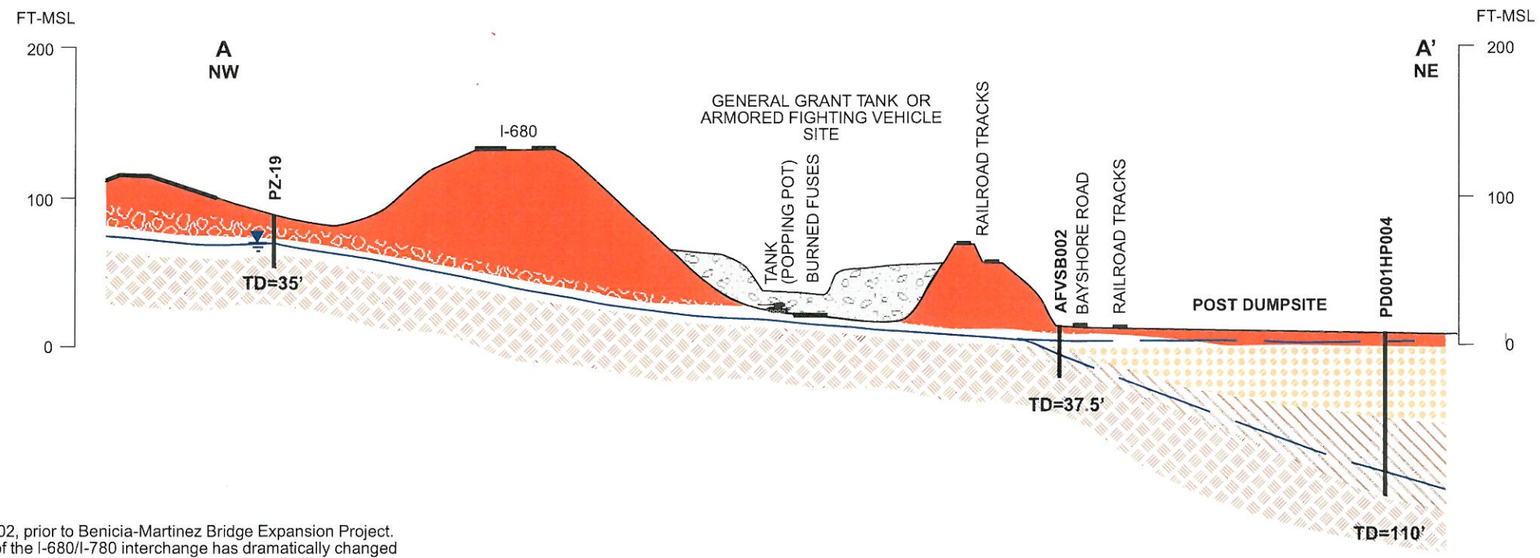
0 100 200

Scale in Feet

Analyte	2 ft bgs
Antimony	**199 mg/kg**
Barium	212 mg/kg
Cadmium	**1.72 mg/kg**
Cobalt	**19.8 mg/kg**
Chromium (total)	38.8 mg/kg
Copper	**90.5 mg/kg**
Mercury	0.095 mg/kg
Nickel	**41.8 mg/kg**
Lead	**154 mg/kg**
Selenium	19.1 mg/kg
Vanadium	63.7 mg/kg
Zinc	**206 mg/kg**

Analyte	18 ft bgs	5 ft bgs
Arsenic		0.0168 mg/L
Barium	0.0179 mg/L	0.328 mg/L
Chloride	115 mg/L	96.7 mg/L
Nitrate (as N)	0.324 mg/L	0.187 mg/L
Sulfate	38.4 mg/L	8.86 mg/L
Total Dissolved Solids	846 mg/L	743 mg/L
Zinc	0.00644 mg/L	0.0118 mg/L
Diesel Range Organics	90 ug/L	910 ug/L
Motor Oil Range Organics	160 ug/L	3,000 ug/L

Soil sample results at 1 ft bgs and 2 ft bgs were less than reporting limits for VOCs, gasoline, diesel fuel and motor oil range hydrocarbons, and semi-volatile organics.



Legend

- **PZ-19** Existing Piezometer Location
- **AFVSB001** Boring Location
- **Caltrans1** Approximate Soil Sample Locations Collected April 2002 and May 2002 (Environ Survey, 2002)

Detected results are shown.
Bolded values exceed ambient metals concentrations in soil.

- Bridge Expansion Fill (as of 11/02)
- Artificial Fill
- Holocene Alluvium (includes Colluvium and Weathered Bedrock)
- Bay Mud (Primarily Holocene Estuarine Deposit)
- Older Alluvium
- Bedrock (Sandstone/Siltstone)
- Groundwater elevation (Measured 11/26/02 and 11/07/04)

Topographic contours as of 2002, prior to Benicia-Martinez Bridge Expansion Project. The landscape east and west of the I-680/I-780 interchange has dramatically changed with mostly cutting on the west side and filling to the east.

Figure 2
Buried AFV Location and Hydrogeologic Cross Section
Armored Fighting Vehicle Sampling
Letter Report
Benicia Arsenal

Forsgren Associates/Brown and Caldwell
2-7-05 100739-001 P:\US Army Corps\Benicia Arsenal\Reports\AFV\NEW-Fig2-MapSect.cdr

ATTACHMENT A

CPT Logs

GREGG

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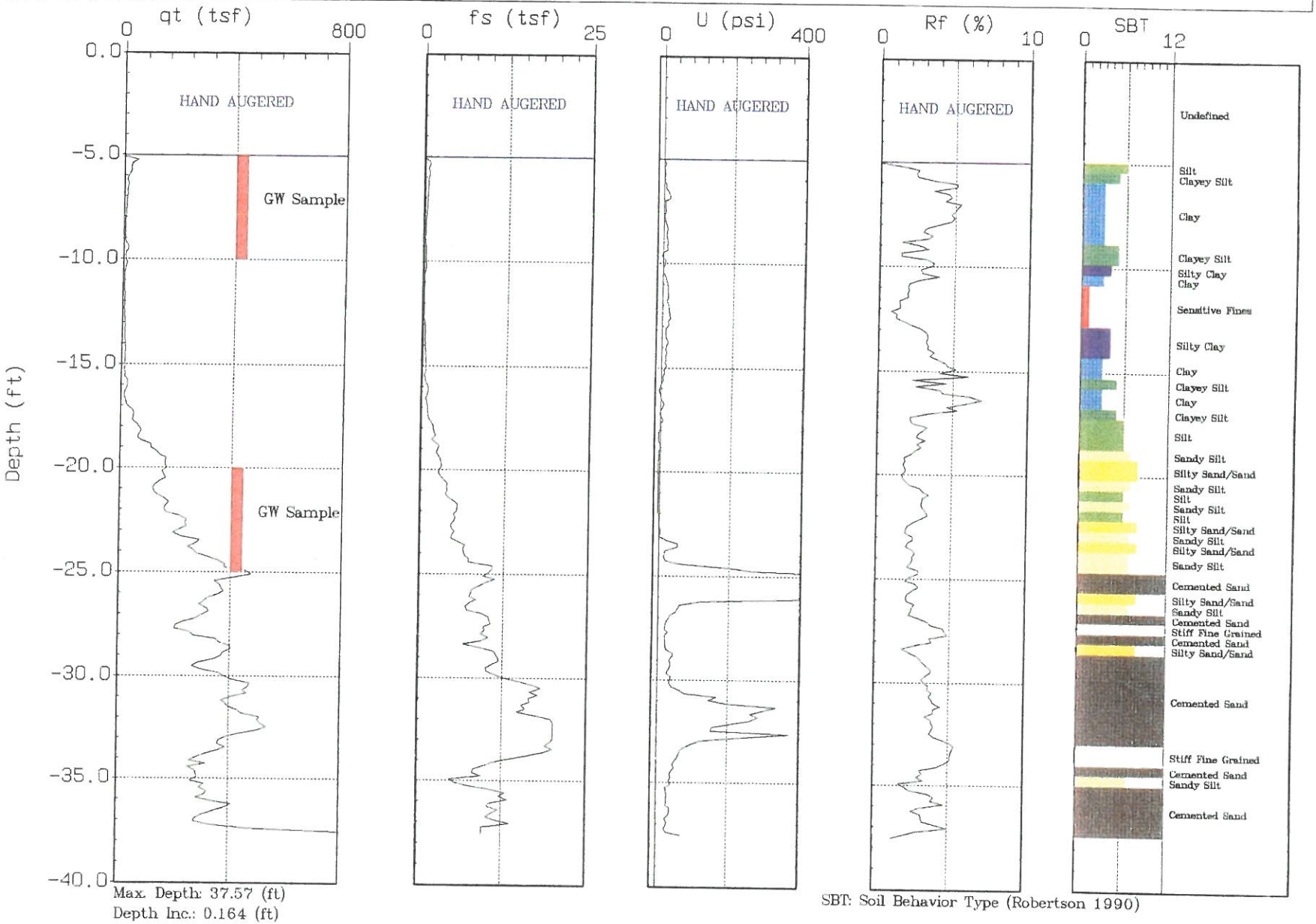
Site: BENICIA ARSENAL
Location: AFU-SB-2

Geologist: R. GOLDBERG
Date: 11:07:04 11:36



Max. Depth: 37.57 (ft)
Depth Inc.: 0.164 (ft)

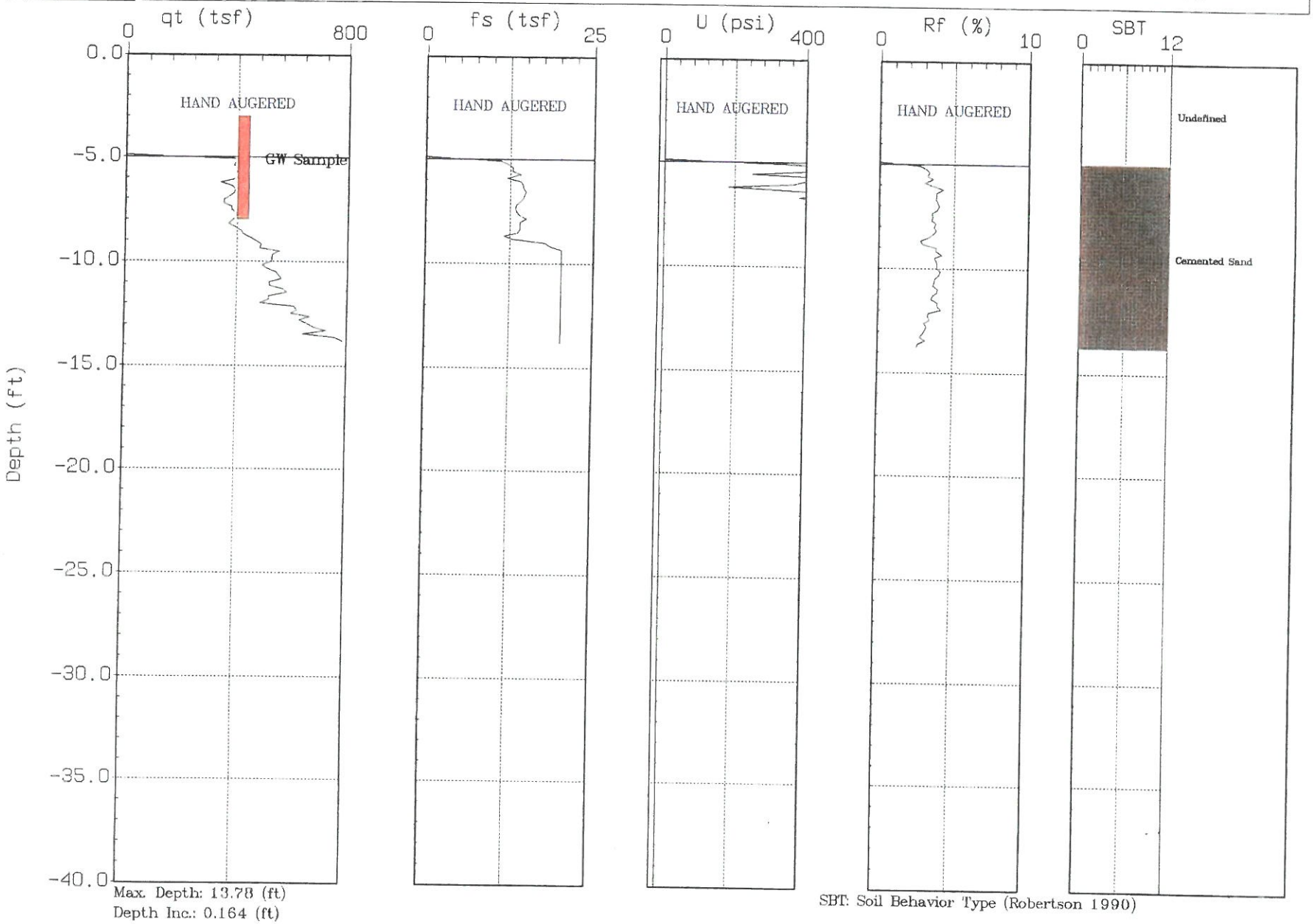
SBT: Soil Behavior Type (Robertson 1990)

GREGG

BROWN & CALDWELL

Site: BENICIA ARSENAL
Location: AFU-SB-1

Geologist: R. GOLDBERG
Date: 11:07:04 10:11



Max. Depth: 13.78 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

ATTACHMENT B

Analytical Results

Attachment B

Analytical Results in Groundwater
Armored Fighting Vehicle

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	1,3,5-TRINITROBENZENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	1,3,5-TRINITROBENZENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	1,3-DINITROBENZENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	1,3-DINITROBENZENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	2,4,6-TRINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	2,4,6-TRINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	2,4-DINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	2,4-DINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	2,6-DINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	2,6-DINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	2-AMINO-4,6-DINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	2-AMINO-4,6-DINITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	2-NITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	2-NITROTOLUENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	3-NITROTOLUENE	< 0.3	UG/L	0.3	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	3-NITROTOLUENE	< 0.3	UG/L	0.3	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	4-AMINO-2,6-DINITROTOLUENE	< 0.3	UG/L	0.3	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	4-AMINO-2,6-DINITROTOLUENE	< 0.3	UG/L	0.3	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	4-NITROTOLUENE	< 0.3	UG/L	0.3	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	4-NITROTOLUENE	< 0.3	UG/L	0.3	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW7060A	ARSENIC	< 0.0015	MG/L	0.0015	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW7060A	ARSENIC	0.0168	MG/L	0.0015	=	-	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW6010B	BARIUM	0.0179	MG/L	0.002	=	-	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW6010B	BARIUM	0.328	MG/L	0.002	=	-	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW6010B	CADMIUM	< 0.0007	MG/L	0.0007	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW6010B	CADMIUM	< 0.0007	MG/L	0.0007	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	E300	CHLORIDE (AS CL)	115	MG/L	2.5	=	-	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	E300	CHLORIDE (AS CL)	96.7	MG/L	2.5	=	-	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW6010B	CHROMIUM, TOTAL	< 0.005	MG/L	0.005	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW6010B	CHROMIUM, TOTAL	< 0.005	MG/L	0.005	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8015B	DIESEL (C10-C24)	90	UG/L	24	TR	J	T

Attachment B, continued

Analytical Results in Groundwater
Armored Fighting Vehicle

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8015B	DIESEL (C10-C24)	910	UG/L	24	=	J-	3L
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW6010B	LEAD	< 0.002	MG/L	0.002	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW6010B	LEAD	< 0.002	MG/L	0.002	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW7470A	MERCURY	< 0.00015	MG/L	0.00015	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW7470A	MERCURY	< 0.00015	MG/L	0.00015	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8015B	MOTOR OIL (C20-C36)	160	UG/L	31	TR	J	T
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8015B	MOTOR OIL (C20-C36)	3000	UG/L	31	=	J-	3L
AFVSB002	AFVSB002-A-W02	N	11/7/2004	E300	NITRATE (AS N)	0.324	MG/L	0.05	=	-	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	E300	NITRATE (AS N)	0.187	MG/L	0.05	TR	J	T
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	NITROBENZENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	NITROBENZENE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	E300	NITROGEN, NITRITE (AS N)	< 0.05	MG/L	0.05	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	E300	NITROGEN, NITRITE (AS N)	< 0.05	MG/L	0.05	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW7740	SELENIUM	< 0.001	MG/L	0.001	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW7740	SELENIUM	< 0.001	MG/L	0.001	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW6010B	SILVER	< 0.005	MG/L	0.005	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW6010B	SILVER	< 0.005	MG/L	0.005	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	E300	SULFATE (AS SO4)	38.4	MG/L	2	=	-	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	E300	SULFATE (AS SO4)	8.86	MG/L	0.2	=	-	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW8330	TETRYL	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW8330	TETRYL	< 0.2	UG/L	0.2	ND	U	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	E160.1	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	846	MG/L	5	=	-	-
AFVSB002	AFVSB002-A-W01	N	11/7/2004	E160.1	TOTAL DISSOLVED SOLIDS (RESIDUE, FILTERABLE)	743	MG/L	5	=	-	-
AFVSB002	AFVSB002-A-W02	N	11/7/2004	SW6010B	ZINC	0.00644	MG/L	0.005	TR	J	T
AFVSB002	AFVSB002-A-W01	N	11/7/2004	SW6010B	ZINC	0.0118	MG/L	0.005	TR	J	T