EXPANDED SITE INSPECTION ADDENDUM REPORT

Environmental Investigation at the Formerly Used Defense Site (FUDS)
at the former Benicia Army Arsenal, Benicia, California
FUDS Number: J09CA075600

UPDATED DRAFT FINAL

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS (continued)

LIST OF FIGURES (continued)

LIST OF ACRONYMS AND ABBREVIATIONS

AFV	Armored Fighting Vehicle
Arsenal	former Benicia Army Arsenal
bgs	below ground surface
BC	Brown and Caldwell
BSL	Benicia Screening Level
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CHM	Conceptual Hydrogeologic Model
CSM	Conceptual Site Model
cis-1,2-DCE	cis-1,2-dichlororethene
COI	chemicals of interest
CPT	cone penetration testing
CSM	conceptual site model
DDT	dichlhorodipheryl trichloroethane
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
EC	electrical conductivity
ER	electrical resistivity
ESLs	Environmental Screening Levels
Expanded SI	Expanded Site Inspection
FA/BC	Forsgren Associates/Brown and Caldwell
FUDS	Formerly Used Defense Sites
FSIP	Field Site Investigation Plan
GSA	General Services Administration
IDW	Investigation Derived Waste
MCL	maximum contaminant levels
MDL	method detection limit
mg/kg	milligrams per kilograms
mg/L	micrograms per liter
MtBE	methyl tertiary-butyl ether
NDAI	No DoD Action Indicated
NORCAL	Norcal Geophysical Consultants, Incorporated
ORP	oxidation reduction potential
PA	Preliminary Assessment
PAH	polynuclear aromatic hydrocarbon
PCE	tetrachloroethene
ppbv	parts per billion by volume
PQL	practical quantitation limit
PVC	poly vinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
QC	quality control
RCRA	Resource Conservation Recovery Act
Water Board	Regional Water Quality Control Board, San Francisco Bay Region
SI	Site Inspection

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

SVOC	semi-volatile organic compound
TCE	trichloroethene
TC	terrain conductivity
TPH	total petroleum hydrocarbon
TPHD	total petroleum hydrocarbon as diesel fuel
TPHG	total petroleum hydrocarbon as gasoline
TPHMO	total petroleum hydrocarbon as motor oil
µg/L	microgram per liter
USACE	United States Army Corps of Engineers
UST	Underground Storage Tank
VC	vinyl chloride
VMG	vertical magnetic gradient
VOC	volatile organic compound

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EXECUTIVE SUMMARY

This addendum to the Expanded Site Inspection (SI) Report presents data from an additional environmental site investigation conducted at the former Benicia Army Arsenal (Arsenal), a formerly used defense site (FUDS), located in Benicia, California. This work was performed on behalf of and with oversight by the United States Army Corps of Engineers (USACE), Sacramento District.

The Expanded SI (Brown and Caldwell [BC], 2005a) recommended further investigation at nine sites because contaminants were not fully delineated in the time (21 field days) funded for the Expanded SI. Of these nine sites, three sites (former Building 58(A), CL2, and the former septic tank at Building 194), could not be investigated because the landowner would not grant USACE access to the property and two sites (underground storage tanks at Building 27 and 161) were investigated in a separate field event (BC, 2006). The remaining four sites were investigated in June and July 2005 for the following:

- to determine the lateral extent of lead and polynuclear aromatic hydrocarbons (PAHs) in soil at the former drum storage area at Building 51,
- to determine the source of diesel fuel in groundwater reported south and southwest of Building 168,
- to determine if the diesel fuel reported in shallow groundwater at Expanded SI boring AFVSB002 is from the alleged Post Dumpsite or attributed from the Armored Fighting Vehicle (AFV),
- to determine the location of buried ferrous and non-metallic debris using geophysics at the alleged Post Dumpsite, and
- to determine lateral extent of fuels and solvents in soil and groundwater at the alleged Post Dumpsite.

Early to June 2006, meetings were being held between USACE and the regulatory agencies about outstanding issues on the Benicia Arsenal FUDS project. At the same time, the draft final version of this report was prepared and then submitted to the regulatory agencies and stakeholders for their review in June 2006. As part of the meeting discussion, the regulatory agencies and USACE compiled all the applicable comments from all reports completed to date with responses into one table. This table was then reviewed by a third party, the US EPA upon the request of the USACE. During this third party review of the table, the US EPA suggested additional investigation was warranted to fill data gaps for two more sites from the Expanded SI (BC, 2005a). USACE agreed to the additional investigation. After additional funding was procured, funded and rights-of-entry renewed with the appropriate landowners, the data gap sampling effort was conducted on January 22, 2008 and February 6, 2008, and February 21, 2008. These data gap sites with objectives are provided below:

- to re-evaluate the wind direction at the former Burn Cage Spur E and then determine if additional sampling is warranted, and

- to re-evaluate the location of the firing range target berm and determine if sufficient samples were collected for soil and groundwater.

According to the sampling flow decision diagram in the Expanded SI Field Site Investigation Plan (BC, 2004) (Diagram 5-1), samples should have been collected at two additional sites, Buildings 90 and 101. Soil vapor at Building 90 and lead in shallow soil at Building 101 were investigated. According to this Diagram, if a groundwater sample contained key indicators above the non-detection limit, and the location is adjacent to a building, a soil gas sample should be collected. However, a soil gas sample was not collected during the initial investigation; therefore, a soil gas sample was collected and reported in this addendum. At Building 101, groundwater samples collected during the Expanded SI contained metals in groundwater and there is a possibility that soil may be impacted with lead that was not detected in the groundwater samples.

This addendum investigation focuses on closing data gaps identified in the Expanded SI Report by delineating existing impacts to soil gas, soil or groundwater. The resulting recommendations were limited to only a few analytical tests (e.g. lead, PAHs, metals, volatile organic compound [VOCs]) that needed to be delineated. This addendum excludes sites where a right of entry was requested but not granted.

The approach to the investigative work is similar to the Expanded SI but with some differences. Since this addendum fieldwork only required a few analytical tests and the boundaries were nearly complete, the dynamic sampling strategy's use of a mobile laboratory in the Expanded SI was not deemed necessary. Therefore, all of the samples were sent to a fixed laboratory for analysis. Otherwise, the decision logic, assessment criteria, and methods of sampling remained the same.

A total of eight soil samples, one soil gas sample, and twelve grab groundwater samples were collected during this investigation. The samples collected were analyzed for compounds that may have been commonly used at these locations and discarded by the Department of Defense (DoD) and chemicals that demonstrate post-army use, such as methyl tertiary-butyl ether (MtBE). All laboratory data underwent data verification.

The results were evaluated to determine the presence or absence of key contamination indicators (cis-1,2-dichloroethene [Cis-1,2-DCE], trichloroethene [TCE], vinyl chloride, benzene, gasoline and diesel fuel). If these key indicators were present above the laboratory method detection limits and the indicator was not delineated from previous samples collected, additional samples were advanced to vertically and laterally delineate the contamination (dependent upon funding).

The following are conclusions for each site investigated in this Expanded SI Addendum:

- No significant DoD impact was reported at former drum storage area (Building 51) (Section 6.1).
- No significant impact was reported in soil gas from the underlying solvent-containing groundwater at the former locomotive building (Building 90) (Section 6.2).
- No significant DoD impact was reported at Building 101 (Section 6.3).
- No source or significant impact was reported at Building 168 (Section 6.4).

- TCE, cis-1,2-DCE and vinyl chloride were reported by another consultant to be present in groundwater at the alleged Post Dumpsite (Section 6.5). TCE was not detected in groundwater during this investigation, but the other signs of degradation, cis-1,2-DCE and vinyl chloride were present in a localized area. Biodegradation is occurring and is likely to continue. Diesel fuel and motor oil range hydrocarbons were reported in all of the shallow groundwater samples but a forensic analysis of the data indicated that a fraction of the result is due to natural sources.

- The diesel fuel and motor oil range hydrocarbon present in groundwater, approximately 300 feet downgradient of the AFV (Section 6.6) is not from the AFV but attributed to the area of the alleged Post Dumpsite.

- No significant DoD impact was reported at the former burn cage at Spur E (Section 6.7).

- No significant DoD impact was reported at firing range target berm (Section 6.8).

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SECTION 1
INTRODUCTION AND BACKGROUND

This addendum to the Expanded Site Inspection (SI) was conducted at the former Benicia Army Arsenal (Arsenal) under General Services Administration Contract No. GS-10F-0101L, Veterans Administration Purchase Order 674-V40113 to comply with requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation Recovery Act (RCRA), as appropriate. This investigation was conducted in accordance with the *Expanded SI Field Site Investigation Plan* (FSIP) (BC, 2004) and the *Quality Assurance Project Plan* (QAPP) (Forsgren Associates/Brown and Caldwell [FA/BC], 2001). Figure 1-1 shows the location of the former Arsenal.

A description of the relationship between the Expanded SI and the Formerly Used Defense Sites (FUDS) program, the methodology of choosing these sites, the location, and the historical and subsequent post-Army use of the Arsenal is provided in the *Expanded SI Report* (BC, 2005a).

This Expanded SI addendum report is organized into eight sections. Section 1.0 presents background information, including the historical uses and a summary of previous investigations. Section 2.0 describes the investigative approach. Section 3.0 presents a summary of field methods and sampling rationale. It also summarizes disposal of Investigation Derived Waste (IDW). Section 4.0 describes the regional, localized, and site-specific geology and hydrogeology. Section 5.0 describes the quality and usability of the data collected during this site inspection. A summary and analysis of results are presented in Section 6.0. Section 7.0 presents the conclusions and recommendations and references are included as Section 8.0.

This report contains eight appendices. Each appendix is described briefly below.

- **Appendix A – Background Details of the Expanded SI Sites.** This appendix includes Preliminary Assessment (PA) summary forms for each Expanded SI site investigated for this addendum report. These forms have been updated with information gathered from the Expanded SI and other relevant investigations since the PA.

- **Appendix B – NORCAL 21 July 2005 Geophysical Report.** A summary report of the geophysical survey conducted at the alleged Post Dumpsite.

- **Appendix C – Cone Penetration Testing Logs.** Testing logs for CPT borings at the alleged Post Dumpsite are provided (Expanded SI Addendum only).

- **Appendix D – Water Quality Measurements.** Data is included in this appendix include water depth to water, groundwater elevations, pH, temperature, electrical conductivity (EC), oxidation reduction potential (ORP), and total dissolved solids. All data gathered for the Arsenal for this addendum investigation is included in this appendix.

- **Appendix E – Legend for Analytical Results.** Definitions of data acronyms, quality control flags, and reason codes.

- **Appendix F – Analytical Results for Soil.** The analytical results for soil are tabulated for all samples collected for this addendum investigation.

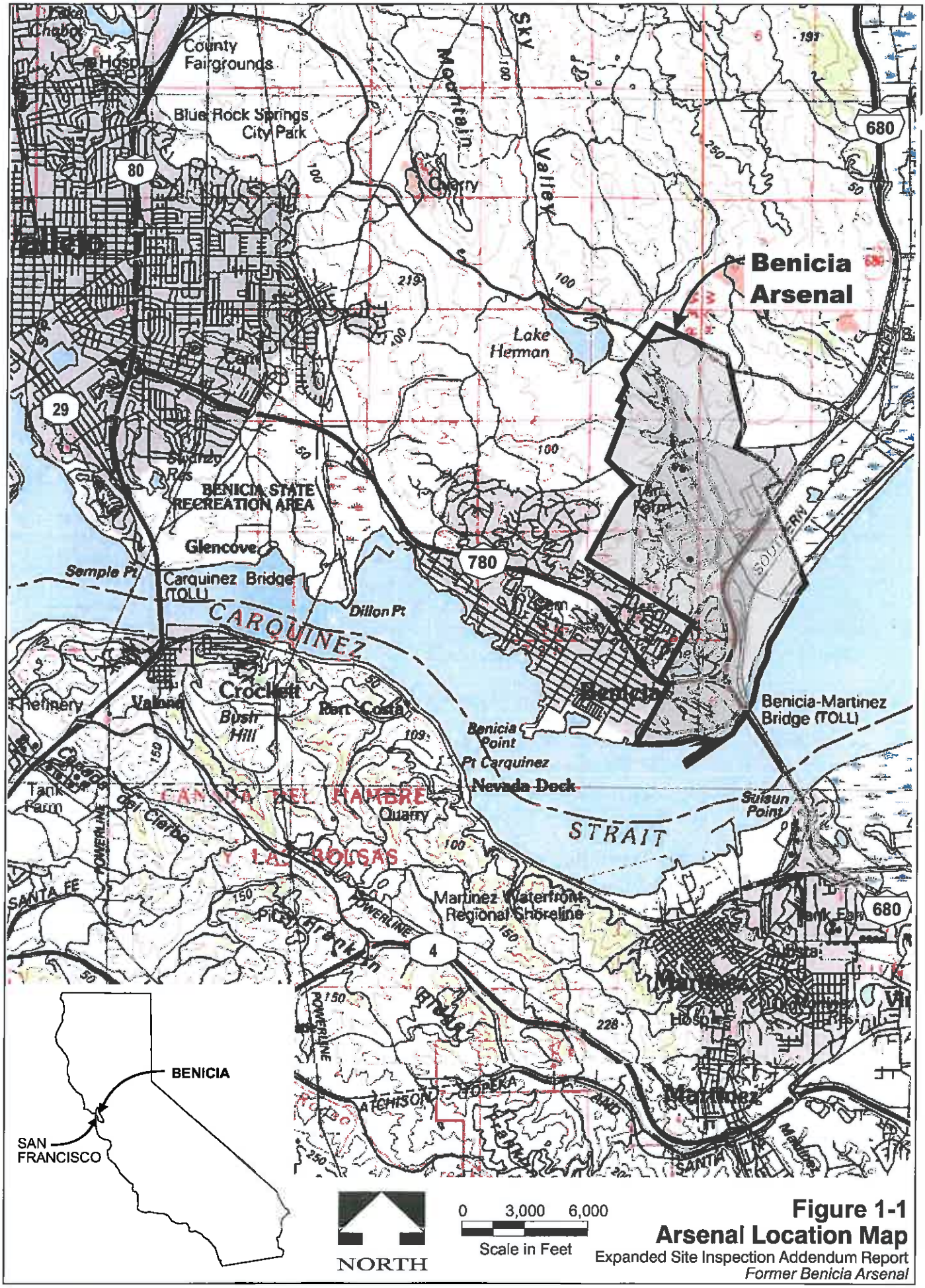


Figure 1-1
Arsenal Location Map
Expanded Site Inspection Addendum Report
Former Benicia Arsenal

- **Appendix G– Analytical Results for Soil Gas.** The analytical results for soil gas are tabulated for all samples collected for this addendum investigation.

- **Appendix H - Analytical Results for Groundwater.** The analytical results for groundwater are tabulated for all samples collected for this addendum investigation.

1.1 Problem Definition and Scope

Because of all the data already collected and summarized in the Expanded SI, this addendum fieldwork only required a few analytical tests necessary to delineate some analytes. All of the work was not completed in the Expanded SI because project funding was allocated for a specific time period, 21 field days.

Since only a few samples were planned for this addendum, the use of a mobile laboratory, like in the Expanded SI, was not deemed necessary or cost effective.

Nine sites were recommended in the Expanded SI for investigation, two sites to close SI data gaps (Buildings 90 and 101), and two sites resulting from meetings in 2006 between USACE and the regulatory agencies (Spur E and Firing Range Target Berm). Therefore, there are a total of 13 sites investigated.

Of these 13 sites, three (former Building 58(A), CL2, and the former septic tank at Building 194), could not be investigated because the landowner would not grant USACE access to the property and two sites (Building 27 underground storage tank [UST] and Building 161 UST) were investigated as part of the *Fuel Storage Tank Removal Action Addendum* (BC, 2006). All 13 sites are listed below with recommended activities and comments (Table 1-1). Their locations are shown on Figure 1-2 and subsequent figures in this report.

As used in the *Expanded SI Report* (BC, 2005a), the word "delineation" in terms of contamination means to non-detect in the vertical and horizontal direction. Similarly, concentration data was compared to the same regulatory criteria included in the *Expanded SI Report* (BC, 2005a).

1.2 Project Objectives

The overall objective of this investigation is to delineate existing impacts to soil or groundwater at the locations identified in Table 1-1. Soil gas was also collected at one site, Building 90, to determine soil gas concentrations in the vadose zone from volatile organic compound (VOC)-impacted groundwater.

Chemical indicators of releases resulting from post-Army use were also analyzed for and were reported in this report (i.e. sampling for fuel oxygenates such as methyl tertiary-butyl ether [MtBE]. MtBE, a fuel oxygenate was added to gasoline in the 1970s after Arsenal closure).

Further details and background information of these investigated sites are provided in Appendix A.

Table 1-1. Summary of Expanded SI Sites Recommended for Further Investigation

Site	DoD Use	DoD Activity	Recommendations	Summary of Other Investigations
27	Captain's Quarters	UST*	Remove 250-gallon fuel oil UST and delineate any contamination.	The UST was removed from the site on January 5, 2006. Soil excavation was performed around the tank. Details about the UST removal and the results from these borings are provided in the *Fuel Storage Tank Removal Action Addendum* (BC, 2006).
51	Stable/ Maintenance	Maintenance	Additional investigation to determine the lateral extent of lead and PAHs in soil from Expanded SI boring B051HP001.	Lead, in a duplicate sample, and several PAHs exceeded their respective Water Board ESLs in the 1.5-foot layer of soil covering the sandstone bedrock (BC, 2005a)
58(A)	Small Arms Repair and Retinning/ Boiler Room	Repair, former boiler UST (not found)	Additional investigation to determine the lateral extent of lead in soil south of Expanded SI boring B058ASB001.	Lead is defined north, west, and east of boring B058ASB001 but not to the south. The landowner has refused USACE access to the property.
90	Locomotive Building	Repair/ Maintenance	Additional investigation to determine the concentration of soil vapor in the vadose zone from impacted groundwater at Expanded SI boring B090HP001.	One grab sample, B090HP001, was collected and analyzed for solvents and fuels during the Expanded SI (BC, 2005a). TCE and its degradation products were reported in the groundwater sample. Low concentrations of diesel fuel (97 micrograms per liter [µg/L]) were also reported.
101	Battery Charge Building	Steam cleaning battery cases	Additional investigation to determine the impact of lead in the vadose zone beneath the Building 101 concrete foundation at the drain inlet due to former battery cleaning operations.	Low to trace concentrations of metals and diesel fuel were reported in two downgradient groundwater samples (B101HP001 and B101HP002) collected during the Expanded SI (BC, 2005a).
161	Motor Cleaning Building/Steam Cleaning/Paint Spray/Fuel Storage	UST*	Remove 3,000-gallon UST and delineate any contamination.	The UST was removed from the site on January 5, 2006. Limited soil excavation was performed. The west end of the excavation appeared to be impacted with fuels. Four soil borings (B161GB001 through B161GB004) were drilled and sampled to delineate the lateral extent of the impacted soil. Details about the UST removal and the results from these borings are provided in the *Fuel Storage Tank Removal Action Addendum* (BC, 2006).
168	Bar Stock Building/Storage/Vehicle Shop for Motor Pool	Maintenance	Additional investigation to determine the source of diesel fuel in groundwater reported in Expanded SI boring B168HP001 and SWAMPBHP002.	The Expanded SI decision criteria requires that if there is no known source than additional sampling would be required to determine if there is a source upgradient of that point. Diesel fuel concentrations of 100 µg/L and 270 µg/L were reported in shallow groundwater at B168HP001 and SWAMPBHP001, respectively (BC, 2005a). But the nearest point upgradient of B168HP001 and SWAMPBHP001 is approximately 250 to 280 feet north. Other diesel fuel plumes in the area have been delineated with smaller lateral distances.

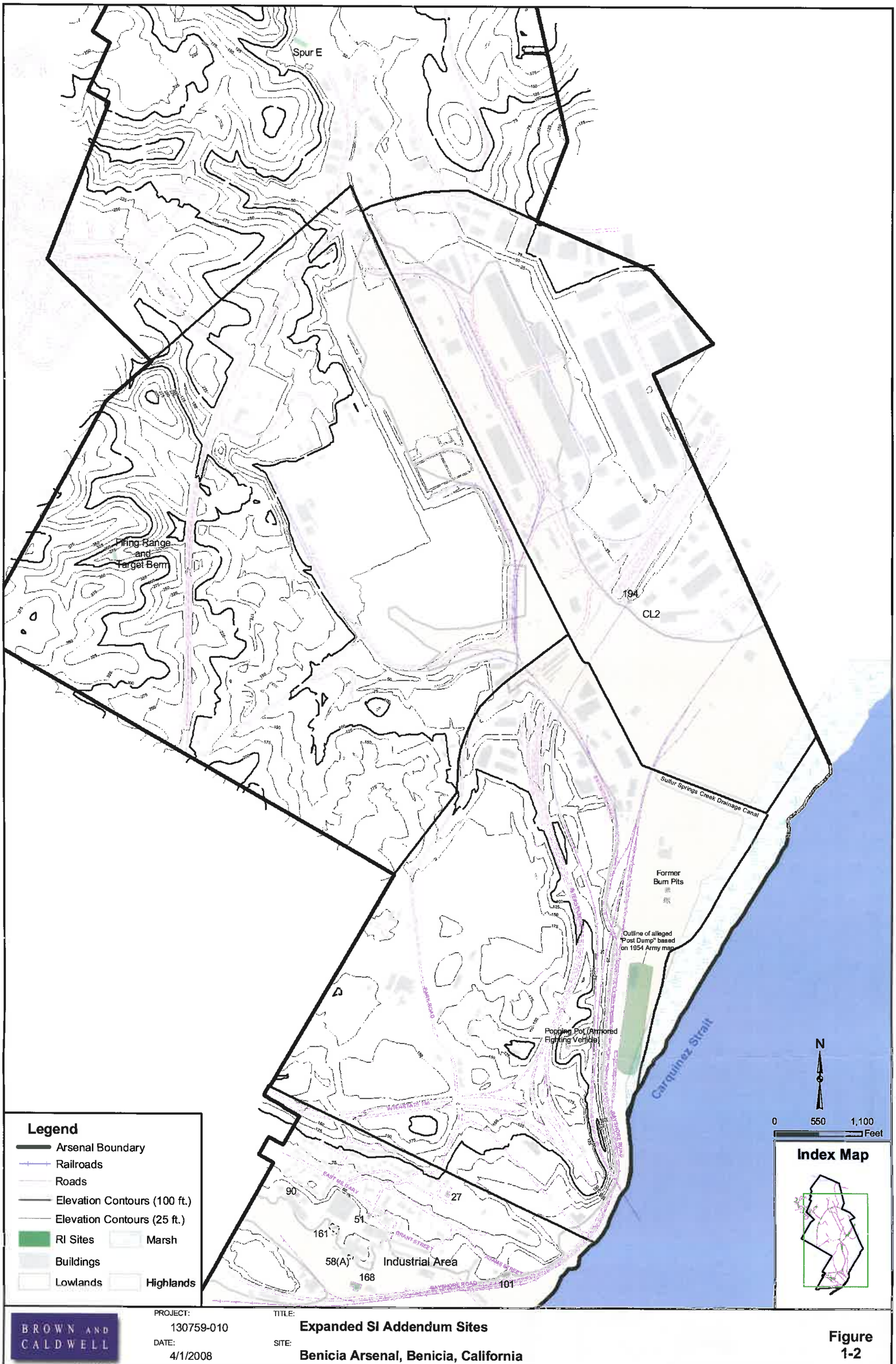
Table 1-1. Summary of Expanded SI Sites Recommended for Further Investigation (continued)

Site	DoD Use	DoD Activity	Recommendations	Summary of Other Investigations
194	Former Septic Tank for CL1	Sewer	USACE to attempt another right-of-entry with new landowner for the investigation of a suspected discharge from CL1 into the former septic tank.	The landowner would not grant USACE access to the property.
CL2	Former boiler house	UST	A geophysical investigation to determine the presence of a UST and a site investigation to determine the presence/absence of a suspected release from the UST and AST.	A request to remove the UST by the Army in 1955 was found but it is unknown if the UST was removed. An AST reportedly replaced the UST. The AST is no longer present (BC, 2005a). The landowner has refused USACE access to the property.
Popping pot (Armored Fighting Vehicle)	Incineration	Disposal	To determine if the diesel fuel reported in shallow groundwater at Expanded SI boring AFVSB002 is from the alleged Post Dumpsite	The source of diesel fuel reported in Expanded SI boring AFVASB002 in shallow groundwater is not clear. Diesel fuel concentrations of 910 µg/L were reported in AFVSB002 (BC, 2005a).
Alleged Post Dumpsite	Dump	Disposal	To determine the location of buried ferrous and non-metallic debris using geophysics. Based on the results of this geophysical survey and previous results from the Expanded SI, additional sampling will be performed to determine lateral and vertical extent of fuels and solvents in groundwater.	
Spur E	Former burn cage	Burning of old ammunition within a concrete and bermed structure	• Determine the predominant wind direction information in the area. • Plot the predominant wind directions on to the site location map for Spur E burn cage. • Determine if the Expanded SI Workplan objectives (i.e. an upwind and downwind sample from the former Spur E burn cage) were met based on the predominant wind directions. • If the sample locations did not meet these objectives, then additional surface sample locations would be collected. • Collect two composite soil samples below the location of the former burn cage concrete pad to determine the concentrations of metals, explosives, and PAHs at the source area.	For the Expanded SI (BC, 2005a), two composite soil samples, one upwind (SPURECS001) and one downwind (SPURECS002) of the former burn cage, and two groundwater samples, SPUREHP001 downgradient of the former burn cage and SPUREHP002 near the former burn cage, were collected for analysis at Spur E. The purpose of the samples was to determine the presence or absence of metals and explosives from former burning of ammunition in a burn cage. For soil, even though copper was found above ambient concentrations, the evidence of the other ammunition-related metals concentrations that were below ambient concentrations or Benicia Screening Levels, especially in the downwind sample, indicates that there is no significant impact from the former burning of ammunition in the burn cage at Spur E. Low-level diesel fuel concentrations (210 µg/L) were detected in groundwater at SPUREHP001. Fuels were not detected in groundwater at SPUREHP002 and the diesel fuel detected in SPUREHP001 does not exceed its respective ESL of 640 µg/L. Metals and explosives were analyzed in both groundwater samples collected at Spur E. None of these metals were detected in groundwater and none of these metals exceeded established MCLs.

Table 1-1. Summary of Expanded SI Sites Recommended for Further Investigation (continued)

Site	DoD Use	DoD Activity	Recommendations	Summary of Other Investigations
Firing range	Firing Range Target Berm	Target practice into berm of soil	• Place direction of firing on figures. • Refine the location of the target berm based on aerial photos and GPS locations from the site. • Based on the re-defined location of the berm, up to six additional composite soil samples may be collected from the impact area. Soil samples will be collected on the side of the berm where firing occurred if there is not sufficient coverage from the previous sampling effort. • Re-evaluate the placement of additional groundwater sampling locations.	In the Expanded SI (BC, 2005a), three composite soil samples were collected from the impact side of the berm and three attempts (FR01HP001 through FR01HP003) were made to downslope of the target berm to find groundwater. Groundwater was not encountered. The purpose of the soil samples collected was to determine the presence or absence of antimony, arsenic, copper, lead, and zinc, metals commonly associated with ammunition. All the sample results for the individual metals were below Benicia Screening Levels.

*UST investigated in a separate field event.



BROWN AND CALDWELL

PROJECT: 130759-010

DATE: 4/1/2008

TITLE: **Expanded SI Addendum Sites**

SITE: **Benicia Arsenal, Benicia, California**

Figure 1-2

S:\Benicia_USTRA Addendum\Figure 1-2 Expanded SI Addendum Sites.mxd

1.3 Previous Investigations

Previous sampling results from the eight sites investigated in this addendum are provided below. This text has been summarized from the Expanded SI (BC, 2005a). For detailed information about each, please refer to the *Expanded SI Report* (BC, 2005a).

1.3.1 Former Drum Storage/Maintenance Area (Building 51)

Building 51 was used as a drum storage/maintenance area by the DoD and was sampled to determine if former DoD activities have impacted soil from a possible surface release of fuels and solvents. The building is constructed on sandstone and located on the hills overlooking the industrial area (Figure 1-2). Other chemicals of interest (COIs) investigated were polynuclear aromatic hydrocarbons (PAHs), semi-volatile organic compounds (SVOCs) and metals. One boring (B051HP001) was hand augered and two soil samples were collected at 0.5 feet to 1.0 feet and 1.5 feet to 2.0 feet bgs during the Expanded SI. Because the building is located in the highlands area of the Arsenal, no groundwater was encountered, as expected.

No metals concentrations or petroleum hydrocarbon concentrations exceeded their respective Regional Water Quality Control Board, San Francisco Bay Region (Water Board) Environmental Screening Levels (ESLs) in the primary sample. However, in the duplicate sample at 0.5 feet below ground surface (bgs) to 1.0 feet bgs, lead was detected at a concentration of 798 milligrams per kilogram (mg/kg) and exceeded the Water Board ESL for a commercial/industrial worker of 750 mg/kg. At 1.5 feet bgs, lead concentrations are 153 mg/kg. Lead concentrations do decrease in concentration with depth.

PAHs and semi-volatile compounds were detected in the soil above laboratory method detection limits (MDLs). Dimethyl phthalate, a SVOC, was the only analyte detected above its respective Water Board ESL (Water Board, 2005). However, the presence of phthalates, a common plasticizer, has not been associated with former DoD activities.

Since lead and PAHs reported in soil may be indicative of a nearby source area, additional investigation was warranted to determine if there is a source for the lead and PAHs in soil in the area of the former drum storage area at Building 51.

1.3.2 Former Locomotive Building (Building 90)

Constructed in 1941 to house the Arsenal's two diesel locomotives and associated maintenance facilities, Building 90 had a concrete locomotive pit. The actual location of the sump or drain lines from the pit are unknown and the location of the pit could not be confirmed during site visits. Between 1972 and 1975 (after the Army left the Arsenal), the building was used to manufacture aluminum wheels for automobiles and for installing fiberglass truck beds on pick-up trucks. The aluminum wheel process included pouring the aluminum into a form then grinding and cleaning the wheel. Trichloroethene (TCE) was used in the cleaning process. Currently, the building is used as an industrial painting operation and is located on the western side of the industrial area (Figure 1-2).

One Hydropunch™ boring (B090HP001) was advanced during the Expanded SI to determine the presence or absence of a possible release of fuels and solvents from former DoD activities in the building. The building footprint overlies a thin lens of saturated alluvium overlying sandstone

bedrock. In addition, there is an estimated 3-foot lens of saturated clayey silt overlying weathered sandstone at approximately 9 feet bgs. Depth to groundwater in April 2004 was 5.7 feet bgs. Diesel fuel was detected in the hydropunch sample at a concentration of 97 µg/L. Cis-1,2-dichlororethene (cis-1,2-DCE) and TCE was detected at 13 µg/L and 96 µg/L, respectively. The occurrence of the TCE is part of a larger plume and is discussed in detail in the *Expanded SI Report* (BC, 2005a). The groundwater contamination could be associated with the post-arsenal wheel manufacturing. According to the Process Flow and Decision Diagram in the *Expanded SI Report*, a soil gas sample should have been collected but was inadvertently missed. Therefore, one boring (B090GB001) was advanced for this supplemental investigation next to Expanded SI boring B090HP001 to collect a soil gas within the vadose zone.

1.3.3 Former Battery Charge Building (Building 101)

Built in 1942, building operations included steam cleaning of battery cases. The building is located on the eastern side of the industrial area at the northwest corner of Bayshore Road and Adams Street (Figure 1-2). A septic tank, located on the east side of the building, served the building and was constructed of wood. The septic tank discharged into a pipe that crossed beneath Bayshore Road and the railroad tracks to a point at the Carquinez Strait. The building foundation was constructed with a floor drain, a hydraulic lift, two battery blocks, and a raceway approximately 26 feet long and 2 feet deep. The hydraulic lift could not be located. Two Expanded SI borings (B101HP001 and B101HP002) were drilled on the south or downgradient side of the building foundation. The purpose of these samples was to determine the presence or absence of metals and fuels in groundwater from DoD steam cleaning of battery cases. These groundwater samples were analyzed for metals, diesel fuel and motor oil.

Low to trace concentrations of metals and fuels were reported in groundwater. Cobalt was the only metal that exceeded its Water Board ESL of 0.003 milligrams per liter (mg/L). The concentration of cobalt in B101HP002 was 0.0129 mg/L.

Research was performed to determine if cobalt was used in the manufacture of vehicular batteries at the time the Army occupied the Arsenal. There are eight metals commonly used in batteries including lead, mercury, nickel, cadmium, lithium, silver, zinc, and manganese (Colorado Department of Public Health and the Environment, 2002). Lead-acid batteries, developed in the late 1800s, were the first commercially practical batteries. Cobalt has been only recently (since the 1990s) used in the development of longer lasting rechargeable lithium ion, nickel-cadmium, and nickel-metal hydride batteries. The source of cobalt in groundwater at concentrations that exceed Water Board ESLs is unknown, but is not associated with the type of batteries that were used by the Army. According to the Process Flow and Decision Diagram in the *Expanded SI Report* (BC, 2005a), a soil sample should have been collected to determine the impact of lead in the vadose zone from the former battery cleaning operations at Building 101 since metals were detected in groundwater. Therefore, one soil boring (B101GB001) was advanced next to the drain inlet within the concrete building foundation to collect a soil sample near the drain bottom. The sample was analyzed for lead.

1.3.4 Former Bar Stock Building/Storage/Vehicle Shops for Motor Pool (Building 168)

Building 168 is grouped with Building 167 in the Expanded SI because of their close proximity and similar uses. Both of these building were built in 1945 during the World War II expansion at the former Arsenal and are located in the industrial area (Figure 1-2). The buildings are located on the former marshland and are supported by pilings that have been driven to the top of the underlying sandstone at approximately 38 feet bgs.

Historical records identify both buildings as vehicle shops but records did not indicate whether maintenance work was performed. Four borings (B167HP001, B167HP002, B168HP001, and B168HP002) were advanced during the Expanded SI downgradient of both buildings to determine the presence or absence of fuels and solvents in groundwater from possible DoD vehicle maintenance activities.

The only contaminates detected above MDLs were diesel fuel (100 micrograms per liter [µg/L] in B168HP001), naphthalene (0.61 µg/L in B167HP002), and bis(2-ethylhexyl)phthalate (190 µg/L in B168HP001), reported in samples collected from shallow groundwater (5 feet bgs to 10 feet bgs). Diesel fuel and naphthalene concentrations are less than their respective ESLs of 640 µg/L and 24 µg/L, respectively. The bis(2-ethylhexyl)phthalate concentration exceeds its ESL of 32 µg/L. As stated previously for the former drum storage area at Building 51, phthalates have not been associated with former DoD activities.

Even though the diesel fuel concentration in groundwater did not exceed its respective ESL, the decision criteria required that if a key indicator, like diesel fuel, was reported in a sample with no known source, that additional sampling would be required to determine if there is a source in the area. Additionally, Expanded SI boring SWAMPBHP002, approximately 125 feet west of B168HP001, reported 270 µg/L of diesel fuel. Therefore, additional groundwater sampling was recommended to determine if there is a source of diesel fuel in this area.

1.3.5 Popping Pot (also known as the Armored Fighting Vehicle)

This site is known by several names, the Incinerator, the Popping Pot, the Armored Fighting Vehicle and the General Grant Tank Site. Most recently the Popping Pot or the Armored Fighting Vehicle (AFV) are the names most commonly used. It is located west of the alleged Post Dumpsite in low-lying hills (Figure 1-2). The AFV is a tank turret from a World War II era General Grant type tank used as a furnace or "popping pot" to destroy unserviceable ordnance. A small fuel line supplied diesel fuel to keep the furnace burning. 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. In 2001, Explosive Ordnance Disposal Technology, Inc. performed a clearance effort over a two-week period around the area of the AFV. They removed and inspected 8,445 burned fuses. Not all of the burned fuses were removed. No energetic explosives were found.

Located on Caltrans property, fill has been placed over the AFV comprising of sandstone boulders 2-feet in diameter and larger, and up to 15-feet thick. The large boulders in the 15-feet of fill material placed on top of the AFV prohibits drilling with a small rig, and the steep incline of the adjacent slopes and access road prohibits access of a larger drill rig. Because of the fill and access restrictions by Caltrans at the site of the AFV, the nearest possible sampling location was identified

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. During the Expanded SI, two groundwater samples were collected from shallow and a deeper water bearing zone and analyzed for fuels, metals and explosive residues.

Caltrans collected two soil samples (Caltrans 1 and Caltrans 2) from the area of AFV before the area was filled in.

The conclusions from the Expanded SI and the Caltrans investigation are as follows:

- The stratigraphy encountered in boring AFVSB002 indicates 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.
- Several metals (antimony, cadmium, copper, lead, nickel, selenium and zinc) were found in shallow soil at concentrations exceeding their respective ambient metals concentrations at Caltrans 2 but do not exceed their respective BSLs for an industrial/commercial worker. Explosives were not reported above analytical reporting limits.
- Total petroleum hydrocarbon (TPH) concentrations for diesel fuel and motor oil in groundwater exceed their respective ESLs. Oils from the roadway and the nearby railroad tracks percolating into shallow groundwater may be a contributor to shallow groundwater concentrations. Arsenic, barium, and zinc were reported in groundwater at concentrations that do not exceed their respective maximum contaminant levels (MCLs) or ESLs at the AFV locations. Explosives were not reported above MDLs.
- Chemical results in the deeper water sample are used to determine if there is sufficient evidence to determine if there is an impact from the AFV. Even though explosives and metals were not found at significant concentrations in the deeper groundwater sample, these contaminants would not likely be expected approximately 300-feet downgradient of the AFV. However, diesel fuel and motor oil was present in the deeper groundwater sample. There was insufficient evidence to eliminate the possibility of a release from the AFV site. The source of the diesel fuel and motor oil could be from the alleged Post Dumpsite.

1.3.6 Alleged Post Dumpsite

The alleged Post Dumpsite was reportedly in operation from 1940 through 1964 and located in the eastern side of the former Arsenal (Figure 1-2). The location of the alleged Post Dumpsite is based on a 1954 Army map that shows an area named, the "Post Dump". It is suspected that the disposal and burning of scrap lumber associated with the industrial area carpenter shops, and pilings and other waste material from repairs made to the Arsenal wharf were placed at this dumpsite. Thousands of gallons of gasoline were reportedly burned in pits at the north end of the site near Sulphur Springs Creek drainage canal (Figure 1-2). Based on aerial photographs, this area at the north end of the site does not appear to have been used as a disposal area but two black circular areas are present that may indicate the locations of the burn pits. An interview with Mr. Leroy Bailey, a former Arsenal employee, also indicated that this area received industrial waste, including acids, metal-cleaning corrosives, dichloro dipheryl trichloroethane (DDT), high-octane gasoline, and other waste generated at the Arsenal (FA/BC, 2004). The majority of the information from this

interview could not be substantiated; however, aerial photos and other interviews did substantiate Mr. Bailey's statement about the disposal of metal cleaning corrosives and the burning of scrap lumber in the pits.

In addition to the Expanded SI fieldwork, a soil and groundwater investigation was performed by the URS Corporation for Kinder Morgan Energy Partners in April 2004 (URS, 2004).

The URS investigation included sampling along the proposed Concord to Sacramento pipeline route, in particular, along the eastern boundary of the alleged Post Dumpsite and near the former burn pits. Seven locations (SB-1 through SB-7) were drilled along the pipeline right-of-way in this area. Samples were analyzed for SVOCs, total petroleum hydrocarbons as gasoline (TPHG), total petroleum hydrocarbons as diesel fuel (TPHD), total petroleum hydrocarbons as motor oil (TPHMO), Title 22 metals, polychlorinated biphenyls, organochlorine pesticides, moisture content, and pH.

URS results in shallow soil (less than 0.5 feet bgs) contain solvents and fuel related compounds, such as benzene, xylene and 1,3-5 trimethylbenzene. Fuels, in particular diesel fuel, were detected in each of the URS borings but qualified in the report, in whole or in part, contributed from the naturally occurring non-petroleum organics in soil. The highest concentrations were detected in SB-1 and SB-2 (diesel fuel at 180 mg/kg and motor oil at 600 mg/kg). The highest concentrations were compared to Water Board ESLs for shallow soil (less than 9.8 feet [3 meters]) and for commercial land use. All of the detected analytes did not exceed their respective ESLs, except TCE. TCE was detected in soil exceeding its ESL but the soil concentrations at 5 feet bgs to 5.5 feet bgs should be considered approximate. Since groundwater is approximately 2 feet bgs to 7 feet bgs, soil samples collected 5 feet bgs to 5.5 feet bgs were most likely saturated or within the capillary fringe. Therefore, all the contaminants in soil are assumed to be from impacted groundwater.

Diesel fuel, motor oil and vinyl chloride were reported above their respective groundwater ESLs at URS borings SB-1, SB-2 and SB-4. Maximum concentrations of diesel fuel (5,700 µg/L), motor oil (3,800 µg/L), and vinyl chloride (65 µg/L) were reported in SB-1 or SB-2, both located in the southern end of the alleged Post Dumpsite.

Organochlorine pesticides and semi-volatile organics were also detected in soil samples at low concentrations from the URS borings. The pesticides, heptachlor and 4-4'-DDT, exceed their respective ESL but not their respective BSL in soil at URS boring SB-1.

During the Expanded SI, six hydropunches (PD001HP001 through PD001HP006) were advanced at the alleged Post Dumpsite to determine if there was a suspected release of metal cleaning corrosives.

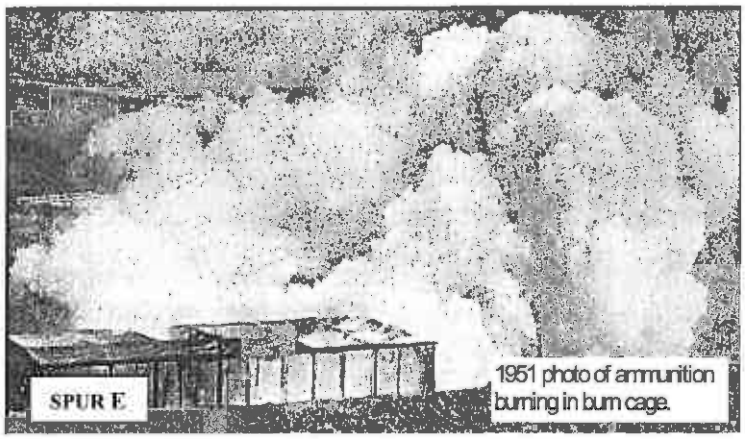
The URS and Expanded SI boring logs indicate that the fill is a mixture of gravelly sand to silty sand, approximately 2.5 feet to 5 feet thick. The marshland or Bay Mud is thinnest at the southern end (PD001HP001) approximately 20 feet thick to approximately 70 feet thick at PD001HP006. Below the marshland are sequences of silt and sand silts from 100 feet bgs to greater than 108 feet bgs, where the top of the sandstone was encountered. The total depth of this sequence could not be determined at PD001HP005 because the depth to the top of sandstone bedrock was greater than amount of cone penetration testing (CPT) rod available (108 feet).

Comparison of the metals concentrations from the URS and the Expanded SI sampling indicate that antimony, arsenic, barium, beryllium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, vanadium, and zinc were detected in both URS and the Expanded SI investigations at similar concentrations. Arsenic, barium, cobalt, copper, lead, nickel, vanadium and zinc were reported in groundwater that exceed their respective Water Board ESLs. At CPT location PD001HP006, six metals (arsenic, barium, lead, nickel, vanadium and zinc) exceeded Water Board ESLs. Barium was detected in concentrations that exceeded its Water Board ESL of 1.0 µg/L in eight of the 13 borings advanced during the Expanded SI and the URS investigation.

There is evidence to suggest that solvents, fuels, metals, and two pesticides (heptachlor and 4-4'-DDT) may have been disposed of at the alleged Post Dumpsite. Further investigation was warranted to determine if wastes had been buried at the alleged Post Dumpsite. A geophysical investigation was recommended to locate ferrous and non-metallic debris. Based on the results of the survey, samples were planned to determine the lateral and vertical extent of these contaminants in soil and groundwater.

1.3.7 Former Burn Cages at Spurs A, E, and G

These burn cages were reportedly used to burn outdated .30, .50, and .37 caliber ammunition. The ammunition was dumped into the cage, covered with kerosene, then set on fire. Burn cages were used by the Army from approximately 1948 to 1954 and were constructed with concrete walls and floor. The sides and roof were composed of screened mesh. The existence and location of Spur A and Spur G could not be confirmed, but several photographs, like the photo at right, show burning in the Spur E burn cage. These burn cages are located in the northern portion of the former Arsenal within a highland valley where groundwater is a possible drinking water source.



1951 photo of ammunition burning in burn cage.

Since the location and existence of the other burn cages at Spur A and Spur E could not be confirmed, the Expanded SI (BC, 2005a) focused sampling criteria at the known burn cage, Spur E. If results from the samples collected at Spur E indicated the presence of fuels (diesel fuel or motor oil) in groundwater, then sampling was planned at the approximate locations of Spur A and Spur G. Based on results from the sampling at the Spur E burn cage, sampling did not take place at Spur A and Spur G.

Two composite soil samples and two groundwater samples were collected for analysis at Spur E. Two 5-point composite soil samples were collected at Spur E, one upwind (SPURECS001) and one downwind (SPURECS002) of the former burn cage below any aggregate or paving materials to determine the presence or absence of metals and explosives from former burning of ammunition in a burn cage. The downwind sample was to provide information on impacts to surface soil from

particulates produced during burning, which were blown, downwind of the former burn cage. The upwind sample results were used to determine ambient concentrations in the area.

Even though copper was found above ambient concentrations, the evidence of the other ammunition-related metals concentrations that were below ambient concentrations or BSLs, especially in the downwind sample, indicates that there is no significant impact from the former burning of ammunition in the burn cage at Spur E.

Two groundwater samples were also collected at Spur E: one location (SPUREHP001) downgradient of the former burn cage; and one location (SPUREHP002) near the former burn cage. The purpose of the groundwater samples was to determine the presence or absence of a suspected release of fuels from former burning of ammunition in the burn cage. These samples were also analyzed for metals, explosives and semi-volatile compounds. Low-level diesel fuel concentrations (210 µg/L) were detected in groundwater at SPUREHP001. A step-out hydropunch, SPUREHP002, was advanced based on the diesel fuel detected at SPUREHP001. SPUREHP002 was drilled closer to the former burn cage to determine if there are higher concentrations of diesel fuel in groundwater. Fuels were not detected in groundwater at SPUREHP002 and the diesel fuel detected in SPUREHP001 does not exceed its respective ESL of 640 µg/L (Table 6-2).

Metals and explosives were analyzed in both groundwater samples collected at Spur E. Explosives were not detected above the MDL. Aluminum, barium, calcium, iron, magnesium, manganese, potassium and sodium were detected in the groundwater samples. As stated above, metals that are typically associated with ammunition are antimony, arsenic, copper, lead, and zinc. None of these metals were detected in groundwater and none of these metals exceeded established MCLs.

No further DoD action at Spur E was presented in the June 2006 draft final version of the Expanded SI for the following reasons:

- metals in soil do not exceed BSLs;
- metals associated with ammunition were not detected in groundwater and do not exceed established MCLs;
- explosives were not detected in groundwater; and
- diesel range hydrocarbons found in groundwater appear to be isolated, may be something other than diesel fuel that is non-DoD, and do not exceed the ESL for diesel fuel.

Because there is no DoD impact from former burning activities at Spur E, no further DoD action was indicated at Spurs A and G as well.

However, during the US EPA review of the outstanding issues for the Benicia Arsenal project, USACE agreed to do the tasks listed in Table 1-1 at Spur E, which lead to additional sampling with findings and results included in this report.

1.3.8 Firing Range Target Berm

This firing range target berm is located in the western portion of Area S, a remote area of the former Arsenal and now part of a restricted buffer zone for the Valero Refinery. The Army used the target berm to test fire .45 and .50 caliber weapons in the 1940s.


Target Berm in 2005

During the 2005 Expanded SI, the berm was cleared of brush, the target berm measured approximately 150 cubic yards. Composite samples were taken every 50 cubic yards, therefore, three composite soil samples (FR01SC001 through FR01SC003). These samples were collected to determine the presence or absence of antimony, arsenic, copper, lead, and zinc, metals commonly associated with ammunition (Interstate Technology and Regulatory Council, 2003), in the target berm soil. Slugs and slug fragments were removed from the soil using a No. 10 sieve. All the sample results for the individual metals were below BSLs.

Three borings (FR01HP001 through FR01HP003) were hand augered downslope of the target berm to determine if precipitation onto the berm mobilized the metals in the berm, percolated through the berm soil into subsurface soil and then into groundwater. Groundwater was not encountered; as expected based on the location of the target berm in the Highlands foothills. A thin veneer of silt and sand alluvium was encountered overlying sandstone at 4.5 feet bgs.

The target berm is located in a remote area and within the Valero buffer zone, where its access is controlled. The Expanded SI (BC, 2005a) concluded that after decades of precipitation, the analytical data indicates that metals are not mobilizing into the surrounding soil and there is no groundwater in the area to impact. Therefore, there is no significant threat to human health or the environment. No further DoD action is indicated for the firing range target berm.

However, during the US EPA review of the outstanding issues for the Benicia Arsenal project, USACE agreed to do the tasks listed in Table 1-1 at the firing range target berm, which lead to additional sampling with findings and results included in this report.

SECTION 2
INVESTIGATIVE APPROACH

Conceptual site models (CSM) are used as a planning tool to design and guide investigations usually incorporating site-specific, geologic, and hydrogeologic information to identify contaminants of interest, sources of pollution, and pathways of migration. A CSM is a representation of an environmental system. It is meant to be dynamic such that new information may change the CSM. For example, the Expanded SI and previous investigations determined that the Industrial Area Lowlands groundwater is shallow and brackish and the simplified geologic sequence is artificial fill over Bay Mud over alluvium. For this addendum investigation, the Post Dumpsite had not been investigated and it was assumed that similar aspects would be encountered at the Post Dumpsite because of similar topography, elevation, and close proximity to the Carquinez Strait as the Industrial Area Lowlands. The CPT logs and the geophysical survey from this addendum investigation at the Post Dumpsite confirmed the geology and measurements taken during groundwater collection of the brackish water quality and shallow depth to groundwater. Refer to the *Expanded SI Report* (BC, 2005a) for a detailed discussion of the CSM for the Arsenal.

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SECTION 3
FIELD METHODS AND SAMPLING RATIONALE

This section describes the field methods used, the rationale for selecting the number and location of samples, analytical parameters, and investigation derived waste (IDW) management procedures for the addendum Expanded SI.

3.1 Field Methods

Field techniques are described in detail in the FSIP (BC, 2004). A total of five soil samples, one soil gas sample, and 12 grab groundwater samples were collected during this investigation (excluding quality assurance/quality control (QA/QC) samples).

3.1.1 Geophysical Survey

A geophysical survey was conducted at the alleged Post Dumpsite to assess the presence and extent of buried fill (ferrous and non-ferrous) in the suspected area. The geophysical area encompassed approximately 8.3 acres; as outlined on Figure 3-1. Several different geophysical methods were used: a vertical magnetic gradient (VMG), terrain conductivity (TC), metal detection and electrical resistivity (ER) methods methods. These methods were chosen since the buried debris could be variable and include both ferrous and non-ferrous metal, as well as non-metallic debris. NORCAL Geophysical Consultants, Incorporated (NORCAL) of Cotati, California performed the geophysical investigation on 6 June 2005 through 15 June 2005. Appendix B contains the NORCAL letter report, dated 21 July 2005 that details the methodology, data acquisition, results, and conclusions of this survey. A summary of the methods used and findings are provided below.

3.1.1.1 Methodology

VMG surveys were used to assess the presence of buried ferrous objects. TC is used to characterize the lateral changes in soil conductivity that may represent lithologic contacts, areas of disturbed soil, and zones of metallic debris (both magnetic and non-magnetic). The metal detector was used to further characterize suspected buried metallic objects initially detected by the VMG and TC methods. The ER method was used to characterize both lateral and vertical changes in soil conductivity at selected profile locations. The variations in ER may represent lithological contacts between the overburden/fill and native soil, areas of disturbed soil, and zones of subsurface debris.

A survey grid was setup based on 10-foot centers. Data for the VMG was collected on 4-foot intervals and 10-foot intervals for the TC data. Data from the VMG and TC were evaluated in the field.

VMG survey setup at the Post Dumpsite

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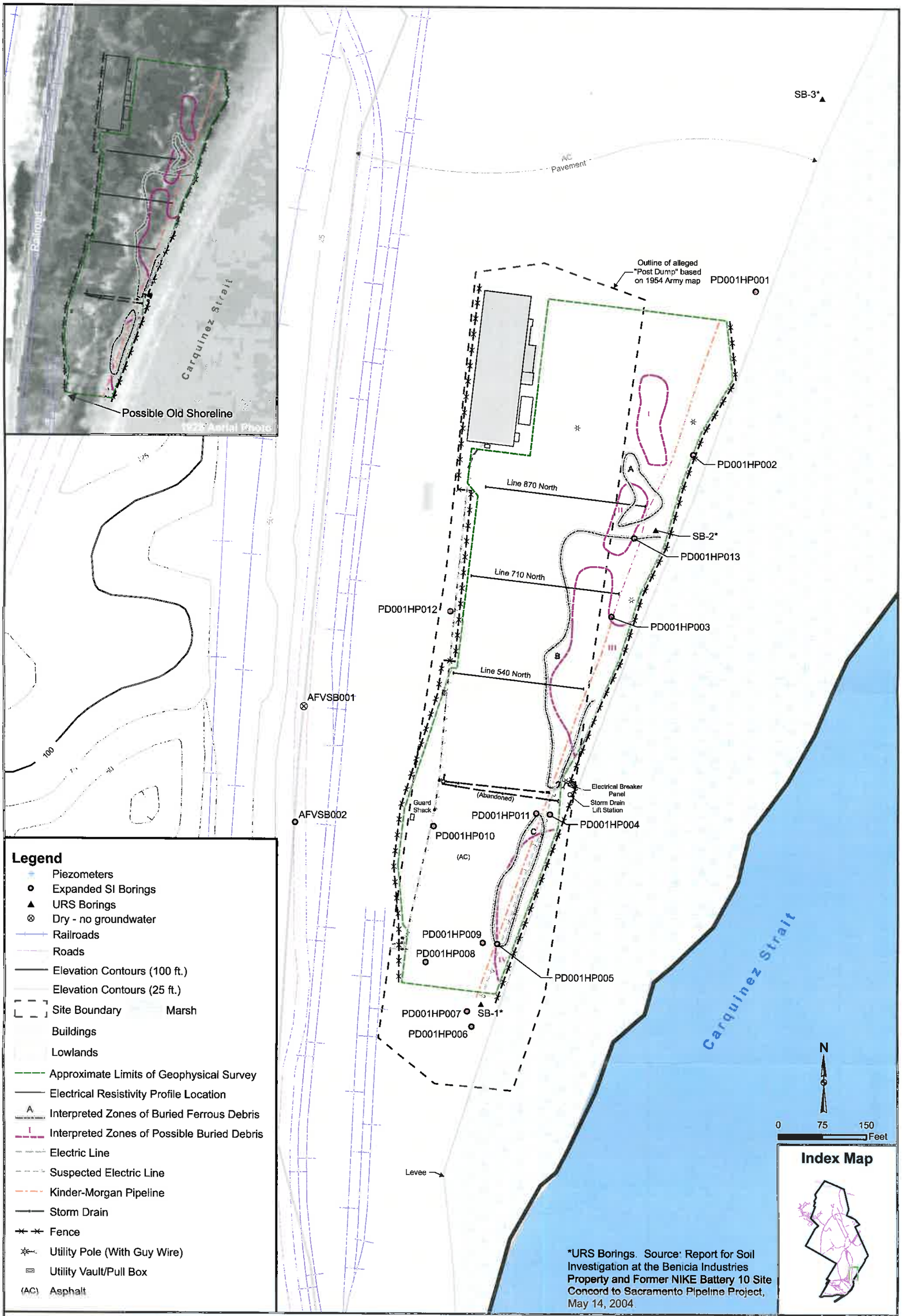


BROWN AND CALDWELL

PROJECT: 128336

DATE: 3/6/2006

TITLE: **Geophysical Results at the Alleged "Post Dump"**

SITE: **Benicia Arsenal, Benicia, California**

Figure 3-1

S:\Benicia_expandedsi Addendum\Figure 3-1 Geophysical Result Post Dumpsite with Aerial.mxd

Areas of anomalous variations were further investigated using the metal detector and the ER. Three ER profile locations were chosen to depict "slices" of the subsurface where there are large anomalous areas exist.

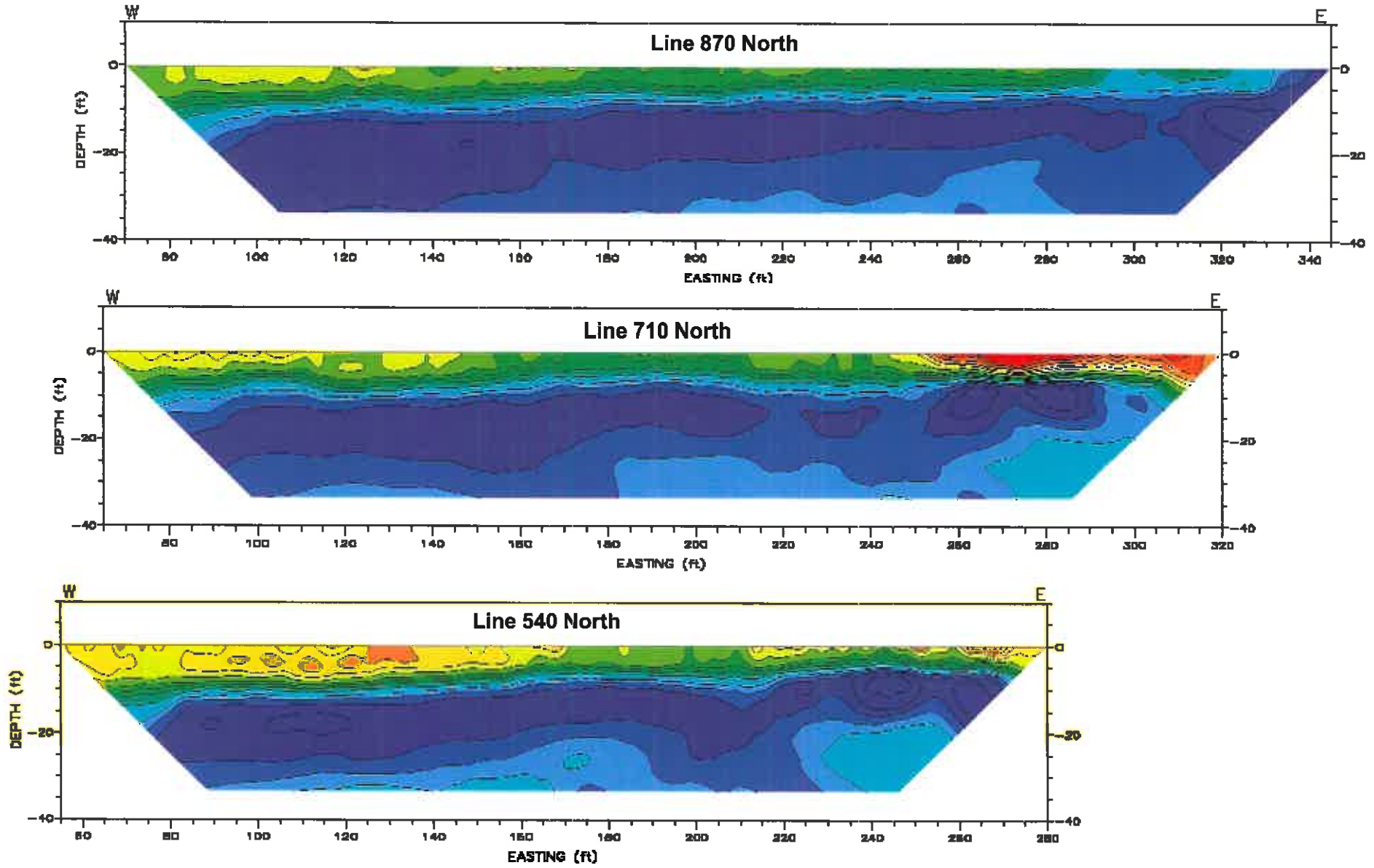
The interpreted results from the VMG, TC and metal detector data are provided on Figure 3-1. There are a total of six zones identified; three gray-outlined areas, labeled "A" through "C", and three red-dashed outlined areas, labeled "I" through "IV". These zones are orientated parallel to the levee and not more than 100 feet wide. These areas are interpreted to be zones of possible buried ferrous debris (A through C) and zones of buried debris (I through IV). Existing subsurface structures found by the survey included storm drain lines, a buried electrical line, and the Kinder-Morgan pipeline (Figure 3-1). The Kinder-Morgan pipeline is located parallel to the levee and within these anomalous zones.

The ER data indicates that the survey area is comprised of relatively resistive (greater than 4 ohm-meters) material overlying more conductive material (Figure 3-2). The more resistive material is interpreted to consist of silts and sands and probably represents fill material. The fill thickness appears to increase in thickness in a fairly uniform pattern from 5 feet in the east to 10 feet in the west. Below the fill, the conductive material is interpreted to be comprised of clay and/or marsh deposits with high moisture content.

The geophysical interpretations of fill material overlying clay correlates with the drilling performed for the Expanded SI and the URS investigation. Borings were advanced along the east side of the alleged Post Dumpsite during both of these investigations. Borings logs indicate that the fill is a mixture of gravelly sand to silty sand, approximately 2.5-feet to 5-feet thick, overlying marshland or Bay Mud to depths of 70 feet and deeper. The deepest depth that the ER could interpret was approximately
37-feet.

A hypothesis was formed based on the orientation and appearance of the anomalous material. The linear mass appeared to be material that could have been pushed over into the water and that the western boundary of the material may represent an old shoreline. Research was performed by reviewing older aerial photos before the area was reclaimed by the Army to confirm or disprove this hypothesis.

In 1928, the area of the alleged Post Dumpsite was undisturbed land. This photo and the anomalous areas identified during the geophysical survey were overlaid on top of the 1928 photo, as shown on Figure 3-1. The anomalous areas are positioned west of the 1928 shoreline and east of an irregular white line. This white line could represent high tide. The dark material on the photo is vegetation. It is presumed that the anomalous areas are likely construction debris that was pushed into this area as a means to support the existing paved surface and/or a foundation for the existing levee. The location of the levee coincides with the eastern extent of the survey area and is also located at the boundary between the marsh and the paved area.



Source: Norcal Geophysical Consultants, 2005

Figure 3-2
Geophysical Electrical Resistivity Profiles - Post Dumpsite
Expanded Site Inspection Addendum Report
Former Benicia Arsenal

3.1.2 Soil Samples

A total of five soil samples were collected during this investigation (excluding QA/QC samples). Hand-augered soil borings and direct-push soil borings were advanced during field activities and are described below. A soil sample was also collected using a CPT rig at the alleged Post Dumpsite.

Hand Auger Soil Borings. Three soil borings (B051HA001 through B051HA003) were hand augered at Building 51 and three attempts for groundwater at the firing range (FR01 HP004 thru FR01HP006) were completed for this Expanded SI Addendum. The purpose of the hand-augered soil borings was to collect soil or groundwater samples for chemical analyses in areas of limited vehicle access, where a drill rig could not be used. The borings were augered to the desired sampling depth and then withdrawn. To collect the soil sample, a manual slide impact sampler with a sample sleeve was pounded into the soil to a depth of 6-inches (the length of the sample sleeve). If additional soil samples were needed, the boring was advanced to the next interval and the drive sampling process was repeated.

Direct Push Soil Borings. Soil samples were collected using direct push techniques at Building 101 and Spur E. Direct push allows for a continuous sample to be collected, usually in 4-foot lengths. The soil is encased in a plastic sleeve as it is pushed into the ground. The advantages to using direct push are minimal soil cuttings, continuous cores and sampling is quick. The primary disadvantage is the depth to which the sleeve can be pushed (usually no more than 25-feet to 50-feet bgs). For this project, the maximum required depth pushed was 15-feet bgs.

3.1.3 Soil Gas Sampling

One soil gas sample (B090GB001) was collected during this investigation (excluding QA/QC samples) at Building 90. The purpose of the soil gas sample was to evaluate areas near current buildings where VOCs have potential to impact indoor air quality. Soil gas samples collected during this project were collected from a direct push boring. A soil gas probe was inserted into the ground and opened approximately 6 inches to allow soil vapor to enter the probe and the tubing attached to the probe. The sample was drawn from the tubing using a syringe. Five tubing volumes were removed before the sample was collected. Before the probe tip was extracted, a field measurement for total VOCs using a photo ionization detector was performed by attaching the meter directly to the tubing.

3.1.4 Groundwater Sampling

A total of 14 grab groundwater samples were collected during this investigation (excluding QA/QC samples) at Building 168, the alleged Post Dumpsite, and at the firing range. At the alleged Post Dumpsite, borings were advanced using a CPT rig to the top of the sandstone at PD001HP008, PD001HP009, PD001HP010, PD011HP012, and PD001HP013 to determine the lithology before collecting the groundwater sample. The CPT logs are provided in Appendix C of this report. Lithology at the other CPT borings (PD001HP007 and PD001HP011) had already been gathered at those locations because they were advanced next to Expanded SI CPT borings. A description of the CPT is provided in the *Expanded SI Report* (BC, 2005a).

For each groundwater sample, a boring was advanced. At Building 168 and the alleged Post Dumpsite, drill rod was pushed to the desired depth and a polyvinyl chloride (PVC) casing with 5-feet of slotted interval was inserted into the rod to the bottom of the boring. The rods were retracted no more than 5-feet to allow groundwater to enter the casing for sampling. At depths greater than first groundwater (approximately 5 to 10 feet bgs), the rod was not removed until the groundwater sample was collected to prevent any potential cross contamination between water bearing zones above the zone being sampled. For samples at first encountered groundwater, if groundwater was slow to enter the casing, the rod was removed and the CPT rig moved to the next location while waiting for enough water to enter the PVC casing for sampling. At the firing range, a hand auger was used to advance the boring and a temporary casing was inserted into the boring. A stainless steel bailer (steam cleaned between samples) or disposable bailer (used only once per location) was used to retrieve groundwater and decanted into the appropriate sample bottles.

At Building 168, a direct push rig was used to advance the boring to a pre-determined depth of 10 feet bgs. The same procedure for sampling was used as discussed above for the CPT rig. At several of the Building 168 locations, an extra boring was required at each location to ensure that enough groundwater could be collected for sampling. At the firing range, a hand auger was used to advance the borings to groundwater.

After the sample was collected, the borings were abandoned properly with neat cement grout.

3.2 Sample Locations and Analytical Parameters

The boring ID, matrix sampled and depth, and analyses performed for this addendum fieldwork is shown in Table 3-1.

Table 3-1. Sample IDs, Matrix, and Analysis

Inspection Site	Boring / Piezometer ID	Matrix (SG/S/GW)	Sampling Depths (feet bgs)	Analyses (EPA Method #)
51	B051HA001	S	1.75-2.2	Lead (6010B), PAHs (8310)
	B051HA002	S	1.5-2.0	Lead (6010B), PAHs (8310)
	B051HA003	S	1.75-2.2	Lead (6010B), PAHs (8310)
90	B090GB001	SG	3	VOCs (TO-14)
101	B101GB001	S	1.5-2.0	Lead (6010B)
168	B168HP003	GW	5-10*	TPHD (8015B)
	B168HP004	GW	5-10	
	B168HP005	GW	5-10	
	B168HP006	GW	5-10*	
	B168HP007	GW	5-10*	

Table 3-1. Sample IDs, Matrix, and Analysis (continued)

Inspection Site	Boring / Piezometer ID	Matrix (SG/S/GW)	Sampling Depths (feet bgs)	Analyses (EPA Method #)
Alleged Post Dumpsite	PD001HP007	S	1.5-2	TPHG (8015B), TPHD/TPHMO (8015B), VOCs (8260B)
		GW	0-5	TPHG (8015B), TPHD/TPHMO (8015B), VOCs (8260B)
		GW	103-108	
	PD001HP008	GW	5-10	
	PD001HP009	GW	0-5	
		GW	105-110	
Alleged Post Dumpsite/ AFV	PD001HP010	GW	5-10	TPHG (8015B), TPHD/TPHMO (8015B), VOCs (8260B)
		GW	44-49	
Alleged Post Dumpsite	PD001HP011	GW	0-5	TPHG (8015B), TPHD/TPHMO (8015B), VOCs (8260B)
		GW	105-110	
	PD001HP012	GW	0-5	
		GW	50-55	
	PD001HP013	GW	0-5	
		GW	103-108	
Spur E	SPURECS003	S	0-0.5	Metals (6010B)
	SPUREGR001	S	7.5-8	Metals (6010B), Mercury (7471A), PAHs (8310), explosives (8330)
	SPUREGR002	S	12-12.5	Metals (6010B), Mercury (7471A), PAHs (8310), explosives (8330)
Firing Range Target Berm	FR01CS004	S	0-0.5	Sb, As, Cu, Pb, Zn (6010B)
	FR01CS005	S	0-0.5	Sb, As, Cu, Pb, Zn (6010B)
	FR01GR001	GW	0-0.5	Sb, As, Cu, Pb, Zn (6010B)
	FR01GR002	GW	3.2-8.2	Sb, As, Cu, Pb, Zn (6010B)

Notes:
* An additional boring was pushed at these locations due to very low yield
bgs = below ground surface
GW = groundwater
NA = not applicable
PAHs = polyaromatic hydrocarbons
S = soil
SG = soil gas
TPHD = total petroleum hydrocarbons as diesel fuel
TPHG = total petroleum hydrocarbons as gasoline
TPHMO = total petroleum hydrocarbons as motor oil
VOCs = volatile organic compounds

3.3 Investigation Derived Waste

IDW generated as part of the field effort included soil from direct push drilling and decontamination rinsate water from hand augering. The soil cuttings left over from direct push sampling and the volume of the water generated from decontamination was less than the size of a 5 gallon pail. The cuttings were added to soil generated from the removal and over-excavation of the USTs at Buildings 27 and 161. The soil was stored in several soil bins at Building 103. The decontamination water was added to drums generated from purging rainwater from the Building 27 UST. The soil bins and drums from the UST investigation were stored at Building 103. The Building 103 site is secure with perimeter fencing and lockable gates. The soil and water generated from this investigation and the UST investigation was sampled and classified as non-hazardous waste.

All decontamination was performed as specified in the QAPP (FA/BC, 2001).

The soil and decontamination water is being classified as part of the *Fuel Storage Tank Removal Action Addendum* (BC, 2006) for Buildings 27 and 161 since the amount of IDW generated for the removal action was significantly larger than the IDW generated from this Expanded SI addendum fieldwork.

Disposable wastes derived from sampling, such as gloves and bailers were disposed by BFI, which provides local garbage disposal service for the area.

SECTION 4
GEOLOGY AND HYDROGEOLOGY

The geology and hydrogeology of the former Benicia Arsenal are discussed in the Conceptual Hydrogeologic Model (CHM) report (BC, 2005b), and summarized in the *Expanded SI Report* (BC, 2005a). The geologic and hydrogeologic information gathered during this fieldwork did not change the information already provided in the previous reports. Therefore, the reader is referred to these references if interested in those details.

Field water quality measurements (e.g. pH, EC, temperature) were collected from several locations. They are presented in Appendix D and were compared and evaluated against the CHM (BC, 2005b). The data collected during the Expanded SI addendum is in agreement with the CHM.

SECTION 5
DATA USABILITY

This section summarizes the data quality assessment of analytical results reported for soil, soil gas and groundwater samples collected during this investigation. Validation and/or verification of the laboratory analytical data was performed per the criteria specified in the Benicia QAPP (FA/BC, 2001).

Soil, water, and soil gas samples were collected by Brown and Caldwell (BC) in four mobilizations (July 2005, January 2006, January 2008 and February 2008). Soil and groundwater water samples were delivered by overnight courier to EMAX Laboratories, Inc. (EMAX) in Torrance, California. The soil gas samples were couriered to Air Toxics LTD in Folsom, California. Data was received in both hard copy and electronic formats.

Individual analytical results were qualified during the data verification procedures. The percentage of results that are qualified as estimated or rejected due to quality control (QC) deficiencies is an indication of the overall data quality for a given analytical method. Table 5-1 provides a summary of the number of results that were qualified by method.

Table 5-1. Analytical Completeness by Method for the Expanded SI Addendum

				Number of results				Completeness	
Method	Parameter	Samples Analyzed (N+FD)	Analytes per sample	Total	Rejected	Estimated due to QC deficiencies	Estimated due to >MDL but <PQL	Percent usable	Percent quantitative*
SW6010B/ SW7471A	Metals by ICP/AES	11	5/21	90	0	2**	11	100%	97.8%
SW8015B	TPHG, TPHD, and TPHMO	19	2/3	52	0	0	19	100%	100%
SW8260B	Volatiles	14	71	994	0	1	34	100%	99.9%
SW8310	PAHs	5	16	80	0	0	12	100%	100%
SW8330	Explosives	3	14	42	0				
TO14	Volatiles in soil gas	2	66	132	0	12***	0	100%	90.9%

* Note: Estimations due solely to results <PQL do not affect the calculated completeness
Calculations do not include any required field or laboratory QC samples, except field duplicates.
** One result was qualified due to low MS/MSD sample recovery and one result was qualified due to high MS/MSD sample recovery.
*** Four results were qualified to low laboratory control sample recoveries and the remaining eight are TICS, which were qualified due to missing supporting QC.
FD = field duplicate sample
N = normal environmental sample
PQL = practical quantitation limit

In general, the results are of acceptable quality and are usable for their intended purpose. None of the results were rejected. All holding time requirements were met. No global problems were identified. All methods met the analytical completeness goals with a high percentage of unqualified results (greater than 90 percent).

SECTION 6
RESULTS AND ANALYSIS

In this section, the analytical results of samples specified in Section 3.0 are discussed. A total of 10 soil samples, one soil gas sample, and 14 grab groundwater samples were collected during this investigation. These sample counts do not include QA/QC samples.

A comparison of data from previous investigations is included in this section, where applicable.

For all the analytical results from this sampling event, see Appendices E through H. Appendix E is a legend for the abbreviations and acronyms used in Appendices F, G, and H. Appendices F, G, and H contain all results, for soil, soil gas and groundwater, respectively. Both detected values and non-detected values are provided.

Figures and tables in this section are formatted to show only analytes detected above MDLs. The sites in this section are organized in numeric and then alphanumeric order.

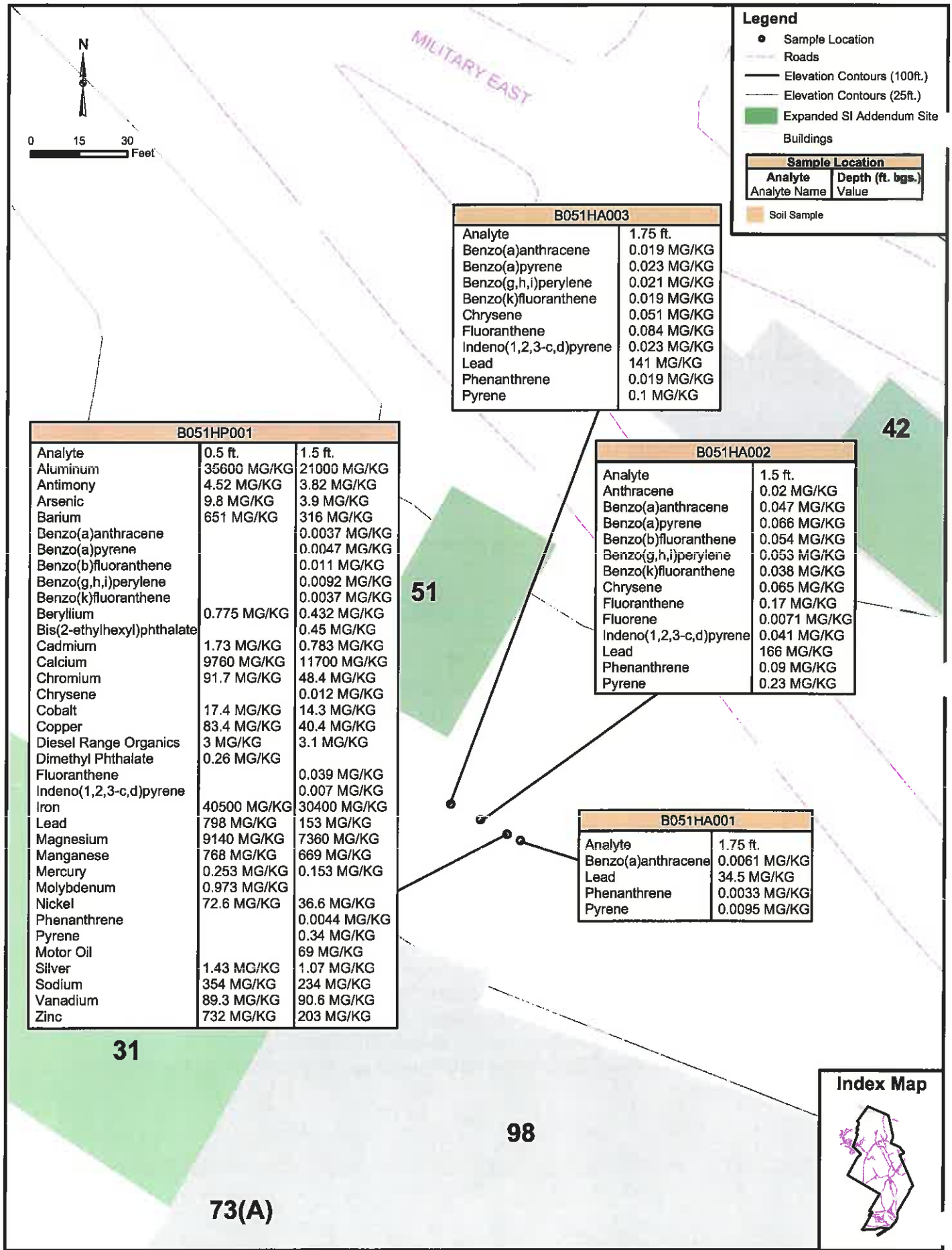
6.1 Former Drum Storage/Maintenance Area (Building 51)

No further investigation is recommended at the former drum storage area at Building 51. A risk evaluation will be performed.

Building 51 was used as a drum storage/maintenance area by the DoD and was sampled to determine the lateral extent of lead and PAHs in soil. The building is located on the hills above Buildings 31 and 98 (Figure 6-1). Two soil samples and a duplicate were included in the Expanded SI Report (BC, 2005a). Concentrations of lead did not exceed the risk to commercial/industrial worker of 750 mg/kg (Water Board ESL). However, in the duplicate sample at 0.5-feet to 1.0-feet, lead concentration was 798 mg/kg and exceeded the Water Board ESL. Lead concentrations decrease in concentration with depth (Table 6-1). Since the lead concentration may be near a source, additional samples were collected for this addendum.

Three soil samples were collected northwest and southeast of the Expanded SI boring, B051HP001 (Figure 6-1). Sample depths ranged from 0.5 feet bgs to 2.2 feet bgs. Fill material of silt and organics (i.e. leaves) was encountered at the surface to approximately 8-inches bgs. Sandstone underlies the fill material. Competent sandstone was encountered at depths of 2-feet bgs to 2.2-feet bgs. No groundwater was encountered.

Detected results of all samples collected at Building 51 are shown on Figure 6-1. A comparison of the lead data from this investigation and the Expanded SI also is provided in Table 6-1. Concentrations of lead are consistent with the reported results in the Expanded SI Report, around 150 mg/kg (BC, 2005a). Since the lead reported in shallow soil from the June 2004 sampling location is below the Water Board ESL, the June 2004 duplicate sample of 798 mg/kg can be considered an anomaly.



PROJECT: 128336-005
DATE: 2/28/2006
TITLE: Sampling Locations and Detected Results at Building 51
SITE: Benicia Arsenal, Benicia, California

Figure 6-1

S:\Benicia_expandedsi Addendum\Figure 6-1 B51.mxd

Table 6-1. Lead in Soil at Building 51

	Depth (ft bgs)	ESL (mg/kg)	Concentration (mg/kg)
B051HP001+	0.5-1.0	750	**155+/798****
B051HP001+	1.5-2.0		153
B051HA001	1.75-2.2		34.5
B051HA002	1.5-2.0		166
B051HA003	1.75-2.2		141

** - Duplicate sample
+ - Documented in the Expanded SI Report (BC, 2005a)
BSL = Benicia Screening Level (FA; BC, 2002)
ESL = Environmental Screening Level (Water Board, 2007)
Bolded values exceed their respective BSLs or ESLs
mg/kg = milligram per kilogram
bgs = below ground surface

PAHs were detected in the soil above laboratory MDLs and their concentrations are also listed on Figure 6-1 and in Table 6-2.

Table 6-2. Detected PAHs in Soil at Building 51

	ESL (mg/kg)	B051HP001 Depth 0.5-1.0 feet bgs (mg/kg)+	B051HP001 Depth 1.5-2.0 feet bgs (mg/kg)+	B051HA001 Depth 1.75-2.2 feet bgs (mg/kg)	B051HA002 Depth 1.5-2.0 feet bgs (mg/kg)	B051HA003 Depth 1.7-2.2 feet bgs (mg/kg)
anthracene	40	<0.0016	<0.0015	<0.0013	0.02	<0.0059
bis(2-ethylhexyl) phthalate	120	<0.11	0.45	NA	NA	NA
benzo(a)anthracene	1.3	<0.001	0.0037	0.0061	0.047	0.019
benzo(a)pyrene	0.13	<0.0011	0.0047	<0.0013	0.066	0.023
benzo(b)fluoranthene	1.3	<0.0021	0.011	<0.0026	0.054	<0.012
benzo(g,h,i)perylene	35	<0.0021	0.0092	<0.0026	0.053	0.021
benzo(k)fluoranthene	1.3	<0.0018	0.0037	<0.0013	0.038	0.019
chrysene	13	<0.001	0.012	<0.0013	0.065	0.051
dimethyl phthalate	1,000	0.26	<0.13	NA	NA	NA
fluoranthene	40	<0.0021	0.039	<0.0026	0.17	0.084
fluorene	640	<0.0024	<0.0021	<0.0026	0.0071	<0.012
indeno(1,2,3-c,d)pyrene	2.1	<0.0023	0.007	<0.0013	0.041	0.023
phenanthrene	40	<0.0011	0.0044	0.0033	0.09	0.019
pyrene	1,000	<0.0019	0.34	0.0095	0.23	0.1

ESL = Environmental Screening Level for Commercial/Industrial land use (Water Board, 2007)
NA = not analyzed
Bolded values exceed their respective BSLs or ESLs
mg/kg = milligrams per kilograms
+ - Documented in the Expanded SI Report (BC, 2005a).
bgs = below ground surface

PAH concentrations are consistent with the reported results in the *Expanded SI Report* (BC, 2005a). The lead and PAH data collected at this location will be evaluated in the risk assessment to determine the next step.

6.2 Former Locomotive Building (Building 90)

No further investigation is recommended at Building 90. A risk evaluation will be performed.

One boring (B090GB001) was advanced to determine the presence or absence of VOCs in soil vapor at the Expanded SI boring B090HP001 where VOCs have impacted groundwater. The building is located in the highlands (Figure 1-2), where there is a 3-foot lens of saturated clayey silt overlying weathered sandstone at approximately 9-feet bgs. Depth to groundwater was 5.7-feet. Refusal into competent sandstone occurred at 13-feet bgs during the Expanded SI.

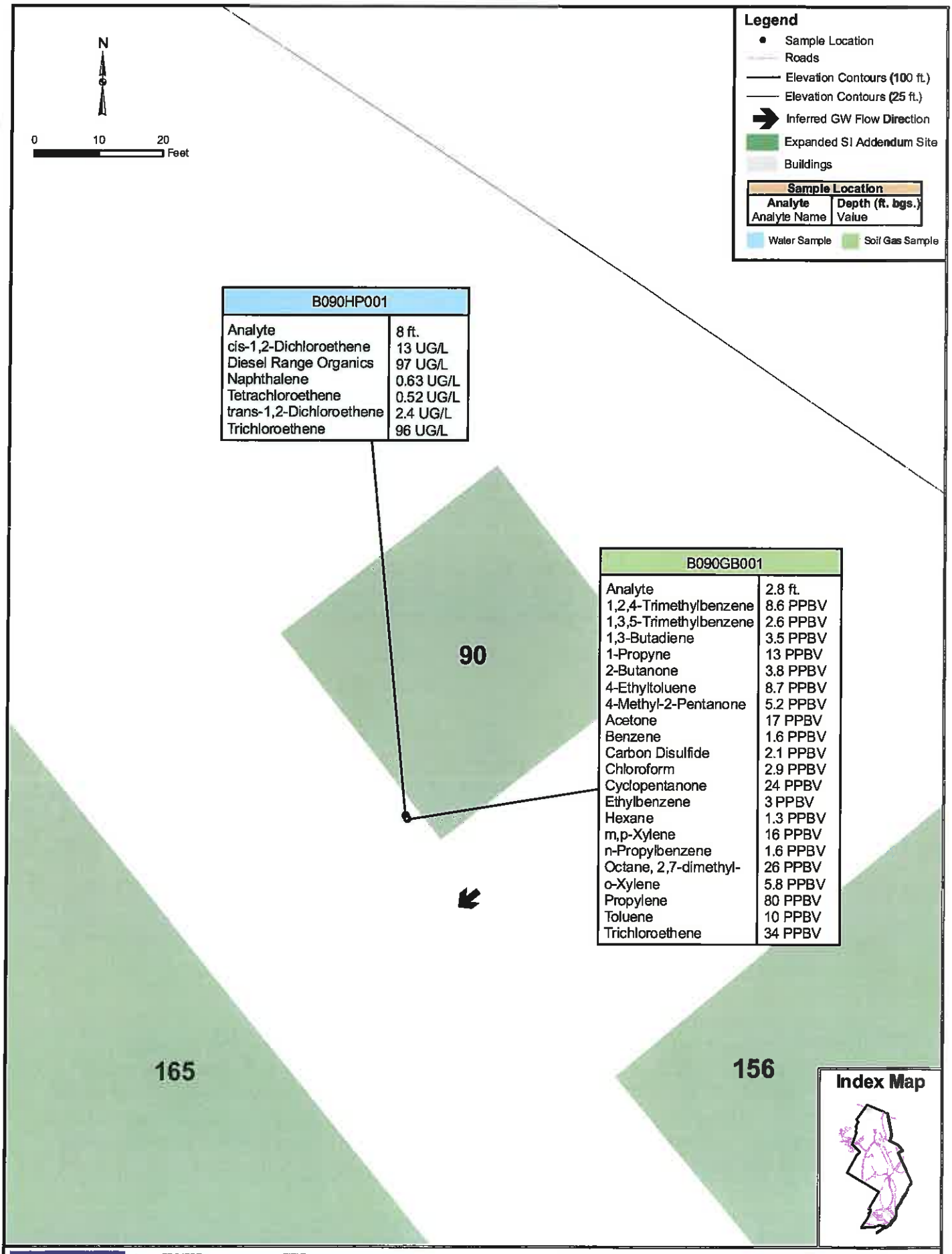
The groundwater sample collected from Expanded SI boring B090HP001 contained diesel fuel, cis-1,2 DCE, and TCE at concentrations of 97 µg/L, 13 µg/L, and 96 µg/L, respectively (BC, 2005a) (Figure 6-2). A building is adjacent to the groundwater sample location, therefore, a soil gas sample was collected. The complete list of detected VOCs in soil gas is shown on Figure 6-2, and the constituents with ESLs are shown in Table 6-3 below.

Table 6-3. Detected VOCs with ESLs in Soil Gas at Building 90

	ESL (ppbv)	B090GB001 Depth 3.0 feet bgs (ppbv)	B090GB001 Depth 3.0 feet bgs - Duplicate(ppbv)
acetone	1,800,000	17	17
benzene	280	1.6	<1.3
chloroform	1,500	2.9	2.0
ethylbenzene	580,000	3.0	2.1
methyl ethyl ketone (2-butanone)	2,900,000	3.6	3.8
methyl isobutyl ketone (4-methyl-2-pentanone)	1,800,000	4.0	5.2
m,p-Xylenes	58,000	16	13
o-Xylene	58,000	5.8	4.7
toluene	180,000	10	6.5
TCE	4,100	34	7.4

ESL = Environmental Screening Level for Indoor Air and Soil Gas, Commercial/Industrial land use (Water Board, 2007)
NE = not established
ppbv = parts per billon by volume
bgs = below ground surface
TCE = trichloroethene

The soil gas concentrations do not exceed their ESLs, but because there is an adjacent building, a risk assessment is recommended.



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PROJECT: 130759-010
DATE: 4/7/2008
TITLE:
SITE:

Sampling Locations and Detected Results at Building 90
Benicia Arsenal, Benicia, California

Figure 6-2

S:\Benicia_USTRA Addendum\Figure 6-2 B90.mxd

6.3 Former Battery Charge Building (Building 101)

No further investigation is recommended at former Building 101. A risk evaluation will be performed.

Built in 1942, building operations included steam cleaning of battery cases. The building is located on the eastern side of the industrial area (Figure 1-2). A floor drain was found on the eastern side of the building (Figure 6-3). One boring (B101GB001) was drilled next to the floor drain. The purpose of the boring was to collect a soil sample for lead analysis next to the drain because of a possible leak in the drain during former DoD steam cleaning of lead-acid battery cases.

Sandstone was encountered at 2-feet bgs at B101GB001, which correlates with the CSM for the site. The building was carved out of a nearby hill (see photo at right) and sandstone would be expected at shallow depth. The soil sample was collected on top of the sandstone at a similar depth as the bottom of the drain.

Only the foundation remains. The hillside was carved out for the building. This photo was taken in 2001 and not during this investigation.

Groundwater samples collected during the Expanded SI contained metals in groundwater above the MDLs (Table 6-4 and Figure 6-3) and there is a possibility that soil may be impacted with lead that was not detected in the groundwater samples.

A soil sample was collected at 1.5-feet bgs and analyzed for lead. Lead was detected at a concentration of 32.8 mg/kg. The ESL for lead in soil is 750 mg/kg.

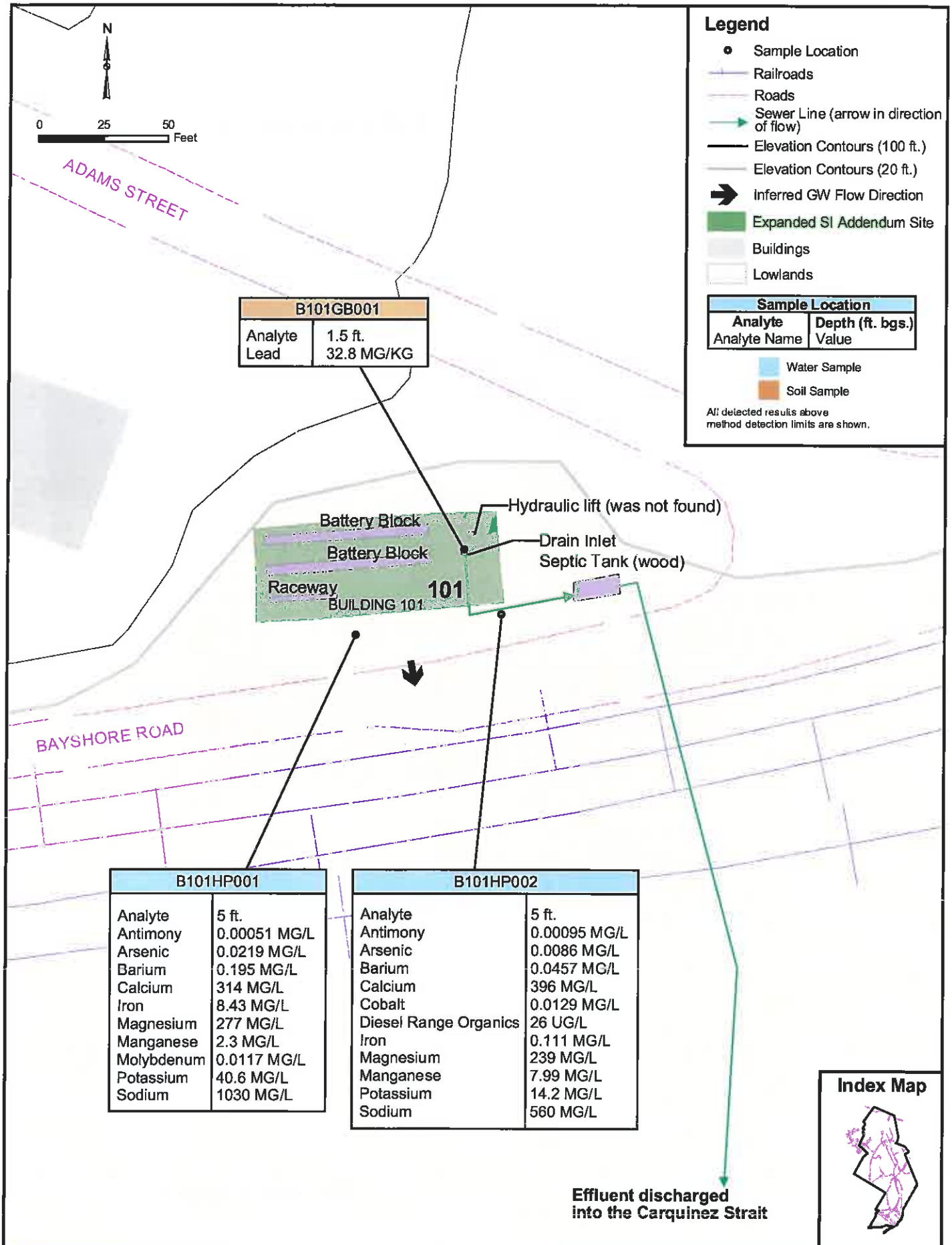
Table 6-4. Detected Groundwater Concentrations at the Former Battery Charge Building (Building 101) (Expanded SI)

Concentrations in mg/L, unless otherwise noted

Metal	B101HP001	B101HP002	ESL
Antimony	0.00051	0.00095	50
Arsenic	0.0219	0.0086	50
Barium	0.195	0.0457	50
Calcium	314	396	NE
Cobalt	<0.005	0.0129	50
Diesel fuel	<24 µg/L	26 µg/L	2,500 µg/L
Iron	8.43	0.111	NE
Magnesium	277	239	NE
Manganese	2.3	7.99	NE
Molybdenum	0.0117	<0.01	50
Potassium	40.6	14.2	NE
Sodium	1,030	560	NE

ESL = Environmental Screening Level. Groundwater is not a current or potential drinking water source (Water Board , 2007)
NE = not established
Bolded values exceed ESLs.
µg/L = micrograms per liter

There are eight metals commonly used in batteries including lead, mercury, nickel, cadmium, lithium, silver, zinc, and manganese (Colorado Department of Public Health and the Environment, 2002). Lead-acid batteries, developed in the late 1800s, were the first commercially practical batteries. Cobalt has been only recently (since the 1990s) used in the development of longer lasting rechargeable lithium ion, nickel-cadmium, and nickel-metal hydride batteries. The source of cobalt in groundwater at concentrations that exceed ESLs is unknown, but is not associated with the type of batteries that were cleaned by the Army in this building.



BROWN AND CALDWELL

PROJECT: 130759-010
DATE: 4/7/2008

TITLE: Sampling Locations and Detected Results at Former Battery Charge Building (Building 101)
SITE: Benicia Arsenal, Benicia, California

Figure 6-3

S:\Benicia_USTRA Addendum\Figure 6-3 B101.mxd

Based on the data, there appears to be no significant DoD impact. Therefore, no further investigation is recommended at the former battery charge building (Building 101). The data will be evaluated in the Arsenal risk assessment.

6.4 Former Bar Stock Building/Storage/Vehicle Shop for Motor Pool (Building 168)

Building 168 was built in 1945 as a vehicle shop during the World War II expansion at the former Arsenal. Historical records did not indicate whether maintenance work was performed. The building is located on the former marshland and is supported by pilings that have been driven to the top of the underlying sandstone. The land surface around these buildings has sunk 1 to 2 feet as shown in the photo at right.

Five borings (B168HP003 through B168HP007) were advanced in the area of diesel fuel reported in Expanded SI borings B168HP001 (100 µg/L) and SWAMPBHP002 (270 µg/L). The purpose of the addendum fieldwork is to determine the source of the diesel fuel and to delineate the impacted groundwater.

Diesel fuel was reported in shallow groundwater (5 to 10 feet bgs) samples in B168HP003, B168HP005, B168HP006, and B168HP007 (Table 6-5). All of these concentrations are less than the Water Board ESL of 2,500 µg/L.

Table 6-5. Diesel Fuel Detected in Shallow Groundwater in the Vicinity of Building 168

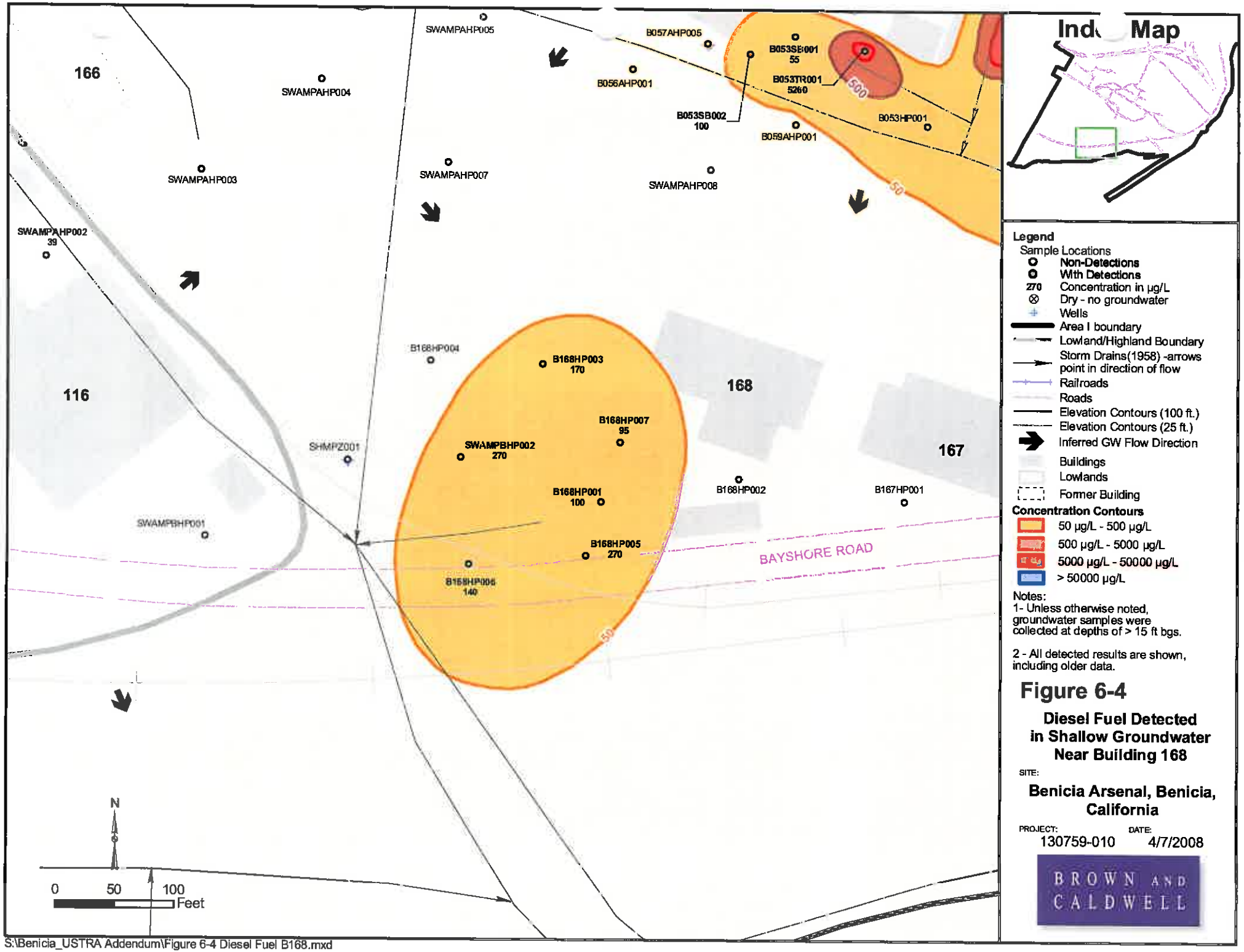
Analyte	Concentration (µg/L)	ESL (µg/L)
B168HP001	100	2,500
SWAMPBHP002	270	
B168HP003	170	
B168HP004	<23	
B168HP005	270	
B168HP006	140	
B168HP007	95	

ESL = Environmental Screening Level. Groundwater is not a current or potential drinking water source (Water Board, 2007).
µg/L = micrograms per liter

Diesel fuel is delineated in shallow groundwater. An isoconcentration contour on Figure 6-4 shows the extent of the diesel fuel plume. Borings north of the plume with diesel fuel detections less than the MDL include SWAMPAHP007 and SWAMPAHP008. Borings to the west (SWAMPBHP001, B168HP004, and piezometer SHMPZ001) and east (B168HP002), of the plume define the extent of the shallow groundwater impact.

No further DoD action is indicated at Building 168 groundwater for the following reasons:

- Diesel fuel found in shallow groundwater near Building 168 has no known source area; and
- Concentrations do not exceed the ESL.


SWAMPAHP005
B057AHP005
B053SB001
55
B053TR001
5260
B056AHP001
B053SB002
100
B059AHP001
B053HP001
SWAMPAHP004
SWAMPAHP003
SWAMPAHP007
SWAMPAHP008
SWAMPAHP002
39
166
116
168
167
B168HP004
B168HP003
170
B168HP007
95
SWAMPBHP002
270
SHMPZ001
B168HP001
100
B168HP002
B167HP001
SWAMPBHP001
B168HP005
270
BAYSHORE ROAD
B168HP006
140
500
50
50
N
0
50
100
Feet
Index Map
Legend
Sample Locations
Non-Detections
With Detections
270 Concentration in µg/L
Dry - no groundwater
Wells
Area I boundary
Lowland/Highland Boundary
Storm Drains(1958) -arrows point in direction of flow
Railroads
Roads
Elevation Contours (100 ft.)
Elevation Contours (25 ft.)
Inferred GW Flow Direction
Buildings
Lowlands
Former Building
Concentration Contours
50 µg/L - 500 µg/L
500 µg/L - 5000 µg/L
5000 µg/L - 50000 µg/L
> 50000 µg/L
Notes:
1- Unless otherwise noted, groundwater samples were collected at depths of > 15 ft bgs.
2 - All detected results are shown, including older data.
Figure 6-4
Diesel Fuel Detected in Shallow Groundwater Near Building 168
SITE:
Benicia Arsenal, Benicia, California
PROJECT:
130759-010
DATE:
4/7/2008
BROWN AND CALDWELL
S:\Benicia_USTRA Addendum\Figure 6-4 Diesel Fuel B168.mxd

6.5 Alleged Post Dumpsite

No Further DoD Action is recommended at the Post Dumpsite

The alleged Post Dumpsite was reportedly in operation from 1940 through 1964 and located in the eastern side of the Arsenal (Figure 1-2). It is suspected that the disposal and burning of scrap lumber associated with the industrial area carpenter shops, and pilings and other waste material from repairs made to the Arsenal wharf were placed at this dumpsite. Thousands of gallons of gasoline were reportedly burned in pits at the north end of the site near Sulphur Springs Creek drainage canal (Figure 6-5). The majority of this information could not be substantiated; however, aerial photos and other interviews did substantiate the disposal of metal cleaning corrosives and the burning of scrap lumber in the pits. The area of the suspected dumpsite is the location of a reclaimed tideland with a high density of vegetation (see 1928 photo on Figure 3-1).

Previously, six borings (PD001HP001 through PD001HP006) were advanced and groundwater samples collected. The results are discussed in the *Expanded SI Report* (BC, 2005a).

Seven borings (PD001HP007 through PD001HP013) were advanced to determine the lateral extent of solvents, TPHD, TPHMO, and TPHG identified during the Expanded SI. The purpose of each boring is provided below:

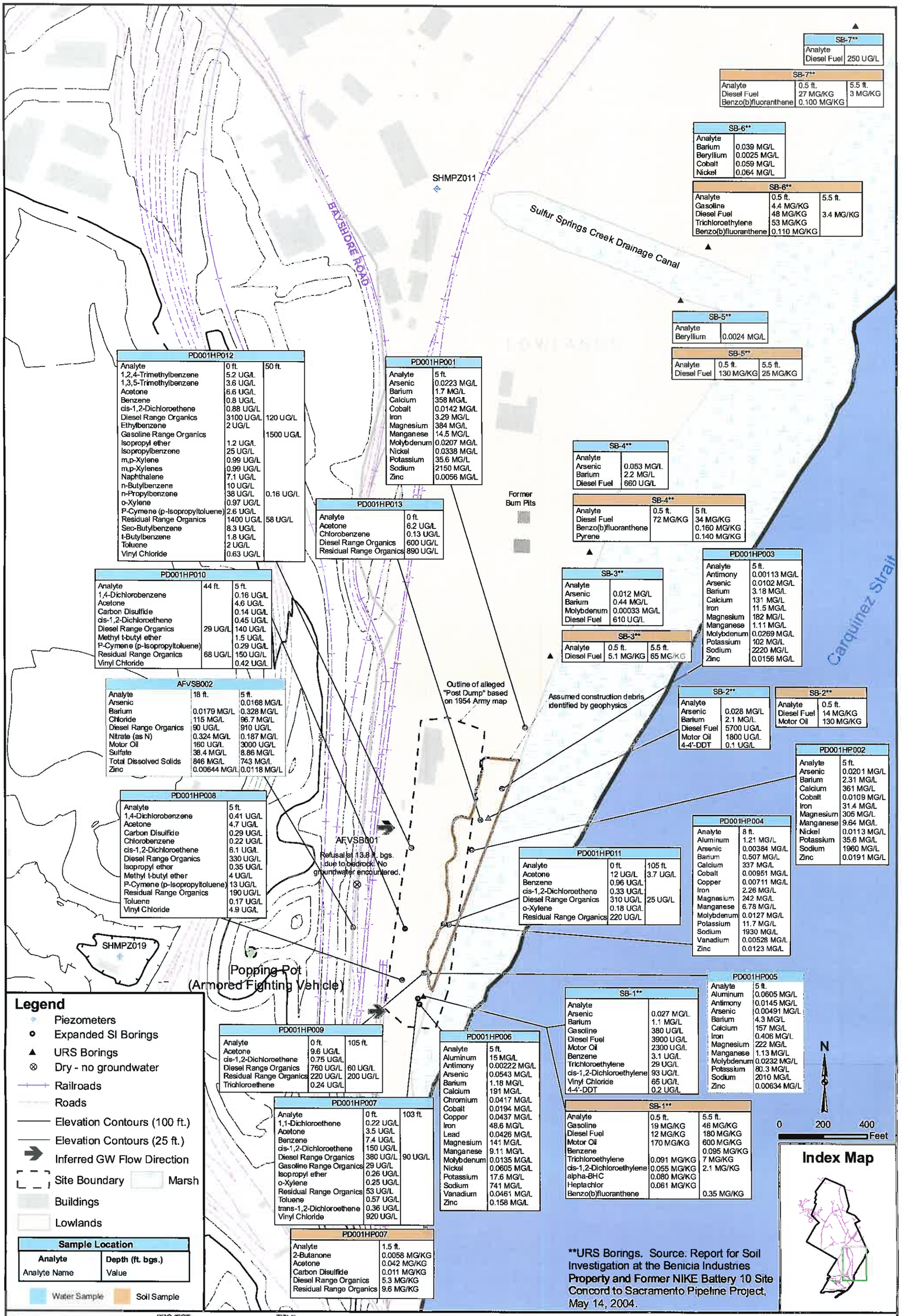
- PD001HP007 was drilled next to URS boring SB-1 to confirm solvents and fuels reported in soil and groundwater. PD001HP007 coincides with the location of Expanded SI boring PD001HP006. A historical soil sample collected by URS at 0.5-feet bgs reported TCE at 0.091 mg/kg and cis-1,2-DCE at 0.055 mg/kg. The deeper URS soil sample at 5.5-feet bgs reported higher concentrations of TCE (7 mg/kg) and cis-1,2-DCE (2.1 mg/kg) but the sample was likely saturated with groundwater. TCE and cis-1,2-DCE concentrations in shallow groundwater were 29 µg/L and 93 µg/L, respectively in the URS boring. Therefore, a soil sample at 1.5 to 2 feet bgs, above groundwater, and two samples from shallow and deep groundwater were collected during this field event.

- PD001HP008 was advanced approximately 110-feet northwest of URS boring SB-1 to determine the lateral and vertical extent of fuels and solvents reported in groundwater at SB-1. A shallow groundwater sample was collected. Several attempts were made to collect a deep groundwater sample, but sufficient groundwater was not present; therefore a sample was not collected.

- PD001HP009 was advanced approximately 120-feet north-northeast of URS boring SB-1 and coincides with the location of Expanded SI boring PD001HP005 to determine the lateral and vertical extent of fuels and solvents reported in groundwater at SB-1.

- PD001HP010 was advanced approximately 240-feet east of Expanded SI boring AFVSB002 to determine the lateral and vertical extent of fuels in groundwater at AFVSB002 and solvents/fuels related to the alleged Post Dumpsite.

- PD001HP011 was advanced approximately 340-feet north-northeast of URS boring SB-1 and coincides with the location of Expanded SI boring PD001HP004 to determine the lateral and vertical extent of fuels and solvents reported in groundwater at SB-1.



BROWN AND CALDWELL

PROJECT: 130759-010

DATE: 4/7/2008

TITLE: **Sampling Locations and Detected Results at the Alleged "Post Dump"**

SITE: **Benicia Arsenal, Benicia, California**

Figure 6-5

S:\Benicia_USTRA Addendum\Figure 6-5 Detected Results at Post Dumpsite.mxd

- PD001HP012 was advanced approximately 690-feet north of URS boring SB-1 to determine the lateral and vertical extent of fuels and solvents reported in groundwater at SB-1.

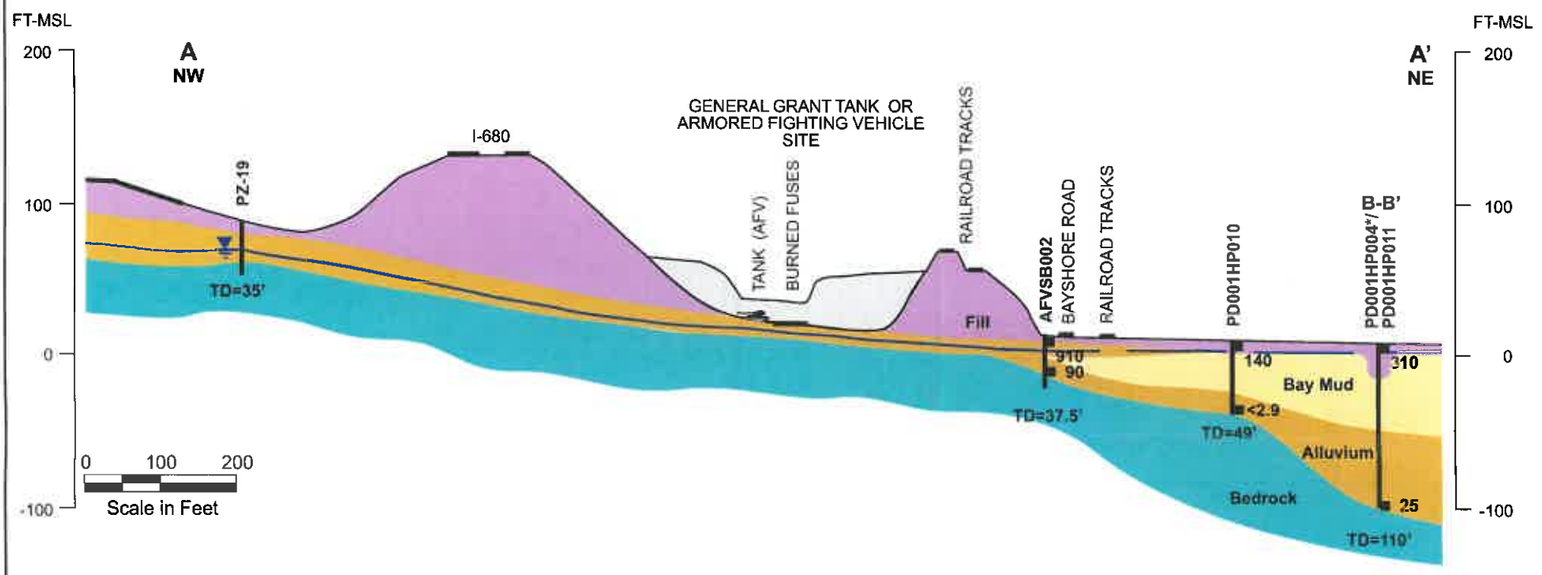
- PD001HP013 was advanced next to URS boring SB-2 to confirm fuels reported in URS boring SB-2. Diesel fuel and motor oil were reported in shallow groundwater at 5,700 µg/L and 1,800 µg/L, respectively. The groundwater samples were also collected to determine the lateral and vertical extent of solvents reported at SB-1.

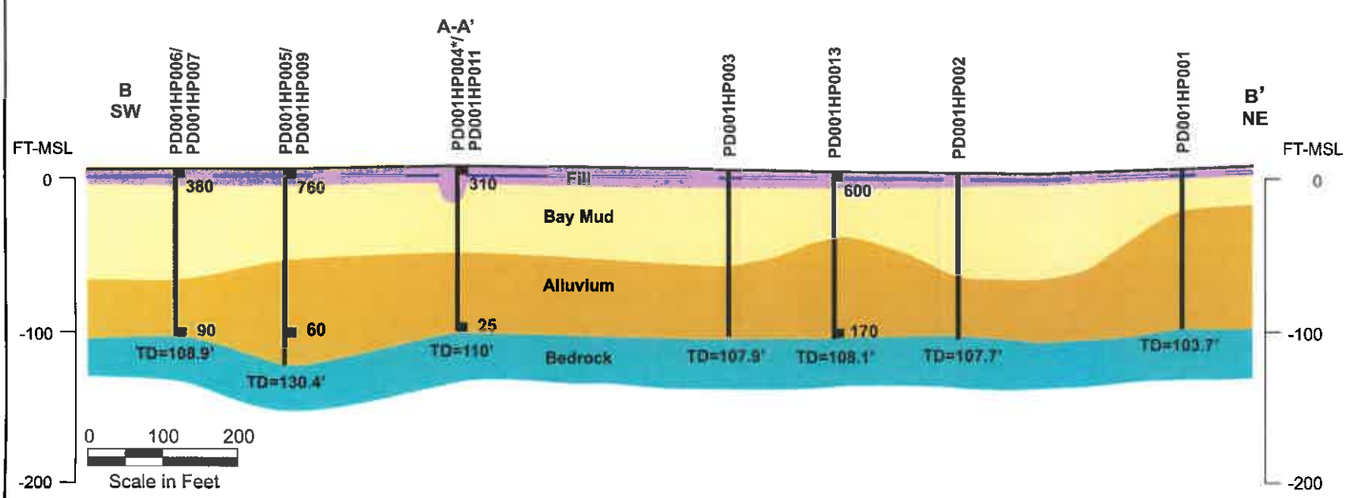
Figure 6-6 presents two geologic cross sections that include the alleged Post Dumpsite and the nearby AFV. These sections incorporate the lithology interpreted from the URS, the Expanded SI, the Expanded SI addendum, and the vertical resistivity surveys. Artificial fill covering the alleged Post Dumpsite consists of a mixture of gravelly sand to silty sand, approximately 2.5-feet to 10-feet thick. The marshland or Bay Mud is thinnest at the northern end (PD001HP001) approximately 20-feet thick to approximately 70-feet thick at PD001HP006. Below the marshland are sequences of silt and sand silts from 20-feet bgs to 130-feet bgs, where the top of the sandstone was encountered (PD001HP005).

Diesel fuel, motor oil, or vinyl chloride was reported above their respective groundwater Water Board ESLs at PD001HP012 and PD001HP013 (Table 6-6). Data collected at URS borings SB-1 and SB-2 were not confirmed for all the analytes detected based on the similar samples collected near the same locations, PD001HP007 and PD001HP013, respectively. For example, TCE was reported in shallow groundwater at 29 µg/L in SB-1 but TCE was below MDLs at PD001HP007 while vinyl chloride was reported in both samples (65 µg/L in SB-1 and 920 µg/L in PD001HP007). Similar inconsistencies were found in comparing the soil results from the URS borings to this investigation. TCE reported in soil at SB-1 of 7 mg/kg was not confirmed at PD001HP007. TCE concentrations were below the MDL at 1.5 to 2 feet bgs in PD001HP007. Other occurrences were found for diesel fuel and motor oil. Therefore, it is difficult to understand how to use the URS data with the current data if the presence of constituents found during the URS investigation was not found during this investigation. A graphical representation of this discrepancy is also provided below as part of a discussion on TCE degradation. Since there is such a discrepancy in the data sets, the most current data will be used to determine the impacts to soil and groundwater at the site.

TCE was found in shallow groundwater at PD001HP009 at concentrations of 0.24 µg/L, shown in Figure 6-7. No groundwater samples exceeded the TCE ESL of 360 µg/L. Groundwater samples containing cis-1,2 DCE were detected in six of the seven borings advanced (Table 6-6 and Figure 6-8) as shown on Figure 6-8, the highest concentration of cis-1,2 DCE is at the southern end of the alleged Post Dumpsite. Samples collected from PD001HP007 contained a concentration of 150 µg/L. No sample exceeded the Water Board ESL in soil or groundwater.

Vinyl chloride was detected in shallow groundwater samples collected at PD001HP007 and PD001HP008. The Water Board ESL in groundwater, 3.8 µg/L, was exceeded in samples collected at PD001HP007 (detected 920 µg/L) and in PD001HP008 (4.9 µg/L) as shown in Table 6-6.





Explanation

- 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.
- * PD001HP004 is located in a storm drain trench
- ■ 130 Diesel fuel range hydrocarbon concentration (ug/L)
- TD=30 Total Depth, Feet Below Ground Surface
- Groundwater elevation (measured 11/26/02 and 11/07/04)
- Approximate groundwater elevation

Hydrostratigraphic Units	Geologic Units
Relatively Permeable Units	Bridge Expansion Fill (as of 11/02)
	Artificial Fill
	Alluvium -fining upwards sequences of silt to silty clay with some lenses of sand and clay
Relatively Non Permeable Units	Bay Mud - clays and sensitive fines
	Bedrock - (Sandstone, siltstone, and claystone)

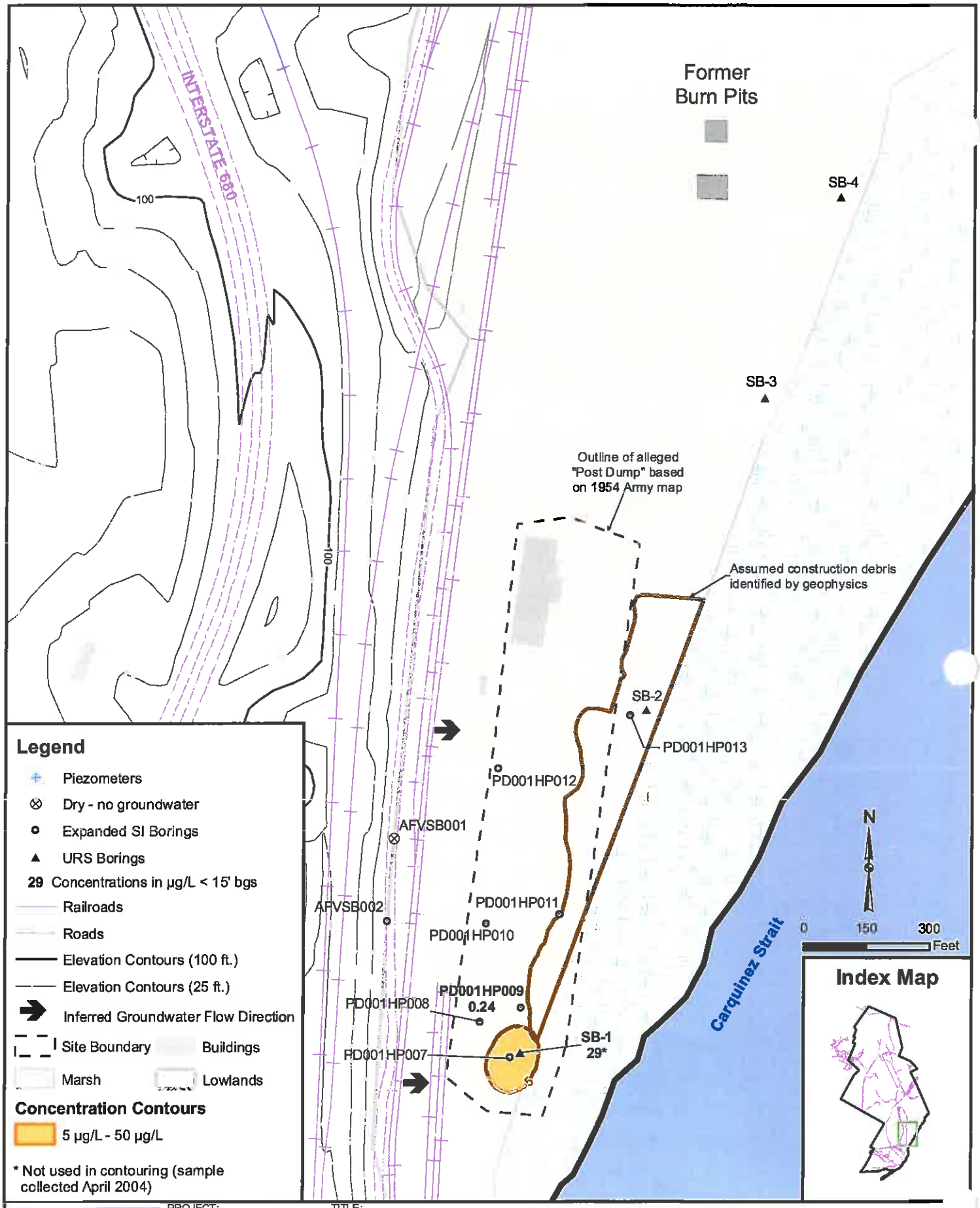
Figure 6-6
"Post Dump" and AFV Geologic Cross Sections with Diesel Fuel Concentrations in Groundwater
Expanded Site Inspection Addendum Report
Former Benicia Arsenal

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.

Table 6-6. Fuels and Solvents in Soil and Groundwater at the Alleged Post Dumpsite

Boring Name	Depth (ft bgs)	Gasoline	Diesel fuel	Motor oil	Benzene	TCE	cis-1,2-DCE	VC
SB-1	0-0.5	19	12	170	<0.0055	0.091	0.055	ND
	5-5.5	46	180	600	0.095	**7**	2.1	ND
	GW (~5)	380	**3,900**	2,300	3.1	29	93	**65**
PD001HP007	1.5-2	<0.58	5.3	9.6	<0.00033	<0.0003	<0.00024	<0.0023
	0-5	29	380	53	7.4	<0.15	150	**920**
	103-108	<20	90	<32	<0.18	<0.15	<0.13	<0.25
SB-2	0-0.5	<1.1	14	130	<0.0053	<0.0053	<0.0053	ND
	GW (~5)	<50	5,700	1,800	<0.5	<0.5	<0.5	<0.5
PD001HP013	0-5	<20	600	890	<0.18	<0.15	<0.13	<0.25
	103-108	<20	170	<37	<0.18	<0.15	<0.13	<0.25
SB-3	0-0.5	<1.2	5.1	--	<0.0054	<0.0054	<0.0054	ND
	5-5.5	<2	65	--	<0.0087	<0.0087	<0.0087	ND
	GW (~5)	<50	610	--	<0.5	<0.5	<0.5	<0.5
SB-4	0-0.5	<1.2	72	--	<0.0052	<0.0052	<0.0052	ND
	4-5	<1.2	34	--	<0.0053	<0.0053	<0.0053	ND
	GW (~5)	<50	660	--	<0.5	<0.4	<0.5	<0.5
SB-5	0-0.5	<1.1	130	--	<0.0052	<0.0052	<0.0052	ND
	5-5.5	<1.6	25	--	<0.007	<0.007	<0.007	ND
	GW (~5)	NR	NR	NR	NR	NR	NR	NR
SB-6	0-0.5	4.4	48	--	<0.0052	**53**	<0.0052	ND
	5-5.5	<1.1	3.4	--	<0.0058	<0.0058	<0.0058	ND
	GW (~5)	NR	NR	NR	NR	NR	NR	NR
SB-7	0-0.5	<1.1	27	--	<0.0052	<0.0052	<0.0052	ND
	5-5.5	<1.3	3	--	<0.0058	<0.0058	<0.0058	ND
	GW (~5)	NR	250	NR	NR	NR	NR	NR
PD001HP008	5-10	<20	330	190	<0.18	<0.15	<0.17	**4.9**
PD001HP009	0-5	<20	760	220	<0.18	0.24	0.75	<0.25
	105-110	<20	60	200	<0.18	<0.15	<0.13	<0.25
PD001HP010	5-10	<20	29	68	<0.18	<0.15	0.45	0.42
	44-49	<20	140	150	<0.18	<0.15	<0.13	<0.25
PD001HP011	0-5	<20	310	220	0.96	<0.15	0.33	<0.25
	105-110	<20	25	<30	<0.18	<0.15	<0.13	<0.25
PD001HP012	0-5	<20	**3,100**	1,400	0.8	<0.15	0.88	0.63
	50-55	1,500	120	58	<0.18	<0.15	<0.13	<0.25
Water Board ESL	Soil	450	150	2,500	**0.26**	0.73	22	0.047
	GW	5,000	2,500	2,500	**540**	360	6,200	3.8

Source: Report for Soil Investigation at the Benicia Industries Property and Former Nike Missile Battery 10 Site, Concord to Sacramento Pipeline Project by URS Corporation, May 14, 2004. Results are qualified in the URS report but are not carried forth in the table above for brevity. The complete tables are provided as an appendix in the *Expanded SI Report* (BC, 2005a).
Soil concentrations in mg/kg.
Groundwater concentrations in µg/L.
Bolded values exceed their respective ESLs.
cis-1,2-DCE = cis-1,2-dichloroethene
ESL = Environmental Screening Level (Water Board, 2007). ESL values for soil are for shallow soils (<3 meters bgs) and commercial/industrial land use. Groundwater ESLs correspond to groundwater that is not a current or potential source of drinking water.
ND – not detected
NR – Concentrations not reported in the URS report.
TCE = trichloroethene
VC = vinyl chloride



BROWN AND CALDWELL

PROJECT: 130759-010

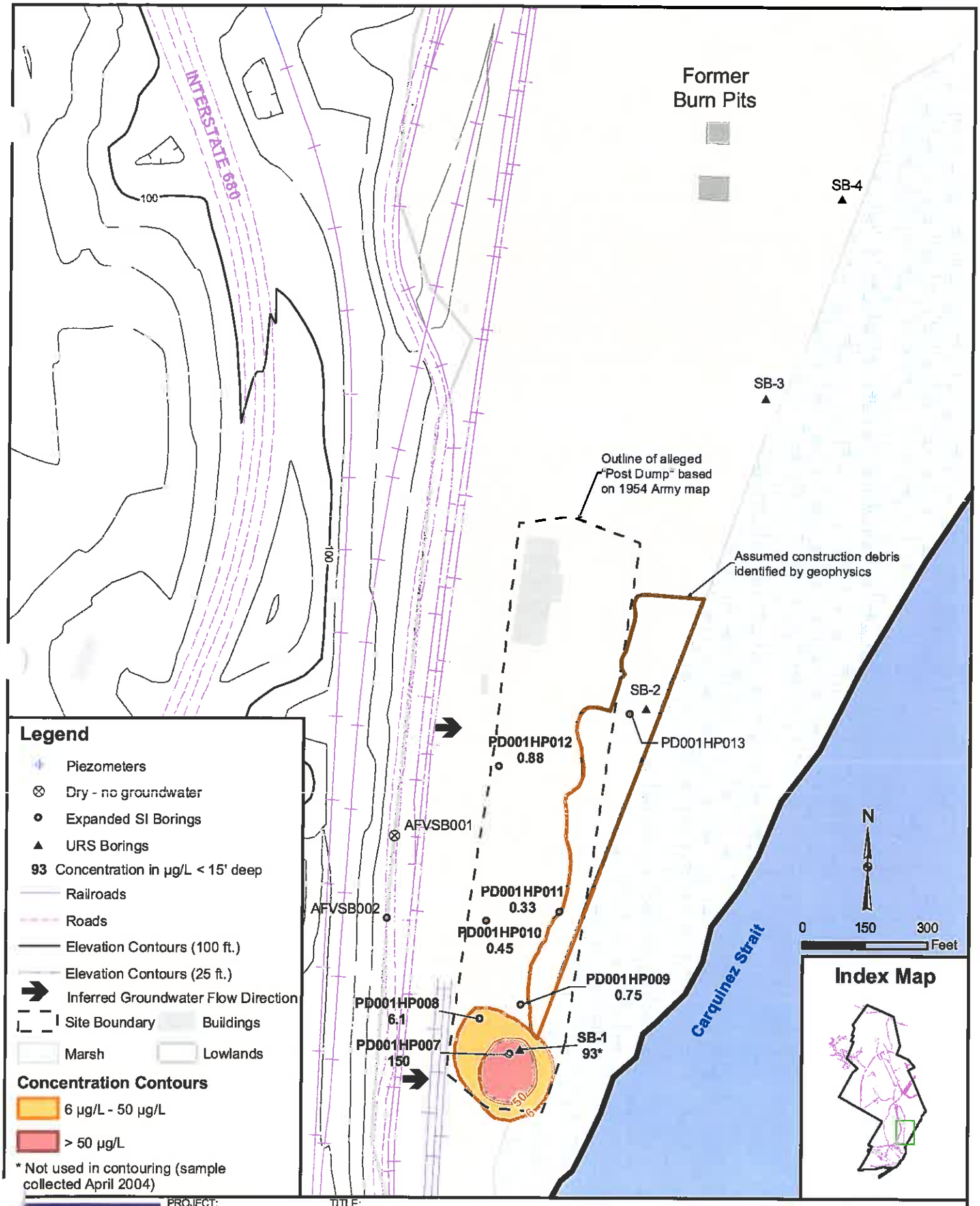
DATE: 4/7/2008

TITLE: TCE Detected in Shallow Groundwater at the Alleged "Post Dump"

SITE: Benicia Arsenal, Benicia, California

Figure 6-7

S:\Benicia_USTRA Addendum\Figure 6-7 Post Dumpsite TCE.mxd



BROWN AND CALDWELL

PROJECT: 130759-010

DATE: 4/7/2008

TITLE: **cis-1,2-DCE Detected in Shallow Groundwater at the Alleged "Post Dump"**

SITE: **Benicia Arsenal, Benicia, California**

Figure 6-8

S:\Benicia_USTRA Addendum\Figure 6-8 Post Dumpsite cis-1,2-DCE.mxd

Petroleum hydrocarbons were also detected in soil and groundwater samples collected. Shown in Table 6-6, soil concentrations of gasoline, diesel fuel, and motor oil were all below their respective ESLs.

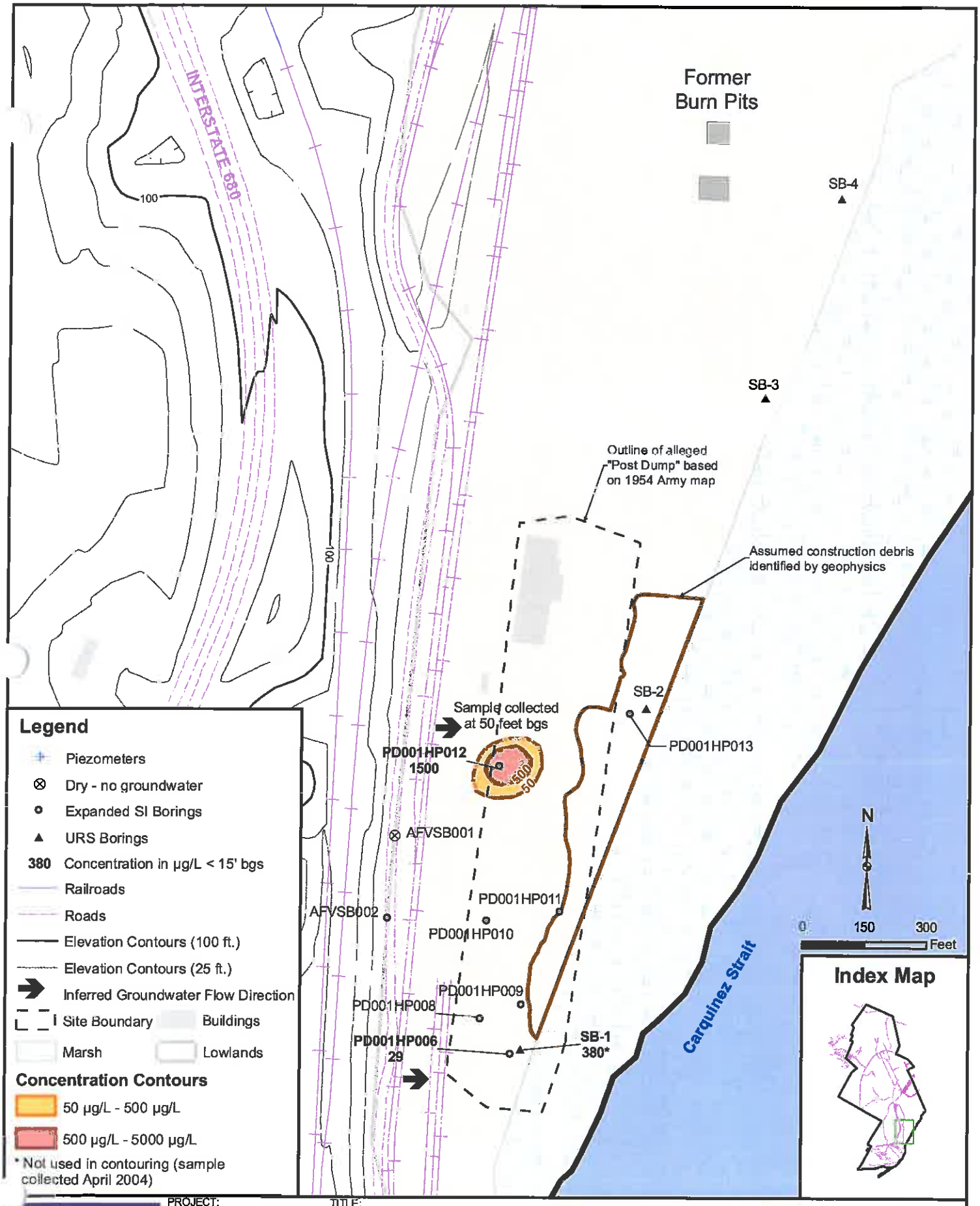
Gasoline was not reported above its ESL of 5,000 µg/L, but reported in PD001HP012 at 1,500 µg/L (Figure 6-9). Diesel fuel and motor oil were detected in groundwater in all borings sampled and is shown graphically for diesel fuel on Figure 6-10. Three samples contain diesel fuel above its groundwater ESL of 2,500 µg/L as shown in Table 6-6, diesel fuel was detected at: 3,900 µg/L in SB-1, 5,700 µg/L in SB-2, and 3,100 µg/L in PD001HP012. Diesel fuel and motor oil concentrations in SB-1 were much higher than concentrations reported at PD001HP007. Diesel fuel and motor oil concentrations were reported at 90 µg/L and less than 32 µg/L, respectively at PD001HP007. The data at SB-1 was not used in developing the isoconcentration contours presented on Figure 6-10 because the more recent data was used (PD001HP007). Similar discrepancies were reported at SB-2 and PD001HP013 (Figure 6-10).

The geophysical investigation determined wastes are not buried at the alleged Post Dumpsite. The data is interpreted to consist of silts and sands, probably represents fill material, as well as clay and/or marsh deposits.

The presence of breakdown products (cis-1,2-DCE and vinyl chloride) indicate that aerobic and anaerobic biodegradation is occurring. Figure 6-11 is a graphical representation using pie charts to show the chemical composition of TCE, its degradation products in groundwater, and evidence of different source areas. Each pie chart represents the sample composition and the relative magnitude of each compound, in this case, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride. The ratios of TCE and its degradation products indicate little to no TCE and trans-1,2-DCE with the largest fraction attributed to cis-1-2-DCE and vinyl chloride. Cis-1,2-DCE and vinyl chloride concentrations are similar except in the area of PD007 and URS boring SB-1 where PD001HP007 indicates a higher ratio of vinyl chloride to cis-1,2-DCE. As mentioned before, this inconsistency was the reason for using only the recent data in this report.

In any event, the absence of TCE in groundwater and the presence of degradation products indicate that subsurface conditions are conducive to TCE biodegradation via reductive dechlorination. The clays provide a conducive environment for the anaerobic biodegradation and the presence of hydrocarbons are inducing an aerobic degradation. The fate of the remaining dissolved VOCs in groundwater to complete biodegradation is very optimistic.

Diesel range hydrocarbons are present throughout the shallow groundwater at the alleged Post Dumpsite, although the source is not known. If the Army did use a fuel, like diesel, to ignite the scrap lumber in the burn pits, then diesel range hydrocarbon concentrations in groundwater would be expected the greatest in that area, near URS borings SB-3 and SB-4, but that is not the case. The highest diesel range hydrocarbon concentrations were reported at PD001HP012, approximately 1,500 feet south of the burn pits. Additionally, the area of distribution covers the reclaimed tideland. Because there appears to be no source area for the diesel range hydrocarbons, further research was performed.



BROWN AND CALDWELL

PROJECT: 130759-010

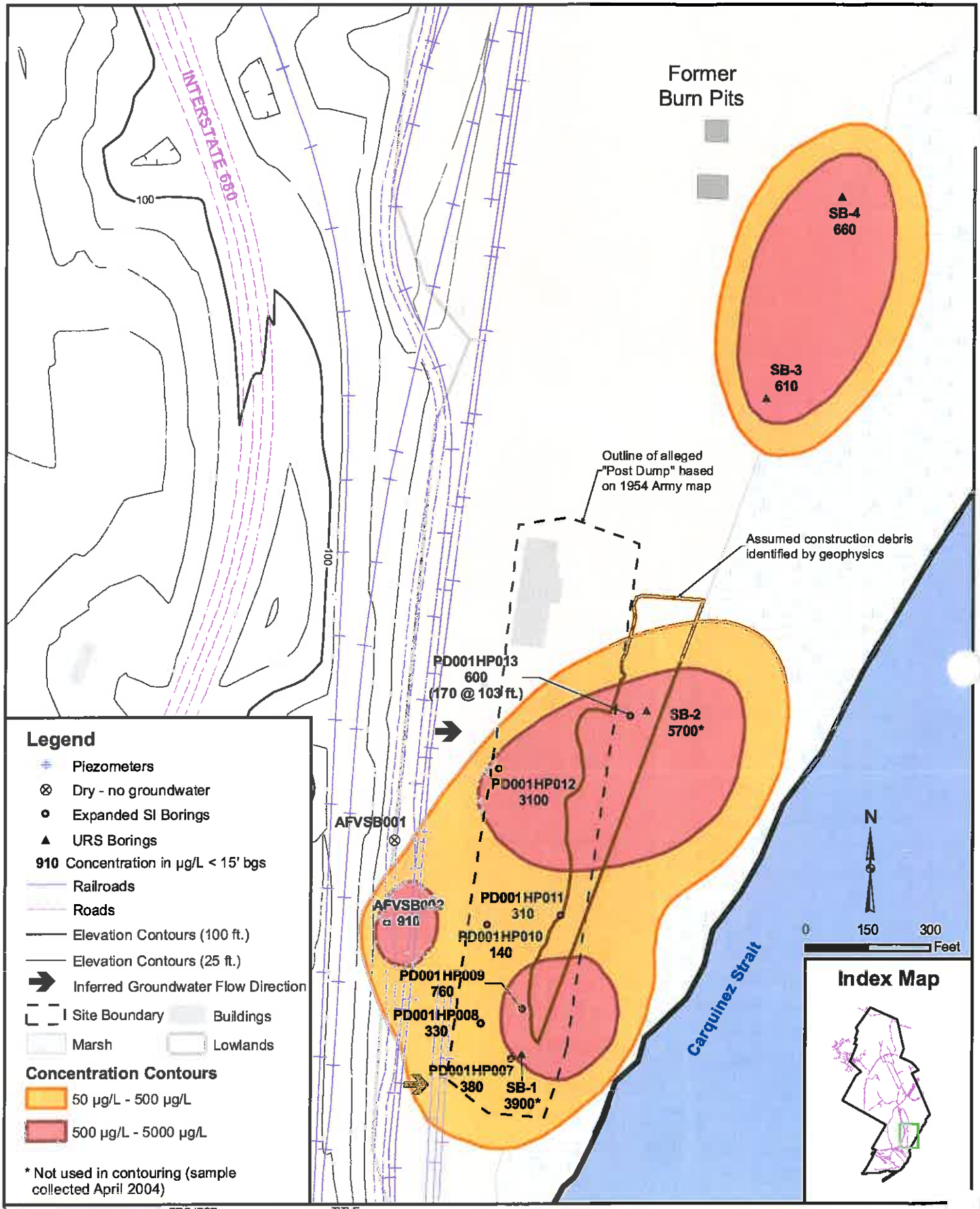
DATE: 4/7/2008

TITLE: Gasoline Detected in Shallow and Deep Groundwater at the Alleged "Post Dump"

SITE: Benicia Arsenal, Benicia, California

Figure 6-9

S:\Benicia_USTRA Addendum\Figure 6-9 Post Dumpsite Gasoline.mxd



BROWN AND CALDWELL

PROJECT: 130759-010

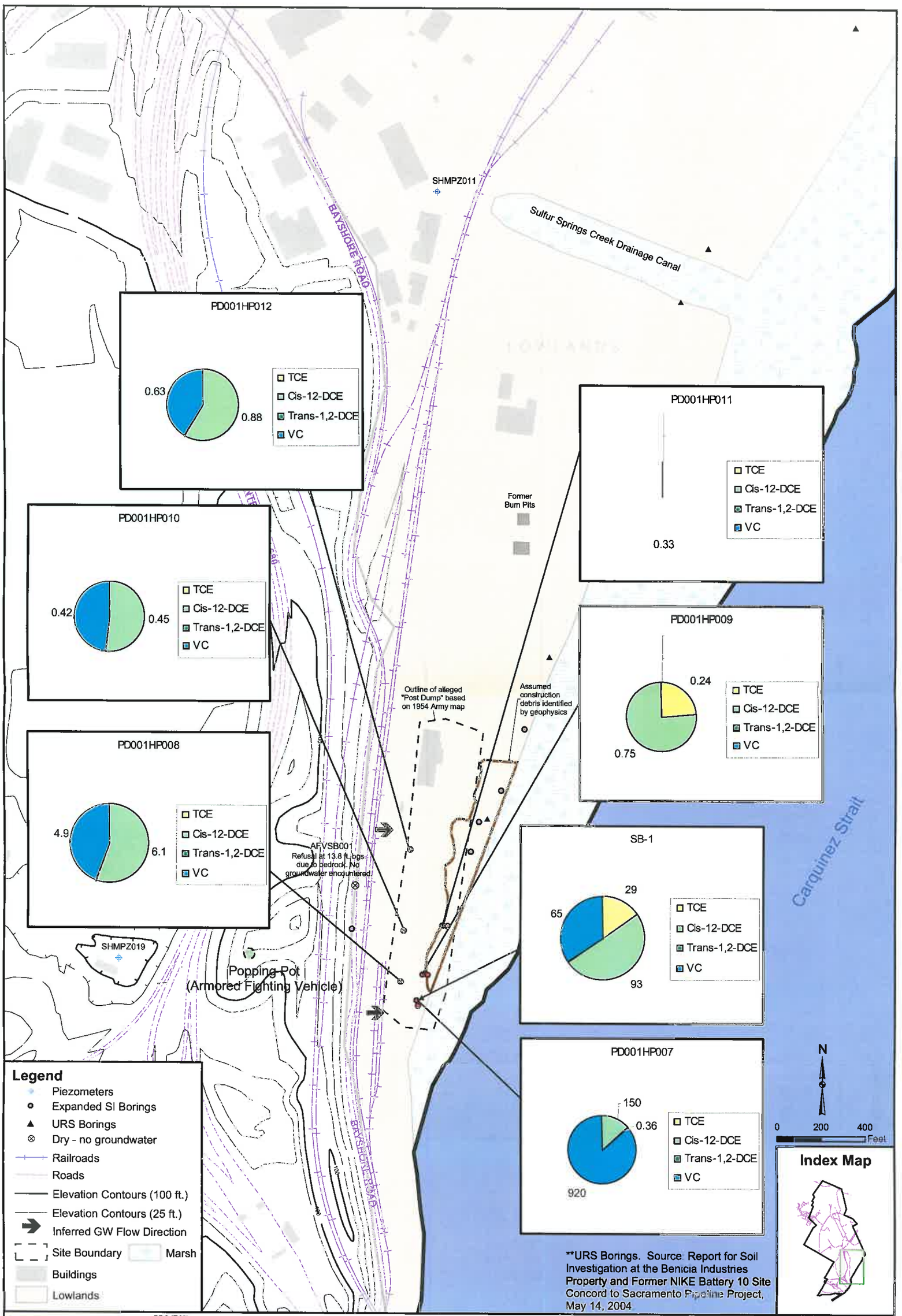
DATE: 4/7/2008

TITLE: Diesel Range Hydrocarbons (Including Natural Sources) Detected in Shallow Groundwater at the Alleged "Post Dump"

SITE: Benicia Arsenal, Benicia, California

Figure 6-10

S:\Benicia_USTRA Addendum\Figure 6-10 Post Dumpsite Diesel.mxd



BROWN AND CALDWELL

PROJECT: 130759-010

DATE: 4/7/2008

TITLE: **Distribution of TCE and Degradation Products at the Alleged "Post Dump"**

SITE: **Benicia Arsenal, Benicia, California**

Figure 6-11

S:\Benicia_USTRA Addendum\Figure 6-11 Distribution of TCE and Degradation Products.mxd

A hypothesis was developed to prove or disprove that the petroleum hydrocarbons reported in groundwater are from the natural degradation of biogenic compounds in the highly vegetated tideland buried beneath the pavement. Review of these data by a forensic specialist, Friedman & Bruya, Inc. determined that there appears to be hydrocarbons present that are likely due to a release of petroleum. Also present were a number of compounds that are either degradation products of petroleum, compounds that come from biological organisms that degrade petroleum or compounds that come from natural sources. The amount of each compound could not be quantified because the holding times of the sample had expired. Based on the wide aerial distribution of petroleum hydrocarbons identified, the absence of a source and the knowledge that the area is a covered tideland, it is presumed that natural sources is likely the predominant fraction reported in the samples. Diesel range hydrocarbons may be present but maybe only in the locations of highest concentration, like PD001HP012.

The finding of 3,100 µg/L diesel range organics is unusual due to the limited water solubility of the compounds that make up diesel or similar petroleum products. Because of this, the 3,100 µg/L result is likely due to material that is not soluble in water. This non-water soluble material may exist as a sheen that is present on the surface of the water analyzed by the laboratory or to suspended particulates that are covered with non-water soluble petroleum and which are suspended in the water sample. If one settles and filters or centrifuges the sample prior to analyses, it is possible to determine if the diesel range organics are actually dissolved in the water sample. Settling and filtering or centrifuging will remove non-water soluble material and subsequent testing will provide a measure of the material that is actually dissolved in the water sample.

If it is found that material is actually dissolved in the water, it can come from two sources. It may be due to petroleum compounds that are dissolved in the water sample. If so, they will be PAH compounds like phenanthrene which can be identified using a GCMS 8270 analysis. If the dissolved material does not consist of PAHs, it is likely due to natural organics.

There are low levels of diesel range hydrocarbons present in deeper groundwater (within the alluvium below the Bay Mud) at concentrations less than 200 µg/L (Figure 6-6).

There is no known Army source of the petroleum hydrocarbons or the parent chemical for cis-1,2-DCE (TCE or PCE). Additionally, the lack of the parent solvent in groundwater indicates that there is no source. Therefore, no further DoD action is recommended.

6.6 Popping Pot (also known as the Armored Fighting Vehicle)

The AFV is located west of the alleged Post Dumpsite in low-lying hills (Figure 1-2). 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 ordinance. 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.

Access restrictions and site conditions forced the investigation away from the Popping Pot (or AFV). Fuels reported in groundwater are attributed to the area of the Post Dumpsite.

Two CPT borings (AFVSB001 and AFVSB002) were advanced approximately 300 feet downgradient of the AFV. Groundwater samples were analyzed for metals, explosives, and petroleum hydrocarbons. Results are summarized in the *Expanded SI Report* (BC, 2005a).

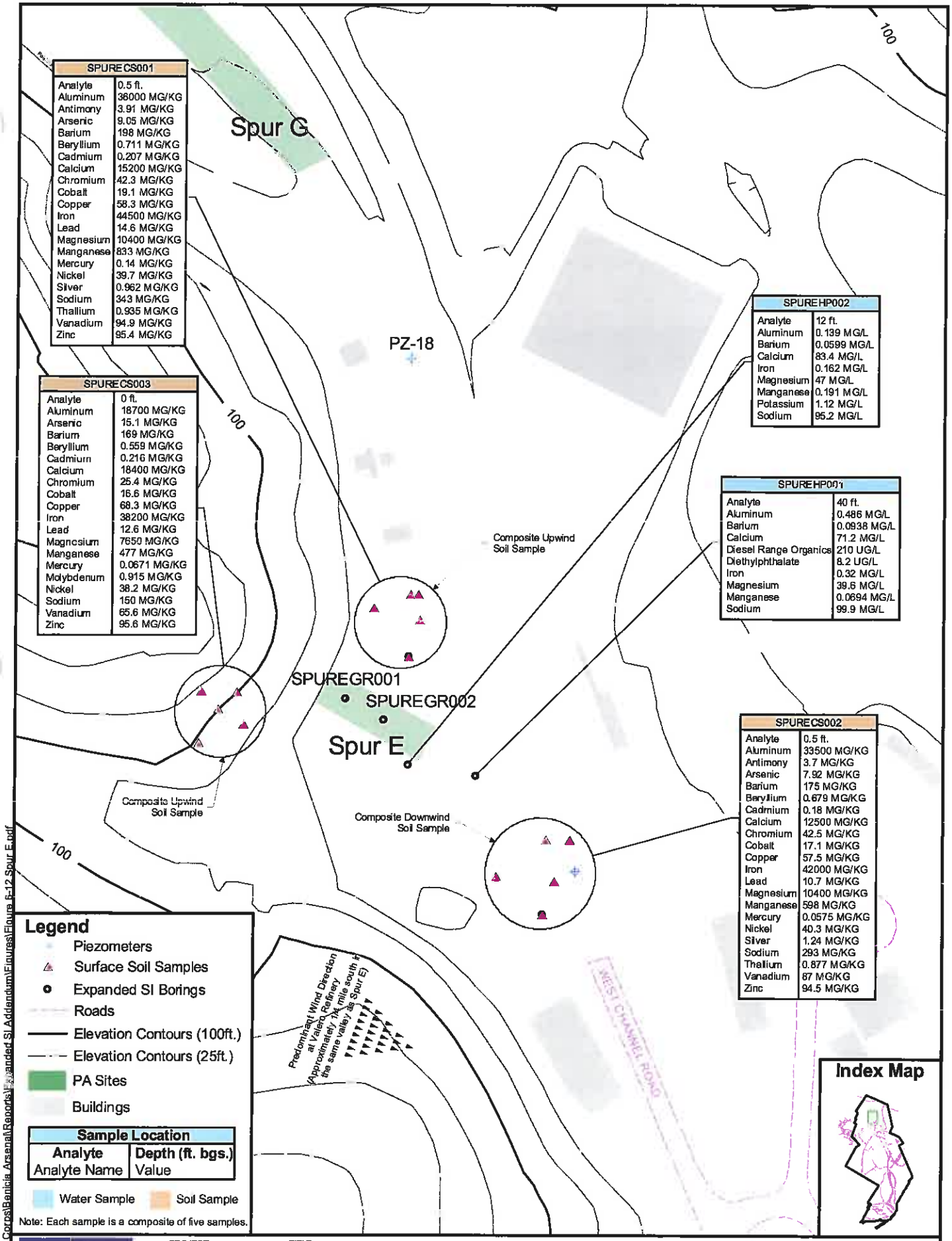
Diesel fuel and motor oil were present in the deeper groundwater sample collected at the AFV. At the time of the borings, it was unknown if the source of the diesel fuel could be the alleged Post Dumpsite. As discussed in the previous section, petroleum hydrocarbons are present in groundwater in the area of the alleged Post Dumpsite. The source in unknown but is likely from natural sources. The petroleum hydrocarbons found at AFVSB002 is from the area of the alleged Post Dumpsite and not from the AFV. Therefore, no further investigation at AFV is recommended.

6.7 Former Burn Cage at Spur E

In response to comments by DTSC on the final Expanded SI (BC, 2005a), the following tasks were performed.

No further DoD Action is Indicated at Former Burn Cage Spur E

- Brown and Caldwell contacted Valero Refinery for predominant wind direction information in the area. The refinery is located in the same valley as former spurs and burn cages, approximately 1/4 mile south. Since there is no other data as close as the refinery, their data could be used to represent regional wind conditions for the area. The effects of the steep canyon walls, especially on the west side of the former spur are not known. Wind rose diagrams for calendar year 2000 for the Valero Refinery are attached as Appendix I.
- The predominant wind direction from the Valero Refinery was placed on the site location map for Spur E burn cage (Figure 6-12). Data from the Valero Refinery indicates a predominant wind direction from the west-northwest with the strongest winds occurring in Spring thru the Summer months. During the Fall and Winter months, winds can flop and blow from the east.
- Based on predominant wind direction to the west-northwest, the Expanded SI sample locations (SPURECS001 and SPURECS002) were compared to determine if the Expanded SI Workplan objectives (i.e. an upwind and downwind sample from the former Spur E burn cage) were met. The locations of these samples in relation to the predominant wind direction is shown on Figure 6-12. Based on the regional wind data and the orientation of the canyon, the downwind sample collected in 2005 appears accurate. The upwind sample could vary from the SPURECS001 location collected in 2005 or farther west.
- Since upwind could be farther west, another composite sample was collected at SPURECS003 on the hilside (Figure 6-12) and sampled for metals and explosives.
- In addition to the new upwind soil sample, two composite soil samples (SPUREGR001 and SPUREGR002) were also collected beneath the location of the former burn cage concrete pad to determine the concentrations of metals, explosives, and PAHs at the source area. Locations of these samples are shown on Figure 6-12.



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BROWN AND CALDWELL

PROJECT: 130759-010
DATE: 4/3/2008
TITLE: Sampling Locations and Detected Results at Spur E
SITE: Benicia Arsenal, Benicia, California

Figure 6-12

Results of the new upwind soil sample (SPURECS003) were combined with the 2005 sample data. Table 6-7 shows the results, the difference between each upwind sample and the downwind sample. If an analyte was not reported above the MDL, then the MDL was used in the calculation of the percentage difference. The difference column shows a "+" sign when the downwind sample was detected at a higher concentration than the upwind sample. When the upwind soil sample was detected at a higher concentration than the downwind sample, a "-" sign is shown in the percent difference column. Figure 6-12 illustrates the location of the soil samples (with results) in relation to the approximately location of the former burn cage at Spur E.

Table 6-7. Spur E Composite Soil Sample Results

Detected Metals Concentrations (mg/kg)

Metal	Upwind Ambient Sample (CS001)	Upwind Ambient Sample (CS003)	Downwind Sample (DW)	Diff from CS001 to DW	Diff from CS003 to DW	BSL*	Ambient Concentration^	Sample Conc. Exceed Ambient Conc.?
Aluminum	36,000	18,700	33,500	-	+	1,680,000	28,300	Yes
Antimony#	3.91	<0.998	3.7	-	+	818	8.52	No
Arsenic#	9.05	15.1	7.92	-	-	439	16.9	No
Barium	198	169	175	-	+	124,000	224	No
Beryllium	0.711	0.559	0.679	-	+	3,690	0.829	No
Cadmium	0.207	0.216	0.18	-	-	1,010	0.866	No
Calcium	15,200	18,400	12,500	-	-	NE	NE	--
Chromium	42.3	25.4	42.5	+	+	448+	75.3	No
Cobalt	19.1	16.6	17.1	-	+	123,000	13.3	Yes
Copper#	58.3	68.3	57.5	-	-	75,800	40.5	Yes
Iron	44,500	38,200	42,000	-	+	613,000	52,600	No
Lead#	14.6	12.6	10.7	-	-	750	20.1	No
Magnesium	10,400	7,650	10,400	+	+	NE	NE	--
Manganese	833	477	598	-	+	32,300	1,070	No
Mercury	0.14	0.0671	0.0575	-	-	613	0.287	No
Nickel	39.7	38.2	40.3	+	+	40,900	38.3	Yes
Silver	0.962	<0.249	1.24	+	+	10,200	1.67	No
Sodium	343	150	293	-	+	NE	NE	--
Thallium	0.935	<0.499	0.877	-	+	135	0.85	Yes
Vanadium	94.9	65.6	87	-	+	14,300	92.2	Yes
Zinc#	95.4	95.6	94.5	-	-	613,000	126	No

* - Commerical/Industrial worker- noncarcinogen (FA/BC, 2002a)
+ - Commercial/Industrial worker – carcinogen (FA/BC, 2002a)
^ - FA/BC, 2004b
# - Metals that are typically associated with ammunition (Interstate Technology and Regulatory Council, 2003).
NE – not established.
+ = downwind sample concentration ≥ upwind sample concentration
- = downwind sample concentration < upwind sample concentration

Metals concentrations from the new upwind soil sample (SPURECS003) were mostly lower then the downwind soil sample (SPURECS002) and the other upwind soil sample (SPURECS001). Metals that are typically associated with ammunition are antimony, arsenic, copper, lead, and zinc (Interstate Technology and Regulatory Council, 2003). These metals were found in greater concentrations in the upwind sample than the downwind sample (except for antimony) and all of these results are below BSLs and below ambient concentrations except copper. Copper was identified above ambient concentrations in both the upwind soil samples and the downwind soil sample. Even though copper was found above ambient concentrations, the evidence of the other ammunition-related metals concentrations that were below ambient concentrations or BSLs, especially in the downwind sample, indicates that there is no significant impact from the former burning of ammunition in the burn cage at Spur E. Explosives were not reported above the MDL in any of these soil samples.

The locations of two direct push borings (SPUREGR001 and SPURGR002) were placed within the centerline of the former burn cage to determine the presence or absence of metals, explosives, and PAHs at the source area (Figure 6-12). Recent information from the landowner indicated that area may have been filled after the Army left so the objective of these borings was to collect a soil sample from native soil at the soil/fill interface. Soil cores from drilling indicated that the fill material is comprised of sandstone fragments and gravel within a matrix of light brown silt with sand and clay. Depth to the fill/native soil interface was encountered at 7.5 feet below grade in SPUREGR001 and 12 feet below grade in SPUREGR002. The difference of 4.5 feet in depth to the fill/native soil contact is accounted for in the change in elevation between the borings. Therefore, the fill/native contact is actually relatively flat in elevation. The native soil was comprised of dark gray clay with silt. Soil samples were collected at 7.5-8.0 feet bgs in SPUREGR001 and 12-12.5 feet bgs in SPUREGR002.

Explosives and PAHs were not reported above the MDLs. Cobalt and copper concentrations were detected slightly above their respective ambient concentrations but not above their BSLs (Table 6-8).

Table 6-8. Spur E Soil Sample Results

Detected Metals Concentrations (mg/kg)

Metal	SPUREGR001	SPUREGR001	BSL*	Ambient Concentration^	Sample Conc. Exceed Ambient Conc.?
Aluminum	23,000	21,800	1,680,000	28,300	No
Antimony#	<1.03	<1.03	818	8.52	No
Arsenic#	11.4	13.6	439	16.9	No
Barium	59.9	80.4	124,000	224	No
Beryllium	0.512	0.655	3,690	0.829	No
Cadmium	<0.103	<0.103	1,010	0.866	No
Calcium	5,040	3,990	NE	NE	--
Chromium	22.7	40.8	448+	75.3	No
Cobalt	14.8	13.7	123,000	13.3	Yes
Copper#	38	48.2	75,800	40.5	Yes
Iron	29,900	32,200	613,000	52,600	No
Lead#	5.42	7.57	750	20.1	No
Magnesium	6,830	5,930	NE	NE	--
Manganese	649	391	32,300	1,070	No
Mercury	<0.0335	<0.0334	613	0.287	No

Table 6-8. Spur E Soil Sample Results (continued)

Detected Metals Concentrations (mg/kg)

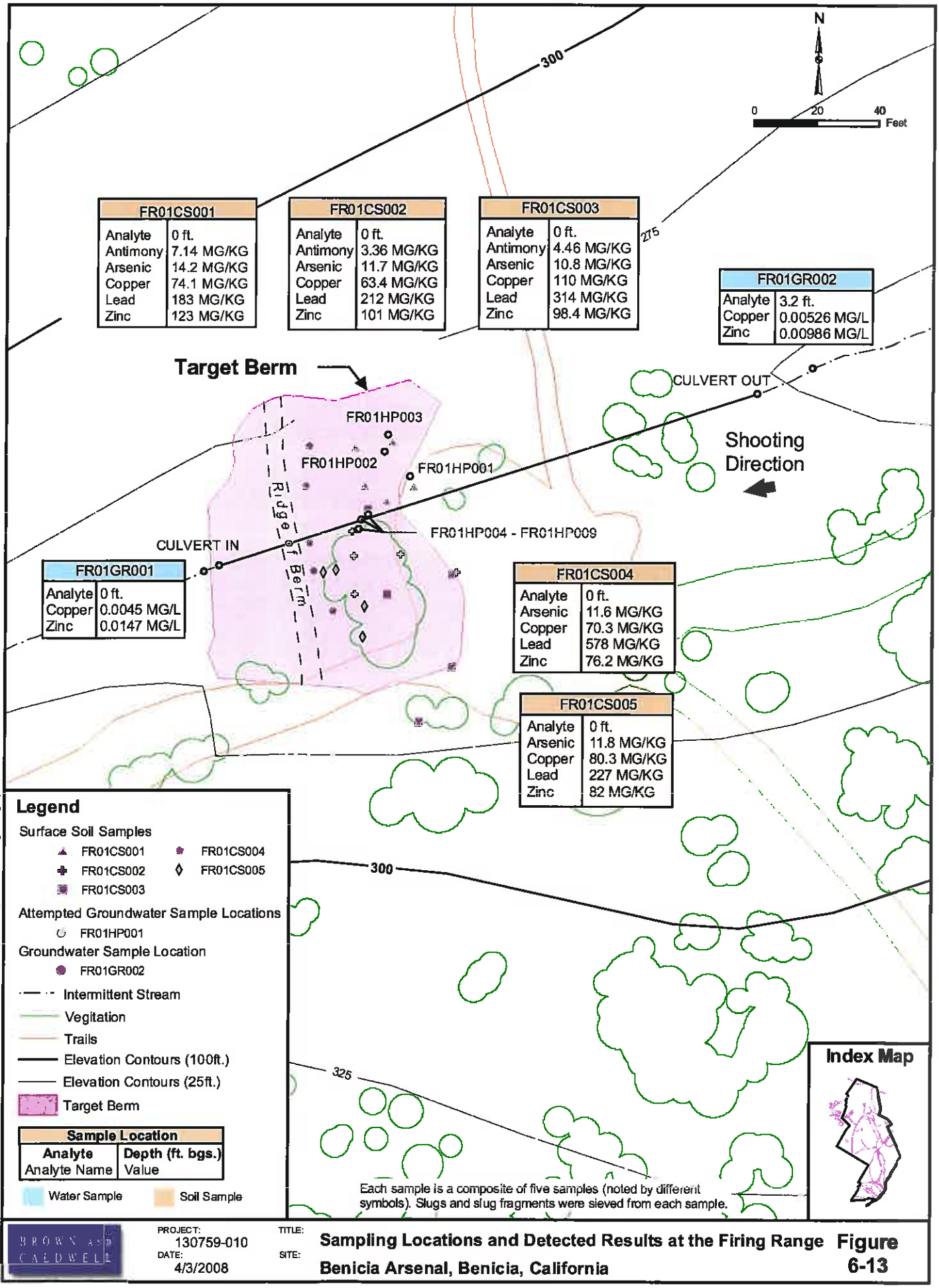
Metal	SPUREGR001	SPUREGR001	BSL*	Ambient Concentration^	Sample Conc. Exceed Ambient Conc.?
Nickel	23.7	37.8	40,900	38.3	No
Silver	<0.258	<0.257	10,200	1.67	No
Sodium	201	237	NE	NE	--
Thallium	0.635	0.684	135	0.85	No
Vanadium	68	63.6	14,300	92.2	No
Zinc#	69.7	71.3	613,000	126	No

* - Commerical/Industrial worker- noncarcinogen (FA/BC, 2002a)
+ - Commercial/Industrial worker – carcinogen (FA/BC, 2002a)
^ - FA/BC, 2004b
# - Metals that are typically associated with ammunition (Interstate Technology and Regulatory Council, 2003).
NE – not established.

No further DoD action is indicated at the former burn cage at Spur E because there is no indication of a source at depth where the former burn cage was located and the presence of metals are not at significant concentrations to indicate an impact.

6.8 Firing Range Target Berm

For the 2008 sampling effort at the firing range target berm target, a revised figure was created from the 2005 Expanded SI (BC, 2005a) that shows the direction of firing to the south-southwest (up the canyon to the west) (Figure 6-13). The outline of the target berm was revised based on aerial photos and then refined using GPS locations collected around the edge of the berm during the sampling effort on February 6, 2008. The locations of 2004 composite soil samples (FR01CS001 – FR01CS003) were also confirmed and were collected on the target face of the berm. Coverage of the 2004 composite soil samples on the target face was assessed at the site. There is a void where samples could not be collected on the berm due to a large bushes located on the south side of the berm. These bushes are pictured in top photo on the left side of the berm and in the bottom photo to the right of the vehicle. Because of these bushes and other bushes of significant size, their outlines using a recent aerial photo were added to Figure 6-13. Two more composite soil samples (FR01CS004 and FR01CS005) were collected on February 6, 2008 to cover the top side of the target face of the berm and within the bushes on the south side of the target face. The soil samples were analyzed for antimony, arsenic, copper, lead, and zinc, metals commonly associated with ammunition.



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BROWN AND CALDWELL

PROJECT: 130759-010
DATE: 4/3/2008
TITLE:
SITE:

Sampling Locations and Detected Results at the Firing Range
Benicia Arsenal, Benicia, California

Figure 6-13

During the sampling effort, water was flowing into a 12-inch diameter corrugated steel culvert at the west base of the berm, beneath the berm, beneath a parking area (see bottom photo), and then exiting the berm at the east face and out of a 24-inch diameter corrugated steel culvert. The distance between the inlet and the outlet was approximately 180 feet (Figure 6-13). The berm and the parking is comprised of fill material.

Six attempts (FR01HP004 – FR01HP009) were made with a hand auger to reach groundwater at the target face at the mid point of the valley. Rocks were encountered in every boring. The deepest boring was augered to 5 feet and could not penetrate the fill material.

Because of the age of the berm, at least 40 years old and the steel culvert likely the same age, there is a potential that surface water flowing through the culvert is in contact with the berm material. In order to determine if there was any impact, a water sample was collected on the inlet side, before the berm (FR01GR001) and another sample (FR01GR002) on the outlet side of the culvert. Locations of these samples are shown on Figure 6-13. The downstream sample (FR01GR002) was collected from a hand auger boring with a temporary casing installed to a depth of 8.2 feet bgs.

Detected metals concentrations from the Expanded SI and this investigation are shown on Figure 6-13 and in Table 6-9 for soil. All the sample results for the individual metals were below BSLs (Table 6-9).

Table 6-9. Composite Metals Concentrations in Soil from the Firing Range Target Berm

Concentrations in mg/kg

Metal	FR01CS001^	FR01CS002^	FR01CS003^	FR01CS004	FR01CS005	BSL*
Antimony	7.14J-	3.36J	4.46J	<1.05	<1.06	818
Arsenic	14.2	11.7	10.8	11.6	11.8	439
Copper	74.1	63.4	110	70.3	80.3	75,800
Lead	183	212	314	578	227	750
Zinc	123	101	98.4	76.2	82	613,000

- Commercial/Industrial worker- noncarcinogen (FA/BC, 2002a)
^ samples collected in 2004 and reported in the Expanded SI (BC, 2005a)
BSL = Benicia Screening Level - Commerical/Industrial worker- noncarcinogen (FA/BC, 2002a) *carcinogen

For water, detected metals concentrations are shown on Figure 6-13 and listed in Table 6-10. All the sample results for the individual metals were below MCLs (Table 6-10).

Table 6-10. Groundwater Concentrations at the Firing Range Target Berm

Concentrations in mg/L, unless otherwise noted

Metal	FR01GR001	FR01GR002	MCL
Antimony	<0.01	<0.01	0.006
Arsenic	<0.005	<0.005	0.05
Copper	0.0045	0.00526	1.3
Lead	<0.003	<0.003	0.015
Zinc	0.0147	0.00986	5 (secondary)

ESL = Environmental Screening Level. Groundwater is a current or potential drinking water source (RWQCB, 2005).
MCL = Primary maximum contaminant level (California Department of Health Services, 2004), unless otherwise noted.
NE = not established mg/L = milligrams per liter
µg/L = micrograms per liter

The target berm is located in a remote area and within the Valero buffer zone, where its access is controlled. After decades of precipitation, the analytical data indicates that metals are not mobilizing into the surrounding soil or surface water is not being impacted. Therefore, there is no significant threat to human health or the environment. No further DoD action is indicated for the firing range target berm.

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SECTION 7
CONCLUSIONS AND RECOMMENDATIONS

The Expanded SI recommended further investigation at nine sites because contaminants were not fully delineated and two sites were added to the investigation. This addendum to the Expanded SI presented data from six of those sites. Three sites could not be investigated (former Building 58(A), CL2, and the former septic tank at Building 194) because the landowners would not grant access to USACE and two sites (Building 27 UST and Building 161 UST) were investigated as part of the *Fuel Storage Tank Removal Action Addendum* (BC, 2006). Results for the six sites investigated in this addendum are summarized below.

7.1 Summary of Conclusions

- No significant DoD impact was reported at former drum storage area (Building 51) (Section 6.1).
- No significant impact was reported in soil gas from the underlying solvent-containing groundwater at the former locomotive building (Building 90) (Section 6.2).
- No significant DoD impact was reported at Building 101 (Section 6.3).
- No source or significant impact was reported at Building 168 (Section 6.4).
- TCE, cis-1,2-DCE and vinyl chloride were reported by another consultant to be present in groundwater at the alleged Post Dumpsite (Section 6.5). TCE was not detected in groundwater during this investigation, but the other signs of degradation, cis-1,2-DCE and vinyl chloride were present in a localized area. Biodegradation is occurring and is likely to continue. Diesel fuel and motor oil range hydrocarbons were reported in all of the shallow groundwater samples but a forensic analysis of the data indicated that a fraction of the result is due to natural sources.
- The diesel fuel and motor oil present in groundwater, approximately 300 feet downgradient of the AFV (Section 6.6) is not from the AFV but attributed to the area of the alleged Post Dumpsite.
- No significant DoD impact was reported at the former burn cage at Spur E (Section 6.7).
- No significant DoD impact was reported at firing range target berm (Section 6.8).

7.2 Recommendations – Additional Activities

Based on the findings of this investigation, suspected DoD and non-DoD sources appear to have impacted soil gas at Building 90. No further investigation is recommended at the former drum storage area (Building 51), former locomotive building (Building 90), and the former battery charge building (Building 101). However, a risk evaluation is recommended for all these sites.

Access restrictions to the AFV are preventing any additional investigation to determine if there is any impact to soil from residues left because of former Army activities.

7.3 Recommendations – No DoD Action Indicated (NDAI)

FUDS policy outlines four categories of NDAI (I, II, III, and IV). A Category I NDAI decision applies to the Preliminary Assessment (PA) process. Sites are classified as Category I NDAI where USACE has determined that the hazards found were not attributable to DoD. Sites that continue through the CERCLA process could be designated as Category II (after SI efforts), Category III (after Remedial Investigation/Feasibility Study or Engineering Evaluation/Cost Analysis efforts) and Category IV (after Removal Action [RA] efforts) NDAI decisions.

For the sites included in this report, a Category II NDAI determination is based on the following criteria:

- the source can not be attributed to DoD activities,
- metals concentrations in soil are below ambient or ESLs concentrations,
- soil and groundwater concentrations are less than ESLs or MCLs based on the location of the site, whether it is located in the lowlands or the highlands, and
- the only detected chemicals cannot be attributed to a DoD source (e.g. MtBE, Kinder Morgan fuel pipeline).

A summary of recommendations for Category II NDAI and additional activities are listed in Table 7-1.

Table 7-1. Summary of Recommendations for the Expanded SI Addendum Sites

Site	DoD Use	DoD Activity	Recommendation
51	Stable/ Maintenance	Maintenance	Risk Assessment
90	Locomotive Building	Repair/ Maintenance	Risk Assessment
101	Battery Charge Building	Steam cleaning battery cases	Risk Assessment
168	Bar Stock Building/Storage/Vehicle Shop for Motor Pool	Maintenance	NDAI
Popping pot (aka AFV)	Incineration	Disposal	Access restrictions prevent any additional investigation to determine if there is any impact to soil from residues left due to former Army activities.
Post Dumpsite	Dump	Disposal	NDAI
Spur E	Former Burn Cage	Burning of old ammunition within a concrete and bermed structure	NDAI
Firing range	Firing range target berm	Target practice into berm of soil	NDAI

SECTION 8
REFERENCES

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URS. 2004. Report for Soil Investigation at the Benicia Industries Property and Former Nike Missile Battery 10 Site, Concord to Sacramento Pipeline Project by URS Corporation, May 14.

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APPENDIX A

Background Details

PA Summary

DoD Site #
27
Area: I

☑ NDAI ☐ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-150-200	ROBBINS J REED	1063 JEFFERSON STREET

Year Bldg. Built 1861 **Year Bldg. Removed** Not applicable **Site Area (SqFt)** 7725

Current Land Use Mixed Use-Lower Arsenal

OPERATIONAL HISTORY

DoD Use Type
Housing

DoD Uses
Captain's Quarters

Secondary DoD Uses
Fuel Type

Post-Army Uses
Residence

Flooring
Wood

Disposal Information
None Listed

Activities (inside/outside)
Inside

Records Research Report Addenda Data
250-gallon fuel oil tank and burner installed in October 1928.

Records Research Report Comments
Located east of Buildings 25 and 26.

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	UST	US Army	250	Steel	Fuel oil	1928	1/5/2006	Unknown	☐

Uses:Fuel Storage

Comments: Unknown if tank is still present.

Furthest Stage of Environmental Investigation
RI

COMMENTS

A geophysical survey performed in December 2005 identified a fuel oil UST on the south side of the property. A 250-gallon steel UST was uncovered. The UST appeared to be in good condition with a few minor holes. Rainwater was removed from the tank. Soil was visibly impacted beneath the UST. Additional soil and sandstone was over excavated to a depth of 11 feet bgs. Residual hydrocarbons were reported in the fractures of the sandstone. There is no groundwater at the site. Therefore, there is no threat to groundwater.

PA Summary

DoD Site #
27
Area: I

RECOMMENDATIONS

No further DoD action is indicated for this site.

PA Summary

DoD Site #
51
Area: I

☐ NDAI ☑ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-150-100	WELSH RALPH T & ANN	932 GRANT STREET

Year Bldg. Built	1909	Year Bldg. Removed	Not applicable	Site Area (SqFt)	7192

Current Land Use Mixed Use-Lower Arsenal

OPERATIONAL HISTORY

DoD Use Type
Industrial/Manufacturing Shops

DoD Uses
Stable/Maintenance

Secondary DoD Uses
Unknown

Post-Army Uses
1968-1977: Office and storage of electrical supplies for Contra Costa Electric, Inc.

Flooring
Unknown

Disposal Information
Unknown

Activities (inside/outside)
Inside. Some storage was outside.

Records Research Report Addenda Data
Underground services cleared for construction in 1909. The building was located just north of Building 98. Following removal of mules in the 1940's, several 55-gallon drums filled with fuel for maintenance operations in the area were stored directly south of Building 51. According to Drawing 5091, dated 1 October 1951 (ref 288), plans were made to enclose a steam cleaning shed just behind Building 51. In this drawing, Building 51 was identified as a shop that included a hydraulic lift, a catch basin, an existing sump, and a drain trap. According to a 1957 inventory of buildings, the structure was being used by the Signal Corps for fork truck repair.

Records Research Report Comments
Record research indicates building was demolished, date not listed.

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	ASTs	US Army	55	Steel	Unknown Fuel	Unknown	Unknown	Unknown	☐

Uses: Fuel Storage

Comments: Following the removal of the mules from the stable in the 1940's, several 55-gallon drums filled with fuel for maintenance operations in the area directly south of Building 51.

Furthest Stage of Environmental Investigation
RI

PA Summary

DoD Site #
51
Area: I

COMMENTS

Unknown where fuel drums were stored and the type of maintenance activities occurred in the former building. Soil samples were collected during the 2004 Expanded Site Inspection investigation. PAHs were detected at 1.5 feet below ground surface at concentrations ranging from 0.0037 mg/kg (benzo(a)anthracene) to 0.34 mg/kg (pyrene). No petroleum hydrocarbons were detected above ESLs. Lead was reported at 798 mg/kg in the soil duplicate at 0.5 feet below ground surface. Groundwater was not encountered. During the 2006 Expanded SI Addendum, additional soil samples were collected to delineate and confirm the lead concentration. The additional soil samples contained lead at concentrations around 150 mg/kg. The previous sample that contained 798 mg/kg is considered an anomaly.

RECOMMENDATIONS

A risk assessment is recommended on the detected contaminates.

PA Summary

DoD Site #
58(A)
Area: I

☐ NDAI ☑ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-280-030	HISTORIC ARSENAL PARK LTD	900 JACKSON STREET

Year Bldg. Built 1900s **Year Bldg. Removed** 1932-1944 **Site Area (SqFt)** 2341

Current Land Use Mixed Use-Lower Arsenal

OPERATIONAL HISTORY

DoD Use Type
Industrial/Manufacturing Shops

DoD Uses
Small Arms Repair and Retinning/Boiler Room

Secondary DoD Uses
None Listed

Post-Army Uses
None Listed

Flooring
Unknown

Disposal Information
Unknown

Activities (inside/outside)
Inside

Records Research Report Addenda Data
In the early 1900's, Building 58(A) served as a facility for loading projectiles with explosive powder. The original boiler room was presumably was removed at about the time Building 56A was constructed in 1944. A letter to the Commanding Officer at the Arsenal, from the Inspector General, dated April 3, 1908 discussed the dust from the ramming of Explosive D into projectiles in the shop boiler room. The dust was described as "very disagreeable and must prove injurious to the energy of employees inhaling it for a long period" (ref 206). Jim Milburn recalled this building used as a boiler room during his tenure.

Records Research Report Comments
Removed by DoD. Building also used as a tinning plant and small arms repair. Over 1,100 armor-piercing shells were loaded, as were nearly 2,000 pounds of D.P Shells. Building shows up on a 1932 Map (ref 651).

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	AST or UST?	US Army	0	Unknown (likely steel)	Fuel oil	1900s	Pre 1944	No	☐

Uses:Fuel Storage

Comments: This tank was not listed in the Records Research Report. However, boiler houses required a fuel source. Based on other boiler houses during this time period, it was likely that a fuel tank was located in the area and may be the same one for B65(A).

Furthest Stage of Environmental Investigation
RI

PA Summary

DoD Site #
58(A)
Area: I

COMMENTS

Building 56A was built over the former Building 58(A). USACE conducted a geophysical survey in March 1999 to evaluate the thickness of Building 56A concrete slab and to plan for sampling activities in order to avoid underground piping and utilities. Underground utilities were not identified and the thickness of the slab could not be determined. This survey did not identify any features that would indicate the presence of former Building 58(A) or any associated UST for the boiler house (ref 1207). In 1999, USACE collected soil beneath the concrete floor of Building 56A in the area of the former Building 58(A). Hydrocarbons were reported in the soil samples. The source of the contamination could not be totally attributed to former Building 58(A) because an known source of TPH approximately 50 feet away at Building 154, a former UST site. Depth to groundwater is less than 5 feet. During the 2004 Expanded Site Inspection investigation, TPH and PAHs were laterally and vertically defined in soil and groundwater. Fuels and PAHs were below their respective ESLs/BSLs. Lead was detected in soil at 7560 mg/kg, above the BSL of 750 mg/kg and defined north , west, and east of boring B058ASB001. The landowner has refused USACE access to the property.

RECOMMENDATIONS

Additional investigation is recommended to determine the lateral extent of lead and in soil south of Expanded SI boring B058ASB001.

PA Summary

DoD Site #
90
Area: I

☐ **NDAI** ☑ **FAR** ☐ **IRR** ☐ **Potential OE**

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-140-440	BENICIA INTERNTL ASSOC	711 JACKSON STREET

Year Bldg. Built	1941	**Year Bldg. Removed**	Not applicable	**Site Area (SqFt)**	2343
Current Land Use	Mixed Use-Lower Arsenal				

OPERATIONAL HISTORY

DoD Use Type
Industrial/Manufacturing Shops

DoD Uses
Locomotive Building

Secondary DoD Uses
Fuel type

Post-Army Uses
1972-1975 Leased to Leon Bates to manufacture and distribute tile (ref 587). Operations at Building 165 and Building 90 included manufactured aluminum wheels for automobiles and installing fiberglass truck beds on pick-up trucks. The aluminum wheel process included pouring the aluminum into a form. This was done in Building 90. The aluminum wheel was then grinded and cleaned. The finished wheels were then sold and distributed.
The types of cleaning activities are unknown. Currently used as an industrial painting operation.

Flooring
Concrete

Disposal Information
If Building 90 was built as shown in the November 1940 drawing then the building had a had a drain and sump in the far corner of the pit. A locomotive pit in the east half of the building had drainage that included 55 feet of 6 inch vitrified clay pipe. The outlet of the drain line is unknown.

Activities (inside/outside)
Inside

Records Research Report Addenda Data
Constructed in 1941 to house the Arsenals two (2) diesel locomotives and associated maintenance facilities. A drawing for a Proposed Locomotive Building dated 8 November 1940 identified, in the center of the facility, a concrete locomotive pit that measured 4 feet deep and 4 feet wide.

Records Research Report Comments
One year after its completion, Building 90 proved inadequate for the storage and repair required by the Arsenals locomotives. A request was formally made for a suitable locomotive facility, plus additional storage track. Historical maps show that the first building was located south of Building 91, but was moved to its present location northwest of Building 156.

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	Locomotive pit?	US Army	0	Concrete	Unknown	Unknown	Unknown	Unknown	☐
Uses:Maintenance									

Comments: A proposed locomotive building shows a pit, located in the center of the facility. A sump and drain would have been associated with the pit (ref 625) (Appendix C1).

PA Summary

DoD Site #
90
Area: I

Vessel Inventory

Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army

Furthest Stage of Environmental Investigation
RI

COMMENTS
The location of a proposed locomotive building was approximately 90 feet south-southeast of Building 55 along the railroad tracks that align with the southern edge of Building 56A. Building 90 was actually built northwest of Building 156. There are no detailed drawings of Building 90, only this proposed plan. The actual location of the sump or drain lines from a pit are unknown. During the 2004 Expanded Site Inspection investigation, a boring was advanced downgradient of the building. Diesel fuel was reported at 97 ug/L in groundwater, below the ESL of 640 ug/L. Napthalene and PCE were detected at concentrations of 0.63 and 0.52 ug/L. Cis-1,2 DCE and TCE were detected at 13 and 2.4 ug/L. This contamination could be associated with the wheel manufacturing. A building is adjacent to the groundwater sample location, therefore, a soil gas sample was collected. The soil gas concentrations do not exceed their ESLs.

RECOMMENDATIONS
A risk assessment should be performed on detected contaminates.

PA Summary

DoD Site #
101
Area: I

☑ NDAI ☐ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-140-100	BENICIA INDUSTRIES INC	1200 ADAMS STREET

Year Bldg. Built 1942 **Year Bldg. Removed** 1973-1998 **Site Area (SqFt)** 7711

Current Land Use Industrial-Waterfront

OPERATIONAL HISTORY

DoD Use Type
Industrial/Manufacturing Shops

DoD Uses
Battery Charge Building

Secondary DoD Uses
Battery

Post-Army Uses
1973: Lutz Tire for a garage and repair facility (ref 418). 1973: De Van Robins for a metal shop (ref 418). Currently owned by Benicia Industries.

Flooring
Concrete

Disposal Information
None Listed

Activities (inside/outside)
Inside

Records Research Report Addenda Data
Date to vacate 7/13/62 (ref 713). SERVICE SHOPS: Battery Shop: acid tank (2) (3.5'x3'x4'), steam cleaner (ref 714). 30 June 1942 drawing shows a septic tank constructed of wood with an outflow trench across the road and under the railroad tracks to a point above high water (ref 619). Also identified are floor drains along with a hydraulic lift casing and a raceway approximately 26 feet long and 2 feet deep (ref 619). 1952; Brown and Caldwell identifies building operations including steam cleaning of battery cases (ref 405). The 1952 report also states that Building 101 is served by a 6-inch line that discharges at Point C directly into the Carquinez Strait. According to a disposition, dated 1 December 1953, the batteries were not identified as ordnance items because of deterioration. 6 May 1954, referenced 90 batteries (S/N 3B65L)(not an automotive type) found to be salvage. Does not list disposal location. According to a 1945 and 1954 Arsenal maps, Building 101 was named a "Battery Charging" Building (ref 650 and 646, respectively).

Records Research Report Comments
Demolished by Benicia Industries. The sewage line in front of Building 101 repeatedly clogged according to the records research report. The building had a septic tank with an outflow to a point above high water. Floor drains existed along with a hydraulic lift casing and a raceway (approximately 26 feet long and 2 feet deep).

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	Septic Tank	US Army	0	Wooden	Sewage	1942	Unknown	Unknown	☐

Uses:Septic Tank

Comments: a drawing dated 30 July 1942 (ref 619)(Appendix C1) identifies the location of a septic tank east of the building. The tank was to

DoD Site #
101
Area: I

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
	be constructed of wood with an outflow trench running across road and under railroad tracks, to a point above hi water.								
Vessel # 2	AST	US Army	0	Unknown	Acid	Pre-1957	Unknown	Unknown	☐
Uses: Dip Tank									
Comments: Pre-1957 based on Reference 714, Equipment list for new facility.									
Vessel # 3	AST	US Army	0	Unknown	Acid	Pre-1957	Unknown	Unknown	☐
Uses: Dip Tank									
Comments: Pre-1957 based on Reference 714, Equipment list for new facility.									

Furthest Stage of Environmental Investigation

RI

COMMENTS

Building operations include steam cleaning of battery cases. Wastes flowed into floor drains. During the 2004 Expanded Site Inspection investigation, two borings were advanced downgradient of the building's foundation. Low to trace concentrations of metals and fuels were reported in groundwater. These concentrations do not exceed their respective RWQCB ESLs and indicate no significant DoD impact. During the 2006 Expanded SI Addendum, a soil sample was collected near the bottom of a drain in the concrete foundation. It was analyzed for lead. The concentration of lead did not exceed the ESL.

RECOMMENDATIONS

No further DoD action is indicated (NDAI) for this site.

PA Summary

DoD Site #
111
Area: M

☑ **NDAI** ☐ **FAR** ☐ **IRR** ☐ **Potential OE**

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-140-050	BENICIA CITY	

Year Bldg. Built	Pre-1945	**Year Bldg. Removed**	1957-1961	**Site Area (SqFt)**	1728

Current Land Use Industrial-General

OPERATIONAL HISTORY

DoD Use Type
Heavy Equipment Yard

DoD Uses
Heavy Equipment Shop

Secondary DoD Uses
Unknown

Post-Army Uses
None Identified

Flooring
Unknown

Disposal Information
None Identified

Activities (inside/outside)
Outside/Inside

Records Research Report Addenda Data
(According to ref 167, the building was present in 1957). Presumably, building was demolished by DoD prior to 1961, because the buildings is not listed in the 1961 Facility Data Sheet (ref 196), and no building remains today.

Records Research Report Comments
The third sanitary line handled waste from Buildings 50, 111, and 136 and discharged at Point D (ref 405). Building 136 is shown attached to the east side of Building 111. Records research offered little detail regarding operations in the heavy equipment yard.

ENVIRONMENTAL SUMMARY

Furthest Stage of Environmental Investigation
SI

COMMENTS

Records Research is unclear on site activities. Unknown what happened to the shop. During the 2004 Expanded Site Inspection investigation, downgradient groundwater and soil gas samples were collected. The only analyte detected was MTBE at a concentration of 0.32 ug/L in groundwater. The army never used fuel with MTBE, therefore, this is a post-Army release. A geophysical survey was performed on behalf of USACE on 18 February 2005 to determine if the Army tanks were USTs. The area was surveyed with vertical magnetics, line-locators and ground penetrating radar. The area surveyed was around the footprint of the existing building. The geophysical survey found a reinforced concrete pad, some anomalies that were confirmed by GPR to likely be buried debris, and a buried petroleum pipeline. Otherwise, there were no other anomalies that would indicate the presence of any USTs in this area.

PA Summary

DoD Site #
111
Area: M

RECOMMENDATIONS

No additional DoD action is indicated.

PA Summary

DoD Site #
161
Area: I

☐ **NDAI** ☑ **FAR** ☐ **IRR** ☐ **Potential OE**

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-280-010	HISTORIC ARSENAL PARK LTD	920 JACKSON STREET

Year Bldg. Built Pre-1945 **Year Bldg. Removed** 1981-1998 **Site Area (SqFt)** 11200

Current Land Use Mixed Use-Lower Arsenal

OPERATIONAL HISTORY

DoD Use Type
Industrial/Manufacturing Shops

DoD Uses
Motor Cleaning Building/Steam Cleaning/Paint Spray/Fuel Storage

Secondary DoD Uses
Fuel/Paint/Fuel Storage Facilities

Post-Army Uses
1967-1981: International Manufacturing Company for office space and a facility for the manufacture and storage of pumps, water systems, swimming pools, automobile wheels and accessories (ref 425, 587, 702).

Flooring
Concrete

Disposal Information
Drawing 4619, dated 6 October 1949 identifies service pit in the floor of paint booth and the sump connected to the storm drain along the eastern side of the building.

Activities (inside/outside)
Inside and Outside

Records Research Report Addenda Data
A drawing dated 31 May 1944 (ref 609) shows a kerosene storage tank (adjacent to the north side of the building), paint spray booth, degreaser, steam cleaner, storm drains, catch basins and underground gas lines (ref 609). Record Research identified a dip tank line, stripping tank, acid dip tank (2), water dip tank (2), neutralizer tank (ref 714). Drawing 4619, dated 6 October 1949 identifies service pit in the floor of paint booth. The pit measured 10x3.5 feet and had a 6-inch drain that ran directly to the storm drain. A 1952 survey by Brown and Caldwell indicated the building operations included steam cleaning of large components, dipping and painting (ref 405). Guide Sheet A dated 1957 stated the building had been constructed in a temporary-type manner on reclaimed tidelands without pilings. Drawing 6105, dated 28 August 1958 identifies 4 catch basins and 4 drain trenches proposed as part of the building rehabilitation. Drawing 6270, dated 22 Sept. 1959 identifies boiler house, spray paint booth, and proposed drying oven. 1962 vacate date (ref 713).

Records Research Report Comments
Demolished by Benicia Industries. Temporary construction of building resulted in uneven settling, creating excessive stresses in trussed members to the extent that numerous failures occurred. Floors sank so badly that the floor drains could not operate (ref 54). A 1952 report indicated that there were sewer system deficiencies in the area of Buildings 56, 57, 89, and 161 which frequently needed rodding to keep the sewage lines open. Drain trenches and foundation remain.

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	UST	US Army	3000	Steel	Kerosene,	1945	1/5/2006	Unknown	☐

DoD Site #
161
Area: I

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
					Diesel?				
	Uses:Fuel Storage								
	Comments: Assumed size based on reports of a similar kerosene tank at adjacent Building 103 that was not found in 1999 but likely this tank at Building 161 (FA/BC Ref 1077). Pre-1944 based on Reference 609, 1944 Map								
Vessel # 2	Trench	US Army	0	Unknown	Wastes	1945 -1958	Present	Unknown	☐
	Uses:Drain Trench								
	Comments: Constructed with a catch basin at each end. Still exists. Pre-1958 based on Reference 610, 1958 Drawing.								
Vessel # 3	Trench	US Army	0	Unknown	Wastes	1945 -1958	Present	Unknown	☐
	Uses:Drain Trench								
	Comments: Constructed with a catch basin at each end. Still exists. Pre-1958 based on Reference 610, 1958 Drawing.								
Vessel # 4	Trench	US Army	0	Unknown	Wastes	1945 -1958	Present	Unknown	☐
	Uses:Drain Trench								
	Comments: Constructed with a catch basin at each end. Still exists. Pre-1958 based on Reference 610, 1958 Drawing.								
Vessel # 5	Trench	US Army	0	Unknown	Wastes	1945 -1958	Present	Unknown	☐
	Uses:Drain Trench								
	Comments: Constructed with a catch basin at each end. Still exists. Pre-1958 based on Reference 610, 1958 Drawing.								
Vessel # 6	Pit	US Army	0	Unknown	Wastes	Pre-1949	Present	Unknown	☐
	Uses:Service Pit								
	Comments: Still exists. Pre-1949 based on Reference 612, 1949 Drawing.								
Vessel # 7	AST	US Army	0	Unknown	Solvents	Pre-1944	Unknown	Unknown	☐
	Uses:Degreasing Dip Tank								
	Comments: Pre-1944 based on Reference 609, 1944 Drawing.								
Vessel # 8	Booth	US Army	0	Unknown	Paints	Pre-1944	Not present	Unknown	☐
	Uses:Paint Booth								
	Comments: Pre 1944 based on Reference 609, 1944 Drawing.								
Vessel # 9	AST	US Army	0	Unknown	Unknown	Pre-1957	Not present	Unknown	☐
	Uses:Stripping Tank								
	Comments: Pre-1957 based on Reference 714, Equipment List for New Facility. Tank is listed as being 3' deep.								
Vessel # 10	AST	US Army	0	Unknown	Water	Pre-1957	Not present	Unknown	☐
	Uses:Dip Tank								
	Comments: Pre-1957 based on Reference 714, Equipment List for New Facility. Tank is listed as being 3' deep.								
Vessel # 11	AST	US Army	0	Unknown	Water	Pre-1957	Not present	Unknown	☐
	Uses:Dip Tank								
	Comments: Pre-1957 based on Reference 714, Equipment List for New Facility. Tank is listed as being 3' deep.								
Vessel # 12	AST	US Army	0	Unknown	Acid	Pre-1957	Not present	Unknown	☐
	Uses:Dip Tank								
	Comments: Pre-1957 based on Reference 714, Equipment List for New Facility. Tank is listed as being 3' deep.								
Vessel # 13	AST	US Army	0	Unknown	Acid	Pre-1957	Not present	Unknown	☐
	Uses:Dip Tank								
	Comments: Pre-1957 based on Reference 714, Equipment List for New Facility. Tank is listed as being 3' deep.								

PA Summary

DoD Site #
161
Area: I

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 14	AST	US Army	0	Unknown	Unknown	Pre-1957	Not present	Unknown	☐

Uses:Neutralizer Tank

Comments: Pre-1957 based on Reference 714, Equipment List for New Facility. Tank is listed as being 3' deep.

Furthest Stage of Environmental Investigation

RI

COMMENTS

Service pit below paint booth had a drain going directly to the storm drain. The site is being used beneficially. During a site visit by Brown and Caldwell in 2003, the area is being used for storage of heavy equipment. The concrete was heavily stained with oils, especially in the area of several catch basins. The service pit was partially filled with water. In June 2004, a tank fill pipe was located and waste oil found in the tank. The tank limits were not determined due to interference of a concrete surface during the geophysical survey. Downgradient groundwater samples reported fuels and lead below their respective BSLs and ESLs. TCE and its degradation products were detected in groundwater. In January 2006, a 3,400-gallon single-walled steel tank was uncovered. The UST appeared to be is good condition with a few minor holes. Rainwater and residual fuels/waste oil-like substance was removed from the tank. Soil was visibly impacted on the west side of the excavation. Four soil borings were advanced around the impacted soil and delineated the impact.

RECOMMENDATIONS

A risk assessment is recommended for the residual solvents and a remedial action for the remaining petroleum compounds that exceed decision criteria.

PA Summary

DoD Site #
168
Area: I

☑ NDAI ☐ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-140-450	BENICIA INDUSTRIES	981 BAYSHORE ROAD

Year Bldg. Built	1945	Year Bldg. Removed	Not applicable	Site Area (SqFt)	8500

Current Land Use Industrial-Waterfront

OPERATIONAL HISTORY

DoD Use Type
Industrial/Manufacturing Shops

DoD Uses
Bar Stock Building/Storage/Vehicle Shop for original Motor Pool

Secondary DoD Uses
Fuel type

Post-Army Uses
1973: Benicia Lumber Mill for storage and distribution of building materials (ref 418). 1974: Chrysler Motor Company for automobile storage. Current use unidentifiable. 1977: leased to Chrysler Corporation for distribution of Dodge Colt automobiles (ref 702). Mazda rented 8500 square feet for auto processing stated in a 1980 appraisal document (ref 576). Current use is storage and a sign maker.

Flooring
Concrete

Disposal Information
Unknown

Activities (inside/outside)
Unknown

Records Research Report Addenda Data
None Listed

Records Research Report Comments
Historical records identify this building and Building 167 as vehicle shops. Storage and packaging facility adjacent to the original motor pool. Records did not indicate whether maintenance work was performed.

ENVIRONMENTAL SUMMARY

Furthest Stage of Environmental Investigation
SI

COMMENTS

Unknown if maintenance work occurred in this building. During the 2004 Expanded Site Inspection investigation, two borings were advanced. Diesel fuel was detected in groundwater downgradient of the building at a concentration of 100 ug/L, below the ESL of 640 ug/L. Diesel fuel was also reported at another location near Building 168 (SWAMPBHP002) at a concentration of 270 ug/L. No other solvents or fuels were detected. Five additional borings were advanced during the 2006 Addendum investigation. No significant impact was reported in the additional groundwater samples collected.

RECOMMENDATIONS

No further DoD action is indicated (NDAI) for this site.

PA Summary

DoD Site #
194
Area: W

☐ NDAI ☑ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-110-260	BENICIA INDUSTRIES INC	

Year Bldg. Built	Circa 1950s	**Year Bldg. Removed**	By Oct 1954	**Site Area (SqFt)**	1897
Current Land Use	Industrial-General				

OPERATIONAL HISTORY

DoD Use Type
Sewer and Drainage Systems

DoD Uses
Septic Tank

Secondary DoD Uses
Unknown

Post-Army Uses
None Identified

Flooring
Unknown

Disposal Information
None Identified

Activities (inside/outside)
Inside

Records Research Report Addenda Data
Per Drawing 5765, dated 28 Oct 1954, septic tank Building 194 had been abandoned (ref 606). Building appears on a 1954 map (ref 646).

Records Research Report Comments
4,000-gallon capacity

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	Septic Tank	US Army	4000	Unknown	Sewage	1950s	Pre 1954	No	☐
Uses:Septic Tank									
Comments:									

Furthest Stage of Environmental Investigation
NONE

COMMENTS

Located near the NIKE Missile Repair and Support Facilities. The tank was abandoned. Research of this septic tank indicates that it was abandoned by October 1954 (prior to the decommissioning and closure of the former Arsenal in 1964). Therefore the septic tank was not beneficially used and is considered an eligible property for investigation under the FUDS Program pursuant to Chapter 3, Section 7.2.3.5 of USACE Engineering Circular EC-200-3-7, DERP-FUDS Program Manual, dated 30

DoD Site #
194
Area: W

September 1999. The current landowner was in the process of selling the property at the time of the Expanded Site Inspection (2004) and were reluctant to agree to a Right-of-Entry at the time. USACE made another attempt with the new landowner in 2005. The landowner was unwilling to grant USACE access.

RECOMMENDATIONS

Additional investigation is recommended at this site to determine potential groundwater impacts from the possible discharge into the septic tank from the former NIKE missile repair and support facilities (CL1).

PA Summary

DoD Site #
CL2
Area: W

☐ NDAI ☑ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-090-300	DRESSER-RAND COMPANY	

Year Bldg. Built 1942 **Year Bldg. Removed** 1962-1998 **Site Area (SqFt)** 494

Current Land Use Industrial-General

OPERATIONAL HISTORY

DoD Use Type
NIKE Missile Repair and Support Facilities

DoD Uses
Boiler House

Secondary DoD Uses
None Listed

Post-Army Uses
None Identified

Flooring
Concrete Foundation

Disposal Information
None Identified

Activities (inside/outside)
Inside

Records Research Report Addenda Data

On 16 November 1955, a request for the demolition of the 3,180-gallon UST was approved by the installation Commander. The disposal was recommended due to the excessive maintenance cost of the UST (ref 74), which was later replaced with a 5,000-gallon capacity above-ground storage tank (AST) placed adjacent to Building CL2 (ref 605) and (ref 167). According to a 1962 Building Zone List, CL2 was scheduled with an approximate date to vacate of December 1962.

Records Research Report Comments

Constructed to provide heat to Building CL1. Located 100 feet west of the western corner of Building CL1, Building CL2 was constructed on a concrete foundation with 8-inch concrete walls and a concrete slab roof; the building covered an area of 494 ft2 and contained one oil boiler (ref 196). To supply fuel oil to the boiler, a 3,180-gallon underground storage tank (UST) was installed near Building CL2 at the time of the building's construction (ref 74) in 1942. The records search indicates that the building is no longer present. The records did not indicate when the building was demolished.

ENVIRONMENTAL SUMMARY

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 1	UST	US Army	3180	Unknown	Fuel Oil	1940s	1955	None	☐

Uses:Fuel Storage

Comments:

PA Summary

DoD Site #
CL2
Area: W

Vessel Inventory

	Type	Original Owner	Size (Gal.)	Construction	Commodity Stored	Date Installed	Date Removed	Post-Army	Installed Post-Army
Vessel # 2	AST	US Army	5000	Unknown	Fuel Oil	1955	Unknown	Unknown	☐

Uses:Fuel Storage
Comments:

Furthest Stage of Environmental Investigation
NONE

COMMENTS
Status of the UST is unknown. Right-of-Entry was not granted to USACE to determine the status of the UST.

RECOMMENDATIONS
A geophysical survey is recommended to determine the status of the UST. The property owner denied access. Until USACE is granted access to the property, no further USACE actions can be conducted at this site.

PA Summary

DoD Site #
Firing range/Demolition area
Area: S

☑ NDAI ☐ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-110-460	VALERO REFINING COMPANY CALIF	

Year Bldg. Built	Circa 1942	**Year Bldg. Removed**	Post 1944	**Site Area (SqFt)**	772471

Current Land Use Industrial-Limited

OPERATIONAL HISTORY

DoD Use Type
Demolition and Firing Range

DoD Uses
Demolition of Ammunition/ Test Firing of .45 and .50 Caliber Weapons

Secondary DoD Uses
None Listed

Post-Army Uses
Valero buffer zone

Flooring
Paved

Disposal Information
Identified as demolition area

Activities (inside/outside)
Outside

Records Research Report Addenda Data
Identified as a demolition area on 1942 map, firing range also depicted.

Records Research Report Comments
Targets for the firing range were set up on the north side of the end of a circular paved area. The circular area is the end of a road that once connected this area (north of State highway 21, now called East 2nd Street) to the rest of the Arsenal; USACE found .45 caliber projectiles in the area during a 1994 site visit, which suggests that the area had been used as a firing range. USACE investigations did not find evidence of demolition activities but, using a magnetometer for a surface survey, got several hits in the area south of the paved circle (ref 544). While on site visit Earth Tech located a piece of OE scrap in the buffer zone area. The scrap was identified as a rotating band for a 155 MM Howitzer round (ref 722).

ENVIRONMENTAL SUMMARY

Furthest Stage of Environmental Investigation
SI

COMMENTS

The circular paved area was investigated as part of an Arsenal-wide OE investigation and removal effort conducted by USACE in 2001 (ref 1138). A site visit was conducted and the remnants of the target butt is heavily vegetated but appears to be present. There are possible HTRW related issues in regards to the target butt. During the 2004 Expanded Site Inspection investigation, borings were advanced. Groundwater was not encountered. Soil samples were collected and metal concentrations are below BSLs and do not indicate a significant DoD impact.

RECOMMENDATIONS

No further DoD action is indicated.

PA Summary

DoD Site #

Firing range/Demolition area

Area: S

PA Summary

DoD Site #
Popping pot (formerly the Incinerator)
Area: M

☐ **NDAI** ☑ **FAR** ☐ **IRR** ☐ **Potential OE**

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-120-010	VALERO REFINING COMPANY CALIF	
CAL TRANS Right-of-Way	STATE OF CALIFORNIA	

Year Bldg. Built	Unknown	**Year Bldg. Removed**	Not applicable	**Site Area (SqFt)**	121996
Current Land Use	Industrial-General				

OPERATIONAL HISTORY

DoD Use Type
Disposal Areas

DoD Uses
Incineration

Secondary DoD Uses
Unknown

Post-Army Uses
None Identified

Flooring
Soil

Disposal Information
None Identified

Activities (inside/outside)
Unknown

Records Research Report Addenda Data
A Utility map for the Interstate 680 Benicia-Martinez bridge on-ramp construction, dated October 1958, shows an incinerator adjacent to Quarry 2 (ref 720).

Records Research Report Comments
No other information about an incinerator in this area was found during the records research.

ENVIRONMENTAL SUMMARY

Furthest Stage of Environmental Investigation
SI

COMMENTS

This has also been called the Armored Fighting Vehicle (AFV) by the USACE. Currently, the area is part of the Benicia-Martinez Bridge Expansion project. 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. Popping pot operations were periodically stopped and the burned debris dumped into a burial pit near the tank body. In November 2002, the AFV is buried with approximately 8 feet of fill material because of the construction activities in the area. This site was investigated as part of an Arsenal-wide OE investigation and removal effort conducted by USACE in 2001 (ref 1138). See Section 2 of the PA text. During the 2004 Expanded Site Inspection investigation, groundwater was collected approximately 300 feet downgradient of the AFV. Diesel fuel and motor oil was present in shallow and deep groundwater

DoD Site #

Popping pot (formerly the Incinerator)

Area: M

samples. In the deep groundwater sample diesel fuel and motor oil concentrations (90 and 160 ug/L respectively) were detected. These concentrations are below the ESLs of 640 ug/L. The shallow groundwater sample collected contained 910 ug/L diesel fuel and 3000 ug/L motor oil, both above the ESLs.

RECOMMENDATIONS

Diesel fuel and motor oil in groundwater downgradient of the AFV are attributed to the Post Dumpsite. Access restrictions prevent further investigation of DoD impact to soil.

PA Summary

DoD Site #
Post Dumpsite (formerly Landfill 3)
Area: M

☑ NDAI ☐ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-130-040	BENICIA CITY	1158 BAYSHORE ROAD
0080-130-060	BENICIA CITY	
0080-130-090		
0080-130-100		

Year Bldg. Built 1940 **Year Bldg. Removed** Not applicable **Site Area (SqFt)** 1247923

Current Land Use Industrial-Waterfront

OPERATIONAL HISTORY

DoD Use Type
Disposal Areas

DoD Uses
Dumpsite

Secondary DoD Uses
Currently used a storage area for cars.

Post-Army Uses
Humble Oil was given permission in 1968 to use the north end of Area M for the deposit of dredging and construction spoils. Currently used by Toyota Motor Sales Co. for open storage of imported vehicles (ref 544).

Flooring
Asphalt (currently)

Disposal Information
This landfill was in operation from 1940 to 1964 and may have received a variety of wastes to be burned and/or buried.

Activities (inside/outside)
Outside

Records Research Report Addenda Data
An interview with a former Arsenal employee indicates that this area also received drums of industrial waste including acids, metal-cleaning corrosives, DDT, high-octane gasoline, and every type of waste generated at the Arsenal (ref 1000). According to the 1961 Facility Data Sheet, "metal cleaning corrosives from tanks" were "disposed of in filled land area." (ref 196).

Records Research Report Comments
The landfill was reportedly in operation from 1940 through 1964, located near Suisun Bay. A graded outline in aerial photographs consists of 20 acres. It is suspected that the disposal and burning of scrap lumber associated with the Carpenter Shop facilities in Area I, and pilings and other waste material from repairs made to the Arsenal Wharf (ref 155) were placed at landfill. Thousands of gallons of gasoline were reportedly burned in the landfill pits (Bailey, The landfill was reportedly in operation from 1940 through 1964, located near Suisun Bay. A graded outline in aerial photographs consists of 20 acres. It is suspected that the disposal and burning of scrap lumber associated with the Carpenter Shop facilities in Area I, and pilings and other waste material from repairs made to the Arsenal Wharf (ref 155) were placed at landfill. Thousands of gallons of gasoline were reportedly burned in the landfill pits (Bailey, 1997). Based on aerial photographs, a large area at the north end of the site, that extends north to the drainage canal, and identified as the Area 10 Dump Site in the 1997 USACE Archives Search Report (ref 544), does not appear to have been used for landfill purposes. According to the aerial photographs, only a graded area. Circular pits are shown on a 1952 aerial photograph and may represent burn pits. The graded area extends to what was identified as Area 10 but does not include it. The area (including much of the area identified as Area 10) was then referred to as Spoils Area 3 (ref 439). Area is now largely paved, with several buildings constructed over the former 1997). Based on aerial photographs, a large area at the north end of the site, that extends north to the drainage canal, and identified as the Area 10

PA Summary

DoD Site #

Post Dumpsite (formerly Landfill 3)

Area: M

Dump Site in the 1997 USACE Archives Search Report (ref 544), does not appear to have been used for landfill purposes. According to the aerial photographs, only a graded area. Circular pits are shown on a 1952 aerial photograph and may represent burn pits. The graded area extends to what was identified as Area 10 but does not include it. The area (including much of the area identified as Area 10) was then referred to as Spoils Area 3 (ref 439). Area is now largely paved, with several buildings constructed over the former fill area.

ENVIRONMENTAL SUMMARY

Furthest Stage of Environmental Investigation

SI

COMMENTS

Additional research was conducted by Brown and Caldwell to determine if the current landowner had any knowledge of encountering any refuse materials in the area of a suspected landfill, also known as Area 7 and Open Storage (OS) Area 27. Brown and Caldwell interviewed the current landowner, Benicia Industries (BII) and a former employee, Mr. Don Heinitz. Mr. Heinitz has over 20 years as an engineer with BII. He also worked in the Benicia area for PG&E prior to working for BII. He was the engineer for road construction and was also involved with installing utility poles as well as digging ditches. Mr. Heintz never encountered any refuse during any excavation for repair of utilities on installing utility poles in this area. He did encounter timbers at approximately 3 to 4 feet below grade that are placed on top of the former clayey marsh with fill placed on top of the timbers. According the USACE, this was common practice. Both Mr. Heinitz and the current landowner state that water beneath this area rises and falls with the tide. Based on the lack of credible evidence of any landfilling operations, this area was not used as a landfill. There are circular pits shown on aerial photos that may have been the location of reported burn pits. A geophysical investigation conducted in March 2005 determined wastes are not buried at the Post Dumpsite. There is no known Army source of the petroleum hydrocarbons or the parent chemical for cis-1,2-DCE (TCE or PCE). Additionally, the lack of the parent solvent in groundwater indicates that there is no source.

Further analysis was performed to try to accurately depict the information available for this area. The information recorded in historical documents and interviews about this area is listed below in chronological order:

- 1928 aerial photograph (RRR, Appendix A-2): The area is undisturbed marshlands.
- 1945 aerial photograph (RRR, Appendix A-2): The area is partially filled in (closest to the railroad trestle crossing the Carquinez Strait). Dumping is not apparent.
- September 7, 1945 Arsenal Map (RRR, ref 650): There are no structures or activity noted on this map in this area.
- 1947 aerial photograph (RRR, Appendix A-2): Entire area is disturbed and filled. No other activity present. The activity seen on the 1945 aerial photo is not present.
- 1950s (exact date unknown): Benicia Bomber article about money-saving operations by the Arsenal Carpenter Shop states "small unusable lumber scraps are hauled to the sanitary fill on the bay shore road for open burning." (RRR, ref 155,pg 5).
- 1952, 1957, 1959, and 1962 aerial photographs (RRR, Appendix A-2): The first occurrence of OS27 (paved area with unknown materials neatly stored). Two black circular areas are present at the north end of the site. These maybe the burn pits mentioned in the Mr. Leroy Bailey interview (see below) and referenced as the areas of open burning in the Benicia Bomber article. Dumping is not apparent. The area surrounding Open Storage Area 27 is filled in for access. The filled area reaches near the Carquinez Strait in some places.
- September 7, 1954: General Map. "Post Dump" marked on map as "27-A" south of "27" and adjacent to temporary building "T-227" (RRR, ref 646). The numbers refer to "Open Surfaced Areas". Some of them are also known as Open Storage (OS) Areas. For example, OS-27.
- May 10, 1961: Facility Data states "Metal cleaning corrosives removed from tanks and disposed of in filled land area" (RRR, ref 196, pg 9).
- 1973 aerial photograph (RRR, Appendix A-2): Army gone, area defined by dirt roads, circular areas not present.
- 1978 aerial photograph (RRR, Appendix A-2): Area completely paved.
- 1997 Mr. James Milburn Interview: Mr. Milburn, a former Arsenal employee from 1941 to 1963 stated: "After the clocktower dumpsite was closed (Fillsite 2), a larger dumpsite was opened near the bay. It was used from the late 1940s until 1962." (Archive Search Report Supplemental, USACE, 1997).
- 1997 Mr. Leroy Bailey Interview (not found, text below from RRR, pg 2M-17): Mr. Bailey, former Arsenal employee, indicated that this area received industrial waste including acids, metal-cleaning corrosives, DDT, high-octane gasoline, and every type of waste generated at the Arsenal. He also indicates that thousands of gallons of gasoline was burned in pits.
- 2003 Mr. Don Heinitz Interview: Mr. Heinitz, former chief engineer for Benicia Industries, Inc. for 20 years, never encountered any refuse during any excavation to repair or install utilities in this area. Wood timbers were found.

PA Summary

DoD Site #

Post Dumpsite (formerly Landfill 3)

Area: M

In summary, the area was a dumpsite of metal cleaning corrosives that also contained residual quantities of heavy metals from approximately 1954 to 1961. At the north end of the area, burning of wood was also performed in two circular pits during the same time frame. During the 2004 Expanded Site Inspection investigation, several groundwater samples were collected. Metal results do not indicate a significant DoD impact. However, another consultant identified TCE and diesel fuel in groundwater in the southern portion of the Post Dumpsite.

RECOMMENDATIONS

No further DoD action is recommended

PA Summary

DoD Site #
Spur E
Area: R

☑ NDAI ☐ FAR ☐ IRR ☐ Potential OE

SITE DESCRIPTION

Parcel # (APN)	Owner Name	Site Address
0080-010-050	DAVID STEPHEN F	

Year Bldg. Built	1944	**Year Bldg. Removed**	1948-1954	**Site Area (SqFt)**	31554

Current Land Use Industrial-Limited

OPERATIONAL HISTORY

DoD Use Type
Revetment Area

DoD Uses
Revetment and Burn Cage Area

Secondary DoD Uses
Unknown

Post-Army Uses
Industrial building site. Storage area of numerous vehicles, boats, scrap metal, concrete, old equipment, a railroad car, storage containers, etc.

Flooring
Unknown

Disposal Information
Ammunition was burned in the cage and set on fire with kerosene.

Activities (inside/outside)
Inside/Outside

Records Research Report Addenda Data
None Listed

Records Research Report Comments
According to a former Arsenal employee (Mr. Bailey), burn cages were constructed with concrete lower walls and a concrete floor, with mesh screening upper walls and roof. Most of the cages were square or rectangular. A Benicia Arsenal Magazine photograph shows a man standing amongst thousands of burned shells. Assuming that the man is approximately 6 feet tall, it appears that the concrete walls were at least 6 feet high. Photos in the Benicia Arsenal Magazine (ref 270) shows the same burn cage before, during and after the burn. Based on features in the background of the photos, especially the photo during the burn, old drawings and topography, the burn cage pictured in these photos is at Spur E.
According to personal accounts, the .30, .50, and .37 caliber ammunition was dumped into the cage, covered with kerosene, then set on fire. After two to three burns, the ammunition burning process destroyed the wire mesh cage; it would then be rebuilt in the same location. Burn cages were used from approximately 1948 to 1954. Through December of 1948, a total of 6,518 tons of small arms ammunition was demolished using burn cages. The value of scrap metal recovered totaled $695,697.59 (ref 172). The market value of the scrap metal at that time (1951) was estimated at $20,000 (ref 270).

ENVIRONMENTAL SUMMARY

Furthest Stage of Environmental Investigation
RI

COMMENTS

There are no remnants of any concrete structure or the Spur. Kerosene was poured directly on the ammunition in the burn cage.

DoD Site #

Spur E

Area: R

The scrap metal was sold as salvage. There has been no reported investigations in the area of this former burn cage to determine any HTRW impacts. After the burning process, metal and ash remained inside the structure. The ash was likely composed of these "residues" and wood. (The ammunition was boxed in wood crates then dowsed in kerosene before lit on fire). It is unknown where the ash may have been discarded. It is possible that this ash may contain heavy metals and explosive residue. Based on recent field visits and over 50 years of post-Army activity in the area, the likelihood of finding this ash is remote. During the 2004 Expanded Site Inspection investigation, native near surface soil and groundwater samples were collected. Two 5-point composite soil samples were collected upgradient and downgradient of the burn cage. All metal concentrations were below BSLs. Diesel fuel was reported in one of the two groundwater samples collected. The concentration, 210 ug/L, is below the ESL of 640 ug/L. No other fuels, solvents, or explosives were detected.

RECOMMENDATIONS

No further DoD action is indicated.

APPENDIX B

NORCAL 21 July 2005 Geophysical Report

NORCAL GEOPHYSICAL CONSULTANTS, INC.

July 21, 2005

Wendy Linck
Brown & Caldwell, Inc.
2701 Prospect Park Drive
Rancho Cordova, California, 95670

Subject: Geophysical Investigation
Benicia Post Dump Area
NORCAL Project No. 05-141.45

Dear Ms. Linck:

This report presents the findings of a geophysical investigation performed by NORCAL Geophysical Consultants, Inc. on a portion of the former Benicia Arsenal known as the Post Dump. NORCAL geophysicists David Bissiri and Don Kirker conducted the field investigation over a period of six days from June 6th through June 15th , 2005. They were assisted by field technicians Travis Black and Chris Blom. Assistance with site logistics was provided by Ms. Wendy Linck and Rachael Goldberg of Brown & Caldwell, Inc.

I SITE DESCRIPTION

The former Benicia Arsenal Post Dump is located along the northern shore of Suisun Bay and consists of a broad, multi-acre area located immediately northeast of the Benicia-Martinez Bridge. The current use of this portion of the arsenal is that of a storage depot / marshaling yard for new cars that are off-loaded from large ocean-going ships. The survey area, as designated by Brown & Caldwell, consisted of an approximately 1200 feet long by 300 foot wide portion of an asphalt-covered parking lot located adjacent to the office and detail shop (see Plate 1). In addition to the detail shop building, the other notable above-ground cultural features in or near the survey area include: A chain-link fence that encloses most of the site; a wooden guard shack located along the western portion of the fence; a storm drain lift station and large electrical breaker panel located along the eastern portion of the fence; several metal light standards; and various on-grade utility pull-boxes. The known subsurface features within the survey area include a Kinder-Morgan petroleum transfer line adjacent to, and roughly parallel with, the eastern fence and the various underground utility lines extending between the pull-boxes.

According to information provided to NORCAL by Brown and Caldwell, Inc. this portion of the arsenal originally consisted of wetlands that has since been buried under fill. The native material is believed to consists primarily of clay (bay mud and marsh deposits), while the fill is believed to consist primarily of imported sands and silts. In addition, it is suspected that a large amount of miscellaneous debris may have been incorporated into the fill since the current tenant encountered subsurface wood and brick debris during recent excavation work.

II PURPOSE

The purpose of this geophysical investigation was two-fold: first, to delineate zones of buried debris and possible underground utility alignments within the fill; and second, determine the approximate thickness of the fill overlying the native material.

III METHODOLOGY

We performed the geophysical investigation using vertical magnetic gradient (VMG), terrain conductivity (TC), metal detection (MD), and electrical resistivity (ER) methods. The VMG was used to detect magnetic man-made objects buried in the shallow subsurface. The TC was used to characterize the lateral changes in soil conductivity that may represent lithological contacts, areas of disturbed soil, and zones of metallic debris (both magnetic and non-magnetic). The MD was used to further characterize suspected buried metallic objects initially detected by the VMG and TC methods. The ER method was used to characterize both the lateral and vertical changes in soil conductivity at three selected profile locations. These ER variations may represent lithological contacts between the overburden/fill and native material, areas of disturbed soil, and zones of subsurface debris. It should be noted that both the TC and ER methods involve measuring electrical currents placed in the ground, but differ in how this is accomplished. Though they differ in what they measure (conductivity vs. resistivity) their results are somewhat complimentary.

A more detailed discussion of these methods, data analysis, geophysical instrumentation, and limitations is presented in Appendix A.

IV DATA ACQUISITION

VMG/ TC Data

Prior to collecting the VMG and TC data, we established a survey grid to provide horizontal control for data acquisition. The grid consisted of a series of lines spaced approximately 10-feet apart that were oriented parallel to the eastern wall-line of the detail shop. We then collected data along the lines at approximately 4-foot intervals for the VMG data and 10-foot intervals for the TC data. Following the data collection, the data were up-loaded to a field computer and processed to produce preliminary VMG and TC contour maps. These preliminary maps were then evaluated for VMG and TC variations that might be caused by buried metal objects, differences in soil composition, or above-ground features. Variations that could not be attributed to the effects of above-ground objects were considered anomalous. Areas of anomalous variations identified on the contour maps were then investigated further with the MD. Further processing and analysis of the VMG and TC data was performed at our Cotati office.

Electrical Resistivity Data

Based on the preliminary results of the VMG and TC investigations, ER data were then acquired along three east-west profiles. The three profiles were located along grid lines 540 North, 710 North, and 870 North, as shown on Plate 1. As requested by Brown & Caldwell, the profiles extended eastward from the western fence to within approximately 5 feet of the Kinder-Morgan pipeline. This resulted in profiles ranging in length from 225 to 275 feet. Along the entire length of each profile we placed an array of evenly spaced electrodes at 5-foot intervals. Following the placement of the electrodes, a computer-controlled source placed electric current into the ground using various combinations of electrode pairs. The resulting potential (voltage) differences that arose between all possible pairings of non-current electrodes was then measured and recorded. The ER data were later up-loaded to a computer and processed in our Cotati office to produce resistivity profiles showing various lithological interfaces and respective layer resistivities.

MD

The MD method was used to investigate assemblages of VMG and TC anomalies suggestive of buried utility lines and large isolated objects such as reinforced concrete pads. However, because of the multitude of anomalies and the limited time available, only those anomalies with the largest magnitude and extent could be investigated. The VMG and TC anomalies were typically investigated by conducting at least two perpendicular traverses centered over the anomaly. These initial traverses usually ranged in length from 20- to 30-feet. If subsurface objects with distinct boundaries or alignments were detected, then additional MD traverses were conducted as needed in order to more fully determine the object's shape and extent. In addition to investigating VMG and TC anomalies, the MD was also used to delineate utility lines extending between pull boxes.

V RESULTS and CONCLUSIONS

The results of the geophysical investigation are presented on Plates 1 through 6 . Plate 1 is a site map depicting the limits of the survey area and the locations of the ER profiles, pertinent above-ground features, and locations of interpreted subsurface features. Plate 2 is a VMG contour map depicting the VMG data in the form of contour lines and the locations of both above-ground features and interpreted subsurface VMG features. Plate 3 is a TC contour map depicting the TC data and the locations of pertinent above-ground features and interpreted subsurface TC features. Plates 4, 5, and 6 are the ER profiles. These profiles depict vertical "slices" of the subsurface and display variations in electrical resistivity in both the horizontal and vertical directions. The results for each geophysical method are discussed below.

VMG data

The VMG data presented on Plate 2 displays several areas of contour closures indicating the presence of ferrous material. While some of the VMG contour closures can be attributed to the magnetic effects of the Kinder-Morgan pipeline and the various pull-boxes and underground utility lines, most of the contours appear to be attributable to other subsurface sources. Most of these sources are concentrated within three areas or zones located in the eastern portion of the survey area. These three zones are depicted on Plates 1 and 2 as the shaded blue figures labeled A, B and C.

Based on the irregular shape and distribution of the VMG contour closures within the zones, we interpret these zones as being accumulations of buried ferrous debris. Notably, the VMG anomalies with the greatest magnitudes are concentrated along a generally north-south trend, most clearly shown along the eastern portion of Zone B. These concentrations may represent a former shoreline where possible "ridge-dumping" occurred prior to the placement of the current fill, or they may represent backfilled trenches of debris. Furthermore, while Zones B and C appear to be separate features, they may actually be part of a single debris zone that was disrupted by the installation of one or both of the storm drains that are located between the two zones.

The remaining anomalous VMG contour closures located outside of the three noted debris zones are interpreted to represent small concentrations of localized minor subsurface debris. While not interpreted to be due to relatively large objects such as underground storage tanks (USTs), they may represent smaller objects such as single drums.

TC data

The TC data presented on Plate 3 displays several areas of closely spaced and convoluted contour closures indicating significant lateral variations of electrical conductivity. As with the VMG results, some of the variations can be attributed to the effects of the Kinder-Morgan pipeline, or in this case, also to the effects of the chain-link fence along the eastern survey boundary. However, most of the variations appear to be attributable to additional subsurface sources. One of the most distinctive sources is the pair of storm drain lines extending eastward across the southern portion of the survey area. Additional significant variations are evident in the TC data and appear to be concentrated primarily within four areas or zones located along the eastern survey boundary . These zone are depicted on Plates 1 and 3 as the shaded purple figures labeled I through IV. TC Zones II, III, and IV are roughly coincident with VMG Zones A, B, and C, respectively. Furthermore, the conductivity values of these zones is somewhat higher than the areas outside of the zones. These two facts suggest that these corresponding VMG and TC zones may be caused by the same sources, namely buried metallic debris. As was the case with the VMG results, the adjoining TC Zones III and IV are separated by the two storm drain lines extending eastward across the southern portion of the site.

These two zones may also have previously been a single zone that was disrupted by the installation of the storm drain lines.

Further comparison of the TC and VMG data reveals some differences as well. For instance, TC Zone I has no clear corresponding equivalent in the VMG data. This suggests that a weakly magnetic source may be the cause, such as an accumulation of cast-iron material or perhaps sections of chain-link fencing fabric, both of which typically are weakly magnetic. Another possibility is that TC Zone I is an area where the fill material is relatively thin and the more conductive marsh deposits are closer to the ground surface.

ER data

The results of the ER data processing are presented on Plate 4, 5, and 6. Plate 4 displays the results for Line 870 North, Plate 5 displays the results for Line 710 North, and Plate 6 displays the results for Line 540 North. Comparison of all three profiles shows that the results are somewhat similar. Namely, the survey area appears to be comprised of a relatively resistive overburden overlying more conductive material. The more resistive material, i.e. that with a resistivity greater than approximately 4 ohm-meters, is interpreted to consist of silts and sands and probably represents fill material. The fill thickness appears to increase in thickness in a fairly uniform manner from approximately 5-feet in the east to approximately 10-feet in the west. Within the fill, there are lateral conductivity variations as well, especially in the eastern portions of the profiles that correspond to the anomalous TC zones. It is probable that the source of these lateral ER variations may, in part, be due the effects of the suspected buried debris cited in the TC results. Below the fill, there exists a layer of relatively conductive material whose resistivity is less than 4 ohm-meters. We interpret this material to represent native material. This material most likely is comprised of clay and / or marsh deposits with a high moisture content.

MD

The results of the MD follow-up investigations were limited to delineation of the two storm drain lines (depicted as the dashed green lines extending eastward across the survey area), the Kinder-Morgan petroleum line (depicted as the dashed gold line), and two electric lines (depicted as the dashed red lines). Attempts to delineate localized subsurface objects within the VMG or TC anomalous zones were not productive. Either the MD instrument did not detect any buried metallic objects at a particular survey location, or the MD instrument was overwhelmed with signal and no distinctive boundary of an individual object could be determined. Such MD results are not unusual when anomaly zones are comprised of scattered subsurface metallic debris.

VII STANDARD CARE AND WARRANTY

The scope of NORCAL's services for this project consisted of using geophysical methods to characterize the shallow subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the level of skill ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

We appreciate having the opportunity to provide you with this information.

Respectfully,

NORCAL Geophysical Consultants, Inc.

David Bissiri
Geophysicist, GP-1009

DJB/KGB/tt

Enclosures: Plates 1 through 6

Appendix A - Geophysical Methodology, Instrumentation, Data Analysis, and Limitations

Appendix A

GEOPHYSICAL METHODOLOGY, INSTRUMENTATION, DATA ANALYSIS, AND LIMITATIONS

Vertical Magnetic Gradient (VMG)

VMG Methodology

VMG is a method commonly used to detect ferrous objects. This is possible because the magnetic field at any given point on the earth's surface is the vector sum of the earth's field combined with the magnetic fields of nearby metal objects. Thus, by measuring the lateral variations of the magnetic field, the locations of ferrous objects can be determined. One way to accomplish this is to measure the total intensity of the magnetic field. These are referred to as total field measurements (TF) and are recorded in units of nanoTesla (nT). In environmental and engineering investigations it is often useful to measure not just the total field intensity, but the vertical rate of change of the total field magnetic intensity as well. These are referred to as vertical magnetic gradient (VMG) measurements, and are recorded in units of nanoTesla/meter (nT/m).

While both TF and VMG measurements are related to the same phenomena (i.e. the magnetic field), each has certain advantages over the other. However, the VMG method is often chosen for environmental/engineering investigations because of the following:

1) VMG measurements are generally less affected by nearby *above* ground objects, especially objects to the side of the instrument. This reduces magnetic interference caused by such objects.

2) VMG measurements are not affected by temporal (diurnal) variations in the earth's magnetic field, unlike TF measurements. This eliminates one more variable from the data.

3) VMG effects attenuate more rapidly with increasing distance from magnetic sources, thus allowing more precise determination of a buried object's location.

It should be noted, however, that because the VMG method is very sensitive, small near surface objects can be a source of noise in VMG data.

Instrumentation

A vertical magnetic gradiometer is the device that is used to obtain the VMG data. The instrument typically used by NORCAL is a Geometrics 858 magnetometer. This instrument operates on the "optically pumping" principle and consists of a console and two total field magnetic sensors that are mounted on a vertical staff. One sensor is mounted at about shoulder-height and the other sensor is mounted at about knee-height. The magnetometer console features a built-in computer that stores the raw TF data, calculates the VMG values, and records survey grid information. The instrument obtains the VMG values by simultaneously measuring the total magnetic field intensity at the two sensors, taking their difference in magnetic intensity, and then dividing by their separation distance. The survey information is recorded and later uploaded to a field computer for further processing.

Computer Processing

VMG data are typically processed in the field on a portable computer. The uploaded data are converted into a format suitable for contouring using the program SURFER from Golden Software. This program calculates an evenly spaced array of values (data grid) based on the measured field data. These gridded values are then contoured to produce VMG contour maps for interpretation.

Contour Map Interpretation

Generally speaking, in a region with fairly uniform magnetic conditions the VMG values will vary smoothly from one area to another. Under these conditions, contour lines are usually spaced far apart. In contrast, in those areas where VMG variations are stronger, the contours are closely spaced. In some cases the variations are so strong that the contours become highly contorted and convoluted. These contorted contours may form roughly concentric circles, tightly wound loops and whorls, or elongated parallel lines. Actual magnitude and shape of the contour lines is dependent on the relative position and size of the magnetic object with respect to the location of the magnetic sensors.

Roughly concentric circles that look like bull's-eyes are generally referred to as monopoles. Monopoles that are roughly limited in extent to the data point spacing of the sampling grid are often caused by relatively small, near surface objects with limited cross-section. These typically consist of well caps, pull boxes, balls of wire, etc. On the other hand, larger monopoles that extend across an area of several data points are typically associated with larger, deeper objects such as well casings, reinforced concrete footers, ends of pipelines, etc. In other cases, two monopoles, one positive and one negative, may be in close proximity and form a paired of high-low closures known as a dipole. Dipoles are often, but not always, attributed to larger objects such as USTs, vaults, buried ordnance, etc. that have a substantial diameter or width.

Irregular patterns of loops and whorls are often indicative of several magnetic objects being present with variable shape, mass, and distribution. These VMG patterns are the most difficult to interpret. Past experience has shown that such patterns are usually associated with debris fields, landfills, and demolition sites.

A series of parallel contours typically indicates that an elongate object such as a building wall, fence, or underground pipeline is the magnetic source.

Regardless of whether the contours form monopoles, dipoles, or irregular whorls, if there are no obvious nearby above ground sources that could cause such magnetic variations, then subsurface objects are suspected. Contours are typically considered anomalous when large differences in data readings (on the order of several hundred to several thousands of nT/m) from one data station to the next are displayed. The anomalous variations are called VMG anomalies.

Limitations

Buried ferrous metal objects produce localized variations in the earth's magnetic field. The magnetic intensity associated with these objects depends on the mass of the metal and the distance the metal object is from the magnetometer sensor. As a general rule, anomaly magnitude typically decreases and anomaly width increases as distance (depth) to the source increases, thereby making detection more difficult. In addition, the ability to detect a buried metal object is based on the intensity of these variations in contrast to the intensity of background variations. The intensity of background variations is based on the amount of above and below ground metal that is present within the survey area. Cultural features such as chain-link fences, buildings, debris, railroad spurs, utilities, above ground electric lines, etc. typically produce magnetic variations with high intensities. These variations may mask the magnetic effects from buried metal objects and thus make it very difficult to determine whether the magnetic variations are associated with below ground metal or above/below ground cultural features.

Terrain Conductivity (TC)

Methodology

The TC method provides information on the lateral variation of the electrical conductivity of the subsurface. These changes in conductivity can arise from natural changes in soil composition or from buried foreign objects. Operating on the principle of electromagnetic induction, the method utilizes an instrument having two coils separated by a fixed distance. One of these coils transmits a primary signal that induces a current flow (secondary signal) in the earth. The other coil senses this secondary signal. For measurement purposes the secondary signal is broken down into both quadrature and in-phase components. The quadrature component is used to determine the value of electrical conductivity and is measured in milliSiemens/meter (mS/m). This component is useful for detecting both metallic and non-metallic objects. The in-phase component also changes with conductivity, but varies in a different way than the quadrature component. This component is useful when only the location of metallic objects is of interest. In-phase measurements are expressed in parts-per-thousand (PPT).

When highly resistive material is encountered, as is the case for most earth material, there is a linear relationship between the quadrature component and conductivity. When highly conductive materials like metals are encountered, both quadrature and in-phase components can be quite large and their behavior is often non-linear. While this non-linear effect can make the measurement of both components useful in looking for buried metal, it is typically the quadrature component that is analyzed. This is because the quadrature component is affected by both metallic and non-metallic materials, whereas the in-phase component is affected primarily only by metals.

Instrumentation

The instrument typically used by NORCAL for shallow subsurface investigations is a Geonics, Ltd. EM31-DL terrain conductivity meter. This instrument consists of transmitting and receiving coils mounted at opposites ends of a horizontal boom with a control console in between. The separation distance of the coils is approximately 12 feet. This translates into an effective sampling depth of approximately 20 feet since approximately 75% of the cumulative response of the instrument comes from this portion of the subsurface (for a homogeneous half-space). The device is carried by the operator at hip-level and TC readings are taken by pressing a trigger button. The EM31 is connected to an Omnidata data recorder that automatically stores the TC values as well as station locations and any field notes. The data logger stores the data in a way that it can be up-loaded to a computer for processing.

Computer Processing

TC data are typically processed in the field on a portable computer. The uploaded data are converted into a format suitable for contouring using the program SURFER from Golden Software. This program calculates an evenly spaced array of values (data grid) based on the measured field data. These gridded values are then contoured to produce TC contour maps for interpretation.

Contour Map Interpretation

Generally speaking, in a region with fairly uniform conductivity conditions the TC values will vary smoothly from one area to another. Under these conditions, contour lines are usually spaced far apart. In contrast, in those areas where lateral TC variations are stronger, the contours are more closely spaced. In some cases the variations are so strong that the contours become highly contorted. These contorted contours may form roughly concentric circles suggestive of bull's-eyes, tightly wound loops and whorls similar to finger prints, or elongated parallel lines. Actual magnitude and shape of the contour lines is dependent on the how rapidly the conductivity of the subsurface changes and if there are any metallic objects present that can affect the instrument readings.

Roughly concentric circles are generally referred to as monopoles. Monopoles that are roughly limited in extent to the data point spacing of the sampling grid are often caused by relatively small, near surface metallic objects with limited cross-section. These typically consist of well caps, pull boxes, balls of wire, etc. On the other hand, larger monopoles that extend across an area of several data points are typically associated with larger, deeper objects such USTs, concrete pads, backfilled zones, etc.

Irregular patterns of loops and whorls are often indicative of several conductive objects with variable shape, size, conductivity, and distribution being present. These irregular TC patterns are the most difficult to interpret. Past experience has shown that such patterns are usually associated with debris fields, landfills, and demolition sites.

A series of generally parallel contour lines typically indicates the source is an elongate object such as a building wall, fence, or underground pipeline. If the parallel contours are more or less straight, then this indicates the object was oriented roughly parallel to the direction of the EM31's coil boom during data collection. If the contour lines form a series of parallel, undulating contours (also referred to as a "herring bone" pattern), then this indicates the source was oriented roughly perpendicular to the EM31's boom during data collection.

Regardless of whether the contours form discrete monopoles, irregular patterns, or parallel lines, if there are no obvious nearby above ground sources that could cause such variations, then subsurface objects are suspected. TC contours are typically considered anomalous when differences larger than a few tens of milliSiemens per meter (mS/m) are displayed from one data station to the next.

Limitations

Buried ferrous metal objects often produce large localized variations, or anomalies, in terrain conductivity. As a general rule, anomaly magnitude typically decreases, and anomaly width increases, as distance (depth) to the source increases. This can make detection of small, deeply buried metallic objects difficult. In addition, the ability to detect a buried metal object is based on

the intensity of these variations in contrast to the intensity of background variations. The intensity of background variations is based on the conductivity of the soil and the amount of above and below ground metal present within a survey area. Cultural features such as chain link fences, buildings, debris, railroad spurs, utilities, above ground electric lines, etc. typically produce variations with high intensities. These variations may mask the TC effects of buried metal objects and thus make it very difficult to determine whether the variations are associated with below ground metal or known above/below ground cultural features.

Apart from the physical limitations of the instrument and the unwanted effects from secondary objects, the ability to detect subsurface features is also dependent upon the density of data acquisition points. If the distance between data acquisition points is significantly larger than the size of the target object, then the object may not be detected.

ELECTRICAL RESISTIVITY SURVEYS

Electrical resistivity is the physical property of a material that resists the flow of electrical current. The electrical resistivity of earth materials is directly affected by moisture content and permeability. Typically, electrical resistivity decreases as permeability and moisture content increases. The resistivity of earth materials is also greatly effected by the concentration of dissolved salts or free ions in the saturating fluid. Generally speaking, fine-grained materials such as clays typically have a lower electrical resistivity than coarser grained materials such as sands and gravels. The presence of fluids that have a high concentration of dissolved salts or free ions can significantly decrease the electrical resistivity of both fine and coarse-grained materials.

Electrical properties of rock material can vary greatly depending upon degree of weathering and fracturing, as well as composition. Rock formations that are deeply buried and not exposed to chemical weathering are generally impermeable, contain little water, and have a relatively high electrical resistivity. Conversely, highly weathered and fractured rock that contains moisture typically has lower resistivity.

Based on the above relationships, geophysical methods that measure the electrical resistivity of the subsurface can be used to evaluate corrosion potential and grounding characteristics, and to determine the thickness of landfills, the depth and thickness of clay layers and groundwater aquifers, the depth to groundwater, and in some cases, the depth to bedrock.

Methodology

Determining the variation in electrical resistivity with depth beneath a fixed point is referred to as a vertical electric sounding (VES). This involves transmitting electrical current *(I)* into the ground between two electrodes, and measuring the resulting potential drop *(V)* between two other electrodes. There are a number of different electrode configurations that can be used. The most common are the Wenner and Schlumberger arrays. With both techniques, the four electrodes are arranged in a collinear array. Current is transmitted between the outer two electrodes and the potential drop is measured across the inner two electrodes. Readings can be taken with many different electrode separations, ranging from less than a foot to hundreds of feet. The larger the separation, the deeper the current is forced to flow in order to complete a circuit. The readings for each electrode separation are used to compute a value referred to as apparent resistivity *(ρa)*. The term "apparent" is used because the value represents the resistivity of a volume of earth rather than a discrete layer. This value is computed according to the following equation:

$$\rho a = 2\pi k\,(V/I)$$

where k is a geometric factor for the electrode array that is used.

The ρa values can be plotted versus electrode separation on log-log paper to form a field curve. This curve can then be inverted using either computer or curve-matching techniques to determine the depth, thickness, and true resistivity of horizontal layers beneath the center of the electrode array.

Instrumentation

Apparent resistivity data is typically acquired by NORCAL using a SuperSting R1 Resistivity meter, manufactured by Advanced Geosciences Incorporated (AGI). The Sting is a self-contained computer-controlled unit that transmits current at outputs ranging from 1 to 500 milliAmps (mA). The unit also measures the potential drop and converts the data to values of apparent resistivity for a number of electrode arrays. The data are stored in internal memory and can be uploaded to a desk-top computer for processing.

Limitations

A common feature of all electrical methods is that the models derived from the electric profiling are not unique. That is, depending on the subsurface geo-electric structure, there may be many models that will produce essentially the same apparent resistivities. This is known as the *principal of equivalence*. To overcome this limitation, computer software programs include routines for evaluating the equivalence of a given model relative to the observed resistivity values, resulting in a model that provides the closest fit to the observed data.

Metal Detection (MD)

MD Methodology

This method uses the principle of electromagnetic induction to detect shallowly buried metal objects such as USTs, metal utility conduits, rebar in concrete, manhole covers, and various metallic debris. This is done by carrying a hand-held radio transmitter-receiver unit above the ground and continuously scanning the surface. A primary coil broadcasts a radio signal from a transmitter which induces secondary electrical currents in metal objects. These secondary currents in turn produce a magnetic field which is detected by the receiver.

Instrumentation

The MD instrument that we typically use for shallow subsurface investigations is a Fisher TW-6 pipe and cable locator. This instrument is expressly designed to detect metallic pipes, cables, USTs, manhole covers, and other large, shallowly buried metallic objects. The instrument consists of a radio-transmitter box mounted on one end of a 4-foot horizontal staff and a radio-receiver box mounted on the other. When near a metal object the instrument generates both a meter reading (unitless) and an audible response. The peak instrument response usually occurs when the unit is directly over the object. The TW-6 does not provide a recordable data output that can be used for later computer processing. Results are generally limited to marking the interpreted outlines of detected objects in the field and mapping their locations.

Limitations

In general, the response of the MD instrument is roughly proportional to the horizontal surface area of near surface buried objects (typically in the upper three or four feet). This relationship can be used to advantage in discriminating between metal debris, reinforced concrete pads, and pipelines. However, in the presence of above ground metal objects such as fences, walls, parked cars, and metal debris, this is no longer valid. In some instances, the presence of such objects can make it very difficult to determine whether the instrument responses are associated with below ground targets or above ground cultural features. When multiple sources are present it may not be possible to identify individual targets. Also, relatively large objects that have a limited horizontal cross-section such as well casing and fence posts are sometimes difficult to detect.

Plate 1

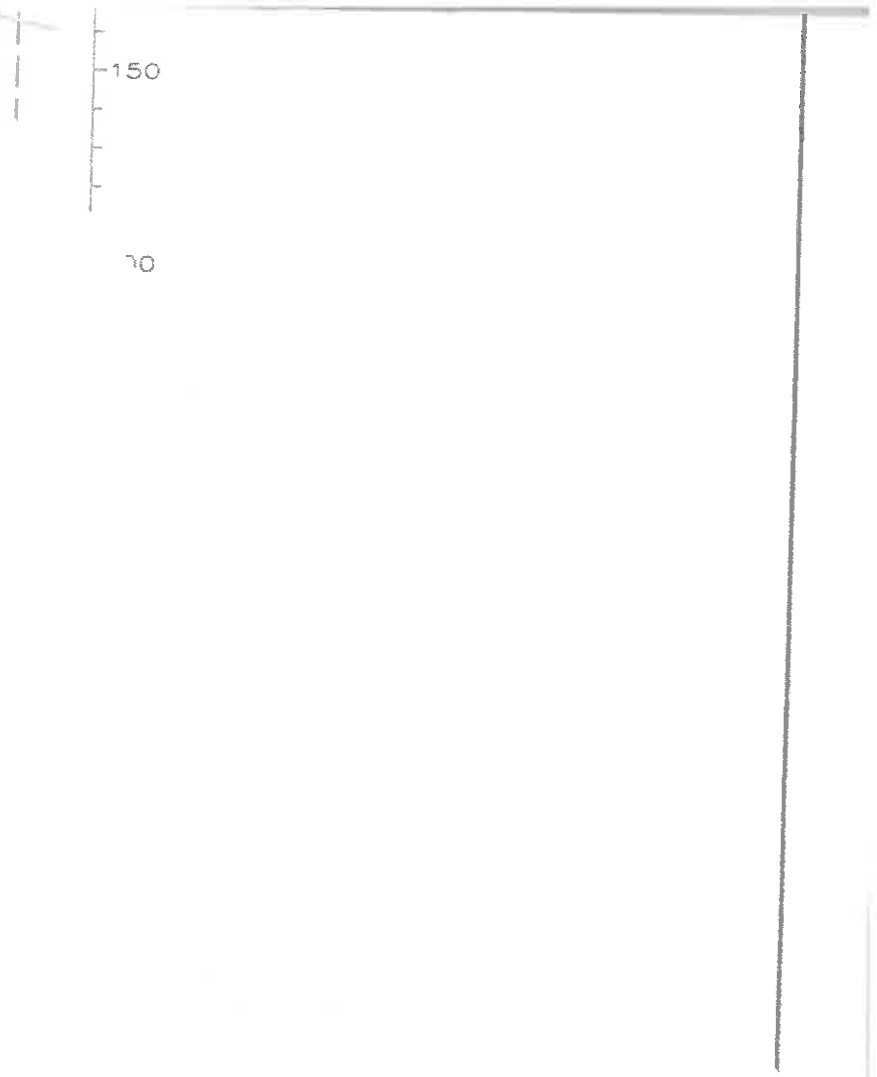
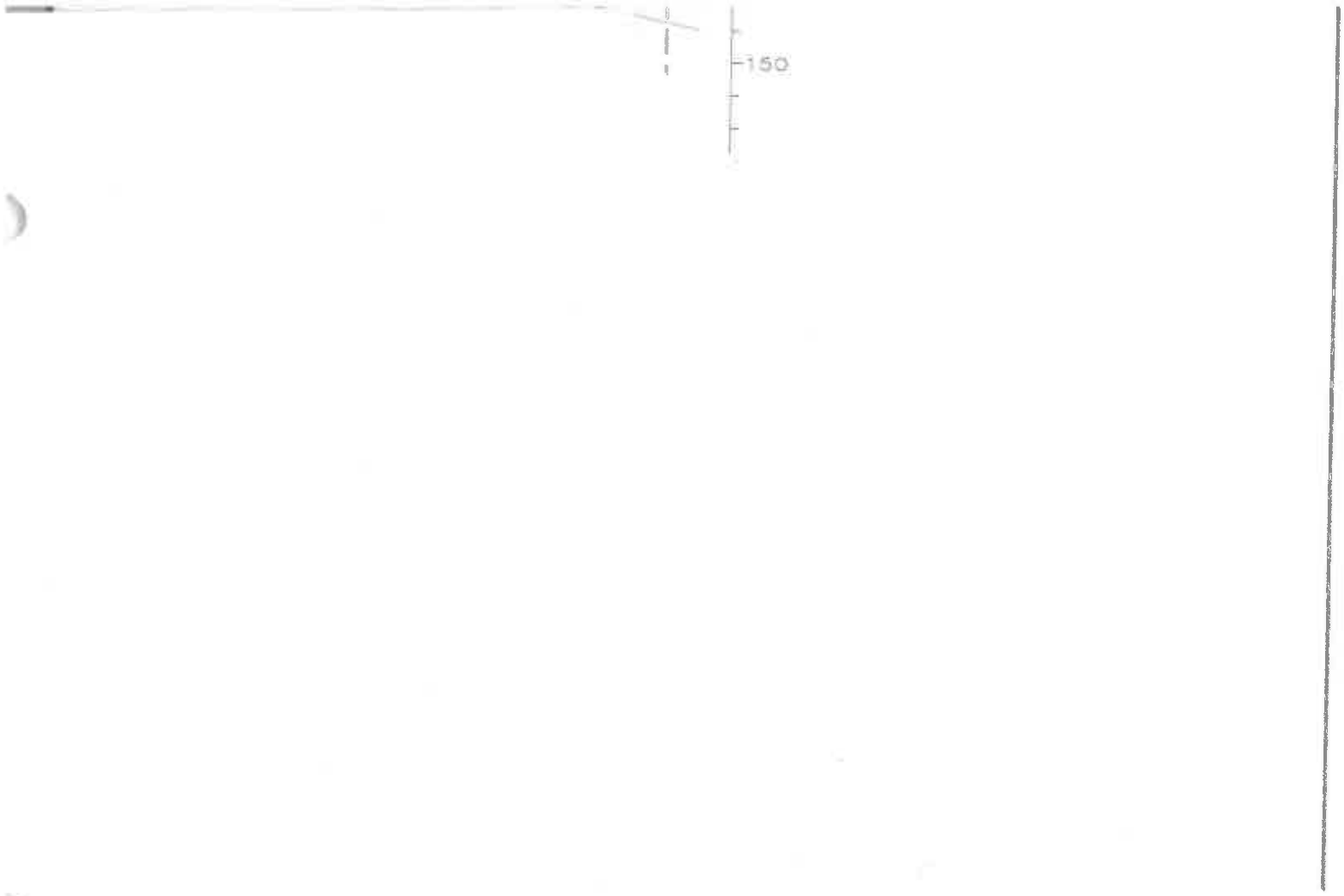


Plate 2



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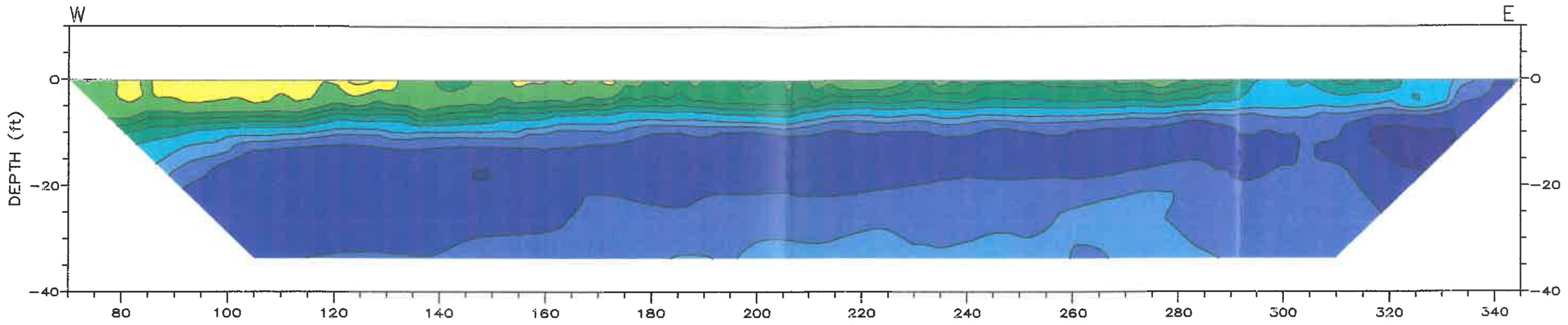
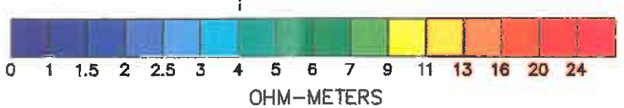


INTERPRETED LITHOLOGY



SCALE: 1 INCH = 20 FEET

NORCAL

ELECTRICAL RESISTIVITY PROFILE
LINE 870 NORTH
BENICIA POST DUMPSITE

LOCATION: BENECIA, CALIFORNIA

CLIENT: BROWN & CALDWELL

PLATE 4

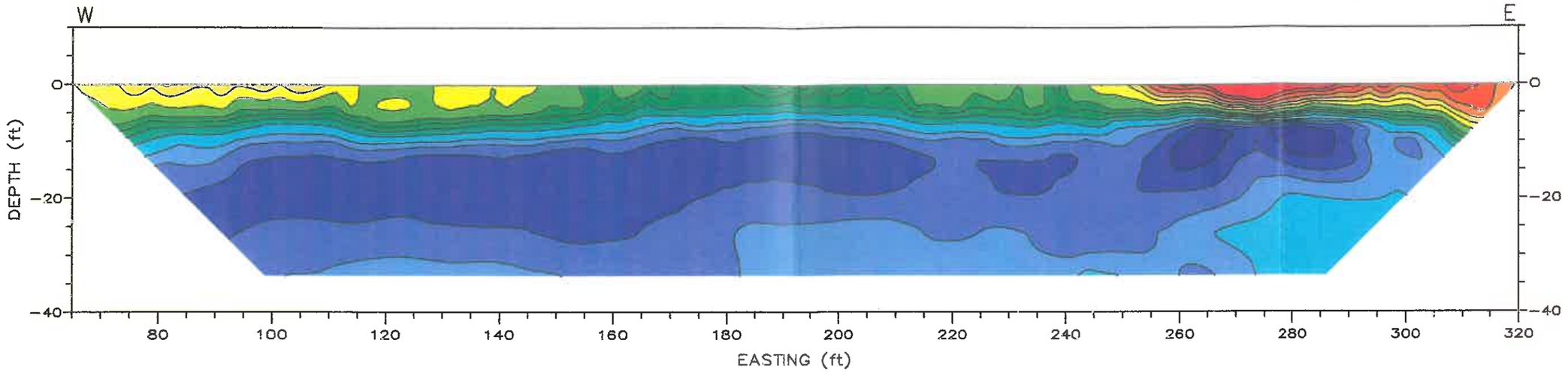
JOB # 05-141.45

NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: JUN. 2005

DRAWN BY: G.RANDALL

APPROVED BY: DJB



INTERPRETED LITHOLOGY

NATIVE MATERIAL (CLAY) | IMPORTED FILL (SILTS & SANDS)

0 1 1.5 2 2.5 3 4 5 6 7 9 11 13 16 20 24

OHM-METERS

SCALE: 1 INCH = 20 FEET

NORCAL

ELECTRICAL RESISTIVITY PROFILE
LINE 710 NORTH
BENICIA POST DUMPSITE

LOCATION: BENECIA, CALIFORNIA

CLIENT: BROWN & CALDWELL

JOB #: 05-141.45

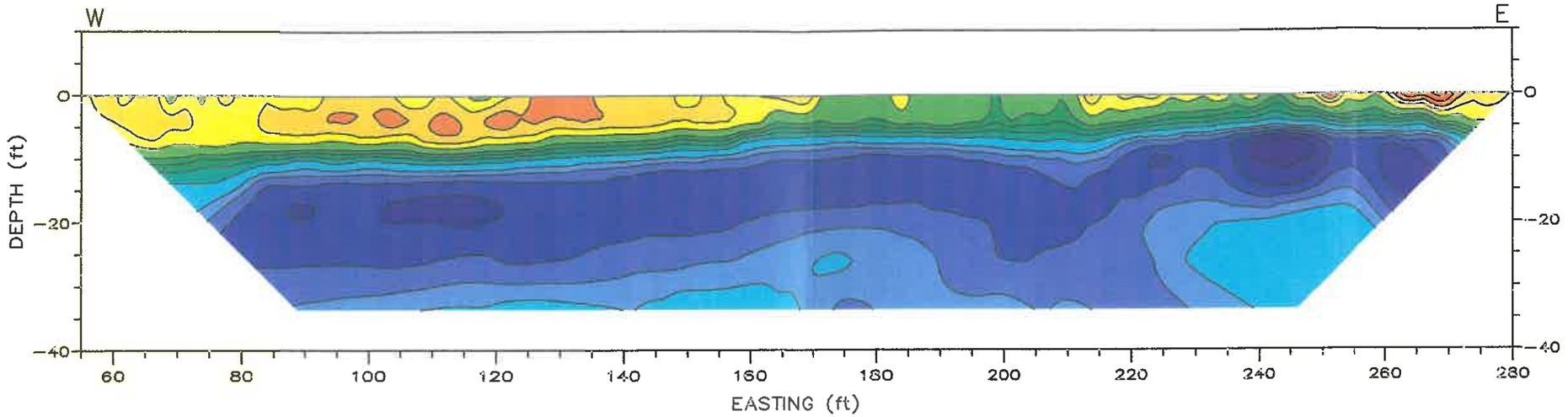
NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: JUN. 2005

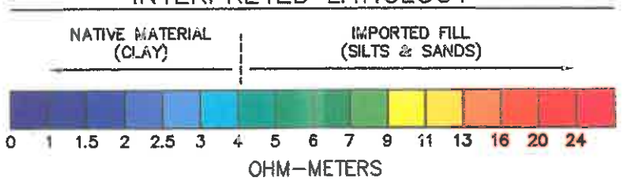
DRAWN BY: G.RANDALL

APPROVED BY: DJB

PLATE 5



INTERPRETED LITHOLOGY



SCALE: 1 INCH = 20 FEET

NORCAL

ELECTRICAL RESISTIVITY PROFILE
LINE 540 NORTH
BENICIA POST DUMPSITE

LOCATION: BENECIA, CALIFORNIA

CLIENT: BROWN & CALDWELL

PLATE 6

JOB #: 05-141.45

NORCAL GEOPHYSICAL CONSULTANTS INC.

DATE: JUN. 2005

DRAWN BY: G.RANDALL

APPROVED BY: DJB

APPENDIX C

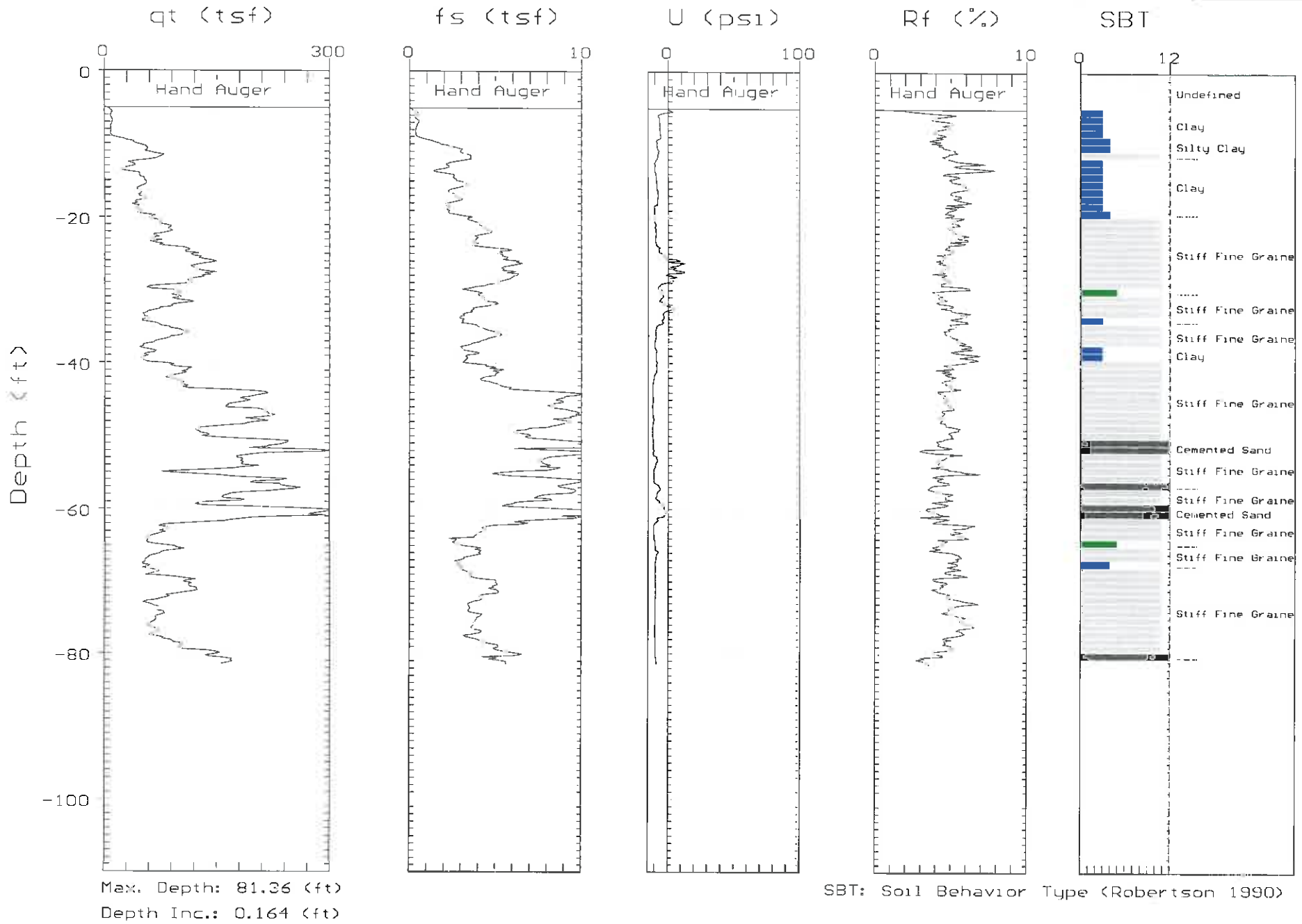
Cone Penetration Testing Logs

GREGG

BROWN & CALDWELL

Site: FORMER BENICIA ARSENAL
Location: CPT-B165-HP-06

Engineer: W.LINCK
Date: 07:06:05 13:51



Max. Depth: 81.36 (ft)
Depth Inc.: 0.164 (ft)

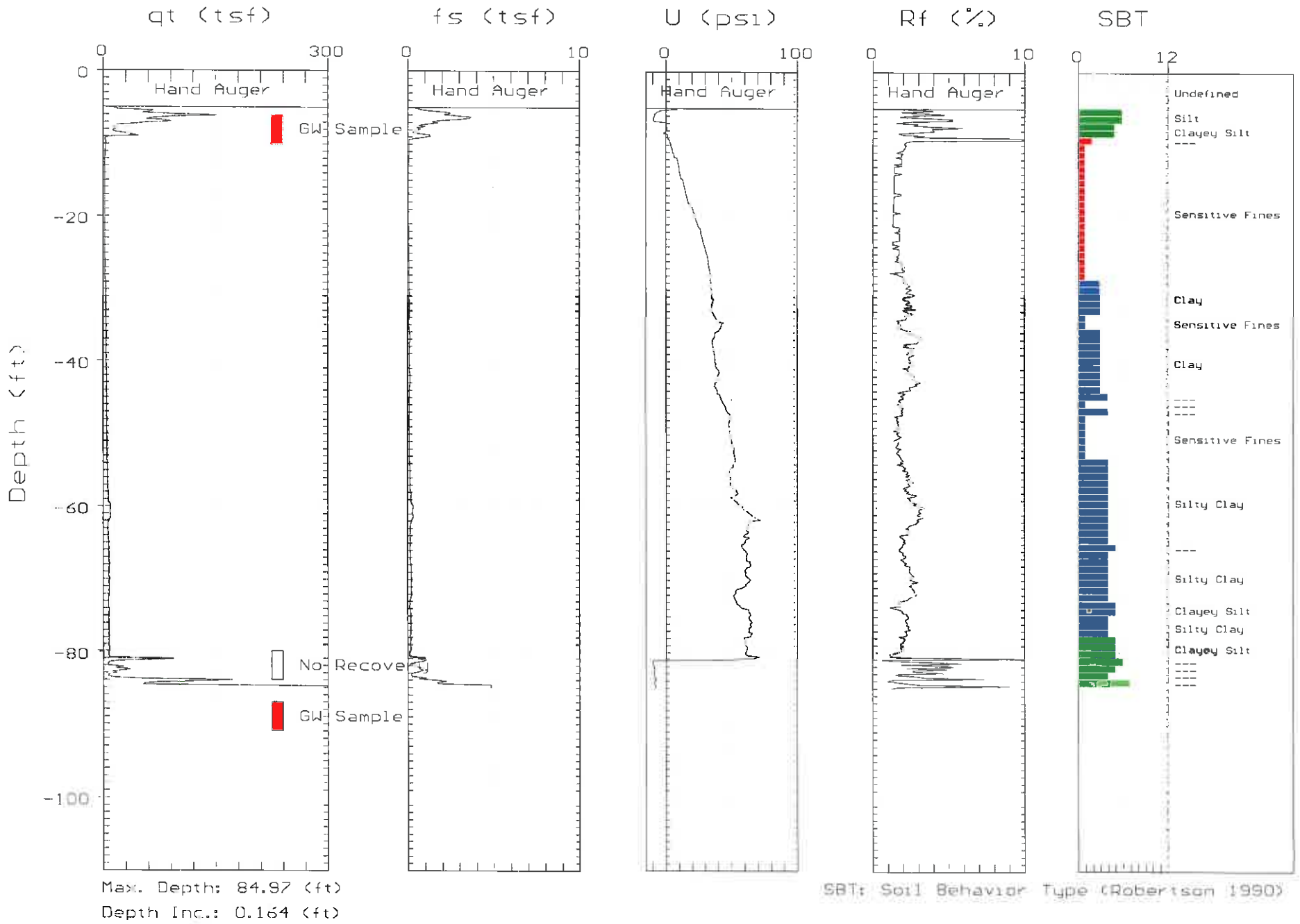
SBT: Soil Behavior Type (Robertson 1990)

GREGG

BROWN & CALDWELL

Site: FORMER BENICIA ARSENAL
Location: CPT-PD1HP-08

Engineer: W.LINCK
Date: 07: 11:05 13:00



Max. Depth: 84.97 (ft)
Depth Inc.: 0.164 (ft)

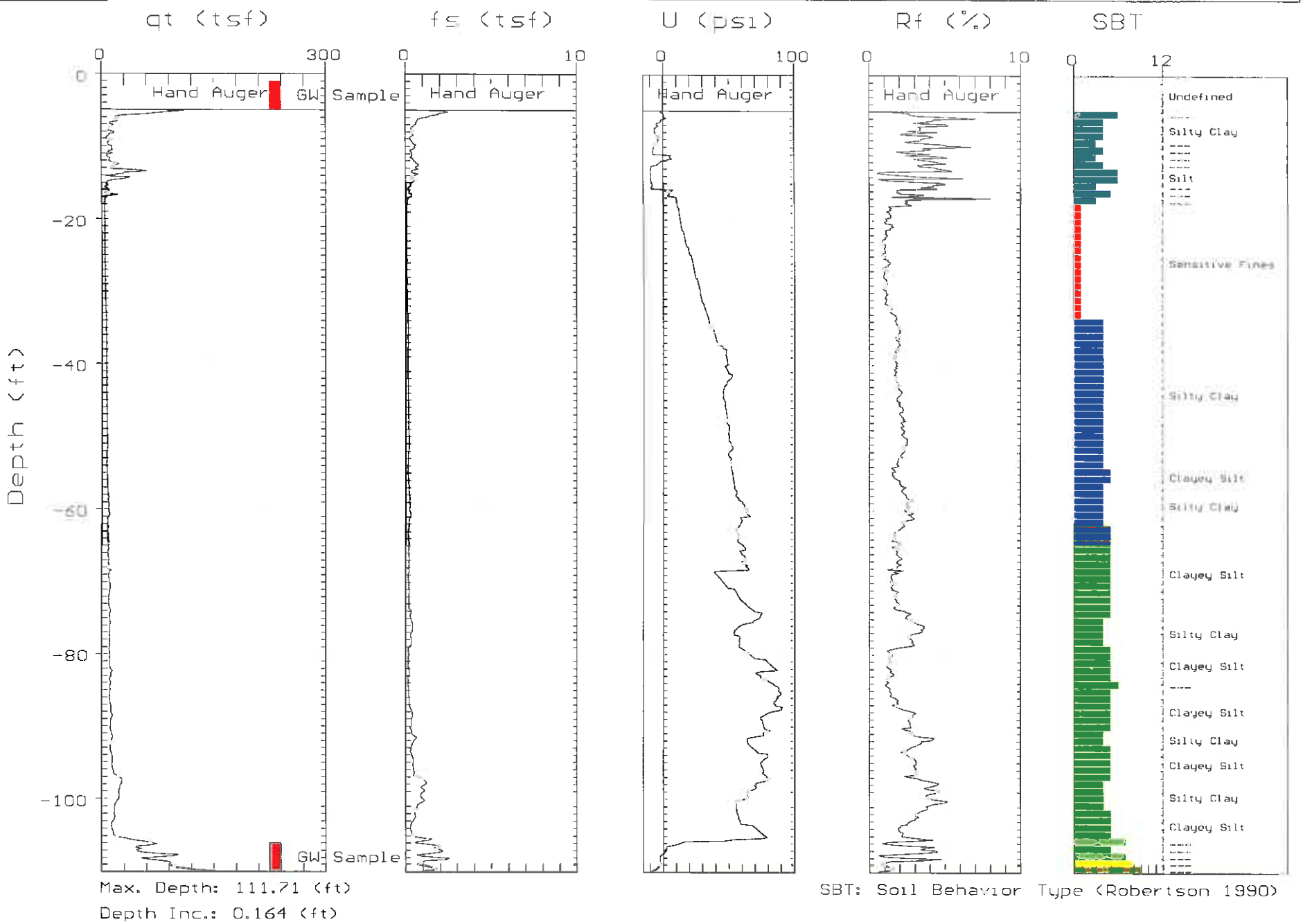
SBT: Soil Behavior Type (Robertson 1990)

GREGG

BROWN & CALDWELL

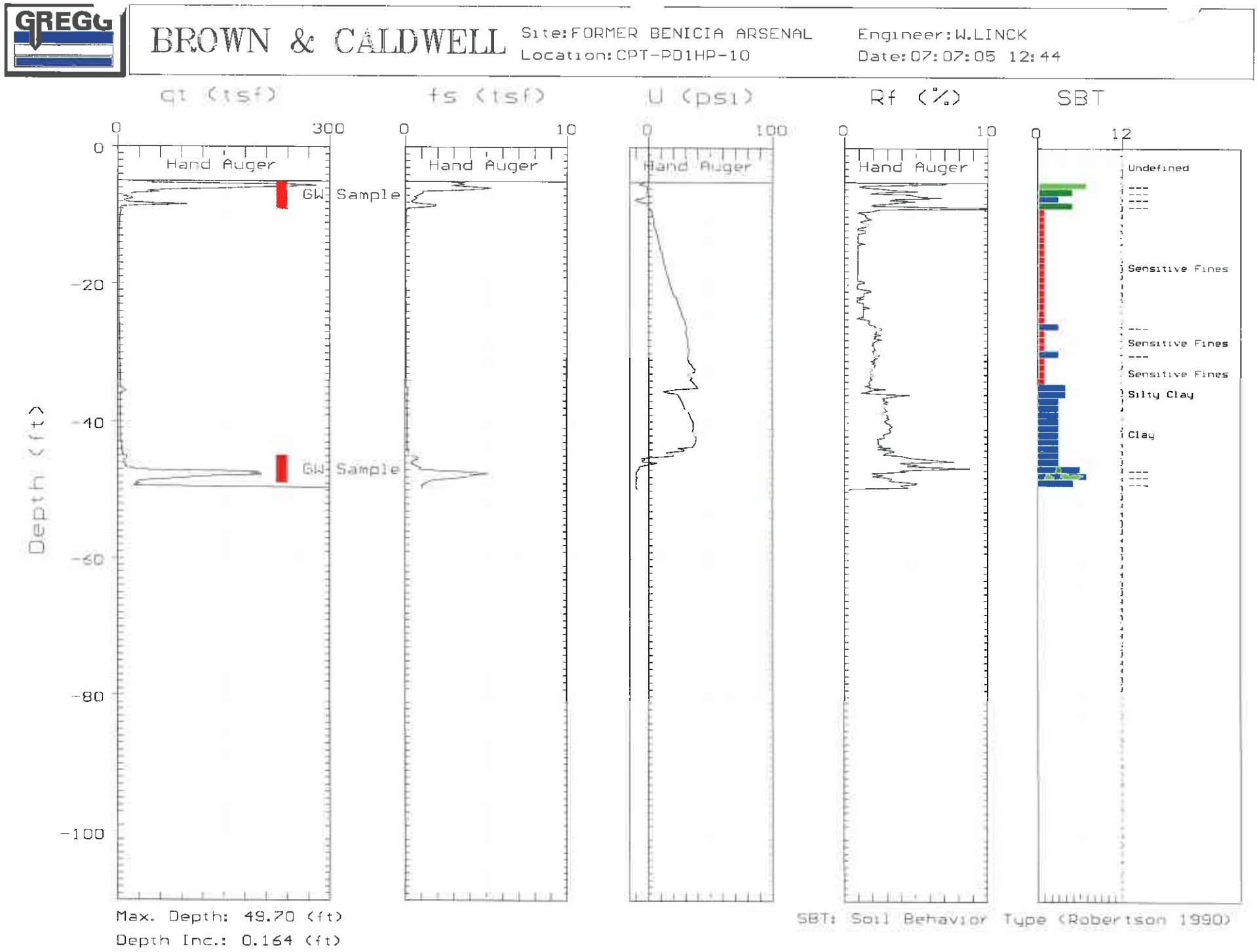
Site: FORMER BENICIA ARSENAL
Location: CPT-PDIHP-09

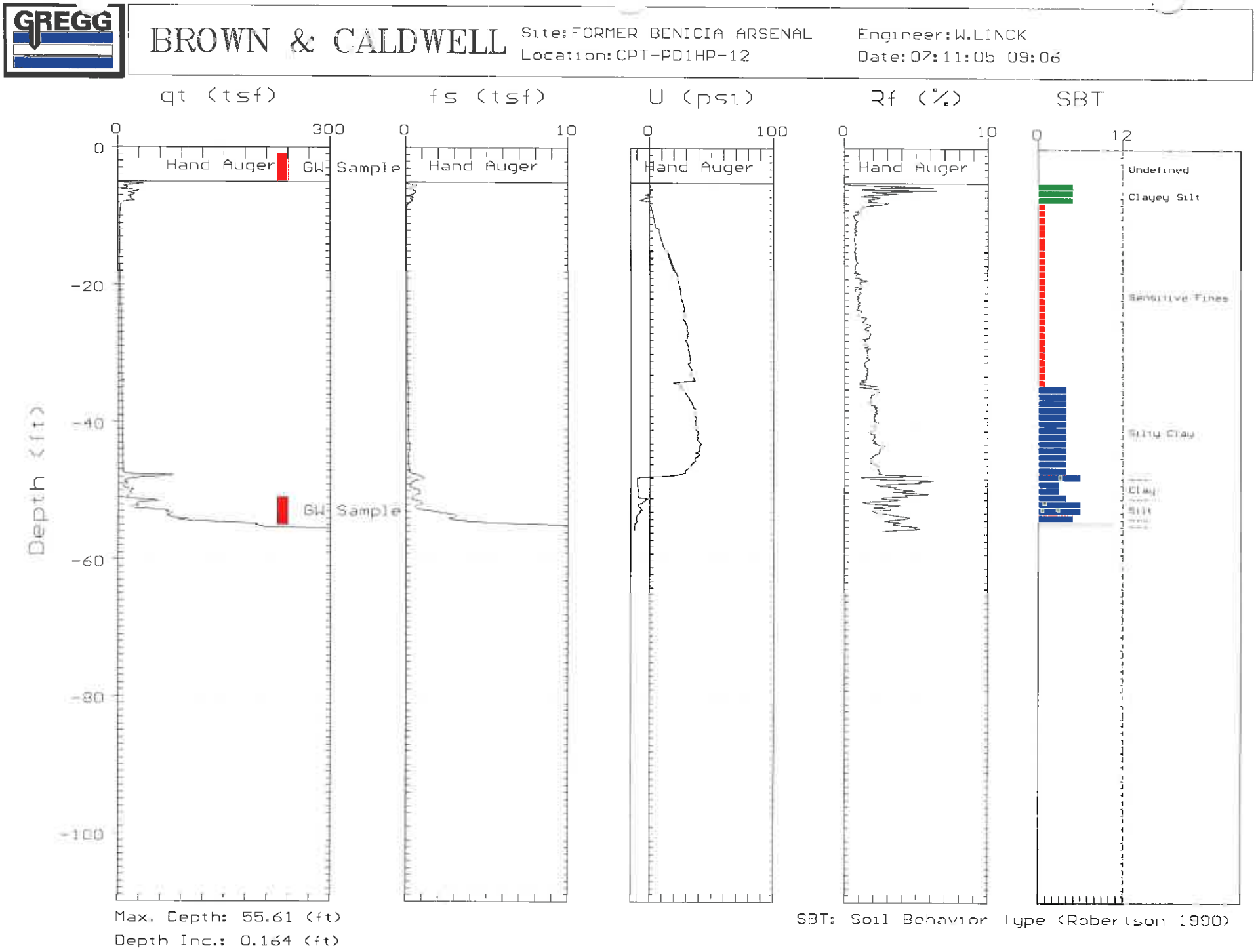
Engineer: W.LINCK
Date: 07:08:05 08:56



Max. Depth: 111.71 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)


BROWN & CALDWELL
Site: FORMER BENICIA ARSENAL
Location: CPT-PD1HP-10
Engineer: W.LINCK
Date: 07:07:05 12:44
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
Hand Auger
GW Sample
GW Sample
Depth (ft)
Undefined
Sensitive Fines
Sensitive Fines
Sensitive Fines
Silty Clay
Clay
Max. Depth: 49.70 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson 1990)

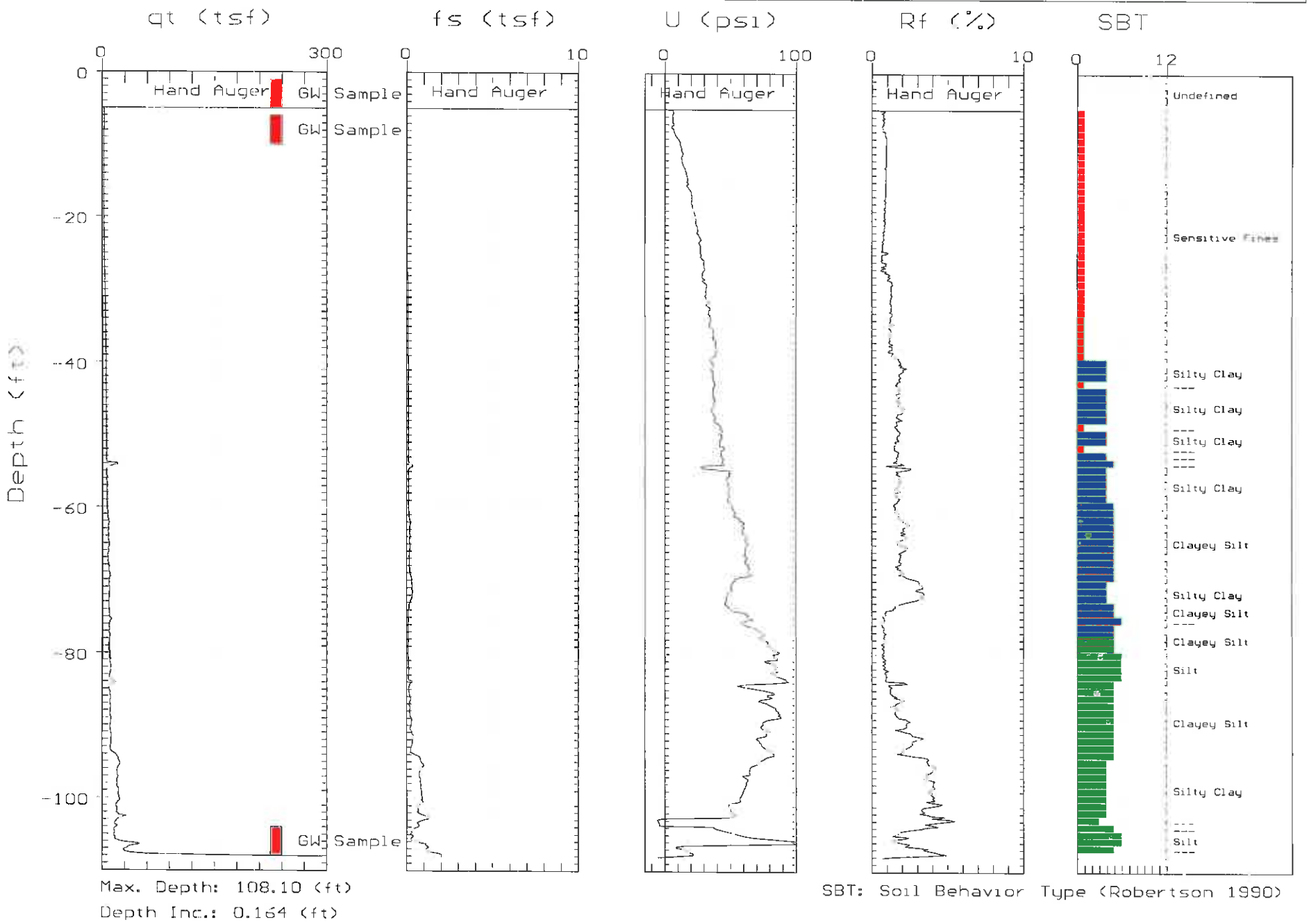

BROWN & CALDWELL
Site: FORMER BENICIA ARSENAL
Location: CPT-PD1HP-12
Engineer: W.LINCK
Date: 07:11:05 09:06
qt (tsf)
fs (tsf)
U (psi)
Rf (%)
SBT
Hand Auger
GW Sample
Depth (ft)
Undefined
Clayey Silt
Sensitive Fines
Silty Clay
Clay
Silt
Max. Depth: 55.61 (ft)
Depth Inc.: 0.164 (ft)
SBT: Soil Behavior Type (Robertson 1990)

GREGG

BROWN & CALDWELL

Site: FORMER BENICIA ARSENAL
Location: CPT-PD1HP-13

Engineer: W.LINCK
Date: 07:07:05 08:57



Max. Depth: 108.10 (ft)
Depth Inc.: 0.164 (ft)

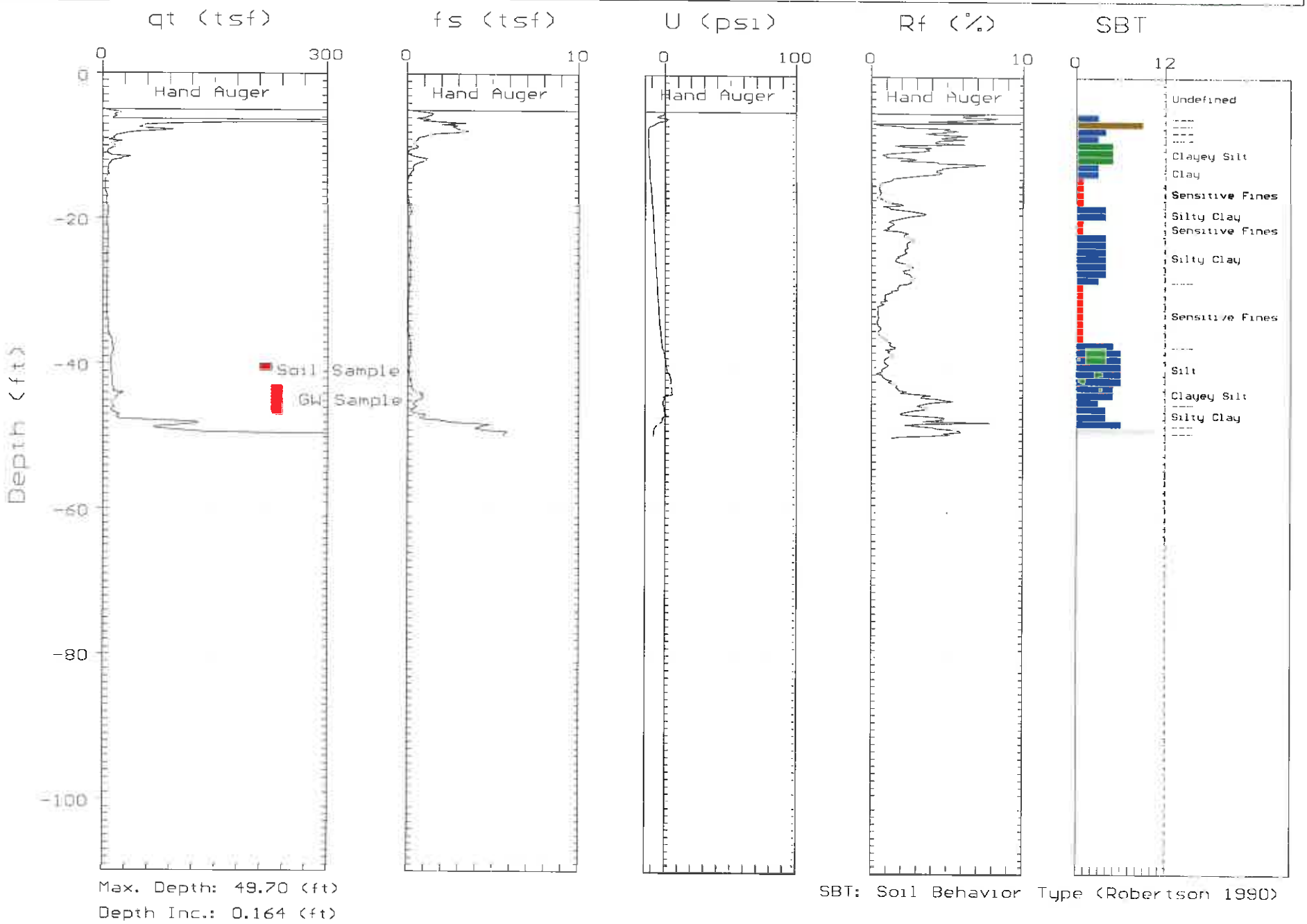
SBT: Soil Behavior Type (Robertson 1990)

GREGG

BROWN & CALDWELL

Site: FORMER BENICIA ARSENAL
Location: CPT-FS1-15

Engineer: W.LINCK
Date: 07:06:05 10:51



Max. Depth: 49.70 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX D

Water Quality Measurements

Appendix D.
Water Quality Measurements

Water Quality Measurements												
Location Name	SampleName	Measurement Date	Sample or Measurement Beginning Depth (feet bgs)	Sample or Measurement Ending Depth (feet bgs)	TDS (mg/L)	Groundwater Elevation (feet msl)	Depth To Water (feet bgs)	Temperature	Temperature Units	PH	ORP (millivolts)	Electrical Conductivity (UMHOS/CM)
PD001HP007	PD001HP007-A-W01	7/7/05 1:00 PM	0	5	NC	NC	3.1	25.95	DEG C	6.56	-68.8	3309
PD001HP007	PD001HP007-A-W02	7/7/05 1:50 PM	103	108	NC	NC	60	23.25	DEG C	7.25	-3	5957
PD001HP008	PD001HP008-A-W01	7/7/05 11:30 AM	5	10	NC	NC	5.1	25	DEG C	6.3	-32	3522
PD001HP009	PD001HP009-A-W02	7/7/05 10:20 AM	105	110	NC	NC	101.3	20.09	DEG C	7.06	-38.2	5778
PD001HP009	PD001HP009-A-W01	7/7/05 11:00 AM	0	5	NC	NC	2.7	27.36	DEG C	6.92	-71.8	3498
PD001HP010	PD001HP010-A-W02	7/7/05 1:30 PM	44	49	NC	NC	7.5	24.66	DEG C	7.18	-29.5	3174
PD001HP010	PD001HP010-A-W01	7/7/05 2:15 PM	5	10	NC	NC	6	24	DEG C	6.79	78.1	3535
PD001HP011	PD001HP011-A-W01	7/7/05 2:35 PM	0	5	NC	NC	3	28.86	DEG C	8.5	-171.9	7105
PD001HP011	PD001HP011-A-W02	7/7/05 3:15 PM	105	110	NC	NC	64.6	21.6	DEG C	6.94	-33.6	11454
PD001HP012	PD001HP012-A-W01	7/7/05 7:45 AM	0	5	NC	NC	3.8	28.23	DEG C	6.57	0.7	2334
PD001HP012	PD001HP012-A-W02	7/7/05 10:00 AM	50	55	NC	NC	30.8	23.34	DEG C	7.35	37.8	2915
PD001HP013	PD001HP013-A-W02	7/7/05 10:50 AM	103	108	NC	NC	NS	21.38	DEG C	6.89	-55.6	11314
PD001HP013	PD001HP013-A-W01	7/7/05 12:15 PM	0	5	NC	NC	0.5	29.26	DEG C	6.35	-77	9428

NC = not collected

APPENDIX E

Legend for Analytical Results

Appendix E.
Legend for Analytical Results

Sample Types	
SampleTypeID	Description
FD	Field Duplicate
N	Normal Environmental Sample

Laboratories	
Lab ID	Description
ATL	Air Toxics, Ltd., Folsom, CA
EMXT	EMAX Labs., Inc., Torrance, CA

Analytes	
AnalyteID	Analyte Name
1072-16-8	Octane, 2,7-dimethyl-
107-83-5	2-METHYLPENTANE
108-87-2	METHYLCYCLOHEXANE
109-66-0	N-PENTANE(C5)
110-82-7	CYCLOHEXANE
120-92-3	Cyclopentanone
16747-25-4	Hexane, 2,2,3-trimethyl-
1678-91-7	ETHYLCYCLOHEXANE
611-14-3	2-ETHYLTOLUENE
622-96-8	1-ETHYL-4-METHYL-BENZENE
638-04-0	CIS-1,3-DIMETHYL CYCLOHEXANE
74-99-7	1-Propyne
767-58-8	METHYLDIHYDROINDENE
78-78-4	2-METHYLBUTANE
872-56-0	ISOPROPYLCYCLOBUTANE
96-14-0	3-METHYLPENTANE
96-37-7	METHYLCYCLOPENTANE
ACE	ACETONE
ACNP	ACENAPHTHENE
ACNPY	ACENAPHTHYLENE
ANTH	ANTHRACENE
BDCME	BROMODICHLOROMETHANE
BRBZ	BROMOBENZENE
BRCLME	BROMOCHLOROMETHANE
BRME	BROMOMETHANE
BTBZN	n-BUTYLBENZENE
BTBZS	SEC-BUTYLBENZENE
BTBZT	t-BUTYLBENZENE
BZ	BENZENE
BZAA	BENZO(a)ANTHRACENE
BZAP	BENZO(a)PYRENE
BZBF	BENZO(b)FLUORANTHENE
BZGHIP	BENZO(g,h,i)PERYLENE

Appendix E.
Legend for Analytical Results

Analytes (continued)	
AnalyteID	Analyte Name
BZKF	BENZO(k)FLUORANTHENE
BZLCL	BENZYL CHLORIDE
BZME	TOLUENE
C7T	TOTAL HEPTANES
CDS	CARBON DISULFIDE
CHRYSENE	CHRYSENE
CLBZ	CHLOROBENZENE
CLBZME2	2-CHLOROTOLUENE
CLBZME4	4-CHLOROTOLUENE
CLEA	CHLOROETHANE
CLME	CHLOROMETHANE
CLPE3	ALLYL CHLORIDE (3-CHLOROPROPENE)
CTCL	CARBON TETRACHLORIDE
CYHEXANE	CYCLOHEXANE
CYMP	P-CYMENE (p-ISOPROPYLTOLUENE)
DBAHA	DIBENZ(a,h)ANTHRACENE
DBCME	DIBROMOCHLOROMETHANE
DBCP	1,2-DIBROMO-3-CHLOROPROPANE
DBMA	DIBROMOMETHANE
DCA11	1,1-DICHLOROETHANE
DCA12	1,2-DICHLOROETHANE
DCBZ12	1,2-DICHLOROBENZENE
DCBZ13	1,3-DICHLOROBENZENE
DCBZ14	1,4-DICHLOROBENZENE
DCE11	1,1-DICHLOROETHENE
DCE12C	cis-1,2-DICHLOROETHYLENE
DCE12T	trans-1,2-DICHLOROETHENE
DCP11	1,1-DICHLOROPROPENE
DCP13C	cis-1,3-DICHLOROPROPENE
DCP13T	trans-1,3-DICHLOROPROPENE
DCPA12	1,2-DICHLOROPROPANE
DCPA13	1,3-DICHLOROPROPANE
DCPA22	2,2-DICHLOROPROPANE
DIOXANE14	1,4-DIOXANE (P-DIOXANE)
DRO	DIESEL (C10-C24)
EBZ	ETHYLBENZENE
EBZME4	4-ETHYLTOLUENE
EDB	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)
ERYTHRENE	1,3-BUTADIENE
ETBE	TERT-BUTYL ETHYL ETHER
ETHANOL	ETHANOL
FC11	TRICHLOROFLUOROMETHANE
FC113	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE
FC114	Freon 114
FC12	DICHLORODIFLUOROMETHANE

Analytes (continued)	
AnalyteID	Analyte Name
FL	FLUORENE
FLA	FLUORANTHENE
GRO	GASOLINE (~C6-C10)
HCBU	HEXACHLOROBUTADIENE
HEXANE	Hexane
HXO2	2-HEXANONE
IME	IODOMETHANE (METHYL IODIDE)
INP123	INDENO(1,2,3-c,d)PYRENE
IPBZ	ISOPROPYLBENZENE (CUMENE)
ISOPRE	ISOPROPYL ETHER
ISOPROH	ISOPROPANOL
MEK	METHYL ETHYL KETONE (2-BUTANONE)
MIBK	METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)
MTLNCL	METHYLENE CHLORIDE
NAPH	NAPHTHALENE
PB	LEAD
PBZN	n-PROPYLBENZENE
PCA	1,1,2,2-TETRACHLOROETHANE
PCE	TETRACHLOROETHYLENE(PCE)
PHAN	PHENANTHRENE
PROPENE	PROPYLENE
PYR	PYRENE
RRO	MOTOR OIL (C20-C36)
STY	STYRENE
TAME	TERT-AMYL METHYL ETHER
TBME	BROMOFORM
TBUTMEE	tert-BUTYL METHYL ETHER
TC1112	1,1,1,2-TETRACHLOROETHANE
TCA111	1,1,1-TRICHLOROETHANE
TCA112	1,1,2-TRICHLOROETHANE
TCB123	1,2,3-TRICHLOROBENZENE
TCB124	1,2,4-TRICHLOROBENZENE
TCE	TRICHLOROETHYLENE (TCE)
TCLME	CHLOROFORM
TCPR123	1,2,3-TRICHLOROPROPANE
THF	TETRAHYDROFURAN
TM224C5N	2,2,4-TRIMETHYLPENTANE
TMB124	1,2,4-TRIMETHYLBENZENE
TMB135	1,3,5-TRIMETHYLBENZENE (MESITYLENE)
VA	VINYL ACETATE
VC	VINYL CHLORIDE
XYLMP	M,P-XYLENE (SUM OF ISOMERS)
XYLO	O-XYLENE (1,2-DIMETHYLBENZENE)

Appendix E.
Legend for Analytical Results

Parvq	
ParvqID	Description
=	Detected Above Reporting Limit
ND	Not Detected Above Detection Limit
TI	Tentatively Identified Compound
TR	Trace Detection; Below RL, Above DL

QC Flags	
QCFlag	Description
NJ	The analyte identification is presumptive. Reported value is an estimated concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Reason Codes	
ReasonCode	Description
6L	Low LCS recovery
A	Absence of supporting QC
T	Trace level compound, poor quantitation

Units	
UnitsID	Description
MG/KG	Milligrams per Kilogram
PPBV	Parts per billion by volume
UG/L	Micrograms/Liter

APPENDIX F

Analytical Results for Soil

Appendix F
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.00048	MG/KG	0.00048	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1,1-TRICHLOROETHANE	< 0.00046	MG/KG	0.00046	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.0003	MG/KG	0.0003	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.00096	MG/KG	0.00096	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1,2-TRICHLOROETHANE	< 0.0021	MG/KG	0.0021	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1-DICHLOROETHANE	< 0.00047	MG/KG	0.00047	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1-DICHLOROETHENE	< 0.00049	MG/KG	0.00049	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,1-DICHLOROPROPENE	< 0.0011	MG/KG	0.0011	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.00046	MG/KG	0.00046	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.00054	MG/KG	0.00054	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.0006	MG/KG	0.0006	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.00029	MG/KG	0.00029	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.0011	MG/KG	0.0011	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.00061	MG/KG	0.00061	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2-DICHLOROBENZENE	< 0.00029	MG/KG	0.00029	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2-DICHLOROETHANE	< 0.00086	MG/KG	0.00086	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,2-DICHLOROPROPANE	< 0.00037	MG/KG	0.00037	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.00041	MG/KG	0.00041	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	1,3,5-TRINITROBENZENE	< 0.057	MG/KG	0.057	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	1,3,5-TRINITROBENZENE	< 0.057	MG/KG	0.057	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	1,3,5-TRINITROBENZENE	< 0.057	MG/KG	0.057	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,3-DICHLOROBENZENE	< 0.00029	MG/KG	0.00029	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,3-DICHLOROPROPANE	< 0.00065	MG/KG	0.00065	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	1,3-DINITROBENZENE	< 0.063	MG/KG	0.063	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	1,3-DINITROBENZENE	< 0.063	MG/KG	0.063	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	1,3-DINITROBENZENE	< 0.063	MG/KG	0.063	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	1,4-DICHLOROBENZENE	< 0.00033	MG/KG	0.00033	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	2,2-DICHLOROPROPANE	< 0.00039	MG/KG	0.00039	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	2,4,6-TRINITROTOLUENE	< 0.083	MG/KG	0.083	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	2,4,6-TRINITROTOLUENE	< 0.083	MG/KG	0.083	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	2,4,6-TRINITROTOLUENE	< 0.083	MG/KG	0.083	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	2,4-DINITROTOLUENE	< 0.09	MG/KG	0.09	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	2,4-DINITROTOLUENE	< 0.09	MG/KG	0.09	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	2,4-DINITROTOLUENE	< 0.09	MG/KG	0.09	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	2,6-DINITROTOLUENE	< 0.13	MG/KG	0.13	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	2,6-DINITROTOLUENE	< 0.13	MG/KG	0.13	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	2,6-DINITROTOLUENE	< 0.13	MG/KG	0.13	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	2-AMINO-4,6-DINITROTOLUENE	< 0.12	MG/KG	0.12	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	2-AMINO-4,6-DINITROTOLUENE	< 0.12	MG/KG	0.12	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	2-AMINO-4,6-DINITROTOLUENE	< 0.12	MG/KG	0.12	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	2-CHLOROTOLUENE	< 0.0005	MG/KG	0.0005	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	2-HEXANONE	< 0.0018	MG/KG	0.0018	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	2-NITROTOLUENE	< 0.099	MG/KG	0.099	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	2-NITROTOLUENE	< 0.099	MG/KG	0.099	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	2-NITROTOLUENE	< 0.099	MG/KG	0.099	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	3-NITROTOLUENE	< 0.11	MG/KG	0.11	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	3-NITROTOLUENE	< 0.11	MG/KG	0.11	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	3-NITROTOLUENE	< 0.11	MG/KG	0.11	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	4-AMINO-2,6-DINITROTOLUENE	< 0.066	MG/KG	0.066	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	4-AMINO-2,6-DINITROTOLUENE	< 0.066	MG/KG	0.066	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	4-AMINO-2,6-DINITROTOLUENE	< 0.066	MG/KG	0.066	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	4-CHLOROTOLUENE	< 0.00039	MG/KG	0.00039	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	4-NITROTOLUENE	< 0.095	MG/KG	0.095	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	4-NITROTOLUENE	< 0.095	MG/KG	0.095	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	4-NITROTOLUENE	< 0.095	MG/KG	0.095	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	ACENAPHTHENE	< 0.013	MG/KG	0.013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	ACENAPHTHENE	< 0.012	MG/KG	0.012	ND	U	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	ACENAPHTHENE	< 0.059	MG/KG	0.059	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	ACENAPHTHENE	< 0.01	MG/KG	0.01	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	ACENAPHTHENE	< 0.01	MG/KG	0.01	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	ACENAPHTHYLENE	< 0.026	MG/KG	0.026	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	ACENAPHTHYLENE	< 0.025	MG/KG	0.025	ND	U	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	ACENAPHTHYLENE	< 0.12	MG/KG	0.12	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	ACENAPHTHYLENE	< 0.021	MG/KG	0.021	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	ACENAPHTHYLENE	< 0.021	MG/KG	0.021	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	ACETONE	**0.042**	MG/KG	0.0026	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	ALUMINUM	**18700**	MG/KG	4.99	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	ALUMINUM	**23000**	MG/KG	5.17	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	ALUMINUM	**21800**	MG/KG	5.16	=	-	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	ANTHRACENE	< 0.0013	MG/KG	0.0013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	ANTHRACENE	**0.02**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	ANTHRACENE	< 0.0059	MG/KG	0.0059	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	ANTHRACENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	ANTHRACENE	< 0.001	MG/KG	0.001	ND	U	-
FR01CS004	FR01CS004-A-S01	N	2/6/2008	0 - 0.5	SW6010B	ANTIMONY	< 1.05	MG/KG	1.05	ND	U	-
FR01CS005	FR01CS005-A-S01	N	2/6/2008	0 - 0.5	SW6010B	ANTIMONY	< 1.06	MG/KG	1.06	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	ANTIMONY	< 0.998	MG/KG	0.998	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	ANTIMONY	< 1.03	MG/KG	1.03	ND	UJ	4L
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	ANTIMONY	< 1.03	MG/KG	1.03	ND	U	-
FR01CS004	FR01CS004-A-S01	N	2/6/2008	0 - 0.5	SW6010B	ARSENIC	**11.6**	MG/KG	0.42	=	-	-
FR01CS005	FR01CS005-A-S01	N	2/6/2008	0 - 0.5	SW6010B	ARSENIC	**11.8**	MG/KG	0.423	=	-	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	ARSENIC	**15.1**	MG/KG	0.399	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	ARSENIC	**11.4**	MG/KG	0.413	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	ARSENIC	**13.6**	MG/KG	0.412	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	BARIUM	**169**	MG/KG	0.2	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	BARIUM	**59.9**	MG/KG	0.207	=	J	4H
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	BARIUM	**80.4**	MG/KG	0.207	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	BENZENE	< 0.00033	MG/KG	0.00033	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(a)ANTHRACENE	**0.0061**	MG/KG	0.0013	TR	J	T
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	BENZO(a)ANTHRACENE	**0.047**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(a)ANTHRACENE	**0.019**	MG/KG	0.0059	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	BENZO(a)ANTHRACENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	BENZO(a)ANTHRACENE	< 0.001	MG/KG	0.001	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(a)PYRENE	< 0.0013	MG/KG	0.0013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	BENZO(a)PYRENE	**0.066**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(a)PYRENE	**0.023**	MG/KG	0.0059	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	BENZO(a)PYRENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	BENZO(a)PYRENE	< 0.001	MG/KG	0.001	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(b)FLUORANTHENE	< 0.0026	MG/KG	0.0026	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	BENZO(b)FLUORANTHENE	**0.054**	MG/KG	0.0025	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(b)FLUORANTHENE	< 0.012	MG/KG	0.012	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	BENZO(b)FLUORANTHENE	< 0.0021	MG/KG	0.0021	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	BENZO(b)FLUORANTHENE	< 0.0021	MG/KG	0.0021	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(g,h,i)PERYLENE	< 0.0026	MG/KG	0.0026	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	BENZO(g,h,i)PERYLENE	**0.053**	MG/KG	0.0025	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(g,h,i)PERYLENE	**0.021**	MG/KG	0.012	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	BENZO(g,h,i)PERYLENE	< 0.0021	MG/KG	0.0021	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	BENZO(g,h,i)PERYLENE	< 0.0021	MG/KG	0.0021	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(k)FLUORANTHENE	< 0.0013	MG/KG	0.0013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	BENZO(k)FLUORANTHENE	**0.038**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	BENZO(k)FLUORANTHENE	**0.019**	MG/KG	0.0059	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	BENZO(k)FLUORANTHENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	BENZO(k)FLUORANTHENE	< 0.001	MG/KG	0.001	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	BERYLLIUM	**0.559**	MG/KG	0.2	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	BERYLLIUM	**0.512**	MG/KG	0.207	TR	J	T
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	BERYLLIUM	**0.655**	MG/KG	0.207	TR	J	T
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	BROMOBENZENE	< 0.00035	MG/KG	0.00035	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	BROMOCHLOROMETHANE	< 0.00078	MG/KG	0.00078	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	BROMODICHLOROMETHANE	< 0.00035	MG/KG	0.00035	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	BROMOFORM	< 0.00031	MG/KG	0.00031	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	BROMOMETHANE	< 0.0024	MG/KG	0.0024	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	CADMIUM	**0.216**	MG/KG	0.0994	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	CADMIUM	< 0.103	MG/KG	0.103	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	CADMIUM	< 0.103	MG/KG	0.103	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	CALCIUM	**18400**	MG/KG	9.98	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	CALCIUM	**5040**	MG/KG	10.3	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	CALCIUM	**3990**	MG/KG	10.3	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	CARBON DISULFIDE	**0.011**	MG/KG	0.00027	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	CARBON TETRACHLORIDE	< 0.00042	MG/KG	0.00042	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	CHLOROBENZENE	< 0.00024	MG/KG	0.00024	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	CHLOROETHANE	< 0.0031	MG/KG	0.0031	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	CHLOROFORM	< 0.00043	MG/KG	0.00043	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	CHLOROMETHANE	< 0.0024	MG/KG	0.0024	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	CHROMIUM, TOTAL	**25.4**	MG/KG	0.2	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	CHROMIUM, TOTAL	**22.7**	MG/KG	0.207	=	-	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	CHROMIUM, TOTAL	**40.8**	MG/KG	0.207	=	-	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	CHRYSENE	< 0.0013	MG/KG	0.0013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	CHRYSENE	**0.065**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	CHRYSENE	**0.051**	MG/KG	0.0059	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	CHRYSENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	CHRYSENE	< 0.001	MG/KG	0.001	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.00024	MG/KG	0.00024	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.00032	MG/KG	0.00032	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	COBALT	**16.6**	MG/KG	0.2	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	COBALT	**14.8**	MG/KG	0.207	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	COBALT	**13.7**	MG/KG	0.207	=	-	-
FR01CS004	FR01CS004-A-S01	N	2/6/2008	0 - 0.5	SW6010B	COPPER	**70.3**	MG/KG	0.211	=	-	-
FR01CS005	FR01CS005-A-S01	N	2/6/2008	0 - 0.5	SW6010B	COPPER	**80.3**	MG/KG	0.212	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	COPPER	**68.3**	MG/KG	0.2	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	COPPER	**38**	MG/KG	0.207	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	COPPER	**48.2**	MG/KG	0.207	=	-	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	DIBENZ(a,h)ANTHRACENE	< 0.0052	MG/KG	0.0052	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	DIBENZ(a,h)ANTHRACENE	< 0.0049	MG/KG	0.0049	ND	U	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	DIBENZ(a,h)ANTHRACENE	< 0.024	MG/KG	0.024	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	DIBENZ(a,h)ANTHRACENE	< 0.0041	MG/KG	0.0041	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	DIBENZ(a,h)ANTHRACENE	< 0.0041	MG/KG	0.0041	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	DIBROMOCHLOROMETHANE	< 0.00055	MG/KG	0.00055	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	DIBROMOMETHANE	< 0.00076	MG/KG	0.00076	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	DICHLORODIFLUOROMETHANE	< 0.0026	MG/KG	0.0026	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8015B	DIESEL (C10-C24)	**5.3**	MG/KG	2.9	TR	J	T
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	ETHYLBENZENE	< 0.00031	MG/KG	0.00031	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	FLUORANTHENE	< 0.0026	MG/KG	0.0026	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	FLUORANTHENE	**0.17**	MG/KG	0.0025	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	FLUORANTHENE	**0.084**	MG/KG	0.012	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	FLUORANTHENE	< 0.0021	MG/KG	0.0021	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	FLUORANTHENE	< 0.0021	MG/KG	0.0021	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	FLUORENE	< 0.0026	MG/KG	0.0026	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	FLUORENE	**0.0071**	MG/KG	0.0025	TR	J	T
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	FLUORENE	< 0.012	MG/KG	0.012	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	FLUORENE	< 0.0021	MG/KG	0.0021	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	FLUORENE	< 0.0021	MG/KG	0.0021	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8015B	GASOLINE (~C6-C10)	< 0.58	MG/KG	0.58	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	HEXACHLOROBUTADIENE	< 0.00049	MG/KG	0.00049	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	< 0.13	MG/KG	0.13	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	< 0.13	MG/KG	0.13	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	< 0.13	MG/KG	0.13	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	INDENO(1,2,3-c,d)PYRENE	< 0.0013	MG/KG	0.0013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	INDENO(1,2,3-c,d)PYRENE	**0.041**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	INDENO(1,2,3-c,d)PYRENE	**0.023**	MG/KG	0.0059	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	INDENO(1,2,3-c,d)PYRENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	INDENO(1,2,3-c,d)PYRENE	< 0.001	MG/KG	0.001	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.0014	MG/KG	0.0014	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	IRON	**38200**	MG/KG	2.99	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	IRON	**29900**	MG/KG	3.1	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	IRON	**32200**	MG/KG	3.09	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	ISOPROPYL ETHER	< 0.00064	MG/KG	0.00064	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.00045	MG/KG	0.00045	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW6010B	LEAD	**34.5**	MG/KG	0.19	=	-	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW6010B	LEAD	**166**	MG/KG	0.179	=	-	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW6010B	LEAD	**141**	MG/KG	0.171	=	-	-
B101GB001	B101GB001-A-S01	N	1/6/2006	1.5 - 2	SW6010B	LEAD	**32.8**	MG/KG	0.172	=	-	-
FR01CS004	FR01CS004-A-S01	N	2/6/2008	0 - 0.5	SW6010B	LEAD	**578**	MG/KG	0.211	=	-	-
FR01CS005	FR01CS005-A-S01	N	2/6/2008	0 - 0.5	SW6010B	LEAD	**227**	MG/KG	0.212	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	LEAD	**12.6**	MG/KG	0.2	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	LEAD	**5.42**	MG/KG	0.207	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	LEAD	**7.57**	MG/KG	0.207	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.0007	MG/KG	0.0007	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	MAGNESIUM	**7650**	MG/KG	9.98	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	MAGNESIUM	**6830**	MG/KG	10.3	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	MAGNESIUM	**5930**	MG/KG	10.3	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	MANGANESE	**477**	MG/KG	0.0994	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	MANGANESE	**649**	MG/KG	0.103	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	MANGANESE	**391**	MG/KG	0.103	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW7471A	MERCURY	**0.0671**	MG/KG	0.0323	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW7471A	MERCURY	< 0.0335	MG/KG	0.0335	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW7471A	MERCURY	< 0.0334	MG/KG	0.0334	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	**0.0058**	MG/KG	0.0026	TR	J	T
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 0.0016	MG/KG	0.0016	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	METHYLENE CHLORIDE	< 0.0014	MG/KG	0.0014	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	MOLYBDENUM	**0.915**	MG/KG	0.499	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	MOLYBDENUM	< 0.517	MG/KG	0.517	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	MOLYBDENUM	< 0.516	MG/KG	0.516	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8015B	MOTOR OIL (C20-C36)	**9.6**	MG/KG	2.8	TR	J	T
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	NAPHTHALENE	< 0.013	MG/KG	0.013	ND	U	-
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	NAPHTHALENE	< 0.012	MG/KG	0.012	ND	U	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	NAPHTHALENE	< 0.059	MG/KG	0.059	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	NAPHTHALENE	< 0.003	MG/KG	0.003	ND	UJ	6L
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	NAPHTHALENE	< 0.01	MG/KG	0.01	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	NAPHTHALENE	< 0.01	MG/KG	0.01	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	n-BUTYLBENZENE	< 0.00024	MG/KG	0.00024	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	NICKEL	**38.2**	MG/KG	0.2	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	NICKEL	**23.7**	MG/KG	0.207	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	NICKEL	**37.8**	MG/KG	0.207	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	NITROBENZENE	< 0.053	MG/KG	0.053	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	NITROBENZENE	< 0.053	MG/KG	0.053	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	NITROBENZENE	< 0.053	MG/KG	0.053	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	n-PROPYLBENZENE	< 0.00024	MG/KG	0.00024	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	TAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOC	< 0.17	MG/KG	0.17	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	TAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOC	< 0.17	MG/KG	0.17	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	TAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOC	< 0.17	MG/KG	0.17	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.00027	MG/KG	0.00027	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.00024	MG/KG	0.00024	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	PHENANTHRENE	**0.0033**	MG/KG	0.0013	TR	J	T
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	PHENANTHRENE	**0.09**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	PHENANTHRENE	**0.019**	MG/KG	0.0059	TR	J	T
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	PHENANTHRENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	PHENANTHRENE	< 0.001	MG/KG	0.001	ND	U	-
B051HA001	B051HA001-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	PYRENE	**0.0095**	MG/KG	0.0013	TR	J	T
B051HA002	B051HA002-A-S01	N	1/4/2006	1.5 - 2	SW8310	PYRENE	**0.23**	MG/KG	0.0012	=	-	-
B051HA003	B051HA003-A-S01	N	1/4/2006	1.75 - 2.2	SW8310	PYRENE	**0.1**	MG/KG	0.0059	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8310	PYRENE	< 0.001	MG/KG	0.001	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8310	PYRENE	< 0.001	MG/KG	0.001	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	SEC-BUTYLBENZENE	< 0.00028	MG/KG	0.00028	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	SILVER	< 0.249	MG/KG	0.249	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	SILVER	< 0.258	MG/KG	0.258	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	SILVER	< 0.257	MG/KG	0.257	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	SODIUM	**150**	MG/KG	9.98	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	SODIUM	**201**	MG/KG	10.3	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	SODIUM	**237**	MG/KG	10.3	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	STYRENE	< 0.00049	MG/KG	0.00049	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	t-BUTYLBENZENE	< 0.00024	MG/KG	0.00024	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	TERT-AMYL METHYL ETHER	< 0.00083	MG/KG	0.00083	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.00075	MG/KG	0.00075	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	tert-BUTYL METHYL ETHER	< 0.0012	MG/KG	0.0012	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.00036	MG/KG	0.00036	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW8330	TETRYL	< 0.091	MG/KG	0.091	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW8330	TETRYL	< 0.091	MG/KG	0.091	ND	U	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW8330	TETRYL	< 0.091	MG/KG	0.091	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	THALLIUM	< 0.499	MG/KG	0.499	ND	U	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	THALLIUM	**0.635**	MG/KG	0.517	TR	J	T
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	THALLIUM	**0.684**	MG/KG	0.516	TR	J	T
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	TOLUENE	< 0.00052	MG/KG	0.00052	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	trans-1,2-DICHLOROETHENE	< 0.00032	MG/KG	0.00032	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.0005	MG/KG	0.0005	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.0003	MG/KG	0.0003	ND	U	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	TRICHLOROFLUOROMETHANE	< 0.00026	MG/KG	0.00026	ND	U	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	VANADIUM	**65.6**	MG/KG	0.499	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	VANADIUM	**68**	MG/KG	0.517	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	VANADIUM	**63.6**	MG/KG	0.516	=	-	-
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	VINYL ACETATE	< 0.00042	MG/KG	0.00042	ND	U	-

Appendix F, continued
Analytical Results for all Constituents in Soil

Soil Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-S01	N	7/7/2005	1.5 - 2	SW8260B	VINYL CHLORIDE	< 0.0023	MG/KG	0.0023	ND	U	-
FR01CS004	FR01CS004-A-S01	N	2/6/2008	0 - 0.5	SW6010B	ZINC	**76.2**	MG/KG	0.527	=	-	-
FR01CS005	FR01CS005-A-S01	N	2/6/2008	0 - 0.5	SW6010B	ZINC	**82**	MG/KG	0.53	=	-	-
SPURECS003	SPURECS003-A-S01	N	2/21/2008	0 - 0.5	SW6010B	ZINC	**95.6**	MG/KG	0.499	=	-	-
SPUREGR001	SPUREGR001-A-S01	N	1/22/2008	7.5 - 8	SW6010B	ZINC	**69.7**	MG/KG	0.517	=	-	-
SPUREGR002	SPUREGR002-A-S01	N	1/22/2008	12 - 12.5	SW6010B	ZINC	**71.3**	MG/KG	0.516	=	-	-

APPENDIX G

Analytical Results for Soil Gas

Appendix G
Analytical Results for all Constituents in Soil Gas

Air Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,1,1-TRICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,1,1-TRICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,1,2,2-TETRACHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,1,2,2-TETRACHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,1,2-TRICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,1,2-TRICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,1-DICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,1-DICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,1-DICHLOROETHENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,1-DICHLOROETHENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,2,4-TRICHLOROBENZENE	< 5.1	PPBV	5.1	ND	UJ	6L
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,2,4-TRICHLOROBENZENE	< 5.1	PPBV	5.1	ND	UJ	6L
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,2,4-TRIMETHYLBENZENE	**8.6**	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,2,4-TRIMETHYLBENZENE	**10**	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,2-DICHLOROBENZENE	< 1.3	PPBV	1.3	ND	UJ	6L
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,2-DICHLOROBENZENE	< 1.3	PPBV	1.3	ND	UJ	6L
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,2-DICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,2-DICHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,2-DICHLOROPROPANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,2-DICHLOROPROPANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	**2.6**	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	**3.1**	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,3-BUTADIENE	**3.5**	PPBV	1.3	=	-	-

Appendix G, continued
Analytical Results for all Constituents in Soil Gas

Air Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,3-BUTADIENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,3-DICHLOROBENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,3-DICHLOROBENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,4-DICHLOROBENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,4-DICHLOROBENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1,4-DIOXANE (P-DIOXANE)	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	1,4-DIOXANE (P-DIOXANE)	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	1-Propyne	13	PPBV		TI	NJ	A
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	2,2,4-TRIMETHYLPENTANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	2,2,4-TRIMETHYLPENTANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	2-ETHYLTOLUENE	6.9	PPBV		TI	NJ	A
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	2-HEXANONE	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	2-HEXANONE	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	4-ETHYLTOLUENE	8.7	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	4-ETHYLTOLUENE	8.4	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	ACETONE	17	PPBV	5.1	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	ACETONE	17	PPBV	5.1	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	ALLYL CHLORIDE (3-CHLOROPROPENE)	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	ALLYL CHLORIDE (3-CHLOROPROPENE)	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	BENZENE	1.6	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	BENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	BENZYL CHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	BENZYL CHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	BROMODICHLOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	BROMODICHLOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	BROMOFORM	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	BROMOFORM	< 1.3	PPBV	1.3	ND	U	-

Appendix G, continued
Analytical Results for all Constituents in Soil Gas

Air Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	BROMOMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	BROMOMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CARBON DISULFIDE	2.1	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CARBON DISULFIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CARBON TETRACHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CARBON TETRACHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CHLOROBENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CHLOROBENZENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CHLOROETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CHLOROFORM	2.9	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CHLOROFORM	2	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CHLOROMETHANE	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CHLOROMETHANE	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	cis-1,2-DICHLOROETHYLENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	cis-1,2-DICHLOROETHYLENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	cis-1,3-DICHLOROPROPENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	cis-1,3-DICHLOROPROPENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	CYCLOHEXANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	CYCLOHEXANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	Cyclopentanone	24	PPBV		TI	NJ	A
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	DIBROMOCHLOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	DIBROMOCHLOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	DICHLORODIFLUOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	DICHLORODIFLUOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	ETHANOL	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	ETHANOL	< 5.1	PPBV	5.1	ND	U	-

Appendix G, continued
Analytical Results for all Constituents in Soil Gas

Air Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	ETHYLBENZENE	3	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	ETHYLBENZENE	2.1	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	Freon 114	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	Freon 114	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	HEXACHLOROBUTADIENE	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	HEXACHLOROBUTADIENE	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	Hexane	1.3	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	Hexane	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	Hexane, 2,2,3-trimethyl-	7.6	PPBV		TI	NJ	A
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	ISOPROPANOL	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	ISOPROPANOL	< 5.1	PPBV	5.1	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	ISOPROPYLBENZENE (CUMENE)	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	ISOPROPYLBENZENE (CUMENE)	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	M,P-XYLENE (SUM OF ISOMERS)	16	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	M,P-XYLENE (SUM OF ISOMERS)	13	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	METHYL ETHYL KETONE (2-BUTANONE)	3.6	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	METHYL ETHYL KETONE (2-BUTANONE)	3.8	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	4	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	5.2	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	METHYLENE CHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	METHYLENE CHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	n-PROPYLBENZENE	1.6	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	n-PROPYLBENZENE	1.4	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	Octane, 2,7-dimethyl-	26	PPBV		TI	NJ	A
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	Octane, 2,7-dimethyl-	16	PPBV		TI	NJ	A
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	O-XYLENE (1,2-DIMETHYLBENZENE)	5.8	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	O-XYLENE (1,2-DIMETHYLBENZENE)	4.7	PPBV	1.3	=	-	-

Appendix G, continued
Analytical Results for all Constituents in Soil Gas

Air Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	PROPYLENE	80	PPBV		TI	NJ	A
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	PROPYLENE	20	PPBV		TI	NJ	A
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	STYRENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	STYRENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	tert-BUTYL METHYL ETHER	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	tert-BUTYL METHYL ETHER	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	TETRACHLOROETHYLENE(PCE)	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	TETRACHLOROETHYLENE(PCE)	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	TETRAHYDROFURAN	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	TETRAHYDROFURAN	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	TOLUENE	10	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	TOLUENE	6.5	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	TOTAL HEPTANES	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	TOTAL HEPTANES	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	trans-1,2-DICHLOROETHENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	trans-1,2-DICHLOROETHENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	trans-1,3-DICHLOROPROPENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	trans-1,3-DICHLOROPROPENE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	TRICHLOROETHYLENE (TCE)	34	PPBV	1.3	=	-	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	TRICHLOROETHYLENE (TCE)	7.4	PPBV	1.3	=	-	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	TRICHLOROFLUOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	TRICHLOROFLUOROMETHANE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-A-G01	N	01/06/06	2.8 - 3	TO14	VINYL CHLORIDE	< 1.3	PPBV	1.3	ND	U	-
B090GB001	B090GB001-B-G01	FD	01/06/06	2.8 - 3	TO14	VINYL CHLORIDE	< 1.3	PPBV	1.3	ND	U	-

APPENDIX H

Analytical Results for Groundwater

Appendix H

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,1,2-TETRACHLOROETHANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,1-TRICHLOROETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,2,2-TETRACHLOROETHANE	< 0.28	UG/L	0.28	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	< 0.2	UG/L	0.2	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1,2-TRICHLOROETHANE	< 0.23	UG/L	0.23	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1-DICHLOROETHANE	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1-DICHLOROETHENE	**0.22**	UG/L	0.15	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,1-DICHLOROPROPENE	< 0.22	UG/L	0.22	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,3-TRICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,3-TRICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,4-TRICHLOROBENZENE	< 0.2	UG/L	0.2	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2,4-TRIMETHYLBENZENE	**5.2**	UG/L	0.14	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2,4-TRIMETHYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DIBROMO-3-CHLOROPROPANE	< 0.5	UG/L	0.5	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DICHLOROBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DICHLOROETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,2-DICHLOROPROPANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	**3.6**	UG/L	0.15	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,3-DICHLOROBENZENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,3-DICHLOROPROPANE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	1,4-DICHLOROBENZENE	**0.41**	UG/L	0.14	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	1,4-DICHLOROBENZENE	**0.16**	UG/L	0.14	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	1,4-DICHLOROBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	1-ETHYL-4-METHYL-BENZENE	20	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	2,2-DICHLOROPROPANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	2-CHLOROTOLUENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	2-HEXANONE	< 1	UG/L	1	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	2-METHYLBUTANE	**4.9**	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	2-METHYLPENTANE	**2**	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	3-METHYLPENTANE	**2.1**	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	4-CHLOROTOLUENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	ACETONE	3.5	UG/L	1.9	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	ACETONE	< 1.9	UG/L	1.9	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	ACETONE	4.7	UG/L	1.9	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	ACETONE	< 1.9	UG/L	1.9	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	ACETONE	9.6	UG/L	1.9	TR	J	T
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	ACETONE	< 1.9	UG/L	1.9	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	ACETONE	4.6	UG/L	1.9	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	ACETONE	12	UG/L	1.9	=	-	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	ACETONE	3.7	UG/L	1.9	TR	J	T
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	ACETONE	6.6	UG/L	1.9	TR	J	T
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	ACETONE	< 1.9	UG/L	1.9	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	ACETONE	< 1.9	UG/L	1.9	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	ACETONE	6.2	UG/L	1.9	TR	J	T
FR01GR001	FR01GR001-A-W01	N	2/6/2008	0 - 0	SW6010B	ANTIMONY	< 0.01	MG/L	0.01	ND	U	-
FR01GR002	FR01GR002-A-W01	N	2/6/2008	3.2 - 8.2	SW6010B	ANTIMONY	< 0.01	MG/L	0.01	ND	U	-
FR01GR001	FR01GR001-A-W01	N	2/6/2008	0 - 0	SW6010B	ARSENIC	< 0.005	MG/L	0.005	ND	U	-
FR01GR002	FR01GR002-A-W01	N	2/6/2008	3.2 - 8.2	SW6010B	ARSENIC	< 0.005	MG/L	0.005	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	BENZENE	7.4	UG/L	0.18	=	-	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	BENZENE	**0.96**	UG/L	0.18	=	-	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	BENZENE	**0.8**	UG/L	0.18	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	BENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOBENZENE	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOCHLOROMETHANE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMODICHLOROMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOFORM	< 0.22	UG/L	0.22	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	BROMOMETHANE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	CARBON DISULFIDE	**0.29**	UG/L	0.13	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	CARBON DISULFIDE	**0.14**	UG/L	0.13	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-

Appendix H, continued
Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	CARBON DISULFIDE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	CARBON TETRACHLORIDE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	CHLOROBENZENE	**0.22**	UG/L	0.12	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	CHLOROBENZENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROBENZENE	**0.13**	UG/L	0.12	TR	J	T
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROETHANE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROFORM	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	CHLOROMETHANE	< 0.4	UG/L	0.4	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	cis-1,2-DICHLOROETHYLENE	**150**	UG/L	3.3	=	-	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	cis-1,2-DICHLOROETHYLENE	**6.1**	UG/L	0.13	=	-	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	cis-1,2-DICHLOROETHYLENE	**0.75**	UG/L	0.13	TR	J	T
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	cis-1,2-DICHLOROETHYLENE	**0.45**	UG/L	0.13	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	cis-1,2-DICHLOROETHYLENE	**0.33**	UG/L	0.13	TR	J	T
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	cis-1,2-DICHLOROETHYLENE	**0.88**	UG/L	0.13	TR	J	T
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	cis-1,2-DICHLOROETHYLENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	cis-1,3-DICHLOROPROPENE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CIS-1,3-DIMETHYL CYCLOHEXANE	**16**	UG/L	0	TI	J	A
FR01GR001	FR01GR001-A-W01	N	2/6/2008	0 - 0	SW6010B	COPPER	**0.0045**	MG/L	0.002	TR	J	T
FR01GR002	FR01GR002-A-W01	N	2/6/2008	3.2 - 8.2	SW6010B	COPPER	**0.00526**	MG/L	0.002	TR	J	T
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	CYCLOHEXANE	**4.1**	UG/L	0	TI	J	A
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	CYCLOHEXANE	**23**	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	DIBROMOCHLOROMETHANE	< 0.19	UG/L	0.19	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	DIBROMOMETHANE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	DICHLORODIFLUOROMETHANE	< 0.42	UG/L	0.42	ND	U	-
B168HP003	B168HP003-A-W01	N	1/17/2006	5 - 10	SW8015B	DIESEL (C10-C24)	**170**	UG/L	25	=	-	-
B168HP004	B168HP004-A-W01	N	1/17/2006	5 - 10	SW8015B	DIESEL (C10-C24)	< 23	UG/L	23	ND	U	-
B168HP005	B168HP005-A-W01	N	1/17/2006	5 - 10	SW8015B	DIESEL (C10-C24)	**270**	UG/L	24	=	-	-
B168HP006	B168HP006-A-W01	N	1/17/2006	5 - 10	SW8015B	DIESEL (C10-C24)	**140**	UG/L	23	=	-	-
B168HP007	B168HP007-A-W01	N	1/17/2006	5 - 10	SW8015B	DIESEL (C10-C24)	**95**	UG/L	24	TR	J	T
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8015B	DIESEL (C10-C24)	**380**	UG/L	24	=	-	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8015B	DIESEL (C10-C24)	**90**	UG/L	25	TR	J	T
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8015B	DIESEL (C10-C24)	**330**	UG/L	24	=	-	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8015B	DIESEL (C10-C24)	**60**	UG/L	24	TR	J	T
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8015B	DIESEL (C10-C24)	**760**	UG/L	24	=	-	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8015B	DIESEL (C10-C24)	**29**	UG/L	23	TR	J	T
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8015B	DIESEL (C10-C24)	**140**	UG/L	23	=	-	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8015B	DIESEL (C10-C24)	**310**	UG/L	23	=	-	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8015B	DIESEL (C10-C24)	**25**	UG/L	23	TR	J	T
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8015B	DIESEL (C10-C24)	**3100**	UG/L	25	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8015B	DIESEL (C10-C24)	**120**	UG/L	24	=	-	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8015B	DIESEL (C10-C24)	**170**	UG/L	29	=	-	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8015B	DIESEL (C10-C24)	**600**	UG/L	23	=	-	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	ETHYLBENZENE	2	UG/L	0.11	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	ETHYLBENZENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	ETHYLCYCLOHEXANE	1.1	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8015B	GASOLINE (~C6-C10)	29	UG/L	20	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8015B	GASOLINE (~C6-C10)	1500	UG/L	20	=	-	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8015B	GASOLINE (~C6-C10)	< 20	UG/L	20	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	HEXACHLOROBUTADIENE	< 0.19	UG/L	0.19	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	IODOMETHANE (METHYL IODIDE)	< 0.25	UG/L	0.25	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	ISOPROPYL ETHER	**0.26**	UG/L	0.13	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	ISOPROPYL ETHER	**0.35**	UG/L	0.13	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	ISOPROPYL ETHER	1.2	UG/L	0.13	TR	J	T
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	ISOPROPYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	ISOPROPYLBENZENE (CUMENE)	25	UG/L	0.16	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	ISOPROPYLBENZENE (CUMENE)	< 0.16	UG/L	0.16	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	ISOPROPYLCYCLOBUTANE	14	UG/L	0	TI	J	A
FR01GR001	FR01GR001-A-W01	N	2/6/2008	0 - 0	SW6010B	LEAD	< 0.003	MG/L	0.003	ND	U	-
FR01GR002	FR01GR002-A-W01	N	2/6/2008	3.2 - 8.2	SW6010B	LEAD	< 0.003	MG/L	0.003	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	**0.99**	UG/L	0.24	TR	J	T
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	M,P-XYLENE (SUM OF ISOMERS)	< 0.24	UG/L	0.24	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	METHYL ETHYL KETONE (2-BUTANONE)	< 1.8	UG/L	1.8	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	THYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	< 1	UG/L	1	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	METHYLCYCLOHEXANE	3.2	UG/L	0	TI	J	A
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	METHYLCYCLOHEXANE	1.6	UG/L	0	TI	J	A
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	METHYLCYCLOHEXANE	62	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	METHYLCYCLOPENTANE	5	UG/L	0	TI	J	A
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	METHYLCYCLOPENTANE	16	UG/L	0	TI	J	A
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	METHYLDIHYDROINDENE	1.4	UG/L	0	TI	J	A
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	METHYLDIHYDROINDENE	23	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	METHYLENE CHLORIDE	< 0.12	UG/L	0.12	ND	U	-
B168HP003	B168HP003-A-W01	N	1/17/2006	5 - 10	SW8015B	MOTOR OIL (C20-C36)	**220**	UG/L	33	TR	J	T
B168HP004	B168HP004-A-W01	N	1/17/2006	5 - 10	SW8015B	MOTOR OIL (C20-C36)	< 29	UG/L	29	ND	U	-
B168HP005	B168HP005-A-W01	N	1/17/2006	5 - 10	SW8015B	MOTOR OIL (C20-C36)	**91**	UG/L	31	TR	J	T
B168HP006	B168HP006-A-W01	N	1/17/2006	5 - 10	SW8015B	MOTOR OIL (C20-C36)	**50**	UG/L	30	TR	J	T
B168HP007	B168HP007-A-W01	N	1/17/2006	5 - 10	SW8015B	MOTOR OIL (C20-C36)	< 31	UG/L	31	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8015B	MOTOR OIL (C20-C36)	**53**	UG/L	31	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8015B	MOTOR OIL (C20-C36)	< 32	UG/L	32	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8015B	MOTOR OIL (C20-C36)	**190**	UG/L	31	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8015B	MOTOR OIL (C20-C36)	**200**	UG/L	31	TR	J	T
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8015B	MOTOR OIL (C20-C36)	**220**	UG/L	31	TR	J	T
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8015B	MOTOR OIL (C20-C36)	**68**	UG/L	29	TR	J	T
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8015B	MOTOR OIL (C20-C36)	**150**	UG/L	29	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8015B	MOTOR OIL (C20-C36)	**220**	UG/L	29	TR	J	T
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8015B	MOTOR OIL (C20-C36)	< 30	UG/L	30	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8015B	MOTOR OIL (C20-C36)	**1400**	UG/L	32	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8015B	MOTOR OIL (C20-C36)	**58**	UG/L	31	TR	J	T
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8015B	MOTOR OIL (C20-C36)	< 37	UG/L	37	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8015B	MOTOR OIL (C20-C36)	**890**	UG/L	30	=	-	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	NAPHTHALENE	7.1	UG/L	0.27	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	NAPHTHALENE	< 0.27	UG/L	0.27	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	n-BUTYLBENZENE	10	UG/L	0.14	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	n-BUTYLBENZENE	< 0.14	UG/L	0.14	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	N-PENTANE(C5)	3.5	UG/L	0	TI	J	A
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	n-PROPYLBENZENE	**38**	UG/L	0.15	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	n-PROPYLBENZENE	**0.16**	UG/L	0.15	TR	J	T
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	n-PROPYLBENZENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	**0.25**	UG/L	0.12	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	**0.18**	UG/L	0.12	TR	J	T
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	**0.97**	UG/L	0.12	TR	J	T
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	O-XYLENE (1,2-DIMETHYLBENZENE)	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	**13**	UG/L	0.18	=	-	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	**0.29**	UG/L	0.18	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	2.6	UG/L	0.18	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	P-CYMENE (p-ISOPROPYLTOLUENE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	SEC-BUTYLBENZENE	8.3	UG/L	0.18	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	SEC-BUTYLBENZENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	STYRENE	< 0.11	UG/L	0.11	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	t-BUTYLBENZENE	1.8	UG/L	0.13	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	t-BUTYLBENZENE	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	TERT-AMYL METHYL ETHER	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	TERT-BUTYL ETHYL ETHER	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	tert-BUTYL METHYL ETHER	4	UG/L	0.13	=	-	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	tert-BUTYL METHYL ETHER	1.5	UG/L	0.13	=	-	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	tert-BUTYL METHYL ETHER	< 0.13	UG/L	0.13	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	TETRACHLOROETHYLENE(PCE)	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	TOLUENE	**0.57**	UG/L	0.12	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	TOLUENE	**0.17**	UG/L	0.12	TR	J	T
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	TOLUENE	**2**	UG/L	0.12	=	-	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	TOLUENE	< 0.12	UG/L	0.12	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	trans-1,2-DICHLOROETHENE	**0.36**	UG/L	0.15	TR	J	T
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	trans-1,2-DICHLOROETHENE	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	trans-1,3-DICHLOROPROPENE	< 0.18	UG/L	0.18	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	TRICHLOROETHYLENE (TCE)	0.24	UG/L	0.15	TR	J	T
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	TRICHLOROETHYLENE (TCE)	< 0.15	UG/L	0.15	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	TRICHLOROFLUOROMETHANE	< 0.17	UG/L	0.17	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-

Appendix H, continued

Analytical Results for all Constituents in Groundwater

Groundwater Results:

Location	Sample ID	Sample Type	Sample Date	Depth (FT)	Analytical Method	Analyte	Result	Units	Detect Limit	Parvq	QC Flag	Reason Code
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	VINYL ACETATE	< 0.69	UG/L	0.69	ND	U	-
PD001HP007	PD001HP007-A-W01	N	7/8/2005	0 - 5	SW8260B	VINYL CHLORIDE	**920**	UG/L	6.3	=	-	-
PD001HP007	PD001HP007-A-W02	N	7/8/2005	103 - 108	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP008	PD001HP008-A-W01	N	7/11/2005	5 - 10	SW8260B	VINYL CHLORIDE	**4.9**	UG/L	0.25	=	-	-
PD001HP009	PD001HP009-A-W02	N	7/8/2005	105 - 110	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP009	PD001HP009-A-W01	N	7/8/2005	0 - 5	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP010	PD001HP010-A-W02	N	7/7/2005	44 - 49	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP010	PD001HP010-A-W01	N	7/7/2005	5 - 10	SW8260B	VINYL CHLORIDE	**0.42**	UG/L	0.25	TR	J	T
PD001HP011	PD001HP011-A-W01	N	7/7/2005	0 - 5	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP011	PD001HP011-A-W02	N	7/7/2005	105 - 110	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP012	PD001HP012-A-W01	N	7/11/2005	0 - 5	SW8260B	VINYL CHLORIDE	**0.63**	UG/L	0.25	TR	J	T
PD001HP012	PD001HP012-A-W02	N	7/11/2005	50 - 55	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP013	PD001HP013-A-W02	N	7/7/2005	103 - 108	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
PD001HP013	PD001HP013-A-W01	N	7/7/2005	0 - 5	SW8260B	VINYL CHLORIDE	< 0.25	UG/L	0.25	ND	U	-
FR01GR001	FR01GR001-A-W01	N	2/6/2008	0 - 0	SW6010B	ZINC	**0.0147**	MG/L	0.005	=	-	-
FR01GR002	FR01GR002-A-W01	N	2/6/2008	3.2 - 8.2	SW6010B	ZINC	**0.00986**	MG/L	0.005	TR	J	T

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
Agnes Farres, RWQCB Project Manager, General Comments, September 5, 2006			
1.	General	Over the last several years, the Water Board has discouraged the use of the acronym "RWQCB". At the first mention of our organization in the report, we should be called the San Francisco Bay Regional Water Quality Control Board (Water Board). Thereafter, we can be referred to simply as the Water Board. The References section (Section 8) should be corrected to the following: San Francisco Bay Regional Water Quality Control Board (Water Board). 2005. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.* Interim Final. February. Citations within the report should also be corrected. For example: (Water Board 2005)	The change will be made as requested for this report and all future reports.
2.	General	Groundwater flow is an important parameter in evaluating nature and extent of contamination. Please indicate the direction of groundwater flow in all the figures.	Agreed. The inferred direction of groundwater flow will be placed on all results figures in Section 6, except for locations where there is no groundwater (i.e. Figure 6-1 Building 51). The basis of the groundwater flow direction is provided in the Conceptual Hydrogeologic Model (Brown and Caldwell, 2005).

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
3.	General	A No Further Action Conclusion was reached prematurely for the following sites: ▪ Building 168 ▪ Alleged Post Dumpsite ▪ AFV The determination of No Further Action for these sites was based on limited data, a reliance on poorly kept records, and unsubstantiated conclusions.	Please reconsider your objections to no further action at these sites based on the responses given in the following comments.
Agnes Farres, RWQCB Project Manager, Specific Comments, September 5, 2006			
1	Section 6.3	One groundwater sample showed cobalt at concentrations exceeding ESLs. The Army concluded that no further investigation is recommended and that a risk assessment will be performed. Explain how a risk assessment will be performed using only one sample point and limited information on the source and extent of the cobalt contamination.	The risk assessment will be conducted using all the cobalt groundwater data collected from the Arsenal (including all non detects and detects). Therefore, there is more than just one data point involved. The USACE would like to suggest that the data presented is sufficient to determine if there has been a significant release from Army activities that ended at the Arsenal over 40 years ago.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
2.	Section 6.4	A diesel fuel plume was delineated adjacent to Building 168, a former vehicle shop. The Army concluded that no further DoD action was necessary because the diesel fuel in the shallow groundwater has no known source and the concentrations do not exceed the ESL. The conclusion of no further action is not justified as the area surrounding the plume has not been adequately characterized to demonstrate the lateral extent of the plume with any certainty. Given the historical use of Building 168 as a former vehicle shop, it is a likely source of contamination. However, the area immediately surrounding Building 168 has not been sampled.	It was used as a "vehicle shop" during WWII and then used as a "packaging building." This shop did not have any service pits or USTs. All of the reported diesel range hydrocarbons concentrations were low (less than 270 ug/L). The two locations closest to the building is less than 170 ug/L. Other known source areas (e.g Building 154 UST shown on the north edge of Figure 6-4) have concentrations much greater (~ 5,000 ug/L) even after the Army left 40 years ago. Additionally, the inferred direction of groundwater flow (placed on the figure per your General Comment #2) indicates that the building is not likely the source of these concentrations.
3.	Figure 6-4	This figure shows the diesel fuel detected in shallow groundwater near Building 168. Please show the direction of groundwater flow in the figure. Also, a second plume is shown in the figure, located northeast of the plume adjacent to Building 168. Provide information on the source and extent of this plume, and its relationship to the plume adjacent to Building 168. Evaluate the possibility of the two plumes commingling.	Inferred groundwater flow directions have been added per your request. Diesel range hydrocarbons shown on the north edge of Figure 6-4 are associated with former USTs at Building 154. A summary of the investigation at these USTs can be found in the Expanded SI (Brown and Caldwell, 2005). Extent of this plume has been defined and has no relation to the low residual concentrations reported in groundwater near Building 168 based on the interaction of the storm drain system in this area and that borings B059AHP001 and SWAMPAHP008 downgradient of Building 154 are non-detect. Please refer to Expanded SI for more information about the interaction of the storm drain system with shallow groundwater.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
4.	Section 6.5 (pg. 6-10 to 6-13)	Recent soil and groundwater data are inconsistent with the results of a soil investigation report dated May 2004 (referred to as URS data). Because the two data sets are inconsistent and the presence of constituents found during the previous URS investigation is not supported by the more recent investigation, the Army decided to use the most current data set to determine the impacts to soil and groundwater at the site. However, the URS data presumably passed data quality objectives and were included in the *Report for Soil Investigation at the Benicia Industries Property and Former NIKE Battery 10 Site Concord to Sacramento Pipeline Project* (May 2004). As such, the URS data is valid and should be used in conjunction with the more recent data to determine the impacts to soil and groundwater at the site.	Inclusion of the URS data was considered for this report. In effort to provide a better portrayal of the chemical composition in groundwater, a graphical representation using pie charts will be added to the report as Figure 6-11. This technique was used in the Expanded SI as an effective way to show degradation products and evidence of different source areas. Each pie chart represents the sample composition and the relative magnitude of each compound, in this case, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride. The ratios of TCE and its degradation products indicate little to no TCE and trans-1,2-DCE with the largest fraction attributed to cis-1-2-DCE and vinyl chloride. Cis-1,2-DCE and vinyl chloride concentrations are similar except in the area of PD007 and URS boring SB-1 where PD007 indicates a higher ratio of vinyl chloride to cis-1,2-DCE. This inconsistency was the reason for using only the recent data in the report. In any event, the absence of TCE in groundwater and the presence of degradation products indicate that subsurface conditions are conducive to TCE biodegradation via reductive dechlorination.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
5.	Section 6.5 (pg. 6-10 to 6-13):	Recent soil and groundwater samples were co-located with previous URS borings, but varied in depth and distance from the URS borings. Since more recent soil and groundwater samples could not be taken at the same exact location and depth of previous URS borings, some variation in the results are to be expected. For example, a URS soil sample taken at 5.5 feet found TCE at concentrations of 7 mg/kg (it is noted that the sample was likely saturated with groundwater). A recent soil sample taken at 1.5 feet did not detect TCE. I believe the difference in results can be partly attributed to samples being taken at different soil depths. In addition, TCE concentrations are expected to increase with depth so it is not unusual that TCE was not detected in the recent shallow soil sample.	We appreciate you acknowledging these facts.
6.	Figure 6-5	Please indicate sample depth for all the sampling locations. Also, in some cases where two samples are taken at different depths, concentrations of an analyte are sometimes noted at one depth but not at another depth. Indicate whether the analyte was not detected or was not tested for in the soil sample for the second depth.	Samples shown on this figure are also shown on Figure 6-5 with depths. The purpose of this figure was to show geology with an overlay of the diesel range hydrocarbon results in groundwater. Therefore, only those groundwater samples are shown on this figure. No soil sample results were planned for

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
			this figure.
7.	Section 6.5 (pg. 6-20)	The presence of breakdown products (cis,-1,2,-DCE and vinyl chloride) indicates that anaerobic degradation is likely occurring, but it does not necessarily indicate that aerobic degradation is occurring as well. TCE naturally breaks down into cis,-1,2,-DCE then vinyl chloride in an anaerobic environment. Natural degradation of vinyl chloride then only continues in an aerobic environment, which would be indicated by the presence of ethylene (the breakdown product of vinyl chloride). Further, the natural degradation of vinyl chloride occurs very slowly, and likely cannot be relied on as the only remedy.	Actually, there are field studies that have shown that TCE and its breakdown products (except vinyl chloride) can degrade in an aerobic or anaerobic environment[1]. The anaerobic environment is the most common. Examples of aerobic environments include methane-enriched soils or suitable microorganism substrates. There is not the data to suggest that an aerobic environmental exists at this site. Based on the pie charts, there is an almost equal fraction of cis-1,2-DCE to vinyl chloride which indicates that degradation processes from TCE to vinyl chloride are working well. Degradation of vinyl chloride will be taken into account during the Feasibility Study to estimate remediation timeframes and remedy selection.
8.	Section 6.5 (pg. 6-20)	Diesel range hydrocarbons are present throughout the shallow groundwater at the alleged Post Dumpsite, with no known source. The Army claims the petroleum hydrocarbons are due to different sources including a release of petroleum, degradation products of petroleum, compounds that come from biological organisms that degrade petroleum, or compounds that come from natural sources. The Army concluded that natural sources likely constitute the predominant fraction of petroleum hydrocarbons at the site. However, this inference has not been substantiated or quantified by scientific analysis of samples from the site.	Agreed no quantifiable results were taken to absolutely define this fraction contributed by natural sources.

[1] *Dense Chlorinated Solvents and other DNAPLs in Groundwater*. 1996. James Pankow and John Cherry. Waterloo Press.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
9.	Section 6.5 (pg. 6-23)	The Army recommended no further action because (1) there is no known source of the petroleum hydrocarbons, (2) there is no known source of the parent chemical for cis,-1,2-DCE and, (3) because the parent solvent was not detected in groundwater. Considering the historical use of the site as a dumpsite from 1940 through 1964, it is likely that the present contamination is due to the Army's disposal activities, particularly since interviews reported the disposal of metal cleaning corrosives and the burning of thousands of gallons of gasoline. The conclusion of No DoD Action Indicated (NDAI) is not supported by the results of the soil and groundwater investigation. The site should be evaluated using the recent data as well as the soil investigation conducted by a previous consultant.	The addition of the older data by URS does not change the recommendations in this report. As discussed in responses above, if there TCE present in shallow groundwater at SB-1 there is plenty of evidence that indicates that degradation will occur and it has been defined. This leaves the presence of petroleum hydrocarbons in shallow groundwater. The eventual risk from these hydrocarbons is minimal based on the concentrations detected. Therefore, USACE respectively disagrees with more evaluation at the site.
10.	Section 6.6 (pg. 6-23)	According to Figure 1-2, the AFV appears to be located west of the alleged Post Dumpsite.	Agreed. The text will be changed.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
11.	Section 6.6 (pg. 6-23	The Army concluded that petroleum hydrocarbons in deeper groundwater samples collected at the AFV are from the area of the alleged Post Dumpsite, which are presumed to be from natural sources. Considering the historical use of the AFV, it is very possible that a petroleum release occurred on-site. Explain how the Post Dumpsite was determined to be the source of petroleum hydrocarbons in the AFV. Was the location of a nearby above ground tank uphill from the AFV investigated as a possible source? Also, there is no data to support the conclusion that petroleum hydrocarbons in either the Post Dumpsite or the AFV are primarily from natural sources. Neither the Post Dumpsite nor the AFV have been sufficiently characterized to support the Army's recommendation of no further action.	As presented in Figure 6-6, the AFV is the buried tank located approximately 300 feet uphill in a draw of a small valley from boring AFVSB002. AFVBS002 is located on the eastern edge of the former tideland that includes the alleged Post Dumpsite. There is not the means to investigate the AFV because of the physical limitations presented at the site (i.e., up to 15 feet of boulder-containing fill placed over the tank and the steep conical depression surrounding the buried tank) without significant cost and effort (e.g. lifting an air rotary drill rig by crane into the depression). Therefore, until the means are available to investigate the potential impact at the AFV, there will not be the conclusive evidence to eliminate the AFV. However, based on the location of the AFV 300 feet up hill from the area of the alleged Post Dumpsite and that the activity stopped over 40 years ago, it is very unlikely that petroleum hydrocarbons reached groundwater (which is minimal in the draw of that valley and then reach AFVSB002. The more logical explanation is the area of the alleged Post Dumpsite.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
Chris Parent, Dept. of Toxic Substances Control—General Comments, dated December 1, 2006			
1.	General	The Report describes site investigation work completed at the following sites: • Former Drum Storage/Maintenance Area (Bldg 51) • Former Locomotive Building (Bldg 90) • Former Battery Charge Building (Bldg 101) • Former Bar Stock Building/Storage/Vehicle Shop for Motor Pool (Bldg 168) • Alleged Post Dumpsite; • Popping Pot (i.e. Armored Fighting Vehicle)	Thank you for your comments.
2.	General	The work described in the Report was planned and implemented without concurrence by the state. A similar decision led to implementing the Site Investigation Work Plan without state approval resulting in numerous and ongoing disputes regarding the quality and completeness of the investigations. This situation might have been mitigated if the United States Army Corps of Engineers (USACE) had not unilaterally proceeded with the work.	The work described in this report was an extension of the Expanded SI Field Site Investigation Plan (FSIP), dated April 2004, to fill in data gaps found during the Expanded SI. The project team, including the regulators, was apprised that the work was going to be conducted and was going to follow the subject FSIP. To date, comments on the FSIP have still not been received from DTSC.
3.	General	It is unclear how USACE plans to proceed with the sites where they have not been granted Right of Access. DTSC and the Regional Water Quality Control Board will investigate their respective authorities to recommend a course of action.	USACE cannot proceed without access from landowners. As previously stated in other reports and during meetings, USACE would appreciate any assistance that the regulators can provide in gaining access to these properties.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
4.	General	Groundwater flow is not clearly delineated on the figures.	Agreed. The inferred direction of groundwater flow will be placed on all results figures in Section 6, except for locations where there is no groundwater (i.e. Figure 6-1 Building 51). The basis of the groundwater flow direction is provided in the Conceptual Hydrogeologic Model (Brown and Caldwell, 2005).
5.	General	If the criteria established under the Risk Assessment Guidance (RAG) is applied; there continues to be insufficient soil data to perform risk assessments at sites where no further action is being recommended regardless of the reason stated.	The FUDS policy does not apply RAG criteria for NDAI sites. However, RAG is considered once the site is investigated and proceeds into the risk assessment stage.
6.	General	DTSC does not believe the Army historical records on the arsenal are detailed or complete enough to support conclusions regarding use or disposal of specific chemicals at a site.	The historical documents available are all what is available.
Chris Parent, Dept. of Toxic Substances Control—Specific Comments, dated December 1, 2006			
1.	Page 6-3, Section 6.1	The use of phthalates by the Army during its tenure at Benicia Arsenal is probable. Please refer to Mr. Mark Vest's comment number 63, page 20 in his response to comments for the Draft Site Inspection Report. Army responsibility is likely the cause of the contamination at Building 51 (Former Drum Storage/Maintenance Area) and cannot be discounted. DTSC disagrees there is sufficient data to conduct a risk assessment, or that a risk assessment makes sense without further investigation.	DTSC has inferred that there is a possible association of phthalates to the propellant used in NIKE missiles (which are present at the Arsenal in the 1950s) and in insect repellents. Building 51 was built in 1909. This is not a site where NIKE missiles were stored, assembled, or is this site part of a missile battery. There are no records of storage of insect repellents at this site. The presence of phthalates is most commonly associated with post DoD sources (i.e. manufacturers using plasticizers).

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
2.	Page 6-4, Section 6.2	DTSC's concern at Building 90 (former Locomotive Building) was lack of data. That is still the case. There is still insufficient soil data to conduct a risk assessment per Ms. Patty Wong's comment in response to comments for the SI comment Number 103. DTSC also continues to recommend the approach stated by Mr. Vest in his response to comments number 66, page 26, for the Army to complete a survey concluding multiple soil gas sampling points in the area of Buildings 165, 156, and 90. Mr. Vest further stipulates that groundwater has not been delineated in this area and should be per the Army's decision diagram.	The potentials impacts in this area will be addressed in the Feasibility Study phase.
3.	Page 6-6, Section 6.3	The sample collected at the drain was analyzed for lead only and not for any other constituents that may have resulted from the action of cleaning batteries. The detection of cobalt is not adequately explained. There is still insufficient soil data for a risk assessment.	The potentials impacts in this area will be addressed in the Feasibility Study phase.
4.	Page 6-8, Section 6.4	One of the stated goals of the additional field work was to determine the source of the low levels of diesel in groundwater. The source is still unknown. The second goal was to delineate impacted groundwater. According to Figure 6-4 there is no constraint on the southern portion of the delineation. DTSC maintains that this area is not adequately characterized.	The potentials impacts in this area will be addressed in the Feasibility Study phase.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
5.	6-10, Section 6.5	The recommendation that no further Department of Defense (DoD) action is necessary at the post dumpsite is not substantiated with the Expanded SI sampling results, or with the analysis of the sampling results that include the Expanded SI, Addendum SI and URS sampling event. The discussion on page 6-20 regarding if the petroleum hydrocarbons are naturally occurring is unsupportable. The areas of contamination should be delineated on the map. There is clearly vinyl chloride in shallow groundwater. The extent is unknown. The use and interpretation of the URS data is convoluted and does not support the recommendation of no further action. The contours of diesel range hydrocarbons on Figure 6-10 are not supportable from the presented data. Please refer to Mr. Vest's comment number 49, page 3, in his response to comments for the Expanded SI. Much of Mr. Vest's response to comment is still not addressed as a result of the Addendum field work.	The potentials impacts in this area will be addressed in the Feasibility Study phase.
6.	Page 6-23, Section 6.6	The discussion for the popping pot does not address that unknown quantities of ordnance remains at depth. The risk scenario for residual ordnance at depth is unknown. Please refer the Mr. Vest's response to comment number 62, page 19, in his response to comments for the expanded SI. Please also refer to Ms. Wong's response to comment number 89 of her response to comments for the Expanded SI. There is insufficient data for risk assessment purposes.	Text will be added to state that not all of the burned fuses were removed in response to Mr. Vest's comment #62 on the Expanded SI. Otherwise, the potentials impacts in the area (borings AFVSB001 and AFVSB002) next to the alleged Post Dumpsite will be addressed in the Feasibility Study phase.

Comment Response Table for the Draft Expanded Site Inspection Addendum Report (June 2006) Benicia Arsenal, Benicia, CA			
Comment No.	Page/ Section	Agency Comments	Response to Comments
7.	Page 7-1, Section 7.1	The Summary of Conclusions for the presented sites is not supported by the actual data and by the interpretation of data. There continues to be data gaps and a reasonable probability of DoD responsibility.	The potentials impacts in this area will be addressed in the Feasibility Study phase.
8.	Page 7-2, Section 7.3	DTSC does not concur that DoD did not contribute wholly or in part to the contamination detected. The recommendations for risk assessments as action is unclear given that the United States Army Corps of Engineers has not agreed to follow approved DTSC/U.S. EPA risk assessment protocol.	FUDS guidance directs DoD to proceed on areas that are solely the result of Army activities.