FINAL

FORSCOM

CORRECTIVE ACTION PLAN

Part B

3d Inf Div (Mech)

Underground Storage Tanks 21 & 22
Facility Identification Number 9-025053
Building 1327
Hunter Army Airfield, Georgia

Prepared for

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract No. DACA21-95-D-0022
Delivery Order 0038

October 1999

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SAIC®

DOCUMENT 2.5

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FACILITY IDENTIFICATION NUMBER: 9-025053
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Prepared for:
U.S. Army Corps of Engineers
Savannah District
Under Contract Number DACA21-95-D-0022
Delivery Order Number 0038

Prepared by:
SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
800 Oak Ridge Turnpike
Oak Ridge, Tennessee 37831

October 1999

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

contributed to the preparation of this document and should not be considered an eligible contractor for its review.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ACL	alternate concentration limit
ARAR	applicable or relevant and appropriate requirement
ASTM	American Society for Testing and Materials
BGS	below ground surface
BTEX	benzene, ethylbenzene, toluene, and xylenes
CAP	Corrective Action Plan
COPC	chemical of potential concern
DAF	dilution attenuation factor
DPW	Directorate of Public Works
DRO	diesel-range organic
EPA	U.S. Environmental Protection Agency
FS	Fort Stewart
GA EPD	Georgia Environmental Protection Division
gpm	gallons per minute
GRO	gasoline-range organic
GUST	Georgia Underground Storage Tank Management Program
HAAF	Hunter Army Airfield
ISC	Initial Site Characterization
IWQS	In-stream Water Quality Standard
MCL	maximum contaminant level
NCO	noncommissioned officer
PAH	polynuclear aromatic hydrocarbon
ppm	parts per billion
PVC	polyvinyl chloride
QC	quality control
RBCA	risk-based corrective action
SAIC	Science Applications International Corporation
SI	Site Investigation
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
UST	underground storage tank
VOC	volatile organic compound

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I. CORRECTIVE ACTION PLAN CERTIFICATION - PART B

(Form and certification follow this page.)

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Georgia Department of Natural Resources
Environmental Protection Division
Land Protection Branch
Underground Storage Tank Management Program
4244 International Parkway, Suite 104
Atlanta, Georgia 30354
Phone (404) 362-2687
FAX (404) 362-2654

CORRECTIVE ACTION PLAN
PART B

Facility Name: Building 1327, USTs 21 & 22 Site

Street Address: White Drive and Wilson Boulevard

City: Hunter Army Airfield **County:** Chatham

Facility ID #: 9-025053

Submitted by UST Owner/Operator:				**Prepared by:**			
Name:	Thomas C. Fry/Environmental Branch			Name:	C. Allison Bailey		
Company:	US Army/HQ 3d Inf. Div (Mech)			Company:	Science Applications International Corp.		
Address:	DPW ENRD ENV. Br (Fry)			Address:	P.O. Box 2502		
	1557 Frank Cochran						
City:	Fort Stewart	State:	GA	City:	Oak Ridge	State:	TN
Zip Code:	31314-4928			Zip Code:	37831		

I. PLAN CERTIFICATION:

A. UST Owner/Operator:

I hereby certify that the information contained in this plan and in all the attachments is true, accurate, and complete, and the plan satisfies all criteria and requirements of Rule 391-3-15-.09 of the Georgia Rules for Underground Storage Tank Management.

Name: Thomas C. Fry

Signature: Thomas C. Fry Date: 10/15/99

B. Professional Engineer or Professional Geologist:

Name: William K. Jago

Signature: W. K. Jago

Date: 10-7-99

Georgia Stamp or Seal

Check all boxes below that apply. Attach supporting documentation, i.e., narrative, figures, tables, maps, boring/well logs, etc., for all items checked. Supporting documentation should be three-hole punched and prepared in conformity with the guidance document "Underground Storage Tank (UST) Release: Corrective Action Plan – Part B (CAP-B) Content," GUST-7B.

II. SITE INVESTIGATION REPORT:

A. Horizontal and Vertical Extent of Contamination:

- ☒ Soil (Section II.A.1)
- ☒ Groundwater (Section II.A.2)
- ☒ Free product
- ☐ Surface water

B. Local and Site Hydrogeology:

- ☒ Documentation of local groundwater conditions (Section II.B.1)
- ☒ Stratigraphic boring logs (Section II.B.2)
- ☒ Stratigraphic cross sections (Section II.B.3)
- ☒ Referenced or documented calculations of relevant aquifer parameters (Section II.B.4)
- ☒ Direction of groundwater flow (Section II.B.5):
  - ☒ Table of monitoring well data (Table II-8)
  - ☒ Potentiometric map (Figures II-18 and II-19)
  - ☒ Flow net superimposed on an Installation map (Figures II-20 and II-21)

III. REMEDIAL ACTION PLAN:

A. Corrective Action Completed or In Progress:

- ☒ Recovery/removal of free product (nonaqueous-phase hydrocarbons)
- ☐ Remediation/treatment of contaminated backfill material and native soils
- ☐ Other (specify) Not applicable.

B. Objective of Corrective Action:

- ☐ Remove free product that exceeds one-eighth inch
- ☐ Remediate groundwater contamination that exceeds:
  - ☐ Maximum contaminant levels (MCLs)

    OR
  - ☐ In-stream water quality standards

B. Objective of Corrective Action (continued):

☐ Remediate soil contamination that exceeds:

☐ Threshold values listed in Table A

OR

☐ Threshold values listed in Table B

OR

☐ Alternate Threshold Levels (ATLs) (App. VI of the CAP-Part A Report, March 1999)

☒ Provide risk-based corrective action (Section III.B.4)

☐ Remediate soil and/or groundwater contamination that exceeds alternate concentration limits (ACLs) and monitor residual contaminants

OR

☒ Monitor soil and/or groundwater contamination that exceeds levels in Rule -.09 (3) but is less than ACLs

C. Design and Operation of Corrective Action Systems:

☐ Soil ☐ Groundwater ☐ Free product ☐ Surface water ☒ Not applicable

D. Implementation (Section III.D):

Includes, as a minimum, the following:

- Milestone schedule for site remediation
- Inspection and preventive maintenance schedule for all specialized remediation equipment
- Monitoring/sampling and reporting plan for measuring interim progress and project completion
- Plan to decommission equipment/wells and close site

IV. PUBLIC NOTICE

☐ Certified letters to adjacent, and potentially affected, property owners and local officials

☒ Legal notice in newspaper, as approved by EPD (Section III.E)

☐ Other EPD-approved method (specify)_____

V. **CLAIM FOR REIMBURSEMENT** (For GUST Trust Fund sites only) :

- ☐ GUST Trust Fund Application (GUST-36) must be attached, if applicable
- ☐ Cost proposal
  - ☐ Non-reimbursable costs

    OR
  - ☐ Reimbursable costs
    - ☐ Total project costs
      - ☐ Costs incurred to date, per GUST-92
      - ☐ Estimated costs to complete corrective action, per GUST-92
    - ☐ Invoices and proofs of payment for costs incurred to date
- ☐ Proposed schedule for reimbursement
  - ☐ Lump sum payment upon completion of corrective action

    OR
  - ☐ Interim payments with final payment upon completion
- ☒ Not applicable

II. SITE INVESTIGATION REPORT

This document represents the Site Investigation (SI) Report for the former underground storage tanks (USTs) 21 and 22, Facility ID: 9-025053, Building 1327, at Hunter Army Airfield (HAAF), Georgia. The USTs 21 and 22 site is located in the 224th motorpool on White Road, as illustrated in Figure II-1. The USTs 21 and 22 site is located within an average or higher groundwater pollution susceptibility area and is greater than 500 feet from a withdrawal point. According to the operational information provided by the HAAF Directorate of Public Works (DPW), UST 21 had a capacity of 8000 gallons and was used for the storage of diesel fuel. UST 22 had a capacity of 2000 gallons and was used for the storage of gasoline. Both USTs were located in the same tank pit and were constructed of fiberglass-reinforced plastic, and the associated piping was constructed of galvanized steel. The USTs were installed on February 5, 1985. Both UST systems were last used on September 5, 1996. The tanks were removed and the associated piping abandoned in place on September 12, 1996.

An Initial Site Characterization (ISC) was performed in September 1996 by Anderson Columbia Environmental, Inc. (Anderson Columbia). During UST removal and excavation activities, benzene, toluene, ethylbenzene, and xylenes (BTEX) were not present in the soil at concentrations exceeding applicable Georgia Underground Storage Tank (GUST) Management Program soil threshold levels (Anderson Columbia 1996). However, elevated total petroleum hydrocarbon–diesel-range organics (TPH-DRO) and total petroleum hydrocarbon–gasoline-range organics (TPH-GRO) were detected. In addition, toluene and total xylenes were detected in a groundwater sample collected from the bottom of the tank pit at concentrations exceeding federal maximum contaminant levels (MCLs).

Based on the findings of the ISC, a Corrective Action Plan (CAP)-Part A SI was conducted by Science Applications International Corporation (SAIC) in April 1998 to determine the nature and extent of petroleum contamination. The CAP-Part A SI consisted of installing six soil borings for soil and groundwater sampling and two vertical profile borings. The CAP-Part A report (SAIC 1999a) was submitted to the Georgia Environmental Protection Division (GA EPD) in March 1999 and describes the results of the ISC and the CAP-Part A SI. As outlined in the CAP-Part A report, a CAP-Part B SI was determined to be necessary to:

- delineate the extent of free product;
- delineate the horizontal extent of benzene contamination in groundwater to concentrations below the applicable MCL; and
- assess the potential impact of petroleum contaminants to surface water and sediment in the drainage ditch located northeast (downgradient) of the site.

The CAP-Part B SI consisted of the installation of seven soil borings/groundwater monitoring wells for soil and groundwater sampling and the collection of two surface water and sediment samples from drainage ditches located downgradient of the site. A more thorough description of the CAP-Part B SI technical approach is presented in the Sampling and Analysis Plan (SAIC 1998) and associated addendum (SAIC 1999b).

This report presents the findings of the CAP-Part B SI for USTs 21 and 22. The investigation was performed by SAIC for the Fort Stewart (FS) DPW, Environmental Branch, through the U.S. Army Corps of Engineers (USACE), Savannah District, in April and May 1999 under contract DACA21-95-D-0022, delivery order 0038.

II.A. HORIZONTAL AND VERTICAL EXTENT OF CONTAMINATION

The horizontal and vertical extent of petroleum contamination in soil and groundwater has been delineated by activities performed during the ISC, CAP-Part A SI, and CAP-Part B SI. In addition, the passive removal of free product was accomplished during the interim between the CAP-Part A and CAP-Part B investigations. The ISC consisted of the tank removal and collection of two soil samples from the tank pit. These samples were analyzed for BTEX, polynuclear aromatic hydrocarbons (PAHs), TPH-DRO, and TPH-GRO. In addition, a groundwater sample was collected from the bottom of the tank pit and analyzed for BTEX and PAHs. The CAP-Part A SI was performed in accordance with the technical approach described in the *Sampling and Analysis Plan for the Corrective Action Plan-Part A Investigations for Former Underground Storage Tanks at Hunter Army Airfield, Georgia* (SAIC 1998). The CAP-Part A SI consisted of the following investigative activities:

- installation of six soil borings with direct-push technology (Geoprobe®);
- collection of soil samples for BTEX, PAH, TPH-DRO, TPH-GRO, volatile organic compound (VOC) headspace, and geotechnical analyses;
- collection of groundwater samples for BTEX and PAH analyses; water samples were collected using the Geoprobe® from the six shallow boreholes and from two vertical profiles [total depth 45.0 feet below ground surface (BGS)];
- installation of six temporary piezometers for site water level and free product measurements;
- passive removal of free product; and
- conducting a water resource survey.

The CAP-Part B SI was performed in accordance with the *Sampling and Analysis Plan for the Corrective Action Plan-Part A Investigation for Former Underground Storage Tanks at Hunter Army Airfield, Georgia* (SAIC 1998), and the *Addendum to Sampling and Analysis Plan* (SAIC 1999b). The CAP-Part B SI field activities included:

- drilling seven borings to collect soil samples for BTEX, PAH, TPH-DRO, TPH-GRO, VOC headspace, and geotechnical analyses;
- installing seven monitoring wells to collect groundwater samples for BTEX, PAH, and water quality analyses;
- collecting a comprehensive round of site water level and free product measurements; and
- collecting two surface water and sediment samples from two unnamed ditches located downgradient of the site for BTEX, PAH, TPH-DRO, and TPH-GRO analyses.

The CAP-Part B SI analytical laboratory results are presented in Appendix A of this document.

II.A.1. Delineation of Soil Contamination

Petroleum-related contaminants detected in soil at the USTs 21 and 22 site during the ISC, CAP-Part A SI, and CAP-Part B SI included BTEX, fluoranthene, fluorene, naphthalene, 2-methyl-naphthalene, phenanthrene, pyrene, anthracene, and TPH-GRO/DRO. One or more of these constituents were present in 16 out of 26 soil samples collected during the CAP-Part A and Part B investigations. None of the detected compounds exceeded the GUST applicable soil threshold levels (i.e., Table A, column 2).

II.A.1.a. Contaminant concentrations

II.A.1.a.1. Initial Site Characterization

During the ISC, two soil samples were collected from the bottom of the tank pit excavation at a depth of approximately 10 feet BGS. Ethylbenzene, xylenes, anthracene, 2-methylnaphthalene, naphthalene, phenanthrene, pyrene, TPH-DRO, and TPH-GRO were detected in sample 8102-TK21/22-D2W-S. No constituents were detected in sample 8102-TK21/22-D1E-S. None of the detected compounds exceeded applicable GUST soil threshold levels. There are no applicable GUST soil threshold levels for 2-methylnaphthalene or TPH-DRO/GRO.

II.A.1.a.2. CAP-Part A Site Investigation

During the CAP-Part A SI, 12 soil samples were collected from 6 direct-push boreholes (L1–L5 and L9) at the USTs 21 and 22 site (Figure II-2). Borehole depths ranged from 9.0 to 10.0 feet BGS. These soil borings were converted into temporary piezometers using the same nomenclature. Sample locations are presented on Figure II-3 in plan view and cross-section views. The analytical results are presented in Table II-1 and on Figure II-4. Field screening results (Section II.A.1.b) and proximity of samples with respect to the water table were the criteria used to collect soil samples for geochemical analysis.

Five of the 12 soil samples collected during the CAP-Part A SI had detectable levels of either BTEX, TPH, or PAH constituents. Benzene was detected in sample HL9101 at a concentration of 0.0067J mg/kg. Toluene was detected in samples HL5101, HL5102, and HL9101 at concentrations of 0.005 mg/kg, 0.0047 mg/kg, and 0.040J mg/kg, respectively. Ethylbenzene and total xylenes were detected in sample HL9101 at concentrations of 0.423J mg/kg and 0.403J mg/kg, respectively. Several PAH compounds, including fluoranthene, fluorene, naphthalene, and phenanthrene, were detected in samples HL9101 and HL9103 at concentrations ranging from 2.29 to 8.59 mg/kg. All contaminant concentrations are below applicable GUST soil threshold levels and risk-based screening levels (see Section III of this document). Detection limits for BTEX constituents ranged from 0.0021 to 0.0067 mg/kg. Detection limits for PAH compounds ranged from 0.353 to 3.61 mg/kg.

TPH-DRO was detected in samples HL5102, HL9101, and HL9103 at concentrations of 5.2 mg/kg, 1120 mg/kg, and 2560 mg/kg, respectively. In addition, TPH-DRO was detected in sample HL1110 (duplicate sample) at a concentration of 6.9 mg/kg. TPH-DRO was not detected in the primary sample, HL1103. TPH-DRO detection limits for remaining samples ranged from 0.46 to 2.7 mg/kg. TPH-GRO was detected in samples HL2101, HL5102, HL9101, and HL9103 at concentrations of 0.061J mg/kg, 0.140J mg/kg, 127 mg/kg, and 2.05 mg/kg, respectively. Detection limits for TPH-GRO ranged from 0.532 to 0.556 mg/kg. There are no applicable GUST soil threshold levels or risk-based screening levels for TPH-DRO/GRO.

II.A.1.a.3. CAP-Part B Site Investigation

During the CAP-Part B SI, 14 soil samples were collected from 7 boreholes at the USTs 21 and 22 site (Figure II-3). Borehole depths ranged from 15.0 to 15.8 feet BGS. Soil borings BL1 through BL7 were converted to monitoring wells MW-L1 through MW-L7 (see Appendices B and C). Soil boring and monitoring well locations were chosen based on CAP-Part A SI analytical results and groundwater flow direction as presented in the CAP-Part A Report (SAIC 1999a), which was approved by GA EPD in a correspondence dated August 3, 1999 (Wallace to Perez). All CAP-Part B SI soil samples were collected from above the saturated zone. Sample locations are presented in Figure II-3 in plan view and cross-section views. Analytical results are presented in Table II-2 and Figure II-4. Field screening results (Section II.A.1.b) and proximity of samples with respect to the water table were the criteria used to select soil samples for chemical analysis.

Twelve of the 14 soil samples collected during the CAP-Part B SI contained detectable levels of either BTEX, PAH, or TPH constituents. Toluene was detected in three samples at concentrations ranging from

0.00069J to 0.182 mg/kg. Ethylbenzene was detected in one sample (BL2103) at a concentration of 0.0071 mg/kg and in the corresponding duplicate sample at a concentration of 0.0049 mg/kg. Naphthalene and phenanthrene were also detected in sample BL2103 at concentrations of 0.0526J mg/kg and 0.0248J mg/kg, respectively, and in the duplicate sample (BL2113) at concentrations of 0.0456J mg/kg and 0.0226J mg/kg, respectively. All contaminant concentrations are below applicable GUST soil threshold levels and risk-based screening levels. The analytical results for the remaining soil samples were below the analytical detection limits achieved during the CAP-Part B SI. Detection limits for BTEX constituents ranged from 0.0019 to 0.0054 mg/kg. Detection limits for PAH compounds ranged from 0.355 to 0.402 mg/kg.

TPH-DRO was detected in soil samples BL1102, BL1103, BL2103, BL3102, BL4102, and BL4103 at concentrations ranging from 2.7 mg/kg in sample BL1103 to 27.4 mg/kg in sample BL4102. TPH-DRO detection limits for remaining samples ranged from 0.51 to 2.4 mg/kg. TPH-GRO was detected in samples BL1102, BL1103, BL3102, BL3103, BL4102, BL4103, BL5101, BL6102, and BL6103 at concentrations ranging from 0.0456J mg/kg in sample BL3103 to 0.670J mg/kg in sample BL1102. Detection limits for TPH-GRO ranged from 0.108 to 0.220 mg/kg. There are no applicable GUST soil threshold levels or risk-based screening levels for TPH-DRO/GRO.

II.A.1.b. Field screening results

Field screening through VOC headspace was performed on all soil samples collected from above the saturated zone during the CAP-Part A and Part B SIs. For each 4-foot-length soil macro-core sample taken during direct-push activities, two 2.0-foot grab samples were collected in glass jars and covered with aluminum foil. These samples corresponded to potential analytical sample aliquots collected from the same interval. After allowing at least 15 minutes for volatilization and temperature equilibration, VOC headspace concentrations were measured with a PhotoVac 2020 photoionization detector. Field screening results for the CAP-Part A and CAP-Part B site investigations are presented in Table II-3.

II.A.2. Delineation of Groundwater Contamination

Petroleum-related contaminants detected in groundwater at the USTs 21 and 22 site during the ISC, CAP-Part A SI, and CAP-Part B SI included BTEX, 2-methyl-naphthalene, acenaphthylene, naphthalene, and phenanthrene. These constituents were detected in 14 of the 22 groundwater samples collected during the ISC, CAP-Part A, and CAP-Part B investigations. Six samples from the CAP-Part A SI exceeded the MCLs for benzene, and only one sample, which was collected during the ISC, exceeded the MCLs for toluene and total xylenes. All other constituents detected were all below applicable regulatory threshold values. None of the groundwater samples collected during the CAP-Part B SI had constituents exceeding MCLs. Risk-based concentration values for BTEX and PAH constituents and alternate concentration limits (ACLs) for benzene and naphthalene based on fate and transport modeling results were developed for the USTs 21 and 22 site Remedial Action Plan using the CAP-Part A SI data (see Section III of this document).

II.A.2.a. Horizontal extent of groundwater contamination

II.A.2.a.1. Initial Site Characterization

During the ISC, one groundwater sample (8102-TK21/22-GW) was collected from the tank pit (approximately 10 feet BGS) during the removal of USTs 21 and 22 when groundwater invaded the bottom of the tank pit excavation. Toluene and total xylenes were detected at concentrations of 1000 µg/L and 10,500 µg/L, respectively. These concentrations were equal to or greater than the federal MCLs of 1000 µg/L and 10,000 µg/L, respectively. PAH compounds including naphthalene, 2-methyl-naphthalene, and phenanthrene were detected at concentrations of 170 µg/L, 196 µg/L, and 28 µg/L, respectively.

II.A.2.a.2. CAP-Part A Site Investigation

During the CAP-Part A SI, six groundwater samples were collected for chemical analysis from six direct-push groundwater sampling points to determine the horizontal extent of contamination at the site. Groundwater samples were also collected from two vertical profile borings (L-6 and L07) at the site. The analytical data for these samples are discussed in Section II.A.2.b, "Vertical extent of groundwater contamination." Boreholes L-1 through L-5 and L-9 were advanced down to approximately 5 feet below the water table, where the water samples were collected. Piezometers were then installed at these points for water level and free product measurements. The technical approach for the collection of CAP-Part A groundwater samples is presented in Attachment A of the *Corrective Action Plan-Part A Report* (SAIC 1999a).

Benzene was detected in samples HL1200, HL2200, HL3200, HL4200, and HL9200 at concentrations of 63 µg/L, 217 µg/L, 7.2 µg/L, 22.5 µg/L, and 8 µg/L, respectively, as presented in plan view and cross-section views on Figure II-5. All five concentrations exceed the federal MCL of 5 µg/L and the risk-based screening level of 0.36 µg/L. The concentration detected in HL2200 is above the state In-Stream Water Quality Standard (IWQS) of 71.28 µg /L. None of the detected benzene concentrations exceeded the site ACL for benzene of 2209.68 µg/L (see Section III.B.4.c). The analytical detection limit for benzene was 2 µg/L for all samples.

Ethylbenzene was detected in samples HL1200, HL2200, HL3200, HL4200, and HL9200 at concentrations of 289 µg/L, 202 µg/L, 5.1 µg/L, 13.7 µg/L, and 6.8 µg/L, respectively, as presented in plan view and cross-section views on Figure II-7. These concentrations are below the federal MCL of 700 µg/L, the state IWQS of 28,718 µg/L, and the risk-based screening level of 750 µg/L. The analytical detection limit for ethylbenzene was 2 µg/L for all samples.

Total xylenes were detected in samples HL1200, HL4200, and HL9200 at concentrations of 13.2J µg/L, 21.9 g/L, and 4.4J µg/L, respectively, as presented in plan view and cross-section views on Figure II-8. These concentrations are below the federal MCL of 10,000 µg/L and the risk-based screening level of 12,000 µg/L. This compound does not have a state IWQS. The analytical detection limit for total xylenes was 6 µg/L for all samples excluding HL1200, where the detection limit was 30 µg L.

Naphthalene was detected in samples HL4200 and HL9200 at concentrations of 24J µg/L and 17 µg/L, respectively, as presented in plan view and cross-section views on Figure II-9. This compound does not have a federal MCL or state IWQS. The concentrations are above the risk-based screening level of 6.5 µg/L; however, they are below the site ACL for naphthalene of 201.5 µg/L (see Section III.B.4.c). The analytical detection limit for naphthalene ranged from 10 to 408 µg/L.

Free product was detected in piezometer L-9 on April 23, 1998. A passive removal system was subsequently installed. Free product has not been detected at the site since September 22, 1998. A complete discussion of the free product is provided in Section II.A.3.

II.A.2.a.3. CAP-Part B Site Investigation

To delineate the free product plume and the dissolved benzene contamination plume, a CAP-Part B SI was conducted. During the CAP-Part B SI, seven groundwater samples were collected from seven monitoring wells (Table II-4). Monitoring well MW-L2 was located directly adjacent to piezometer L-9; monitoring wells MW-L1, MW-L6, and MW-L7 were located downgradient to horizontally delineate the dissolved contamination plume; MW-L5 was located in the vicinity of UST 21; MW-L3 was located near the dispenser island; and MW-L4 was located upgradient of the site. The monitoring locations are shown on Figure II-2 and were approved by GA EPD in a correspondence dated August 3, 1999 (Wallace to Perez). The monitoring well construction details are provided in Section II.B.5.a.

Benzene was detected in samples BL1200 and BL2200 at concentrations of 3.1 µg/L and 1.8J µg/L, respectively, as presented in plan view and cross-section views on Figure II-11. Neither of the concentrations exceeds the federal MCL of 5 µg/L, the state IWQS of 71.28 µg/L, or the site ACL for benzene of 2209.68 µg/L (see Section III.B.4.c). However, both concentrations exceed the risk-based screening level of 0.36 µg/L. The analytical detection limit for benzene was 2 µg /L for all samples.

Ethylbenzene was detected in samples BL1200 and BL2200 at concentrations of 11.9 µg/L and 3.7 µg/L, respectively, as presented in plan view and cross-section views on Figure II-12. These concentrations are below the federal MCL of 700 µg/L, the state IWQS of 28,718 µg/L, and the risk-based screening level of 750 µg/L. The analytical detection limit for ethylbenzene was 2 µg/L for all samples. No other constituents were reported above their respective detection limits in the groundwater samples collected during the CAP-Part B SI.

Naphthalene was detected in samples BL1200, BL2200, and BL2210 (duplicate) at concentrations of 26.2 µg/L, 4J µg/L, and 4.3J µg/L, respectively, as presented in plan view and cross-section views on Figure II-13. This compound does not have a federal MCL or state IWQS. The concentration detected in sample BL1200 is above the risk-based screening level of 6.5 µg/L; however, it is below the site ACL for naphthalene of 201.5 µg/L (see Section III.B.4.c). The analytical detection limit for naphthalene ranged from 10 to 11.1 µg/L.

II.A.2.a.4. Conclusions of the Horizontal Extent of Site Groundwater Contamination

Figures II-5 through II-13 demonstrate that the horizontal extent of petroleum contaminants in groundwater has been delineated to the appropriate analytical detection limits except in the area downgradient of CAP-Part A piezometer L-4, where the extent of benzene below the MCL of 5 µg/L has not been delineated.

Based on the CAP-Part A SI potentiometric data, monitoring wells MW-L1 and MW-L6 were positioned in locations downgradient of L-4 to assist in defining the horizontal extent of the groundwater plume. However, based on the CAP-Part B SI potentiometric data, the groundwater flow direction was determined to be east-northeast rather than northeast. Because of this change, a monitoring well is needed downgradient (east-northeast) of piezometer L-4 to delineate benzene contamination to a level below the MCL of 5 µg/L (see Section III, Remedial Action Plan, and Figure III-3).

Petroleum contaminants identified in the groundwater at the site include BTEX constituents normally associated with fuel releases. The USTs 21 and 22 site is a likely candidate for natural attenuation because the source of the contamination has been removed, groundwater contamination above MCLs was not detected during the CAP-Part B investigation, there is no groundwater contamination above MCLs downgradient from the area of highest contamination (L-2), and contamination has not impacted the downgradient receptor, thereby indicating that the residual contamination is being degraded.

However, the benzene contamination in the groundwater sample collected at location L-4 is still above the MCL. Therefore, as previously stated, an additional monitoring well will be installed downgradient to define the horizontal extent of contamination. The site's groundwater flow and geology are conducive to aerobic biodegradation, which is known to produce the most rapid biodegradation rates for hydrocarbons.

As indicated in Figure II-5, the area of highest groundwater contamination is located at former tank pit UST 21 (piezometer L-2). A permanent monitoring point was not installed during the CAP-Part A SI because the concrete pad was left in place at the bottom of the tank pit, and the required 10-foot-length of screen could not be installed. To monitor the elevated concentration of benzene in this area, a permanent monitoring well with a 5-foot-length of screen will be installed adjacent to the location of temporary piezometer L-2 (see Section III, Remedial Action Plan, and Figure III-3).

II.A.2.b. Vertical extent of groundwater contamination

The vertical extent of groundwater contamination was not investigated during the ISC or CAP-Part B SI. During the CAP-Part A SI, the vertical extent of groundwater contamination was delineated through groundwater sampling in vertical profiles L-6 and L-7 using direct-push technology. The technical approach for vertical profile installation is discussed in the *Corrective Action Plan-Part A Report* (SAIC 1999a).

The vertical profiles L-6 and L-7 were advanced 45 feet BGS. In each vertical profile, groundwater samples were collected at intervals of 11.0 to 15.0 feet BGS, 21.0 to 25.0 feet BGS, 31.0 to 35.0 feet BGS, and 41.0 to 45.0 feet BGS. All BTEX and PAH concentrations for samples collected from vertical profile L-6 were reported below analytical detection limits. Only the samples collected from vertical profile L-7 contained concentrations of BTEX and PAH compounds above the analytical detection levels. Results from samples collected from L-7 are discussed below.

Benzene was detected in sample HL7301 collected at a depth of 11 to 15 feet BGS at a concentration of 52 µg/L. This concentration exceeds the federal MCL of 5 µg/L and the risk-based screening level of 0.36 µg/L. However, the concentration does not exceed the site ACL of 155 µg/L for benzene (see Section III.B.4.c) or the state IWQS of 71.28 µg/L. The analytical detection limit for benzene was 2 µg/L.

Toluene was detected in sample HL7301 at a concentration of 3.4 µg/L (Figure II-6). This concentration does not exceed the federal MCL of 1000 µg/L, the risk-based screening level of 1300 µg/L, or the state IWQS of 200,000 µg/L. The analytical detection limit for toluene ranged from 2 to 4.2 µg/L.

Ethylbenzene was detected in samples HL7301 and HL7302 at concentrations of 90.1 µg/L and 2.7 µg/L, respectively. Sample L7301 was collected at a depth of 11 to 15 feet BGS, and sample HL7302 was collected at a depth of 21 to 25 feet BGS. These concentrations are below the federal MCL of 700 µg/L, the state IWQS of 28,718 µg/L, and the risk-based screening level of 750 µg/L. The analytical detection limit for ethylbenzene was 2 µg/L for all samples.

Xylene was detected in sample HL7301, collected at a depth of 11 to 15 feet BGS, at a concentration of 4.1 µg/L. This concentration is below the federal MCL of 10,000 µg/L and the risk-based screening level of 12,000 µg/L. The analytical detection limit for total xylenes was 6 µg/L. This compound does not have a state IWQS.

Naphthalene was detected in samples HL7301 and HL7303 at concentrations of 69 µg/L and 70 µg/L, respectively. This compound does not have a federal MCL or state IWQS. However, the concentrations are above the risk-based screening level of 6.5 µg/L, but well below the site ACL for naphthalene of 201.5 µg/L (see Section III.B.4.c). The analytical detection limit for naphthalene ranged from 10 to 10.3 µg/L.

Acenaphthene was detected in sample HL7310 (duplicate) at a depth of 11 to 15 feet BGS at a concentration of 1.1J µg/L as presented in plan view and cross-section views on Figure II-10. This compound does not have a federal MCL or state IWQS, and the concentrations are well below the risk-based screening level of 365 µg/L.

The Hawthorn confining unit was not encountered during the sampling of vertical profiles L-6 and L-7. Based on drill logs from other CAP-Part A sites at HAAF, the top of the Hawthorn Formation is believed to exist approximately 15 feet below the bottom of vertical borings L-6 and L-7. Because the deepest groundwater samples in L-6 and L-7 did not contain concentrations of BTEX or PAH compounds above the applicable analytical detection limits, the vertical extent of groundwater contamination has been delineated and is confined to the upper portion of the Surficial Aquifer (i.e., less than 35 feet BGS).

II.A.3. Delineation of Free Product Plume

Petroleum free product was identified at the USTs 21 and 22 site during the CAP-Part A SI, but not during the ISC or the CAP-Part B investigations (Table II-6). On April 23, 1998, approximately 1/8-inch (0.2 foot) of free product was detected in piezometer L-9 (Figure II-3). GA EPD was notified in correspondence dated April 27, 1998 (Brown to McClanahan and White) that free product had been detected at the site. In addition, a GUST-1 (Free Product Notification Form) was submitted to GA EPD in correspondence dated March 31, 1999 (Perez to McAllister). Free product was not detected in any of the other borings/piezometers installed at this site during the CAP-Part A SI.

Free product was detected by placing a sample of groundwater extracted from the piezometer into a 50-mL glass vial and allowing the sample to equilibrate for 24 hours. Upon discovery of the free product, a passive removal system consisting of a 5.0-foot-long, threaded steel rod wrapped with absorbent materials (i.e., absorbent sock) fastened with chemically inert plastic ties was installed in piezometer L-9. To maximize free product absorption, the absorbent material was installed across the water table. From April 23 through November 1998, the absorbent sock was removed and replaced on three separate occasions (Table II-6). On November 18, 1998, the absorbent sock was removed to allow the piezometer to equilibrate. On June 25 and November 30, 1998, a water product interface meter was used for the detection of free product thickness. However, none was detected (Table II-6). From April 23 through September 22, 1998, approximately 0.06 gallon of free product was removed from piezometer L-9.

During the CAP-Part B SI, seven monitoring wells were installed to assist in the delineation of the free product plume at the site. Monitoring well MW-L2 was installed adjacent to piezometer L-9 with the remaining monitoring wells installed downgradient of the site and in the vicinity of the former tank pits and dispenser islands as approved by GA EPD in a correspondence dated August 3, 1999 (Wallace to Perez). Measurements were made with a water-product interface meter in all wells after installation, during groundwater sampling activities conducted in May 1999, and during a site visit in July 1999. Free product was never detected or measured in any of the seven monitoring wells.

II.A.4. Delineation of Surface Water and Sediment Contamination

Surface water and sediment samples were collected from two locations northeast of the USTs 21 and 22 site (Figure II-14; Tables II-2 and II-5). One sampling point (SSL-01) was located in the drainage ditch that is approximately 114 feet directly downgradient (east-northeast) of the former USTs 21 and 22 site. The surface water sample was collected in an area where the water had pooled just below where the asphalt-coated drain tile empties runoff into the open ditch. At the time the sample was collected, water was not emanating from the drain tile. Sampling point SSL-02 was located in a separate drainage ditch, parallel to Wilson Boulevard, and located approximately 155 feet northeast of the site. The water in both ditches appears to be intermittent and related to overland flow and runoff from parking lots and roads near the site.

Ethylbenzene and several PAH constituents were detected in the sediment sample collected from location SSL-01 (Figure II-14, Table II-2). Ethylbenzene was detected in the duplicate sample (BL1510) at a concentration of 0.0017J mg/kg. However, it was not detected in the primary sample. Several PAH compounds, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene, were detected in both the primary sample (BL1500) and in the duplicate sample (BL1510) at sample location SSL-01. PAH concentrations ranged from 0.244J to 3.9 mg/kg with the higher concentrations associated with the duplicate sample (BL1510). All contaminant concentrations are below GUST applicable soil threshold levels and risk-based screening levels (see Section III of this document). No BTEX or PAH constituents were detected at location SSL-02.

Concentrations of TPH-DRO and TPH-GRO were detected at both sample locations. TPH-DRO was only detected at location SSL-01 at a concentration of 26.4 mg/kg. TPH-GRO was detected at location SSL-01

at a concentration of 0.164 mg/kg and at location SSL-02 at a concentration of 0.132J mg/kg. There are no applicable GUST soil threshold levels or risk-based screening levels for TPH-DRO and/or -GRO.

Toluene was the only contaminant detected in either of the surface water samples collected. No other constituents were reported above the detection limits. Toluene was detected in sample BL1610 (SSL-01 duplicate) at a concentration of 0.53J µg/L (Figure II-14, Table II-5). This concentration does not exceed the federal MCL of 1000 µg/L, the risk-based screening level of 1300 µg/L, or the IWQS of 200,000 µg/L. The analytical detection limit for toluene was 2 µg/L.

II.B. REGIONAL, LOCAL, AND SITE HYDROGEOLOGY

Discussion of the regional, local, and site hydrogeology is based on field observations and other investigative activities performed, including a water resource survey, during the CAP-Part A and CAP-Part B investigations of the USTs 21 and 22 site.

II.B.1. Documentation of Local Groundwater Conditions

II.B.1.a. Groundwater usage

According to the FS DPW, nine water supply wells are located within the confines of the HAAF area (Figures II-15 and II-16). These wells have the potential to provide up to 3890 gallons per minute (gpm) of water to occupants of the HAAF installation. The FS DPW was unable to provide documentation listing the companies responsible for well installation and drillers' logs showing as-built information and subsurface geologic data. Information concerning such documentation was requested from several water well drilling companies in the Chatham County area; however, data were procured with very limited success. The FS DPW provided well locations, pump rates, treatments, casing depths, and total depths for eight of the nine wells located at HAAF. Because of the lack of data, documentation of subsurface geology based on HAAF drill logs remains extremely limited. Therefore, other references containing deep-well information were used to document the subsurface geology and aquifer characteristics underlying HAAF and vicinity.

Wells 1 and 2, both public water supply wells located in the cantonment area of HAAF, constitute the main water supply system at HAAF (Figure II-12). Well 1, located at Building 711 on the corner of Moore Road and Douglas Street, is a 12-inch-diameter well with a 100-hp turbine pump serving a 100,000-gallon elevated storage tank (Tank 1) through 10-inch lines. Water from Well 1 is injected with hydrofluosilic acid and chlorine gas solution at the well house. Well 2, located at Building 1205 on the corner of Neal Street and Strachan Road, is a 12-inch-diameter well with a 100-hp turbine pump serving a 200,000-gallon elevated tank (Tank 2) through 10-inch lines. Water from Well 2 is also injected with hydrofluosilic acid and chlorine gas solution at the well house. Wells 1 and 2 provide water to a 500,000-gallon elevated storage tank (Tank 3) located on Middleground Road behind noncommissioned officer (NCO) family housing. This tank provides potable water to 694 service connections, which are used by an average of at least 5000 individuals year-round.

Wells 3, 4A, and 7 are public supply wells located outside the cantonment area of HAAF. Well 3, located at Building 8455, is a 4.0-inch-diameter well with a 1.0-hp electric submersible pump serving a 1000-gallon hydropneumatic storage tank through 1.5-inch galvanized steel lines. Water from Well 3 is treated with calcium hypochlorite solution and is consumed by approximately 25 people during daytime hours, year-round. Well 4A, located at Building 8581 at the 117th Air National Guard Facility, is a 4.0-inch-diameter well. Pumpage is accomplished with a 0.75-hp turbine pump with 80-gpm capacity. Well 4A provides water for approximately 50 people per day year-round. Well 7 is located at Building 8703 on the Forest River, west of Rio Road. Well 7 is a 4.0-inch well with a 3.0-hp submersible pump serving a 5000-gallon hydropneumatic tank through 2.0-inch galvanized steel lines. Well 7 serves approximately 500 people on a part-time basis. Sanitary protection for Wells 3, 4A, and 7 is provided by a pump motor block, concrete slab, sealed well head, and screened casing vent.

Based on the GA EPD criteria of serving potable water to less than 25 occupants per day and having less than 15 service connections, wells 5, 8, and 9 are classified as non-public supply wells (Figures II-15 and II-16).

Well 10 is a non-potable water source (Figures II-15 and II-16). Water from Well 10 is used for the cleaning of military equipment at a wash-rack facility. Additional information, including capacity, borehole depth, and casing depth, is not available.

The locations of supply wells found outside the boundary of HAAF are shown on Figure II-15. These wells include 1, 42, 13, 25, 15, 27, 14, 23, 6, and 9. The City of Savannah Bureau of Water Operations was unable to provide drill logs or as-built well information.

The USTs 21 and 22 site is located approximately 2160 feet southeast (cross-gradient) of HAAF Well 2, which is located at Building 1205 on Strachan Drive (Figures II-15 and II-16). Therefore, the USTs 21 and 22 site is classified as being greater than 500 feet to a withdrawal point. Well 2 is part of the main public water supply system at HAAF. This system supplies water to approximately 7500 persons through 525 service connections.

II.B.1.b. Aquifer description

The hydrogeology in the vicinity of HAAF is mostly influenced by two aquifer systems. These are referred to as the Principal (Floridan) Aquifer and the Surficial Aquifer (Miller 1990). The Principal Aquifer is the lowermost hydrologic unit and is regionally extensive from South Carolina to Georgia, Alabama, and most of Florida. Known elsewhere as the Floridan, this aquifer, approximately 800 feet in total thickness, is composed primarily of Tertiary-age limestone including the Bug Island Formation, the Ocala Group, and the Suwannee Limestone. Groundwater from the Floridan is used primarily for drinking water (Arora 1984). According to Miller (1990), one of the largest cones of depression produced in the Floridan Aquifer exists directly beneath Savannah, Georgia. According to 1980 estimates, more than 500 million gallons of water per day were withdrawn from the Floridan Aquifer for public and industrial use in southeast Georgia, more than any other region (Miller 1990).

The confining layer for the Floridan Aquifer is the phosphatic clay of the Hawthorn Group. There are minor occurrences of aquifer material within the Hawthorn Group; however, they have limited utilization (Miller 1990). The Surficial Aquifer overlies the Hawthorn confining unit.

The Surficial Aquifer consists of widely varying amounts of sand and clay, ranging from 55 to 150 feet in thickness, and is composed primarily of the Satilla and Cypresshead Formations in the Savannah vicinity (Arora 1984). This aquifer is primarily used for domestic lawn and agricultural irrigation. The top of the water table ranges from approximately 2 to 10 feet below ground level (Miller 1990). Groundwater in the Surficial Aquifer system is under unconfined, or water table, conditions. However, locally, thin clay beds create confined or semiconfined conditions.

Groundwater encountered at HAAF UST investigation sites is part of the Surficial Aquifer system. Based on the fact that all public and non-public water supply wells draw water from the Floridan Aquifer, and that the Hawthorn confining unit separates the Floridan Aquifer from the Surficial Aquifer, it is concluded that there is no hydraulic interconnection between HAAF UST sites (and associated plumes) and water supply withdrawal points.

II.B.1.c. Surface water

Surface water bodies at HAAF include Hallstrom Lake, Lamar Canal, Buckhalter Canal, Springfield Canal, Pond 29 located northwest of Buildings 336 and 232, and an unnamed pond located along the southeast boundary of the HAAF installation (Figure II-16). Several unnamed drainage canals and ditches exist throughout HAAF. Most of these canals drain southwest into the Little Ogeechee River, which is part of the Lower Ogeechee watershed. The remaining drainage canals located on the east side of the

HAAF installation flow east and eventually drain into the Vernon River, which is located southeast of the HAAF installation.

Surface water bodies at HAAF and adjacent areas are not used as public water supplies. The ponds and lakes, as well as Lamar Canal, are perennial, whereas most of the drainage canals and ditches are intermittent. Most of the drainage canals are at least partially enclosed in culverts.

The CAP-Part A SI potential receptor survey was conducted at the USTs 21 and 22 site on April 30, 1998. Based on field observations, it was determined that a southeast flowing drainage ditch was located approximately 200 feet northeast of the USTs 21 and 22 site. The CAP-Part A potentiometric data indicated this ditch to be located in a downgradient location. However, during the CAP-Part B SI in April 1999, a drain tile (2-foot diameter corrugated steel) that discharged to a drainage ditch located 114 feet east-northeast of the site was identified. At this location, it was noted that the existing open ditch had been filled during overhead power line modification activities. Storm flow was suspected as entering the underground drain tile through a grate located on the entrance road to the 224th Motor Pool and emptying into an open ditch located 114 feet east-northeast of the site. This drainage ditch was determined to be the nearest potential receptor for possible contamination migrating from the site. Surface water only flows in the ditches intermittently as runoff from parking lots and other paved areas. The receptor survey also noted that a storm sewer was located near the site at a depth of approximately 5.4 feet BGS. Further consideration of the storm sewer as a preferential pathway for contamination to the nearest potential receptor was discounted because the storm sewer was determined to be located approximately 60 feet upgradient (northwest) of the site based on the CAP-Part B SI water level data.

II.B.2. Stratigraphic Boring Logs

The local stratigraphy of HAAF and the vicinity is presented in Section II.B.2.a, and the site stratigraphy from the CAP-Part A and CAP-Part B SIs is presented in Section II.B.2.b.

II.B.2.a. Local stratigraphy

HAAF is located within the Barrier Island Sequence District of the Coastal Plain Physiographic Province of the Southeast United States (Clark and Zisa 1976). The Barrier Island Sequence District in Chatham and Bryan Counties is characterized by the existence of several marine terraces (step-like topographic surfaces that decrease in elevation toward the coast). These marine terraces, and their associated deposits, are the results of sea level fluctuations that occurred during the Pleistocene Epoch. The surficial (Quaternary) deposits in Chatham and Bryan Counties, in decreasing elevation and age, are part of the Okefenokee, Wicomico, Penholoway, Pamlico, and Silver Bluff terrace complexes (Wilkes et al. 1974; GA DNR 1976; Huddlestun 1988).

HAAF, as well as most of Chatham County, is underlain by the Pleistocene Pamlico Terrace. The Pleistocene Satilla Formation (formerly known as the Pamlico Formation) consists of deposits of the Pamlico Terrace complex and other terrace complexes in the region (Huddlestun 1988). The Satilla Formation is a lithologically heterogeneous unit that consists of variably bedded to non-bedded sand and variably bedded silty to sandy clay. During the Pleistocene, these sand and clay deposits were formed in offshore and inner continental shelf, barrier island, and marsh/lagoonal-type environments (Huddlestun 1988). According to the Geologic Map of Georgia (GA DNR 1976), clay beds of marsh origin, which were deposited on the northwest side of the former Pamlico Barrier Island complex, exist in the western quarter of HAAF. Very fine- to coarse-grained sand deposits of barrier island origin are more common throughout the remaining areas of HAAF.

II.B.2.b. Site stratigraphy

As determined from soil borings drilled during the CAP-Part A and CAP-Part B SIs at the USTs 21 and 22 site, soils underlying the site include: (1) poorly graded, coarse quartz sand (excavation fill); (2) silty, fine-grained, poorly graded sand (SP) interbedded with organic rich, silty sand (SM); and (3) fine-

grained, well graded sand (SW) interbedded with silty sand (SW-SM). These deposits are part of the Satilla Formation.

II.B.3. Stratigraphic Cross-Sections

Stratigraphic cross-sections have been developed based on the CAP-Part A and CAP-Part B SI soil boring logs. Cross-sections A-A' (southwest/northeast), B-B' (northwest/southeast), and C-C' (northwest/southeast), presented in Figure II-3, show the site geology as determined by drilling and sampling activities.

II.B.4. Geotechnical Analysis

During the CAP-Part A SI, one undisturbed geotechnical sample was collected from 2.0 to 4.0 feet BGS using a 2-inch-diameter, 2-foot-length Shelby tube at location L-8. This sample was collected to determine the physical characteristics of the underlying strata for fate and transport modeling. The geotechnical properties measured for this sample included grain size distribution, moisture content, specific gravity, porosity, permeability, and total organic carbon. In addition, based on grain-size distribution determination, the Unified Soil Classification System (USCS) was used to assign a soil class name to the sample extracted from L-8.

During the CAP-Part B SI, seven disturbed geotechnical samples were collected from boreholes BL1 through BL7. The geotechnical properties measured at these locations included grain size distribution, moisture content, specific gravity, porosity, bulk density, permeability, and Atterburg Limits. Geotechnical results for the CAP-Part A and CAP-Part B SIs at the USTs 21 and 22 site are presented in Table II-7 and Appendix D.

II.B.5. Direction of Groundwater Flow

II.B.5.a. Well construction details

Following contact with fully saturated material in a soil boring, a water level measurement was taken to determine the remaining depth to be drilled. This measurement was necessary to ensure the placement of at least 7.0 feet of well screen below the water table, in accordance with the Work Plan. Due to the shallow depth of the water table, less than 4.0 feet BGS, the screen length, filter pack thickness, and bentonite seal thickness were modified in the field.

Monitoring well casing consisted of 2-inch inside diameter, Schedule 40, flush-thread polyvinyl chloride risers and screens in 5- and 10-foot sections. The well screen slot size was 0.010 inch. Table II-8 summarizes construction details for CAP-Part A SI direct-push sampling points and CAP-Part B SI monitoring wells. Well construction diagrams are presented in Appendix C. Following installation of the well casing, No. 00 30–50 mesh filter pack sand was poured while augers were gradually removed to ensure a complete and even distribution of the filter pack. The filter pack extended to a measured level at least 1.0 foot above the top of the screen. The bentonite seal extended to a measured level of at least 1.5 feet above the top of the filter pack.

Above the well seal, the remaining annular space was completed with a 1.0-foot-long flush-mount sheet steel protective casing that was grouted in place. Well casings were capped with expandable locking caps. Protective casings were covered with bolted, cast-iron manhole covers. Inscribed monitoring well identification plates were permanently affixed to the inside of each manhole cover.

II.B.5.b. Potentiometric mapping

Water level measurements were collected 24 hours after piezometer installation in April 1998 during the CAP-Part A SI, during the CAP-Part B SI groundwater sampling activities in May 1999, and during a site visit in July 1999. Data obtained from these measurements are presented in Table II-9. During the CAP-Part A SI in April 1998, groundwater flow direction was to the northeast with a gradient of

0.007 foot/foot (Figure II-17). Based on this direction and gradient, and the nature of contamination, CAP-Part B monitoring well locations were chosen. CAP-Part B SI data were used to construct a groundwater potentiometric surface map for May 1999 (Figure II-18) and July 1999 (Figure II-19). Based on CAP-Part B SI potentiometric data, groundwater flow under the USTs 21 and 22 site was to the east-northeast with an average gradient of 0.015 foot/foot.

II.B.5.c. Equipotential flow net

Equipotential flow nets based on May 1999 and July 1999 water level measurements and the contoured potentiometric surfaces are presented in Figures II-20 and II-21.

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III. REMEDIAL ACTION PLAN

III.A. CORRECTIVE ACTION COMPLETED OR IN PROGRESS

III.A.1. Recovery/Removal of Free Product

Evidence of free product was identified at the USTs 21 and 22 site during the CAP-Part A SI in piezometer L-9. A passive removal system (i.e., absorbent sock) was installed across the water table of piezometer L-9 on April 23, 1998. GA EPD was notified in correspondence dated April 27, 1998 (Brown to McClanahan and White) that free product had been detected at the site. In addition, a GUST-1 (Free Product Notification Form) dated March 31, 1999, was submitted to GA EPD (Perez to McAllister). From April 23, 1998, through November 30, 1998, an approximate 0.06 gallon of free product was removed from piezometer L-9 (Table II-6). Free product has not been detected at the site since September 22, 1998, in either the piezometer or permanent monitoring wells. Free product was not detected during the CAP-Part B SI. Therefore, continuing free product removal efforts are not required for this site.

III.A.2. Remediation/Treatment of Contaminated Backfill Material and Native Soils

Former UST 21 had a capacity of 8000 gallons and was used for the storage of diesel fuel. Former UST 22 had a capacity of 2000 gallons and was used for the storage of gasoline. Both UST systems were last used on September 5, 1996, after approximately 10 years of service. The tanks and associated piping were removed on September 12, 1996. After removal of the tank, the ancillary piping was purged and closed in place by filling with grout. The USTs and tank pit soil were excavated and removed from the site. Notification letters, a Closure Report Form (GUST-29), a revised Notification Data for UST Form (GUST-42), Free Product Notification Form (GUST-1), and a CAP-Part A report were submitted to GA EPD in association with the UST removal activity. Elevated concentrations of TPH were detected in tank pit soils during UST removal and excavation activities. No further excavation of potentially contaminated backfill or native soils has occurred at the USTs 21 and 22 site.

III.B. OBJECTIVES OF CORRECTIVE ACTION

III.B.1. Remove Free Product that Exceeds One-Eighth Inch

Evidence of free product was identified at the USTs 21 and 22 site during the CAP-Part A SI. The removal of free product using a passive removal technique (i.e., absorbent sock) was used to extract approximately 0.06 gallon of product. Free product was not detected during the CAP-Part B SI. Therefore, further recovery or removal of free product is not necessary.

III.B.2. Remediate Groundwater Contamination

The CAP-Part A SI documented groundwater that exceeded MCLs in five soil borings and one vertical profile boring. Benzene concentrations exceeded MCLs in 6 of the 14 groundwater samples collected, with only one of the groundwater samples exceeding the state IWQS. Further investigation during the CAP-Part B SI provided more groundwater contaminant data. These results indicated that the horizontal plume boundary, as defined by MCLs, has been defined except for the area downgradient of L-4. An additional monitoring well will be installed downgradient of this location to define the horizontal extent of contamination. As discussed in Section III.B.1.b, groundwater encountered at the site was determined to be part of the Surficial Aquifer, whereas the water supply wells draw water from the Floridan Aquifer. There is no hydraulic interconnection between these two aquifer systems because they are separated by the Hawthorn confining unit. Groundwater is flowing toward the drainage ditch located 114 feet east-northeast of the site, and conservative fate and transport modeling using the AT123D model (Appendix E)

suggests that benzene will not exceed the IWQS or ACL at the drainage ditch. Considering that the contamination source has been removed, free product has not been measured at the site for approximately 1 year, there is no hydraulic connection to the drinking water aquifer, and sampling and modeling results of the CAP-Part B SI, active remediation for groundwater is not recommended for this site.

III.B.3. Remediate Soil Contamination

The results from the CAP-Part A and Part B investigations suggest that all contaminant concentrations are below GUST soil threshold levels (i.e., Table A, columns 2). The contaminant concentrations are below risk-based screening levels that are protective of soil exposure during industrial land use. The site is located beneath 10 to 12 inches of concrete, which prevents incidental contact with the soil; therefore, active remediation of soil is not recommended.

III.B.4. Provide Risk-based Corrective Action

A risk-based approach was used to determine the need for further action at the USTs 21 and 22 site. Due to the nature of the contamination (petroleum hydrocarbon contamination of groundwater), the risk-based approach was limited to human health concerns. Ecological risk concerns are negligible because of the lack of habitat available for ecological receptors at the site due to the 10 to 12 inches of concrete overlying the immediate area and at the ditches located downgradient from the site due to the lack of surface water flow, which only occurs intermittently as runoff.

The methods for assessing human health concerns for the site were derived from GUST CAP-Part B guidance (GA EPD 1995) and recent GA EPD guidance (GA EPD 1996). These were supplemented by the additional guidance documents on risk assessment methods referenced in this section. In general, the risk-based corrective action (RBCA) approach is performed in two steps:

1. Results are screened against readily available regulatory levels and risk-based screening levels to identify chemicals of potential concern (COPCs).

2. Site-specific ACLs are developed for COPCs using the results of the fate and transport modeling and identified receptor locations.

The following sections present the conceptual model of the exposure setting and potential receptors as well as the general methodology employed to perform the screening for COPCs and the development of ACLs.

III.B.4.a. Potential receptor survey

The exposure assessment identifies any potentially complete pathways between the contaminant source and potential receptors. This involves identifying potential current and future receptors, release mechanisms through which contamination might come into contact with the receptors, and routes of exposure through which receptors might be exposed. Figure III-1 presents potentially complete and incomplete pathways for contaminant sources at the USTs 21 and 22 site.

The USTs 21 and 22 site is located within an active military installation and within an access-controlled fence of a secured motorpool. The land use at the site is currently military industrial. An Installation housing area is located approximately 450 feet to the northwest. A drainage ditch is located approximately 114 feet east-northeast (downgradient) of the site.

No connection between site contamination and current off-site receptors has been identified. Site contamination may migrate to the Surficial Aquifer. The Hawthorn Group, which is approximately 90 feet

of clay, separates the Surficial Aquifer from the deep drinking water aquifer, the Floridan Aquifer. There appears to be no vertical migration from the Surficial Aquifer to the Floridan Aquifer. None of the HAAF's current water supply wells are located downgradient of the USTs 21 and 22 site. The Hawthorn Group, a thick and highly effective confining unit, separates the water supply wells from the Surficial Aquifer.

Current on-site receptors have not been identified for the site. Potential future on-site receptors might include industrial workers and military residents.

Potential future on-site industrial receptors may come in direct contact with site soil contamination during construction or excavation activities. No near-term on-site receptors are likely to come into contact with groundwater unless the Surficial Aquifer discharges into the drainage ditch.

III.B.4.b. Screening for chemicals of potential concern

III.B.4.b.1. Screening Methodology

The purpose of a risk evaluation screening is to identify the COPCs and areas of concern at a site, and possibly to identify sites for which no further action is needed. The first step in the risk process uses screening levels that are readily obtainable and that, due to their conservative nature, can be used with a high degree of confidence to indicate sites for which no further action is required.

An American Society for Testing and Materials (ASTM 1995) Tier 1-type risk evaluation process will be applied to the data collected for the USTs 21 and 22 site to identify any COPCs and media for which no further action is needed. The risk evaluation screen involves the steps listed below:

- identify potential migration and exposure pathways associated with the site, and identify potential exposure scenarios that should be used to select screening levels;
- identify risk-based screening levels and regulatory-based screening levels for each contaminant;
- compare site-related concentrations to screening levels to determine if any COPCs exist at the site; and
- compare detection limits to screening levels to identify potential false-negative screening results.

The screening levels for the USTs 21 and 22 site data have been taken from the following sources based on GA EPD guidance (GA EPD 1996):

- federal MCLs [U.S. Environmental Protection Agency (EPA) 1989];
- GUST Soil Threshold Levels (i.e., Table A, column 2);
- soil screening levels developed by the EPA (1996); and
- soil and groundwater risk-based concentrations developed by EPA Region 3 (EPA 1999).

These values reflect screening levels based on a combination of regulatory screening levels (i.e., MCLs and GUST soil threshold levels), and calculated risk-based values (i.e., EPA Region 3 risk-based concentrations).

Screening levels inherently incorporate assumptions about land use. In identifying COPCs, it is generally accepted that screening levels will reflect any potential future land uses and, thus, they usually reflect a conservative residential use scenario (EPA 1991; EPA 1996; ASTM 1995). Based on GA EPD guidance,

risk-based screening levels reflect residential land use for groundwater and industrial land use for deep soils (GA EPD 1996).

Default residential exposure scenarios for groundwater assume that use of the land could someday be residential and that the following exposures could occur:

- ingestion of groundwater, and
- inhalation of volatiles during showering.

The default industrial exposure assumptions for deep soils assume that the following exposures could occur:

- incidental ingestion of soil, and
- inhalation of volatiles and dust.

EPA's *Soil Screening Guidance* (EPA 1996) provides two options for selecting soil values that address protection of groundwater. One value assumes no contaminant dilution or attenuation would occur between the soil and groundwater; a second value assumes a 20-fold dilution attenuation factor (DAF). A DAF of 20 was used to develop soil screening values protective of groundwater at the USTs 21 and 22 site.

If applicable or relevant and appropriate requirement (ARAR)- or risk-based values are not available, it generally means that (1) the chemical is not considered to be toxic except perhaps at extremely high concentrations (e.g., aluminum, sodium); (2) the dose-response data do not indicate a toxic effect; or (3) EPA is currently reviewing toxicity information, and no reference dose or cancer slope factor is currently available.

III.B.4.b.2. Screening Results

The risk screening process is a systematic screening of sample results to determine site-related COCs. Constituent concentrations below risk- or regulatory-based screening levels are not considered COCs and are not evaluated further. Tables III-1 and III-2 present the results of the risk-based screening for the CAP-Part A SI soil data and the CAP-Part B SI soil data, respectively. Tables III-3 and III-4 present the results of the risk-based screening for the CAP-Part A SI groundwater data and the CAP-Part B SI groundwater data, respectively.

No constituents were detected above the GUST applicable soil threshold level or the risk-based screening levels for soil data collected during the CAP-Part A or the Part B sampling. Therefore, no constituents were selected as COPCs for USTs 21 and 22 site soils.

Detection limits for benzo(a)pyrene and dibenzo(a,h)anthracene exceeded risk-based screening levels for soils in two samples during the CAP-Part A SI. However, no detection limits were above screening levels during the CAP-Part B SI. Therefore, no COPCs for soils were selected for the site based on the detection limit screening.

Naphthalene was detected above the risk-based screening level of 6.5 µg/L in four groundwater samples collected during the CAP-Part A SI. Concentrations ranged from 17µg/L (HL9200) to 70 µg/L (HL7303). There is no federal MCL or state IWQS for naphthalene. Benzene was detected in six groundwater samples collected during the CAP-Part A SI above the MCL and the risk-based screening level, with only one sample exceeding the IWQS. Concentrations ranged from 7.2 µg/L (HL3200) to 217 µg/L (HL2200). These results exceeded the risk-based screening level for benzene of 0.36 µg/L and the federal MCL for benzene of 5 µg/L. Sample HL2200, with a concentration of 217 µg/L, exceeded the benzene IWQS of

71.28 µg/L. Ethylbenzene, toluene, xylenes, and acenaphthene were detected in the CAP-Part A groundwater samples below screening values.

Naphthalene was detected above the risk-based screening level in only one sample collected during the CAP-Part B SI. A concentration of 26.2 µg/L was detected in sample BL1200. During the CAP-Part B SI, benzene was detected below the MCL but above the risk-based screening level in two groundwater samples. Concentrations of 1.6 µg/L and 3.1 µg/L were detected. Ethylbenzene was detected below screening the level and applicable federal MCL and state IWQS in two groundwater samples.

Based on the CAP-Part A and CAP-Part B groundwater analytical data, benzene and naphthalene were selected as COPCs for the USTs 21 and 22 site.

Detection limits for benzene and several PAHs exceeded risk-based screening levels for the CAP-Part A and Part B groundwater data. For these constituents, risk-based values represent values below analytically achievable levels. The detection limits for one PAH, benzo(*a*)pyrene, also exceeded the federal MCL of 0.2 µg/L in both data sets. During the CAP-Part A SI, the PAH fraction of sample HL4200 was rejected (R qualified) due to a surrogate recovery of zero. These results were rejected due to calibration problems. No additional COPCs were selected for groundwater based on the detection limit screening.

III.B.4.c. Site-specific levels

Detections exceeding the conservative generic screening levels are considered COPCs. ACLs are developed, when appropriate, for the COPCs using site-specific information. ACLs were developed from available regulatory screening levels. When regulatory screening levels were not available, then ACLs were developed based on risk-based levels. No risk-based ACLs were developed for USTs 21 and 22.

III.B.4.c.1. Alternate Threshold Levels

Both the CAP-Part A and CAP-Part B soil data were screened against risk- and regulatory-based screening levels. No soil COPCs were identified for USTs 21 and 22 site. Therefore, no alternate threshold levels were developed.

III.B.4.c.2. Alternate Concentration Limits

Naphthalene and benzene were identified as COPCs for groundwater at the site. To be conservative, the chemical properties of benzene were used to evaluate contaminant migration from the site. Benzene was modeled to a potential downgradient location where a receptor may come in contact with migrating site contamination, which was determined to be a drainage ditch located 114 feet downgradient from the tank excavation limit. Fate and transport modeling was used to develop a site-specific DAF between the source and the receptor location (see III.B.4.c.3 below). The modeling results estimated a site-specific DAF of 31.0. A site-specific ACL for each COPC was then calculated by using the DAF and the available regulatory or risk-based levels. Because the nearest potential downgradient receptor location is a surface water body (drainage ditch) and the groundwater contamination at the site is limited to the Surficial Aquifer, which is not hydraulically connected to the drinking water aquifer, the state IWQSs were chosen as the applicable standards for the site.

The state IWQS for benzene is 71.28 µg/L. Adjusting this regulatory level using the site-specific DAF identified for the potential migration of contamination from the site to the potential downgradient receptor location results in a site-specific ACL for benzene of 2209.68 µg/L. There is no regulatory level for naphthalene; therefore, the risk-based screening level of 6.5 µg/L was used to calculate the site-specific ACL for this compound. Adjusting this risk-based level using the DAF results in a site-specific ACL for naphthalene of 201.5 µg/L.

III.B.4.c.3. Fate and Transport Model

A site-specific DAF between the source and the receptor location was developed. The DAF is a numerical value that represents the attempt to mathematically quantify the natural physical, chemical, and biological processes (e.g., advection-dispersion, sorption-retardation, biodegradation, and volatilization) that result in the decrease of a chemical concentration in an environmental medium. In simple terms, the DAF is the ratio of chemical concentration at the source (or the point of origin) to the concentration at the exposure point. The DAF reflects the natural attenuation concepts outlined in ASTM's RBCA protocol (ASTM 1995).

Fate and transport models are used as a tool for developing DAFs. The application of fate and transport models at any release site must ensure that the modeling results are protective of human health and the environment. Therefore, the selection process of a predictive model at a release site must consider its performance, characteristics, and applicability to the site being considered. The following characteristics were considered before selecting an appropriate model for the Installation:

- the model provides conservative predictions,
- the model is technically sound,
- the model is a public-domain model or is readily available,
- the model has received adequate peer review,
- the model has been applied to other similar sites, and
- the model is easy to use.

The Analytical Transient 1-, 2-, 3-Dimensional (AT123D) Model meets all of the above criteria and was selected for performing fate and transport analysis for this site. AT123D is a well-known and commonly used analytical groundwater pollutant fate and transport model. The model computes the spatial-temporal concentration distribution of chemicals in the aquifer system and predicts the transient spread of a chemical plume through a groundwater aquifer. The fate and transport processes accounted for in AT123D are advection, dispersion, adsorption/retardation, and decay. This model can be used as a tool for estimating the dissolved concentration of a chemical in one, two, or three dimensions in the groundwater resulting from a mass release (either continuous or instant or depleting source) over a source area (i.e., point, line, area, or volume source).

The AT123D model was used to determine the impact of dissolved hydrocarbons on potential receptors. A steady-state AT123D model was developed by calibrating the model against observed maximum concentrations in the groundwater beneath the USTs 21 and 22 site. Modeling of the leaching of soil contamination to the groundwater was not performed because the additional contaminant contribution to the groundwater was negligible compared to the existing groundwater contamination. A drainage ditch located 114 feet east-northeast (downgradient) of the site was identified as the closest potential receptor. There are numerous underground utilities at the site; however, they are located upgradient of the former tank pit.

Vertical migration of the contaminant plume through the confining unit to the Principal (Floridan) aquifer is improbable. The confining unit has a vertical hydraulic conductivity on the order of 10^{-8} cm/second and ranges from 15 to 90 feet in thickness. Assuming a vertical gradient of 1.0 foot/foot and an effective porosity of 0.06 (Mills et al. 1985) for the confining unit, the groundwater travel time to the top of the confining unit (15 feet BGS) is estimated to be 87 years. Therefore, it would take more than 400 years for the benzene contamination to migrate through the confining layer. The Surficial Aquifer in which the contaminant plume is located is not used as a source of drinking water.

The fate and transport modeling results are provided in Appendix E. The ditch located east-northeast (downgradient) of the site is the nearest possible location at which a receptor might encounter migrating

groundwater contamination due to a possible hydraulic connection between the groundwater and the surface water. The AT123D model was calibrated to the maximum observed concentration of benzene, which was 217 µg/L at CAP-Part A sampling location L-2 (former location of UST 21), assuming steady-state (continuous) concentration at the source. In reality, the source of benzene will deplete due to biodegradation and natural attenuation. Contaminant fate and transport simulation was performed to predict the maximum concentration at the receptor location over a period of 100 years. The modeling results indicate that benzene will reach the ditch at a concentration of 7 µg/L, which is well below the state IWQS of 71.28 µg/L, thereby indicating that the surface water will not be impacted by the current site conditions at the USTs 21 and 22, Facility ID: 9-025053, site.

III.B.4.d. Conclusions and recommendations

The conclusions below are based on a review of the CAP-Part A and Part B SI results using a risk-based approach:

- Free product was not detected during the CAP-Part B SI.
- The horizontal and vertical extent of soil contamination below applicable GUST threshold levels was delineated during the CAP-Part A and Part B SI.
- The vertical extent of groundwater contamination below federal MCLs was delineated during the CAP-Part A SI.
- The horizontal extent of groundwater contamination below federal MCLs downgradient from the area of highest contamination (L-2) has been delineated; however, in the area downgradient of L-4, the horizontal extent of benzene contamination below the federal MCL has not been delineated.
- Risk-based screening results show that benzene concentrations in groundwater exceed the initial screening levels. However, using results of the fate and transport modeling, the benzene concentrations in groundwater at the source do not exceed the site-specific ACL of 2209.68 µg/L.
- Risk-based screening results show that naphthalene concentrations in the groundwater exceed the initial screening levels. However, naphthalene concentrations in the groundwater at the source do not exceed the site-specific ACL of 201.50 µg/L.
- Contaminant concentrations detected in the surface water and sediment samples collected downgradient of the site do not exceed applicable state or federal standards.
- Fate and transport modeling of benzene indicates that contamination will not exceed the state IWQS at the nearest defined downgradient receptor, the drainage ditch.

Considering the site characteristics, natural attenuation will provide the best corrective action for this site. A monitoring program is recommended to confirm modeling predictions. Detailed sampling and analysis recommendations are provided in Section III.D.

III.C. DESIGN AND OPERATION OF CORRECTIVE ACTION SYSTEMS

III.C.1. System Effectiveness/Basis for Selection

The selected corrective action approach, natural attenuation, was chosen following evaluation of numerous established and innovative active and passive remediation alternatives. A three-step screening

process was used to select the preferred remedy for the USTs 21 and 22 site. This alternative selection process is illustrated in Figure III-2.

III.C.1.a. Theory and feasibility

The presumed remedies for dissolved hydrocarbon contamination in groundwater are provided in Table III-5. Based on the low hydrocarbon concentrations in CAP-Part B wells near the former USTs and in the ditch located 114 feet from the source, natural attenuation is the preferred alternative. Natural attenuation is based on the premise that fuel-type hydrocarbons are readily biodegraded in most environmental systems. Biodegradation of BTEX has been documented for sites with conditions similar to those at the USTs 21 and 22 site (e.g., shallow water table, permeable silty sand). In fact, the conditions at the USTs 21 and 22 site are similar to those at other sites that are ideal for biodegradation (Abou-Rizk et al. 1995). The site's groundwater flow and geology are conducive to aerobic biodegradation, which is known to produce the most rapid biodegradation rates for hydrocarbons. Finally, the source of the contamination has been removed; therefore, subsurface conditions (dissolved oxygen, oxidation-reduction potential, and background nutrient availability) will steadily improve with time.

Other remedial options that were considered would introduce more risk of exposure due to contaminant release into other matrices (soil gas, air, and treatment canisters) or due to excavation. In addition, the excessive costs associated with an aggressive remediation system do not result in added protection to the industrial worker receptor.

III.D. IMPLEMENTATION

III.D.1. Periodic Monitoring/Milestone Schedule

Monitoring of BTEX and PAH compounds from water samples collected from MW-L2 (highest contamination in existing permanent monitoring points), MW-L7, MW-L1, and proposed wells MW-L8 (downgradient location) and MW-L9 (former location of UST 21), will be completed on a semiannual basis (Figure III-3). Two additional 1-inch-diameter monitoring wells, MW-L8 and MW-L9, will be installed as part of the long-term monitoring program (Figure III-3). MW-L8 will be installed downgradient of former piezometer L-4, and MW-L9 will be installed at the former location of CAP-Part A piezometer L-2. Associated boring logs will be presented in the first long-term monitoring report. Sampling will be scheduled to reflect any impact due to seasonal fluctuation (wet/dry seasons). Sampling will occur within 6 months of the last sampling event or as technical resolutions are needed, with an Annual Monitoring Only Report submitted after each year of sampling. Monitoring will continue for a period of 2 years, for a total of up to four sampling events (Figure III-4). If the first annual report indicates a revised calculated environmental sensitivity score (Site Ranking Form) of less than 500, then a request to discontinue the monitoring only program and to grant a no-further-action-required status will be made. If the revised score is above 500, then monitoring will continue for an additional year. The first two sampling events are proposed for January and July 2000.

The monitoring well will be purged using either a nondedicated pump or a disposable Teflon bailer. Purging will continue until either five well volumes of groundwater have been removed or the well is purged to dryness, whichever occurs first. Upon completion of well purging, a groundwater sample will be collected directly into laboratory containers for submittal to an approved off-site laboratory for chemical analysis. A small volume of groundwater will be collected into a clean glass container for field analysis of pH, specific conductance, and temperature. In cases in which recharge to the monitoring well is rapid, groundwater samples will be collected immediately after purging. However, when recharge is slow, groundwater samples will be collected as soon as sufficient groundwater is present in the well. If the volume of groundwater sample collected from slow-recharge wells is not sufficient to perform both

field parameter and chemical analysis, the entire volume of the sample will be used for chemical analysis, and measurements of field parameters will not be conducted.

Quality Assurance/Quality Control Sample Collection/Frequency. Two different types of quality control (QC) samples will be collected during performance of water sampling activities. These sample types will be duplicates and trip blanks. During sampling, QC duplicates will be collected along with field water samples. The locations selected for duplicate sampling will be random. The number of duplicate samples will be at least 10 percent of the entire sample population.

QC trip blanks consisting of sealed containers of ASTM Type I or equivalent water will be used for the project. One trip blank will be placed into each cooler used to store portions of groundwater samples designated for volatile organic analysis at the off-site laboratory. Trip blanks will be analyzed for BTEX only. These blanks will remain with the other sample containers until groundwater sampling is completed and the samples are shipped to the off-site laboratory for chemical analysis.

During each sampling event, water levels will be measured in all monitoring wells. In addition, specific conductivity and water pH analyses will be completed on each sample from which analytical samples are collected. The samples will be shipped to an approved laboratory for BTEX and PAH analysis using EPA Methods 8021B/8260B and 8270C.

III.D.2. Progress Reporting

An Annual Monitoring Only Report summarizing all previous semiannual sampling events will be submitted to GA EPD for review and approval.

III.D.3. Certificate of Completion Report

Petition for permanent closure will be submitted with the final Annual Monitoring Only Report. Decommissioning of monitoring wells will be completed in accordance with the USACE design manual for monitoring wells. Decommissioning will comply with all applicable state and federal standards.

The following certification will be submitted to GA EPD within 30 days of submittal of the final Annual Monitoring Only Report:

I hereby certify that the Corrective Action Plan-Part B, dated_____ , 19____, for Hunter Army Airfield, USTs 21 and 22 site, Facility ID: 9-025053, including any and all certified amendments thereto, has been implemented in accordance with the schedules, specifications, sampling programs, and conditions contained therein, and that the plan's stated objectives have been met.

_____
Signature (Owner/Operator)

III.D.4. Inspection Schedule and Preventative Maintenance Program

During each sampling event, wells will be visually inspected for changes or damage. Any notable observations will be recorded in the subsequent progress report. Any required repairs to ensure that the monitoring wells remain in conformance with GA EPD and EPA performance standards will be made as needed.

III.D.5. Periodic Monitoring

The sampling and monitoring program will be completed twice a year with an Annual Monitoring Only Report submitted to GA EPD after each year of sampling. If the first annual report indicates a revised site ranking score of less than 500, then a request to discontinue monitoring and to grant a no-further-action-required status for the site will be made. If the revised score is above 500, then monitoring will continue for an additional year

III.D.6. Effectiveness of Corrective Action

To determine the effectiveness of existing biodegradation, sample results will be compared to previous results, and any increase/decrease will be noted.

III.D.7. Confirmatory Soil Sampling Plan

No excavation of soil is planned; therefore, confirmatory sampling will not be conducted.

III.D.8. Stockpiled Bulk Soil Sampling

No stockpiled soil will be generated with this corrective action; therefore, no soil sampling will be conducted.

III.D.9. Monitoring-only Termination Conditions

The monitoring system will be terminated after the first year if:

- measured benzene concentrations remain below the ACL in monitoring wells MW-L2 (downgradient well), MW-L1, MW-L7, MW-L8, and MW-L9;
- the revised calculated environmental sensitivity score incorporating the most recent data, using the CAP-Part A site ranking form, is below 500; and
- the GA EPD grants approval for no-further action-required status for the site.

III.D.10. Post-completion Site Restoration Activities

After termination has been granted, equipment and debris related to the monitoring program will be removed from the site.

III.E. PUBLIC NOTIFICATION

The USTs 21 and 22 site is located entirely within the confines of the Hunter Army Airfield, which is part of the Fort Stewart Military Reservation, a federal facility. The U.S. Government owns all of the property contiguous to the site. The Fort Stewart Directorate of Public Works has complied with the public notice requirements defined by GA EPD guidance by publishing an announcement in the Savannah Morning News on September 26 and October 3, 1999. A copy of the newspaper announcement used for public notification is presented in Appendix F of this report.

IV. CLAIM FOR REIMBURSEMENT

The HAAF is a federally owned facility and has funded the investigation for the USTs 21 and 22 site, Facility ID: 9-025053, using Environmental Restoration Funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

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TABLES

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TABLE II-1. ANALYTICAL RESULTS OF CAP-PART A SOIL SAMPLES COLLECTED AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053[1]

Location		L-1	L-1	L-1	L-2	L-2	L-3	L-3
Sample ID		HL1101	HL1103	HL1110	HL2101	HL2103	HL3101	HL3103
Sample Interval (ft BGS)		0.5–3.5	4.0–4.8	4.0–4.8	0.0–2.0	4.0–5.0	0.7–3.4	4.0–4.7
Media		Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Type	Applicable	Grab	Grab	Duplicate	Grab	Grab	Grab	Grab
Date Collected	Standards[2]	04/03/98	04/03/98	04/03/98	04/03/98	04/03/98	04/03/98	04/03/98
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs								
Benzene	0.008	0.0021 UJ	0.0022 UJ	0.0022 U	0.0022 UJ	0.0022 U	0.0021 UJ	0.0022 U
Toluene	6.00	0.0021 UJ	0.0022 UJ	0.0022 U	0.0022 UJ	0.0022 U	0.0021 UJ	0.0022 U
Ethylbenzene	10.00	0.0021 UJ	0.0022 UJ	0.0022 UJ	0.0022 UJ	0.0022 U	0.0021 UJ	0.0022 U
Xylenes, Total	700.00	0.0064 UJ	0.0064 UJ	0.0066 U	0.0067 UJ	0.0067 U	0.0064 UJ	0.0067 U
PAHs								
2-Chloronaphthalene	NRC	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Acenaphthene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Acenaphthylene	NRC	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Anthracene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Benzo(a)anthracene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Benzo(a)pyrene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Benzo(b)fluoranthene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Benzo(g,h,i)perylene	N/A[3]	0.355 U	0.357 UJ	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Benzo(k)fluoranthene	N/A[3]	0.355 UJ	0.357 U	0.366 UJ	0.374 UJ	0.370 UJ	0.353 UJ	0.369 UJ
Chrysene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Dibenzo(a,h)anthracene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Fluoranthene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Fluorene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Indeno(1,2,3-cd)pyrene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Naphthalene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Phenanthrene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
Pyrene	N/A[3]	0.355 U	0.357 U	0.366 U	0.374 U	0.370 U	0.353 U	0.369 U
TPH								
TPH-DRO	NRC	1.0 U	1.7 U	6.9 =	2.1 U	2.7 U	1.0 U	1.3 U
TPH-GRO	NRC	0.532 U	0.538 U	0.549 U	0.061 J	0.556 U	0.532 U	0.556 U

NOTE: [1]**All fieldwork and analytical sampling were performed prior to the release of the new Georgia Environmental Protection Division (GA EPD) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.**

[2]GA EPD Applicable Soil Threshold Levels (i.e., Table A, column 2).

[3]Not applicable; the health-based threshold level exceeds the expected soil concentration under free-product conditions.

BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
TPH – Total petroleum hydrocarbons.
TPH-DRO - Total petroleum hydrocarbon–diesel-range organics.
TPH-GRO - Total petroleum hydrocarbon–gasoline-range organics.
UST - Underground storage tank.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.
= - Indicates the compound was detected at the concentration reported.

TABLE II-1. (continued)

Location		L-4	L-4	L-5	L-5	L-9	L-9
Sample ID		HL4101	HL4103	HL5101	HL5102	HL9101	HL9103
Sample Interval (ft BGS)		0.0–2.0	4.0–6.0	0.0–2.0	2.0–4.0	1.0–3.0	4.0–4.8
Media		Soil	Soil	Soil	Soil	Soil	Soil
Sample Type	Applicable	Grab	Grab	Grab	Grab	Grab	Grab
Date Collected	Standards[2]	04/06/98	04/06/98	04/06/98	04/06/98	04/22/98	04/22/98
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs							
Benzene	0.008	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0067 J	0.0022 U
Toluene	6.00	0.0022 U	0.0022 U	0.005 =	0.0047 =	0.040 J	0.0022 U
Ethylbenzene	10.00	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.423 J	0.0022 U
Xylenes, Total	700.00	0.0067 U	0.0067 U	0.0066 U	0.0067 U	0.403 J	0.0066 U
PAHs							
2-Chloronaphthalene	NRC	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Acenaphthene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Acenaphthylene	NRC	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Anthracene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Benzo(a)anthracene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Benzo(a)pyrene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Benzo(b)fluoranthene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Benzo(g,h,i)perylene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Benzo(k)fluoranthene	N/A[3]	0.367 UJ	0.362 UJ	0.361 UJ	0.367 UJ	3.61 U	3.60 U
Chrysene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Dibenzo(a,h)anthracene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Fluoranthene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	2.29 J	3.60 U
Fluorene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	4.16 =	2.91 J
Indeno(1,2,3-cd)pyrene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
Naphthalene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	6.32 =	4.15 =
Phenanthrene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	8.59 =	5.76 =
Pyrene	N/A[3]	0.367 U	0.362 U	0.361 U	0.367 U	3.61 U	3.60 U
TPH							
TPH-DRO	NRC	1.0 U	0.46 U	1.9 U	5.2 =	1120 =	2560 =
TPH-GRO	NRC	0.556 U	0.556 U	0.549 UJ	0.140 J	127 =	2.050 =

NOTE: [1]**All fieldwork and analytical sampling were performed prior to the release of the new Georgia Environmental Protection Division (GA EPD) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.**

[2]GA EPD Applicable Soil Threshold Levels (i.e., Table A, column 2).

[3]Not applicable; the health-based threshold level exceeds the expected soil concentration under free-product conditions.

BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
TPH – Total petroleum hydrocarbons.
TPH-DRO - Total petroleum hydrocarbon–diesel-range organics.
TPH-GRO - Total petroleum hydrocarbon–gasoline-range organics.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.
= - Indicates the compound was detected at the concentration reported.

TABLE II-2. ANALYTICAL RESULTS OF CAP-PART B SOIL AND SEDIMENT SAMPLES COLLECTED AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Location		BL1	BL1	BL2	BL2	BL2	BL3
Sample ID		BL1102	BL1103	BL2101	BL2103	BL2113	BL3102
Sample Interval (ft BGS)		2.0–3.6	4.0–6.0	1.1–2.0	4.1–6.1	4.1–6.1	2.0–4.0
Media		Soil	Soil	Soil	Soil	Soil	Soil
Sample Type	Applicable	Grab	Grab	Grab	Grab	Duplicate	Grab
Date Collected	Standards[1]	04/19/99	04/19/99	04/14/99	04/14/99	04/14/99	04/14/99
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs							
Benzene	0.008	0.0021 U	0.0023 U	0.0019 U	0.0019 U	0.0019 U	0.0021 U
Toluene	6.00	0.0021 U	0.0023 U	0.00069 J	0.0019 U	0.0019 U	0.0021 U
Ethylbenzene	10.00	0.0021 U	0.0023 U	0.0019 U	0.0071 =	0.0049 =	0.0021 U
Xylenes, Total	700.00	0.0031 U	0.0034 U	0.0029 U	0.0028 U	0.0029 U	0.0032 U
PAHs							
2-Chloronaphthalene	NRC	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Acenaphthene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Acenaphthylene	NRC	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Anthracene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Benzo(a)anthracene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Benzo(a)pyrene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Benzo(b)fluoranthene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Benzo(g,h,i)perylene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Benzo(k)fluoranthene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Chrysene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Dibenzo(a,h)anthracene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Fluoranthene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Fluorene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Indeno(1,2,3-cd)pyrene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
Naphthalene	N/A[2]	0.366 U	0.358 U	0.358 U	0.0526 J	0.0456 J	0.388 U
Phenanthrene	N/A[2]	0.366 U	0.358 U	0.358 U	0.0248 J	0.0226 J	0.388 U
Pyrene	N/A[2]	0.366 U	0.358 U	0.358 U	0.366 U	0.366 U	0.388 U
TPH							
TPH-DRO	NRC	7.8 =	2.7 =	1.2 U	3.0 =	3.0 =	7.4 =
TPH-GRO	NRC	0.670 J	0.317 =	0.108 U	0.110 U	0.0976 J	0.097 J

NOTE: [1]GA EPD Applicable Soil Threshold Levels (i.e., Table A, column 2).
[2]Not applicable; the health-based threshold level exceeds the expected soil concentration under free-product conditions.
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
TPH - Total petroleum hydrocarbons.
TPH-DRO - Total petroleum hydrocarbon–diesel-range organics.
TPH-GRO - Total petroleum hydrocarbon–gasoline-range organics.
UST - Underground storage tank.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
= - Indicates the compound was detected at the concentration reported.

TABLE II-2. (continued)

Location		BL3	BL4	BL4	BL5	BL5	BL6	BL6
Sample ID		BL3103	BL4102	BL4103	BL5101	BL5103	BL6102	BL6103
Sample Interval (ft BGS)		4.4–6.4	2.0–4.0	4.0–5.0	0.0–2.0	4.0–5.0	2.0–3.5	4.0–5.7
Media		Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Type	Applicable	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Date Collected	Standards[1]	04/14/99	04/14/99	04/14/99	04/14/99	04/14/99	04/13/99	04/13/99
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs								
Benzene	0.008	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0024 U	0.0021 U
Toluene	6.00	0.182 =	0.0014 J	0.0021 U	0.0021 U	0.0021 U	0.0024 U	0.0021 U
Ethylbenzene	10.00	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0024 U	0.0021 U
Xylenes, Total	700.00	0.0033 U	0.0032 U	0.0031 U	0.0032 U	0.0031 U	0.0037 U	0.0031 U
PAHs								
2-Chloronaphthalene	NRC	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Acenaphthene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Acenaphthylene	NRC	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Anthracene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Benzo(a)anthracene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Benzo(a)pyrene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Benzo(b)fluoranthene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Benzo(g,h,i)perylene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Benzo(k)fluoranthene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Chrysene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Dibenzo(a,h)anthracene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Fluoranthene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Fluorene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Indeno(1,2,3-cd)pyrene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Naphthalene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Phenanthrene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
Pyrene	N/A[2]	0.370 U	0.374 U	0.374 U	0.355 U	0.366 U	0.355 U	0.370 U
TPH								
TPH-DRO	NRC	1 U	27.4 =	19.1 =	0.9 U	0.76 U	0.51 U	2.4 U
TPH-GRO	NRC	0.0456 J	0.149 =	0.0839 J	0.0635 J	0.220 U	0.0666 J	0.0854 J
TPH	NRC	N/A[3]	109 =	94.3 =	6.9 U	14.5 U	N/A[3]	N/A[3]

NOTE: [1]GA EPD Applicable Soil Threshold Levels (i.e., Table A, column 2).
[2]Not applicable; the health-based threshold level exceeds the expected soil concentration under free-product conditions.
[3]Not applicable; TPH analysis not required although TPH data provided by laboratory for samples BL4102, BL4103, BL5101, and BL5103.
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
TPH - Total petroleum hydrocarbons.
TPH-DRO - Total petroleum hydrocarbon–diesel-range organics.
TPH-GRO - Total petroleum hydrocarbon–gasoline-range organics.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
= - Indicates the compound was detected at the concentration reported.

TABLE II-2. (continued)

Location		BL7	BL7	SSL-01	SSL-01	SSL-02
Sample ID		BL7101	BL7103	BL1500	BL1510	BL2500
Sample Interval (ft BGS)		1.7–2.0	4.0–5.2	0.0–0.5	0.0–0.5	0.0–0.5
Media		Soil	Soil	Sediment	Sediment	Sediment
Sample Type	Applicable	Grab	Grab	Grab	Duplicate	Grab
Date Collected	Standards[1]	04/21/99	04/21/99	04/18/99	04/18/99	04/18/99
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs						
Benzene	0.008	0.0022 U	0.0025 U	0.0036 U	0.0025 U	0.0033 U
Toluene	6.00	0.0022 U	0.0025 U	0.0036 U	0.0025 U	0.0046 =
Ethylbenzene	10.00	0.0022 U	0.0025 U	0.0036 U	0.0017 J	0.0033 U
Xylenes, Total	700.00	0.0034 U	0.0038 U	0.0054 U	0.0032 U	0.005 U
PAHs						
2-Chloronaphthalene	NRC	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Acenaphthene	N/A[2]	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Acenaphthylene	NRC	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Anthracene	N/A[2]	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Benzo(a)anthracene	N/A[2]	0.379 U	0.402 U	0.336 J	2.40 =	2.22 U
Benzo(a)pyrene	N/A[2]	0.379 U	0.402 U	0.452 J	2.78 =	2.22 U
Benzo(b)fluoranthene	N/A[2]	0.379 U	0.402 U	0.543 J	3.90 =	2.22 U
Benzo(g,h,i)perylene	N/A[2]	0.379 U	0.402 U	0.302 J	2.13 =	2.22 U
Benzo(k)fluoranthene	N/A[2]	0.379 U	0.402 U	0.462 J	2.47 =	2.22 U
Chrysene	N/A[2]	0.379 U	0.402 U	0.473 J	3.29 =	2.22 U
Dibenzo(a,h)anthracene	N/A[2]	0.379 U	0.402 U	1.78 U	0.837 J	2.22 U
Fluoranthene	N/A[2]	0.379 U	0.402 U	0.573 J	2.78 =	2.22 U
Fluorene	N/A[2]	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Indeno(1,2,3-cd)pyrene	N/A[2]	0.379 U	0.402 U	0.244 J	1.83 =	2.22 U
Naphthalene	N/A[2]	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Phenanthrene	N/A[2]	0.379 U	0.402 U	1.78 U	1.75 U	2.22 U
Pyrene	N/A[2]	0.379 U	0.402 U	0.782 J	3.63 =	2.22 U
TPH						
TPH-DRO	NRC	0.71 U	0.59 U	26.4 =	10.3 =	0.4 U
TPH-GRO	NRC	0.114 U	0.120 U	0.164 =	0.102 J	0.132 J

NOTE: [1]GA EPD Applicable Soil Threshold Levels (i.e., Table A, column 2).
[2]Not applicable; the health-based threshold level exceeds the expected soil concentration under free-product conditions.
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
TPH - Total petroleum hydrocarbons.
TPH-DRO - Total petroleum hydrocarbon–diesel-range organics.
TPH-GRO - Total petroleum hydrocarbon–gasoline-range organics.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
= - Indicates the compound was detected at the concentration reported.

TABLE II-3. SOIL FIELD SCREENING DATA COLLECTED AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Interval (ft BGS)	L-1 Headspace[1] (ppm)	L-2 Headspace[1] (ppm)	L-3 Headspace[1] (ppm)	L-4 Headspace[1] (ppm)	L-5 Headspace[1] (ppm)	L-9 Headspace[1] (ppm)
0.0 to 2.0	0.0	30.0	0.0	0.0	>2,000	>2,000
2.0 to 4.0	0.0	30.0	0.0	0.0	>2,000	>2,000
4.0 to 6.0	2.0	10.0	0.0	0.0	NC	>2,000
6.0 to 8.0	NC	NC	NC	NC	NC	NC
8.0 to 10.0	NC	NC	NC	NC	NC	NC
10.0 to 12.0	NA	NA	NA	NA	NA	NA
12.0 to 14.0	NA	NA	NA	NA	NA	NA
14.0 to 16.0	NA	NA	NA	NA	NA	NA

Interval (ft BGS)	BL1 Headspace[1] (ppm)	BL2 Headspace[1] (ppm)	BL3 Headspace[1] (ppm)	BL4 Headspace[1] (ppm)	BL5 Headspace[1] (ppm)	BL6 Headspace[1] (ppm)	BL7 Headspace[1] (ppm)
0.0 to 2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.0 to 4.0	0.0	13.2	0.0	0.0	NC	0.0	NC
4.0 to 6.0	NC	10.2	0.0	0.0	NC	0.0	0.0
6.0 to 8.0	NC	0.0	0.0	0.0	NC	NC	0.0
8.0 to 10.0	NC	0.0	NC	NC	NC	NC	0.0
10.0 to 12.0	NC	NC	NC	NC	NC	NC	NC
12.0 to 14.0	NC	NC	NC	NC	NC	NC	NC
14.0 to 16.0	NC	NC	NC	NC	NC	NC	NC

[1]Headspace measured using PhotoVac photoionization detector (PID).
BGS - Below ground surface.
NA - Not applicable; interval below total depth of boring.
NC - Not collected; sample was not recovered or headspace measurement not recorded.
ppm -parts per million.
UST -Underground storage tank.

TABLE II-4. ANALYTICAL RESULTS OF CAP-PART A GROUNDWATER SAMPLES COLLECTED AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053[1]

Location		L-1	L-2	L-3	L-4
Sample ID		HL1200	HL2200	HL3200	HL4200
Sample Interval (ft BGS)		5.0–9.0	6.0–10.0	6.0–10.0	6.0–10.0
Media		Groundwater	Groundwater	Groundwater	Groundwater
Sample Type	Applicable	Grab	Grab	Grab	Grab
Date Collected	Standards[2]	04/03/98	04/03/98	04/03/98	04/06/98
Unit	µg/L	µg/L	µg/L	µg/L	µg/L
VOCs					
Benzene	5	63 =	217 =	7.2 =	22.5 =
Toluene	1,000	10 U	10 U	2 U	2 U
Ethylbenzene	700	289 =	202 =	5.1 =	13.7 =
Xylenes, Total	10,000	13.2 J	30 U	6 U	21.9 =
PAHs					
2-Chloronaphthalene	NRC	408 U	408 U	9.9 U	11.6 R
Acenaphthene	NRC	408 U	408 U	9.9 U	11.6 R
Acenaphthylene	NRC	408 U	408 U	9.9 U	11.6 R
Anthracene	NRC	408 U	408 U	9.9 U	11.6 R
Benzo(a)anthracene	NRC	408 U	408 U	9.9 U	11.6 R
Benzo(a)pyrene	0.2	408 U	408 U	9.9 U	11.6 R
Benzo(b)fluoranthene	NRC	408 U	408 U	9.9 U	11.6 R
Benzo(g,h,i)perylene	NRC	408 U	408 U	9.9 U	11.6 R
Benzo(k)fluoranthene	NRC	408 U	408 U	9.9 U	11.6 R
Chrysene	NRC	408 U	408 U	9.9 U	11.6 R
Dibenzo(a,h)anthracene	NRC	408 U	408 U	9.9 U	11.6 R
Fluoranthene	NRC	408 U	408 U	9.9 U	11.6 R
Fluorene	NRC	408 U	408 U	9.9 U	11.6 R
Indeno(1,2,3-cd)pyrene	NRC	408 U	408 U	9.9 U	24 J
Naphthalene	NRC	408 U	408 U	9.9 U	11.6 R
Phenanthrene	NRC	408 U	408 U	9.9 U	11.6 R
Pyrene	NRC	408 U	408 U	9.9 U	11.6 R

NOTE: [1]**All fieldwork and analytical sampling were performed prior to the release of the new Georgia Environmental Protection Division (GA EPD) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.**

[2]U.S. Environmental Protection Agency maximum contaminant level (MCL).

BGS - Below ground surface.

NRC - No regulatory criteria.

PAHs - Polynuclear aromatic hydrocarbons.

UST - Underground storage tank.

VOCs - Volatile organic compounds.

Laboratory Qualifier

U - Indicates the compound was not detected at the concentration reported.

J - Indicates the value for the compound is an estimated value.

= - Indicates the compound was detected at the concentration reported.

R - Indicates the data for this compound were rejected. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).

TABLE II-4. (continued)

Location Sample ID Sample Interval (ft BGS) Media Sample Type Date Collected Unit	Applicable Standards[2] µg/L	L-5 HL5200 5.0–9.0 Groundwater Grab 04/06/98 µg/L	L-5 HL5210 5.0–9.0 Groundwater Duplicate 04/06/98 µg/L	L-6 HL6301 11.0–15.0 Groundwater Grab 04/18/98 µg/L	L-6 HL6302 21.0–25.0 Groundwater Grab 04/18/98 µg/L
VOCs					
Benzene	5	2 U	2 U	2 U	2 U
Toluene	1,000	2 U	2 U	4.2 U	2 U
Ethylbenzene	700	2 U	2 U	2 U	2 U
Xylenes, Total	10,000	6 U	6 U	6 U	6 U
PAHs					
2-Chloronaphthalene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Acenaphthene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Acenaphthylene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Anthracene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(a)anthracene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(a)pyrene	0.2	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(b)fluoranthene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(g,h,i)perylene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(k)fluoranthene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Chrysene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Dibenzo(a,h)anthracene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Fluoranthene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Fluorene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Indeno(1,2,3-cd)pyrene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Naphthalene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Phenanthrene	NRC	11.4 U	10.5 U	10.1 U	10.2 U
Pyrene	NRC	11.4 U	10.5 U	10.1 U	10.2 U

NOTE: [1]**All fieldwork and analytical sampling were performed prior to the release of the new Georgia Environmental Protection Division (GA EPD) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.**
[2]U.S. Environmental Protection Agency maximum contaminant level (MCL).
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
= - Indicates the compound was detected at the concentration reported.

TABLE II-4. (continued)

Location		L-6	L-6	L-7	L-7	L-7	L-7	L-7	L-9
Sample ID		HL6303	HL6304	HL7301	HL7310	HL7302	HL7303	HL7304	HL9200
Sample Interval (ft BGS)		31.0 to 35.0	41.0 to 45.0	11.0 to 15.0	11.0 to 15.0	21.0 to 25.0	31.0 to 35.0	41.0 to 45.0	6.0 to 10.0
Media		Ground-water	Ground-water	Ground-water	Ground-water	Ground-water	Ground-water	Ground-water	Ground-water
Sample Type	Applicable	Grab	Grab	Grab	Duplicate	Grab	Grab	Grab	Grab
Date Collected	Standards[2]	04/18/98	04/18/98	04/18/98	04/18/98	04/18/98	04/18/98	04/18/98	04/22/98
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOCs									
Benzene	5	2 U	2 U	52 =	47.9 J	2 U	2 U	2 UJ	8 =
Toluene	1,000	2.1 U	2 U	3.4 =	2.4 J.	2 U	2 U	2 UJ	2 U
Ethylbenzene	700	2 U	2 U	90.1 =	143 J	2.7 =	2 U	2 UJ	6.8 =
Xylenes	10,000	6 U	6 U	4.1 J	6 UJ	6 U	6 U	6 UJ	4.4 J
PAHs									
2-Chloronaphthalene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Acenaphthene	NRC	10.4 U	10.2 U	10.3 U	1.1 J	10 U	10.3 U	10.5 U	10.2 U
Acenaphthylene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Anthracene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Benzo(a)anthracene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Benzo(a)pyrene	0.2	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Benzo(b)fluoranthene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Benzo(g,h,i)perylene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Benzo(k)fluoranthene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Chrysene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Dibenzo(a,h)anthracene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Fluoranthene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Fluorene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Indeno(1,2,3-cd)pyrene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Naphthalene	NRC	10.4 U	10.2 U	69 =	77.7 =	10 U	70 =	10.5 U	17 =
Phenanthrene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U
Pyrene	NRC	10.4 U	10.2 U	10.3 U	10.1 U	10 U	10.3 U	10.5 U	10.2 U

NOTE: [1]**All field work and analytical sampling were performed prior to the release of the new Georgia Environmental Protection Division (GA EPD) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.**

[2]U.S. Environmental Protection Agency maximum contaminant level.

BGS - Below ground surface.

NRC - No regulatory criteria.

PAHs - Polynuclear aromatic hydrocarbons.

VOCs - Volatile organic compounds.

Laboratory Qualifier

U - Indicates the compound was not detected at the concentration reported.

J - Indicates the value for the compound is an estimated value.

UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.

= - Indicates the compound was detected at the concentration reported.

TABLE II-5. ANALYTICAL RESULTS OF CAP-PART B GROUNDWATER AND SURFACE WATER SAMPLES COLLECTED AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Station Sample ID Media Sample Type Date Collected Unit	Applicable Standards[1] µg/L	MW-L1 BL1200 Groundwater Grab 05/10/99 µg/L	MW-L2 BL2200 Groundwater Grab 05/10/99 µg/L	MW-L2 BL2210 Groundwater Duplicate 05/10/99 µg/L	MW-L3 BL3200 Groundwater Grab 05/9/99 µg/L	MW-L4 BL4200 Groundwater Grab 05/9/99 µg/L
VOCs						
Benzene	5	3.1 =	1.8 J	1.6 J	2 U	2 U
Toluene	1,000	2 U	2 U	2 U	2 U	2 U
Ethylbenzene	700	11.9 =	3.7 =	3.5 =	2 U	2 U
Xylenes, Total	10,000	5.1 U	5 U	5 U	5 U	5 U
PAHs						
2-Chloronaphthalene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Acenaphthene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Acenaphthylene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Anthracene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Benzo(a)anthracene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Benzo(a)pyrene	0.2	10 U	10 U	10 U	11.1 U	11.1 U
Benzo(b)fluoranthene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Benzo(g,h,i)perylene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Benzo(k)fluoranthene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Chrysene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Dibenzo(a,h)anthracene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Fluoranthene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Fluorene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Indeno(1,2,3-cd)pyrene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Naphthalene	NRC	26.2 =	4 J	4.3 J	11.1 U	11.1 U
Phenanthrene	NRC	10 U	10 U	10 U	11.1 U	11.1 U
Pyrene	NRC	10 U	10 U	10 U	11.1 U	11.1 U

NOTE: [1]U.S. Environmental Protection Agency maximum contaminant level (MCL).
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
UST - Underground storage tank.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
= - Indicates the compound was detected at the concentration reported.

TABLE II-5. (continued)

Station Sample ID Media Sample Type Date Collected Unit	Applicable Standards[1] µg/L	MW-L5 BL5200 Groundwater Grab 05/09/99 µg/L	MW-L6 BL6200 Groundwater Grab 05/08/99 µg/L	MW-L7 BL7200 Groundwater Grab 05/12/99 µg/L
VOCs				
Benzene	5	2 U	2 U	2 U
Toluene	1,000	2 U	2 U	2 U
Ethylbenzene	700	2 U	2 U	2 U
Xylenes	10,000	5 U	5 U	3 U
PAHs				
2-Chloronaphthalene	NRC	11.1 U	11.1 U	10 U
Acenaphthene	NRC	11.1 U	11.1 U	10 U
Acenaphthylene	NRC	11.1 U	11.1 U	10 U
Anthracene	NRC	11.1 U	11.1 U	10 U
Benzo(a)anthracene	NRC	11.1 U	11.1 U	10 U
Benzo(a)pyrene	0.2	11.1 U	11.1 U	10 U
Benzo(b)fluoranthene	NRC	11.1 U	11.1 U	10 U
Benzo(g,h,i)perylene	NRC	11.1 U	11.1 U	10 U
Benzo(k)fluoranthene	NRC	11.1 U	11.1 U	10 U
Chrysene	NRC	11.1 U	11.1 U	10 U
Dibenzo(a,h)anthracene	NRC	11.1 U	11.1 U	10 U
Fluoranthene	NRC	11.1 U	11.1 U	10 U
Fluorene	NRC	11.1 U	11.1 U	10 U
Indeno(1,2,3-cd)pyrene	NRC	11.1 U	11.1 U	10 U
Naphthalene	NRC	11.1 U	11.1 U	10 U
Phenanthrene	NRC	11.1 U	11.1 U	10 U
Pyrene	NRC	11.1 U	11.1 U	10 U

NOTE: [1]U.S. Environmental Protection Agency maximum contaminant level (MCL).
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.

TABLE II-5. (continued)

Station Sample ID Media Sample Type Date Collected Unit	Applicable Standards[1] µg/L	SSL-01 BL1600 Surface Water Grab 04/18/99 µg/L	SSL-01 BL1610 Surface Water Duplicate 04/18/99 µg/L	SSL-02 BL2600 Surface Water Grab 04/18/99 µg/L
VOCs				
Benzene	71.28	2 U	2 U	2 U
Toluene	200,000	2 U	0.53 J	2 U
Ethylbenzene	28,718	2 U	2 U	2 U
Xylenes	NRC	3 U	3 U	3 U
PAHs				
2-Chloronaphthalene	NRC	10.4 U	10.4 U	10 U
Acenaphthene	NRC	10.4 U	10.4 U	10 U
Acenaphthylene	NRC	10.4 U	10.4 U	10 U
Anthracene	110,000	10.4 U	10.4 U	10 U
Benzo(a)anthracene	0.0311	10.4 U	10.4 U	10 U
Benzo(a)pyrene	0.0311	10.4 U	10.4 U	10 U
Benzo(b)fluoranthene	NRC	10.4 U	10.4 U	10 U
Benzo(g,h,i)perylene	NRC	10.4 U	10.4 U	10 U
Benzo(k)fluoranthene	0.0311	10.4 U	10.4 U	10 U
Chrysene	0.0311	10.4 U	10.4 U	10 U
Dibenzo(a,h)anthracene	0.0311	10.4 U	10.4 U	10 U
Fluoranthene	370	10.4 U	10.4 U	10 U
Fluorene	14,000	10.4 U	10.4 U	10 U
Indeno(1,2,3-cd)pyrene	0.0311	10.4 U	10.4 U	10 U
Naphthalene	NRC	10.4 U	10.4 U	10 U
Phenanthrene	NRC	10.4 U	10.4 U	10 U
Pyrene	11,000	10.4 U	10.4 U	10 U

NOTE: [1]Georgia Environmental Protection Division In-stream Water Quality Standard (Chapter 391-3-6-.03).
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.

TABLE II-6: FREE PRODUCT MEASUREMENTS AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053[1]

Date of Measurement	Well/Piezometer	Groundwater Elev. (ft MSL)	Product Thickness (ft)	Corrected Water Elev. (ft MSL)	Product Removed (gal)[2]
04/23/98	L-9	24.88	0.19	24.88	0.00
06/25/98	L-9	23.86	N/A[3]	23.86	0.02
07/21/98	L-9	N/A[4]	N/A[4]	N/A[4]	0.02
09/22/98	L-9	N/A[4]	N/A[4]	N/A[4]	0.02
11/18/98[5]	L-9	N/A[4]	N/A[4]	N/A[4]	0.00
11/30/98	L-9	24.14	N/A[3]	24.14	0.00
05/08/99	MW-L2	23.54	0	23.54	0.00
07/08/99	MW-L2	24.28	0	24.28	0.00
				TOTAL	0.06

NOTE: [1]Free product was only found in piezometer L-9 during the Corrective Action Plan (CAP)-Part A Site Investigation (SI). MW-L2 was installed adjacent to L-9 during the CAP-Part B SI.
[2]Volume of product removal is an estimated value.
[3]Free product thickness determination attempted with water-product interface meter; no product was detected.
[4]The passive removal system (i.e., absorbent sock) impeded the measurement of accurate groundwater elevation and free product thickness; therefore, the measurements were not obtained.
[5]The absorbent sock was removed from piezometer L-9 to allow for water table equilibration.
MSL - mean sea level.
UST - underground storage tank.

TABLE II-7. GEOTECHNICAL RESULTS FOR SOIL SAMPLES COLLECTED AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Location	L-8	BL1	BL2	BL3	BL4	BL5	BL6	BL7
Sample ID	HL8400[1]	BL1400[2]	BL2400[2]	BL3400[2]	BL4400[2]	BL5400[2]	BL6400[2]	BL7400[2]
Sample Interval (ft BGS)	2.0–4.0	0.6–2.0	2.0–4.0	2.0–2.4	3.4–4.0	2.0–2.5	0.0–2.0	2.0–4.0
Date Collected	04/18/98	04/19/99	04/14/99	04/14/99	04/14/99	04/14/99	04/13/99	04/21/99
Parameter								
USCS code	SM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grain size - % Silt and Clay	14.0	7.90	8.06	2.68	8.06	4.00	18.70	7.13
Grain size - % Sand	65.3	87.57	87.88	92.03	91.79	94.15	69.42	92.40
Grain size - % Gravel	20.7	4.53	4.06	5.29	0.15	1.85	11.88	0.47
Liquid limit	N/A	NP	NP	NP	NP	NP	NP	NP
Plastic limit	N/A	NP	NP	NP	NP	NP	NP	NP
Plasticity index	N/A	NP	NP	NP	NP	NP	NP	NP
Moisture content (%)	8.1	8.2	9.0	4.5	12.3	11.6	10.7	14.5
Permeability (cm/sec)	1.1E-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Porosity	0.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Specific gravity	2.67	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total organic carbon	0.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE: [1]Undistributed geotechnical sample collected during Corrective Action Plan (CAP)-Part A Site Investigation (SI).
[2]Distributed geotechnical sample collected during CAP-Part B SI.
BGS - Below ground surface.
N/A - Not applicable, samples were not analyzed for specific geotechnical parameter.
NP - Nonplastic.
SM - Silty sand.
USCS - Unified Soil Classification System.
UST -Underground storage tank.

TABLE II-8. PIEZOMETER, VERTICAL PROFILE, AND MONITORING WELL CONSTRUCTION DETAILS AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Piezometer, Vertical Profile, or Well ID	Date Installed	Boring Depth (ft BGS)	Screened Interval (ft BGS)	Base of Seal (ft BGS)	Type of Completion	Ground Surface Elevation (ft NAD 29)	TOC Elevation (ft NAD 29)
Piezometers							
L-1	04/03/98	9.0	4.0 to 9.0	N/A	None[1]	28.77	29.19
L-2	04/03/98	10.0	5.0 to 10.0	N/A	None[1]	28.60	29.31
L-3	04/04/98	10.0	5.0 to 10.0	N/A	None[1]	29.05	29.12
L-4	04/06/98	10.0	5.0 to 10.0	N/A	None[1]	29.91	30.08
L-5	04/06/98	9.0	4.0 to 9.0	N/A	None[1]	28.98	30.21
L-9	04/22/98	10.0	5.0 to 10.0	N/A	Flush mount[2]	29.06	29.91
Vertical Profiles							
L-6	04/18/98	45.0	N/A[3]	N/A	None[3]	29.10	N/A[3]
L-7	04/18/98	45.0	N/A[3]	N/A	None[3]	28.91	N/A[3]
Monitoring Wells							
MW-L1	04/20/98	15.8	4.4 to 14.44	2.5	Flush mount	28.49	28.18
MW-L2	04/19/98	15.1	4.6 to 14.6	2.6	Flush mount	29.05	28.70
MW-L3	04/19/98	15.3	4.9 to 14.9	2.9	Flush mount	29.15	28.85
MW-L4	04/19/98	15.0	4.1 to 14.1	2.1	Flush mount	28.97	28.73
MW-L5	04/19/98	15.0	3.6 to 13.6	2.1	Flush mount	28.70	28.55
MW-L6	04/14/98	15.6	5.2 to 15.2	2.5	Flush mount	28.20	27.98
MW-L7	04/21/98	15.0	3.7 to 13.7	2.2	Flush mount	28.47	28.18

NOTE: [1]Temporary piezometers installed with Geoprobe® and abandoned following free product and water level measurements.
[2]L-9 installed as permanent piezometer.
[3]Polyvinyl chloride (PVC) casing and screen not installed in vertical profiles. Water samples were collected with a stainless steel screen at intervals of 11 to 15 feet BGS, 21 to 25 feet BGS, 31 to 35 feet BGS, and 41 to 45 feet BGS. Borehole abandoned after groundwater samples collected.
BGS - Below ground surface.
NAD - North American Datum.
TOC - Top of casing.
UST - Underground storage tank.

TABLE II-9. WATER LEVEL MEASUREMENTS AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Piezometer/ Well ID	Date	Top of Casing Elevation (ft NAD 29)	Depth to Water (ft BTOC)	Groundwater Elevation (ft NAD 29)
CAP-Part A Investigation				
L-1	04/03/98	29.19	4.32	24.87
L-2	04/03/98	29.31	4.45	24.86
L-3	04/04/98	29.12	4.28	24.84
L-4	04/06/98	30.08	5.32	24.76
L-5	04/06/98	30.21	5.07	25.14
L-9	04/22/98	29.91	5.03	24.88
CAP-Part B Investigation				
MW-L1	05/08/99	28.18	5.04	23.14
MW-L2	05/08/99	28.70	5.16	23.54
MW-L3	05/08/99	28.85	5.80	23.05
MW-L4	05/08/99	28.73	4.90	23.83
MW-L5	05/08/99	28.55	5.03	23.52
MW-L6	05/08/99	27.98	5.24	22.74
MW-L7	05/08/99	28.18	4.75	23.43
MW-L1	07/08/99	28.18	4.32	23.86
MW-L2	07/08/99	28.70	4.42	24.28
MW-L3	07/08/99	28.85	5.00	23.85
MW-L4	07/08/99	28.73	4.01	24.72
MW-L5	07/08/99	28.55	4.33	24.22
MW-L6	07/08/99	27.98	4.68	23.30
MW-L7	07/08/99	28.18	N/A	N/A

NOTE: BTOC - Below top of casing.
NAD - North American Datum.
N/A - Water level could not be measured because well was inaccessible.

TABLE III-1. RISK-BASED SCREENING OF CAP-PART A SOIL DATA AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Station:	Screening Levels			L-1	L-1	L-1	L-2	L-2	L-3	L-3
Sample ID:	Georgia UST	Risk-based		HL1101	HL1103	HL1110[g]	HL2101	HL2103	HL3101	HL3103
Sample Interval (ft BGS):	Corrective Action	Screening	Leaching to	0.5–3.5	4.0–4.8	4.0–4.8	0.0–2.0	4.0–5.0	0.7–3.4	4.0–4.7
Date Collected:	Levels for Soil[a]	Levels[b]	Groundwater[c]	04/03/98	04/03/98	04/03/98	04/03/98	04/03/98	04/03/98	04/03/98
Units:	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Volatile Organic Compounds (VOCs)										
Benzene	8	197,400	30	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ
Toluene	6,000	408,800,000	12,000	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ
Ethylbenzene	10,000	204,400,000	13,000	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ
Xylenes, Total	700,000	4,088,000,000	190,000	6.4 UJ	6.4 UJ	6.4 UJ	6.4 UJ	6.4 UJ	6.4 UJ	6.4 UJ
Polynuclear Aromatic Hydrocarbons (PAHs)										
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Acenaphthene	N/A[e]	122,640,000	570,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Acenaphthylene[f]	N/A[e]	61,320,000	4,200,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Anthracene	N/A[e]	613,200,200	12,000,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Benzo(a)pyrene	N/A[e]	784	8,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Benzo(g,h,i)perylene	N/A[e]	--		355 U	357 UJ	366 U	374 U	370 U	353 U	369 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	355 UJ	357 U	366 UJ	374 UJ	370 UJ	353 UJ	369 UJ
Chrysene	N/A[e]	784,000	160,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Fluorene	N/A[e]	81,760,000	560,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Naphthalene	N/A[e]	40,880,000	84,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Pyrene	N/A[e]	61,320,000	4,200,000	355 U	357 U	366 U	374 U	370 U	353 U	369 U
Other Analytes										
Total Organic Carbon	--	--	--							
TPH–Diesel-Range Organics	--	--	--	1,000 U	1,700 U	6,900 =	2,100 U	2,700 U	1,000 U	1,300 U
TPH–Gasoline-Range Organics	--	--	--	532 U	538 U	549 U	61 J	556 U	532 U	556 U

[a]Average or higher groundwater pollution susceptibility area (where public water supply is within 2.0 miles).
[b]Protective of soil exposure during Industrial Land Use.
[c]Protective of groundwater ingestion. Used a dilution attenuation factor of 20.
[d]Values based on naphthalene as a surrogate chemical.
[e]Not applicable. The screening level exceeds the expected soil concentration under free product condition.
[f]Values based on pyrene as a surrogate chemical.
[g]Duplicate sample.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Georgia UST action levels.
10 Italicized values indicate results exceeding risk-based screening levels.
<u>10</u> Underlined values indicate results exceeding leaching to groundwater screening levels.
U - Indicates that the compound was not detected above the reported sample quantitation limit.
J - Indicates that the value for the compound was an estimated value.
UJ - Indicates that the sample was not detected above an approximate sample quantitation limit.
R - Indicates that the sample results are unusable. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).
= - Indicates that the compound was detected at the concentration reported.

TABLE III-1. (continued)

Station:	Screening Levels			L-4	L-4	L-5	L-5	L-9	L-9
Sample ID:	Georgia UST	Risk-based		HL4101	HL4103	HL5101	HL5102	HL9101	HL9103
Sample Interval (ft BGS):	Corrective Action	Screening	Leaching to	0.0–2.0	4.0–6.0	0.0–2.0	2.0–4.0	1.0–3.0	4.0–4.8
Date Collected:	Levels for Soil[a]	Levels[b]	Groundwater[c]	04/06/98	04/06/98	04/06/98	04/06/98	04/22/98	04/22/98
Units:	(µg/kg)	(µg/kg	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Volatile Organic Compounds (VOCs)									
Benzene	8	197,400	30	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Toluene	6,000	408,800,000	12,000	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Ethylbenzene	10,000	204,400,000	13,000	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Xylenes, Total	700,000	4,088,000,000	190,000	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U	6.7 U
Polynuclear Aromatic Hydrocarbons (PAHs)									
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Acenaphthene	N/A[e]	122,640,000	570,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Acenaphthylene[f]	N/A[e]	61,320,000	4,200,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Anthracene	N/A[e]	613,200,200	12,000,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Benzo(a)pyrene	N/A[e]	784	8,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Benzo(g,h,i)perylene	N/A[e]	--		367 U	362 UJ	361 U	367 U	3610 U	3600 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	367 UJ	362 U	361 UJ	367 UJ	3610 UJ	3600 UJ
Chrysene	N/A[e]	784,000	160,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	367 U	362 U	361 U	367 U	2290 J	3600 U
Fluorene	N/A[e]	81,760,000	560,000	367 U	362 U	361 U	367 U	4160 =	2910 J
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Naphthalene	N/A[e]	40,880,000	84,000	367 U	362 U	361 U	367 U	6320 =	4150 =
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	367 U	362 U	361 U	367 U	8590 =	5760 =
Pyrene	N/A[e]	61,320,000	4,200,000	367 U	362 U	361 U	367 U	3610 U	3600 U
Other Analytes									
Total Organic Carbon	--	--	--						
TPH–Diesel-Range Organics	--	--	--	1,000 U	460 U	1,900 U	5,200 =	1,120,000 =	2,560,000 =
TPH–Gasoline-Range Organics	--	--	--	556 U	556 U	549 U	140 J	88,300 J	2050 =

[a]Average or higher groundwater pollution susceptibility area (where public water supply is within 2.0 miles).
[b]Protective of soil exposure during Industrial Land Use.
[c]Protective of groundwater ingestion. Used a dilution attenuation factor of 20.
[d]Values based on naphthalene as a surrogate chemical.
[e]Not applicable. The screening level exceeds the expected soil concentration under free product condition.
[f]Values based on pyrene as a surrogate chemical.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Georgia UST action levels.
10 Italicized values indicate results exceeding risk-based screening levels.
10 Underlined values indicate results exceeding leaching to groundwater screening levels.
U - Indicates that the compound was not detected above the reported sample quantitation limit.
J - Indicates that the value for the compound was an estimated value.
UJ - Indicates that the sample was not detected above an approximate sample quantitation limit.
R - Indicates that the sample results are unusable. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).
= - Indicates that the compound was detected at the concentration reported.

TABLE III-2. RISK-BASED SCREENING OF CAP-PART B SOIL DATA AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Station:	Screening Levels			BL-1	BL-1	BL-2	BL-2	BL-2	BL-3	BL-3	BL-4
Sample ID:	Georgia UST	Risk-based		BL1102	BL1103	BL2101	BL2103	BL2113[g]	BL3102	BL3103	BL4102
Sample Interval (ft BGS):	Corrective Action	Screening	Leaching to	2.0–3.6	4.0–6.0	1.1–2.0	4.1–6.1	4.1–6.1	2.0–4.0	4.4–6.4	2.0–4.0
Date Collected:	Levels for Soil[a]	Levels[b]	Groundwater[c]	04/19/99	04/19/99	04/14/99	04/14/99	04/14/99	04/14/99	04/14/99	04/14/99
Units:	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Volatile Organic Compounds (VOCs)											
Benzene	8	197,400	30	2.1 U	2.3 U	1.9 U	1.9 U	1.9 U	2.1 U	2.2 U	2.1 U
Toluene	10,000	408,800,000	12,000	2.1 U	2.3 U	0.69 J	1.9 U	1.9 U	2.1 U	182 =	1.4 J
Ethylbenzene	6,000	204,400,000	13,000	2.1 U	2.3 U	1.9 U	7.1 =	4.9 =	2.1 U	2.2 U	2.1 U
Xylenes, Total	700,000	4,088,000,000	190,000	3.1 U	3.4 U	2.9 U	2.8 U	2.9U	3.2 U	3.3 U	3.2 U
Polynuclear Aromatic Hydrocarbons (PAHs)											
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Acenaphthene	N/A[e]	122,640,000	570,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Acenaphthylene[f]	N/A[e]	61,320,000	4,200,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Anthracene	N/A[e]	613,200,200	12,000,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Benzo(a)pyrene	N/A[e]	784	8,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Benzo(g,h,i)perylene	N/A[e]	--		366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Chrysene	N/A[e]	784,000	160,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Fluorene	N/A[e]	81,760,000	560,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Naphthalene	N/A[e]	40,880,000	84,000	366 U	358 U	358 U	52.6 J	45.6 J	388 U	370 U	374 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	366 U	358 U	358 U	24.8 J	22.6 J	388 U	370 U	374 U
Pyrene	N/A[e]	61,320,000	4,200,000	366 U	358 U	358 U	366 U	366 U	388 U	370 U	374 U
Other Analytes											
TPH–Diesel-Range Organics	--	--	--	7,800 =	2,700 =	1,200 U	3,000 =	3,000 =	7,400 =	1,000 U	27,400 =
TPH–Gasoline-Range Organics	--	--	--	670 J	317 =	108 U	110 U	97.6 J	97 J	45.6 J	149 =
Total Petroleum Hydrocarbons	--	--	--								

[a]Average or higher groundwater pollution susceptibility area (where public water supply is within 2.0 miles).
[b]Protective of soil exposure during Industrial Land Use.
[c]Protective of groundwater ingestion. Used a dilution attenuation factor of 20.
[d]Values based on naphthalene as a surrogate chemical.
[e]Not applicable. The screening level exceeds the expected soil concentration under free product condition.
[f]Values based on pyrene as a surrogate chemical.
[g]Duplicate sample.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Georgia UST action levels.
10 Italicized values indicate results exceeding risk-based screening levels.
10 Underlined values indicate results exceeding leaching to groundwater screening levels.
U - Indicates that the compound was not detected above the reported sample quantitation limit.
J - Indicates that the value for the compound was an estimated value.
UJ - Indicates that the sample was not detected above an approximate sample quantitation limit.
R - Indicates that the sample results are unusable. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).
= - Indicates that the compound was detected at the concentration reported.

TABLE III-2. (continued)

Station:	Screening Levels			BL-4	BL-5	BL-5	BL-6	BL-6	BL-7	BL-7
Sample ID:	Georgia UST	Risk-based		BL4103	BL5101	BL5103	BL6102	BL6103	BL7101	BL7103
Sample Interval (ft BGS):	Corrective Action	Screening	Leaching to	4.0–5.0	0.0–2.0	4.0–5.0	4.0–5.7	4.0–5.7	1.7–2.0	4.0–5.2
Date Collected:	Levels for Soil[a]	Levels[b]	Groundwater[c]	04/14/99	04/14/99	04/14/99	04/13/99	04/13/99	04/21/99	04/21/99
Units:	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Volatile Organic Compounds (VOCs)										
Benzene	8	197,400	30	2.1 U	2.1 U	2.1 U	2.4 U	2.1 U	2.2 U	2.5 U
Toluene	10,000	408,800,000	12,000	2.1 U	2.1 U	2.1 U	2.4 U	2.1 U	2.2 U	2.5 U
Ethylbenzene	6,000	204,400,000	13,000	2.1 U	2.1 U	2.1 U	2.4 U	2.1 U	2.2 U	2.5 U
Xylenes, Total	700,000	4,088,000,000	190,000	3.1 U	3.2 U	3.1 U	3.7 U	3.1 U	3.4 U	3.8 U
Polynuclear Aromatic Hydrocarbons (PAHs)										
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Acenaphthene	N/A[e]	122,640,000	570,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Acenaphthylene[f]	N/A[e]	61,320,000	4,200,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Anthracene	N/A[e]	613,200,200	12,000,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Benzo(a)pyrene	N/A[e]	784	8,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Benzo(g,h,i)perylene	N/A[e]	--		374 U	355 U	366 U	355 U	370 U	379 U	402 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Chrysene	N/A[e]	784,000	160,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Fluorene	N/A[e]	81,760,000	560,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Naphthalene	N/A[e]	40,880,000	84,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Pyrene	N/A[e]	61,320,000	4,200,000	374 U	355 U	366 U	355 U	370 U	379 U	402 U
Other Analytes										
TPH–Diesel-Range Organics	--	--	--	19,100 =	900 U	760 U	510 =	2400 U	710 U	590 U
TPH–Gasoline-Range Organics	--	--	--	83.9 J	63.5 J	220 U	66.6 J	85.4 J	114 U	120 U
Total Petroleum Hydrocarbons	--	--	--	94,300 =	6,900 U	14,500 U				

[a]Average or higher groundwater pollution susceptibility area (where public water supply is within 2.0 miles).
[b]Protective of soil exposure during Industrial Land Use.
[c]Protective of groundwater ingestion. Used a dilution attenuation factor of 20.
[d]Values based on naphthalene as a surrogate chemical.
[e]Not applicable. The screening level exceeds the expected soil concentration under free product condition.
[f]Values based on pyrene as a surrogate chemical.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Georgia UST action levels.
10 Italicized values indicate results exceeding risk-based screening levels.
10 Underlined values indicate results exceeding leaching to groundwater screening levels.
U - Indicates that the compound was not detected above the reported sample quantitation limit.
J - Indicates that the value for the compound was an estimated value.
UJ - Indicates that the sample was not detected above an approximate sample quantitation limit.
R - Indicates that the sample results are unusable. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).
= - Indicates that the compound was detected at the concentration reported.

TABLE III-3. RISK-BASED SCREENING OF CAP-PART A GROUNDWATER DATA AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Station:	Screening Levels			L-1	L-2	L-3	L-4	L-5	L-5	L-6	L-6
Sample ID:	Federal			HL1200	HL2200	HL3200	HL4200	HL5200	HL5210[d]	HL6301	HL6302
Screened Interval (ft BGS):	SDWA	State		5.0–9.0	6.0–10.0	6.0–10.0	6.0–10.0	5.0–9.0	5.0–9.0	11.0–15.0	21.0–25.0
Date Collected:	MCLs	IWQSs	Risk-based[a]	04/03/98	04/03/98	04/03/98	04/06/98	04/06/98	04/06/98	04/18/98	04/18/98
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Volatile Organic Compounds (VOCs)											
Benzene	5	71.28	0.36	**63.0 =**	**217 =**	**7.2 =**	**22.5 =**	2 U	2 U	2 U	2 U
Toluene	1,000	200,000	1,300	10 U	10 U	2 U	2 U	2 U	2 U	4.2 U	2 U
Ethylbenzene	700	28,718	750	289 =	202 =	5.1 =	13.7 =	2 U	2 U	2 U	2 U
Xylenes, Total	10,000	--	12,000	13.2 J	30 U	6 U	21.9 =	6 U	6 U	6 U	6 U
Polynuclear Aromatic Hydrocarbons (PAHs)											
2-Chloronaphthalene[b]	--	--	6.5	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Acenaphthene	--	--	365	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Acenaphthylene	--	--	182.5	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Anthracene	--	110,000	1,825	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(a)anthracene	--	0.0311	0.092	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(a)pyrene	0.2	0.0311	0.0092	**408 U**	**408 U**	**9.9 U**	**11.6 R**	**11.4 U**	**10.5 U**	**10.1 U**	**10.2 U**
Benzo(b)fluoranthene	--	--	0.092	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(g,h,i)perylene	--	--	--	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Benzo(k)fluoranthene	--	0.0311	0.92	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Chrysene	--	0.0311	9.2	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Dibenzo(a,h)anthracene	--	0.0311	0.0092	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Fluoranthene	--	370	1,460	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Fluorene	--	14,000	243	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Indeno(1,2,3-cd)pyrene	--	--	0.092	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Naphthalene	--	--	6.5	408 U	408 U	9.9 U	24 J	11.4 U	10.5 U	10.1 U	10.2 U
Phenanthrene[c]	--	--	182.5	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U
Pyrene	--	11,000	182.5	408 U	408 U	9.9 U	11.6 R	11.4 U	10.5 U	10.1 U	10.2 U

[a]Protective of tap water ingestion by a resident.
[b]Values based on naphthalene as a surrogate chemical.
[c]Values based on pyrene as a surrogate chemical.
[d]Duplicate sample.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Federal Safe Drinking Water Act Maximum Contaminant Levels.
10 Underlined values indicate results exceeding risk-based screening levels.
U - Indicates the compound was not detected above the reported sample quantitation limit.
J - Indicates that the value for the compound was an estimated value.
UJ - Indicates that the sample was not detected above an approximate sample quantitation limit.
R - Indicates that the sample results are unusable. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).
= - Indicates that the compound was detected at the concentration reported.

TABLE III-3. (continued)

Station:	Screening Levels			L-6	L-6	L-7	L-7	L-7	L-7	L-7	L-9
Sample ID:	Federal			HL6303	HL6304	HL7301	HL7310[d]	HL7302	HL7303	HL7304	HL9200
Screened Interval (ft BGS):	SDWA	State		31.0–35.0	41.0–45.0	11.0–15.0	11.0–15.0	21.0–25.0	31.0–35.0	41.0–45.0	6.0–10.0
Date Collected:	MCLs	IWQSs	Risk-based[a]	04/18/98	04/18/98	04/18/98	04/18/98	04/18/98	04/18/98	04/18/98	04/22/98
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Volatile Organic Compounds (VOCs)											
Benzene	5	71.28	0.36	2 U	2 U	**52 =U**	**47.9 J**	2 U	2 U	2 UJ	**8 =**
Toluene	1,000	200,000	750	2.1 U	2 U	3.4 =	2.4 J	2 U	2 U	2 UJ	2 U
Ethylbenzene	700	28,718	1,300	2 U	2 U	90.1 =	143 J	2.7 =	2 U	2 UJ	6.8 =
Xylenes, Total	10,000	--	12,000	6 U	6 U	4.1 J	6 UJ	6 U	6 U	6 UJ	4.4 J
Polynuclear Aromatic Hydrocarbons (PAHs)											
2-Chloronaphthalene[b]	--	--	6.5	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Acenaphthene	--	--	365	10.4 U	10.2 UJ	10.3 U	1.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Acenaphthylene	--	--	182.5	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Anthracene	--	110,000	1,825	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Benzo(a)anthracene	--	0.0311	0.092	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Benzo(a)pyrene	0.2	0.0311	0.0092	**10.4 U**	**10.2 UJ**	**10.3 U**	**10.1 U**	**10 U**	**10.3 U**	**10.5 UJ**	**10.2 U**
Benzo(b)fluoranthene	--	--	0.092	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Benzo(g,h,i)perylene	--	--	--	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Benzo(k)fluoranthene	--	0.0311	0.92	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Chrysene	--	0.0311	9.2	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Dibenzo(a,h)anthracene	--	0.0311	0.0092	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Fluoranthene	--	370	1,460	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Fluorene	--	14,000	243	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Indeno(1,2,3-cd)pyrene	--	--	0.092	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Naphthalene	--	--	6.5	10.4 U	10.2 UJ	69 =	77.7 =	10 U	70 =	10.5 UJ	17 =
Phenanthrene[c]	--	--	182.5	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U
Pyrene	--	11,000	182.5	10.4 U	10.2 UJ	10.3 U	10.1 U	10 U	10.3 U	10.5 UJ	10.2 U

[a]Protective of tap water ingestion by a resident.
[b]Values based on naphthalene as a surrogate chemical.
[c]Values based on pyrene as a surrogate chemical.
[d]Duplicate sample.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Federal Safe Drinking Water Act Maximum Contaminant Levels.
10 Italicized values indicate results exceeding risk-based screening levels.
10 Underlined values indicate results exceeding risk-based screening levels.
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound was an estimated value.
UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.
R - Indicates that the sample results are unusable. The rejected data are due to surrogate compound recoveries being zero. Re-extracted results confirmed that matrix interferences caused surrogate loss. Therefore, the non-detect laboratory qualifier (U) is not valid in this case, and the data for this compound are qualified as rejected (R).
= - Indicates the compound was detected at the concentration reported.

TABLE III-4. RISK-BASED SCREENING OF CAP-PART B GROUNDWATER DATA AT THE USTs 21 & 22 SITE, FACILITY ID: 9-025053

Station:	Screening Levels			MW-L1	MW-L2	MW-L2	MW-L3	LW-L4	MW-L5	MW-L6	MW-L7
Sample ID:	Federal SDWA MCLs	State IWQSs	Risk-based[a]	BL1200	BL2200	BL2210[d]	BL3200	BL4200	BL5200	BL6200	BL7200
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Volatile Organic Compounds (VOCs)											
Benzene	5	71.28	0.36	**3.1 =**	**1.8 J**	**1.6 J**	**2 U**	2 U	2 U	2 U	2 U
Toluene	1,000	200,000	750	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Ethylbenzene	700	28,718	1,300	11.9 =	3.7 =	3.5 =	2 U	2 U	2 U	2 U	2 U
Xylenes, Total	10,000	--	12,000	5.1 U	5 U	5 U	5 U	5 U	5 U	5 U	3 U
Polynuclear Aromatic Hydrocarbons (PAHs)											
2-Chloronaphthalene[b]	--	--	6.5	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Acenaphthene	--	--	365	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Acenaphthylene	--	--	182.5	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Anthracene	--	110,000	1,825	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Benzo(a)anthracene	--	0.0311	0.092	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Benzo(a)pyrene	0.2	0.0311	0.0092	**10 U**	**10 U**	**10 U**	**11.1 U**	**11.1 U**	**11.1 U**	**11.1 U**	**10 U**
Benzo(b)fluoranthene	--	--	0.092	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Benzo(g,h,i)perylene	--	--	--	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Benzo(k)fluoranthene	--	0.0311	0.92	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Chrysene	--	0.0311	9.2	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Dibenzo(a,h)anthracene	--	0.0311	0.0092	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Fluoranthene	--	370	1,460	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Fluorene	--	14,000	243	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Indeno(1,2,3-cd)pyrene	--	--	0.092	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Naphthalene	--	--	6.5	26.2 =	4 J	4.3 J	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Phenanthrene[c]	--	--	182.5	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U
Pyrene	--	11,000	182.5	10 U	10 U	10 U	11.1 U	11.1 U	11.1 U	11.1 U	10 U

[a]Protective of tap water ingestion by a resident.
[b]Values based on naphthalene as a surrogate chemical.
[c]Values based on pyrene as a surrogate chemical.
[d]Duplicate sample.

BGS = below ground surface.
CAP = Corrective Action Plan.
TPH = total petroleum hydrocarbons.
UST = underground storage tanks.

10 Bold values indicate results exceeding Federal Safe Drinking Water Act Maximum Contaminant Levels.
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= - Indicates the compound was detected at the concentration reported.

TABLE III-5. GROUNDWATER REMEDIAL ALTERNATIVES COMPARISON FOR THE USTS 21& 22 SITE, FACILITY ID: 9-025053

Remedy	Meet Objectives for USTs 21 & 22 Site	Prevents Additional Risk of Exposure due to Remediation	Cost Effective	Reasons for Deferral
Natural Attenuation	Yes	Yes	Yes	--
Recirculation	Yes	No	Yes	Additional risk with groundwater pumping
Air-sparging	Yes	No	No	Increased exposure to airborne contaminants; costs of installation/capital excessive.
Pump and Treat	Yes	No	No	Pump rate would be excessive to attain hydraulic capture; media disposal increases risk of exposure.
Passive Treatment Wall	Yes	Yes	No	Width of plume caused extensive cost to capture within the wall.

[a]Remedy selection based on the Air Force Center for Environmental Excellence, Remediation Matrix–Hierarchy of Preferred Alternatives–Dissolved Fuel in Groundwater (BTEX), 1994.

FIGURES

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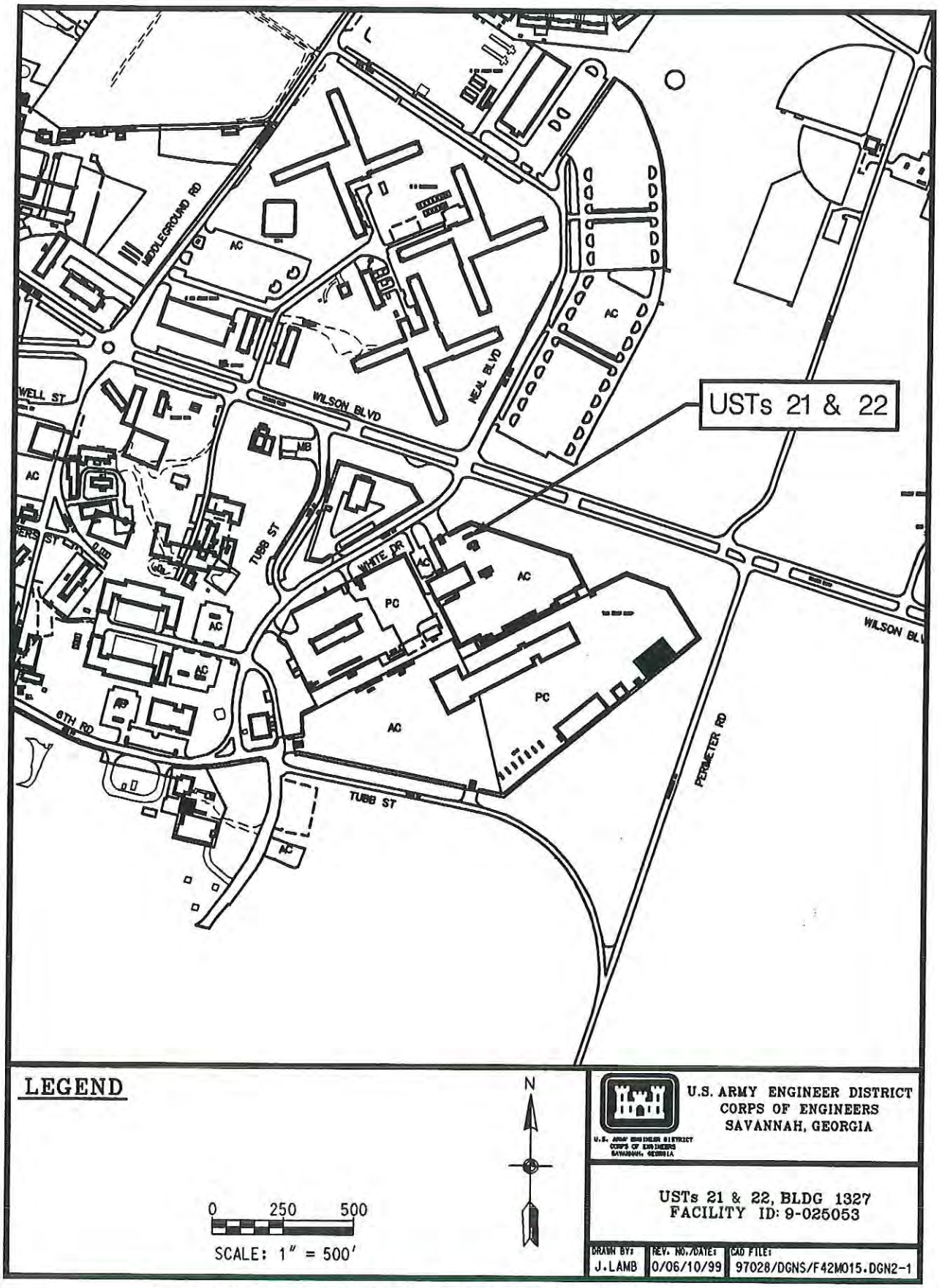

Figure II-1. Location Map for the USTs 21 & 22 Site, Facility ID: 9-025053.

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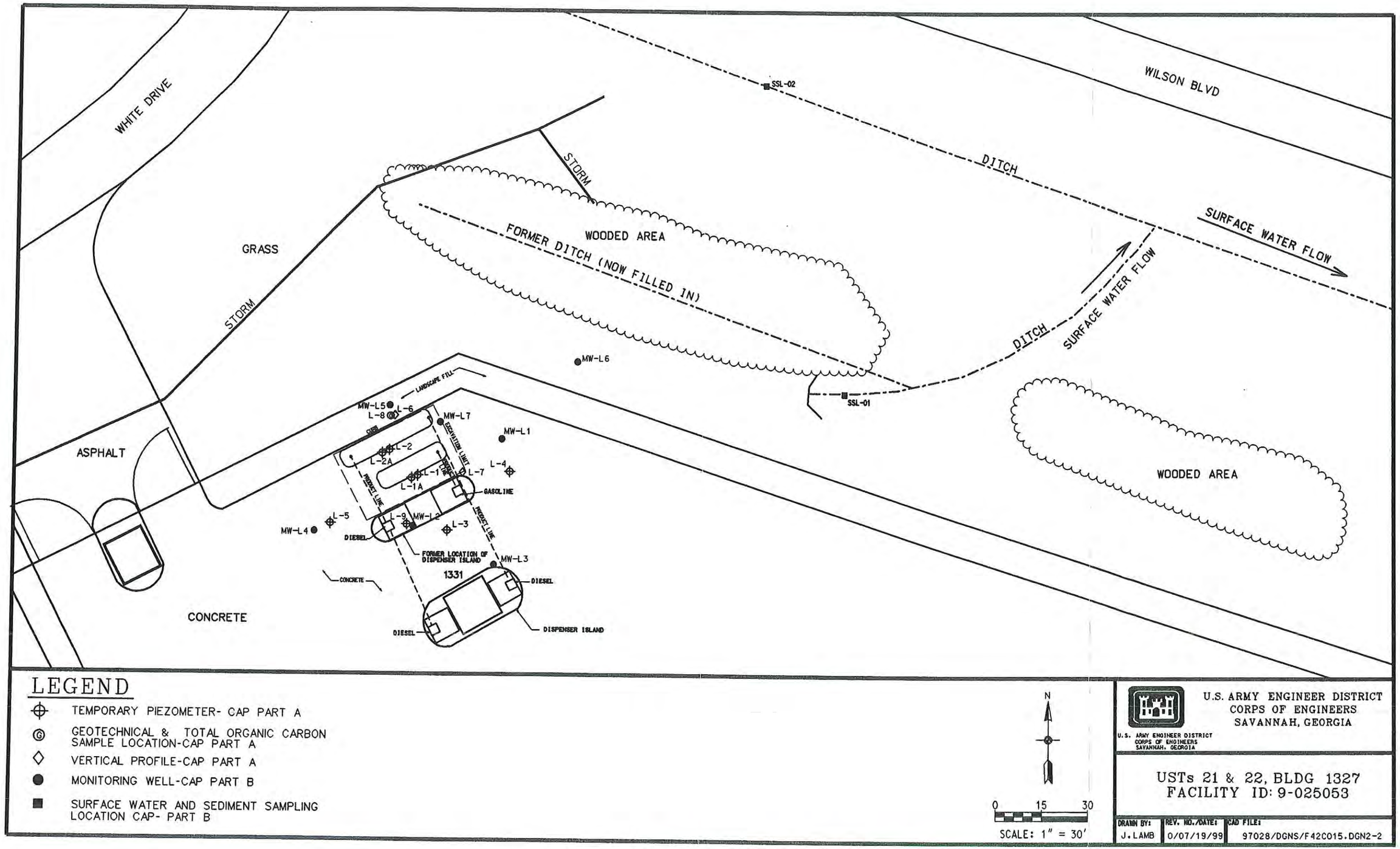
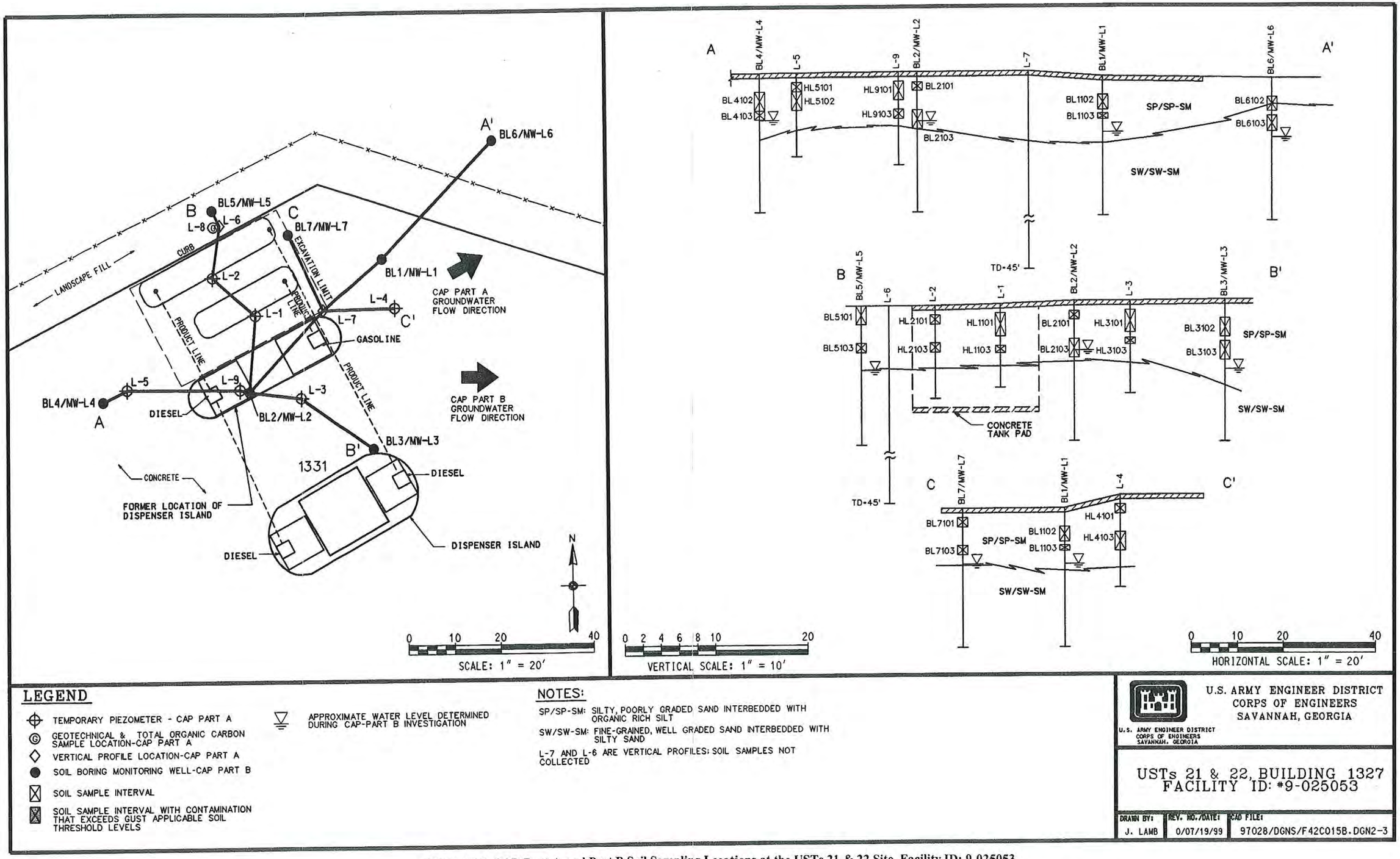


Figure II-2. Site Map of the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SOIL SAMPLE INTERVAL
- SOIL SAMPLE INTERVAL WITH CONTAMINATION THAT EXCEEDS GUST APPLICABLE SOIL THRESHOLD LEVELS
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-7 AND L-6 ARE VERTICAL PROFILES; SOIL SAMPLES NOT COLLECTED

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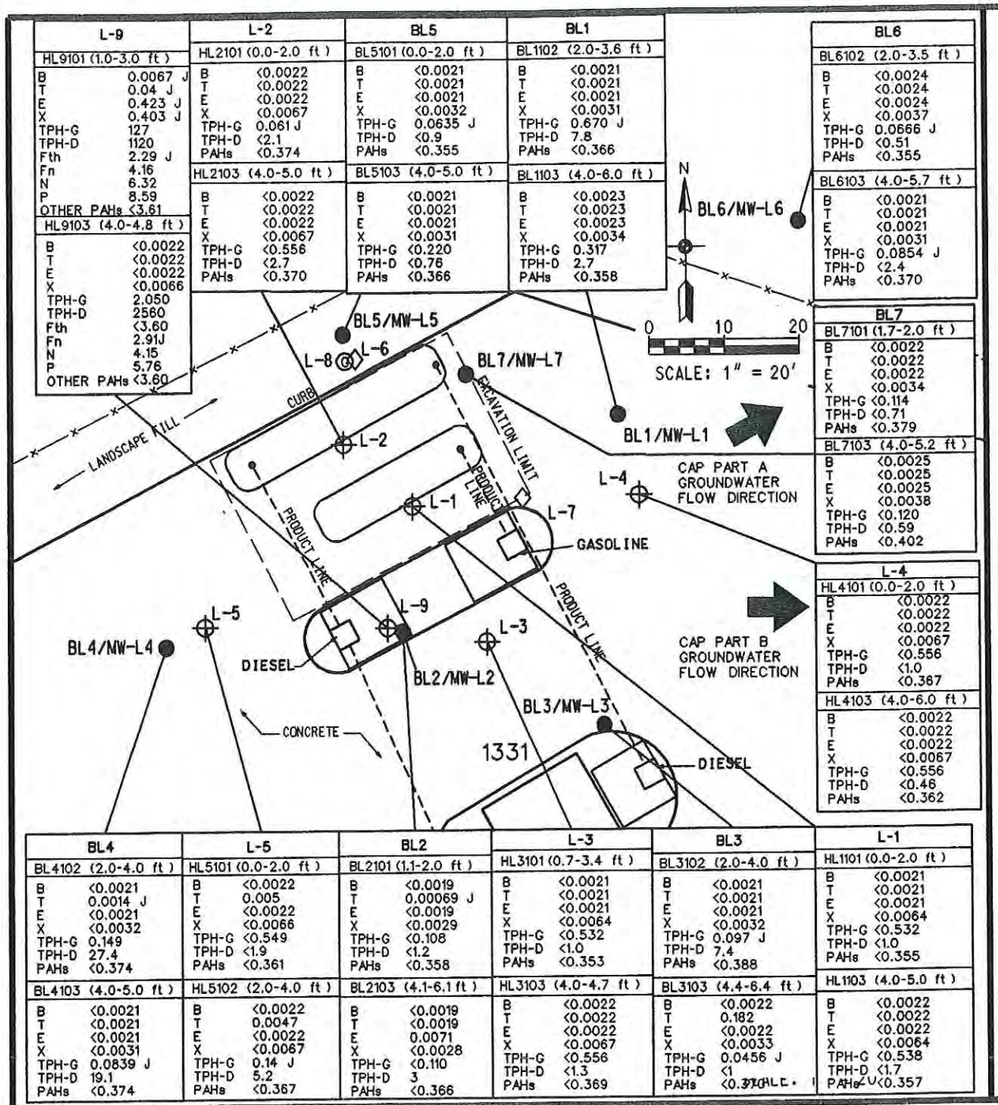
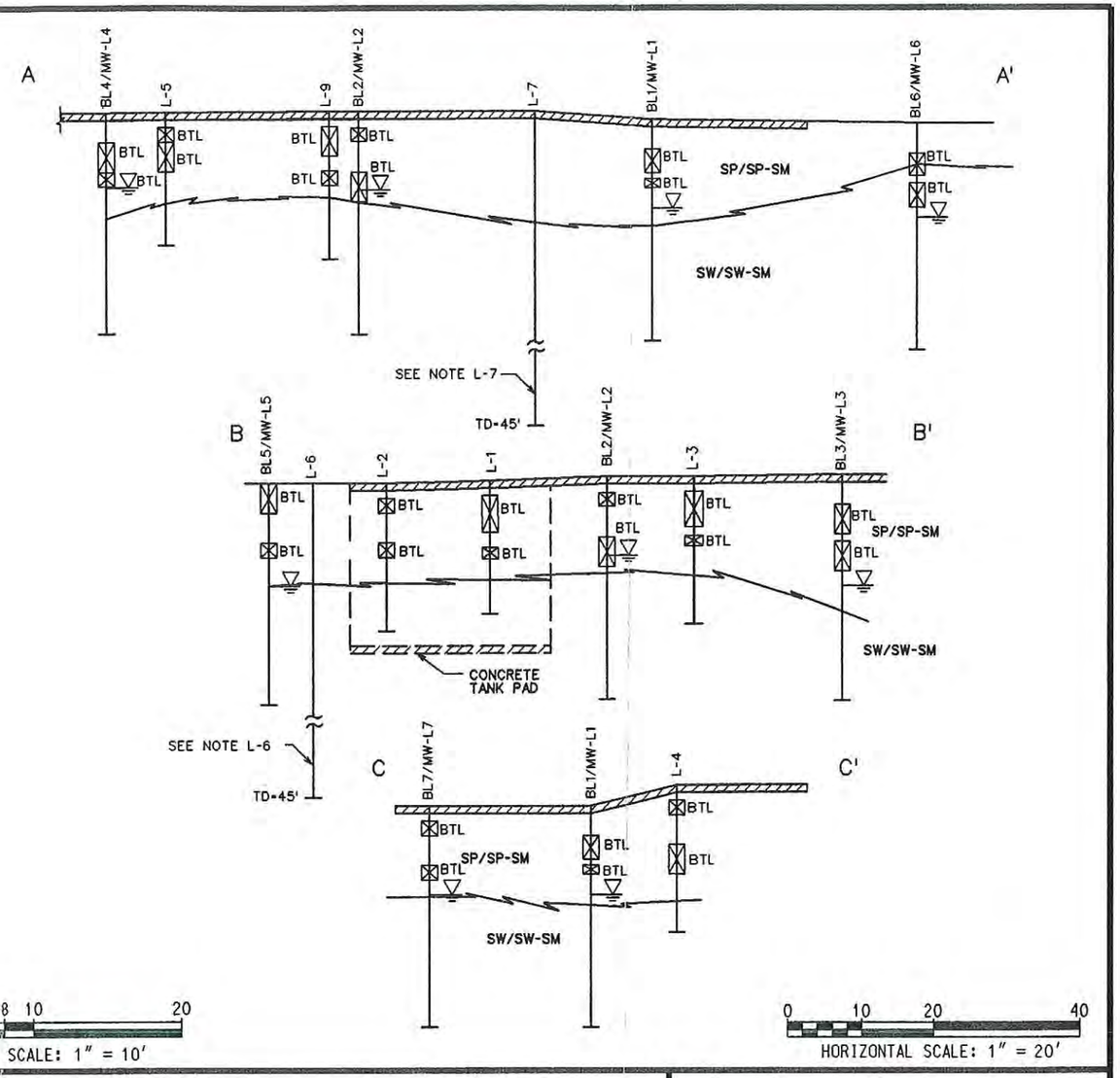
Figure II-3. CAP-Part A and Part B Soil Sampling Locations at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SOIL SAMPLE INTERVAL
- SOIL SAMPLE INTERVAL WITH CONTAMINATION THAT EXCEEDS GUST APPLICABLE SOIL THRESHOLD LEVELS

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES, TOTAL
Fth FLUORANTHENE
Fn FLUORENE
N NAPHTHALENE
P PHENANTHRENE
PAHs POLYNUCLEIC AROMATIC HYDROCARBONS
TPH-G TOTAL PETROLUEM HYDROCARBONS-GASOLINE RANGE ORGANICS
TPH-D TOTAL PETROLUEM HYDROCARBONS-DIESEL RANGE ORGANICS

BTL BELOW THRESHOLD LEVELS
TD TOTAL DEPTH
APPROXIMATE WATER LEVEL DURING CAP PART B INVESTIGATION

THRESHOLD LEVELS
B - 0.008 mg/kg
T - 6.0 mg/kg
E - 10.0 mg/kg
X - 700 mg/kg

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-7 AND L-6 ARE VERTICAL PROFILES; SOIL SAMPLES NOT COLLECTED

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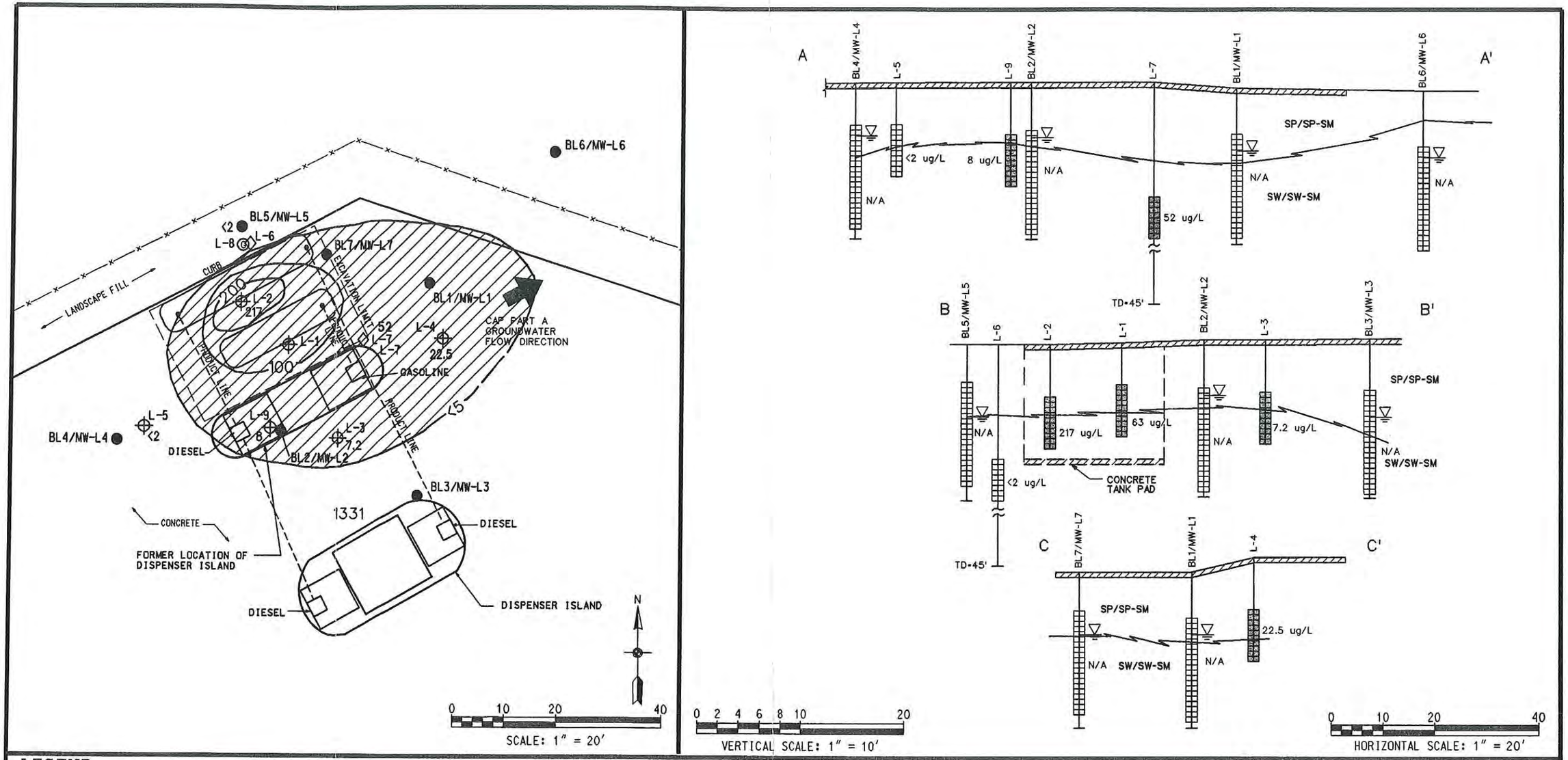
Figure II-4. CAP-Part A and Part B Soil Sampling Analytical Results at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
BENZENE = 5 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <2 ug/L
HL6302 (21-25 FEET) : <2 ug/L
HL6303 (31-35 FEET) : <2 ug/L
HL6304 (41-45 FEET) : <2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 52 ug/L
HL7302 (21-25 FEET) : <2 ug/L
HL7303 (31-35 FEET) : <2 ug/L
HL7304 (41-45 FEET) : <2 ug/L

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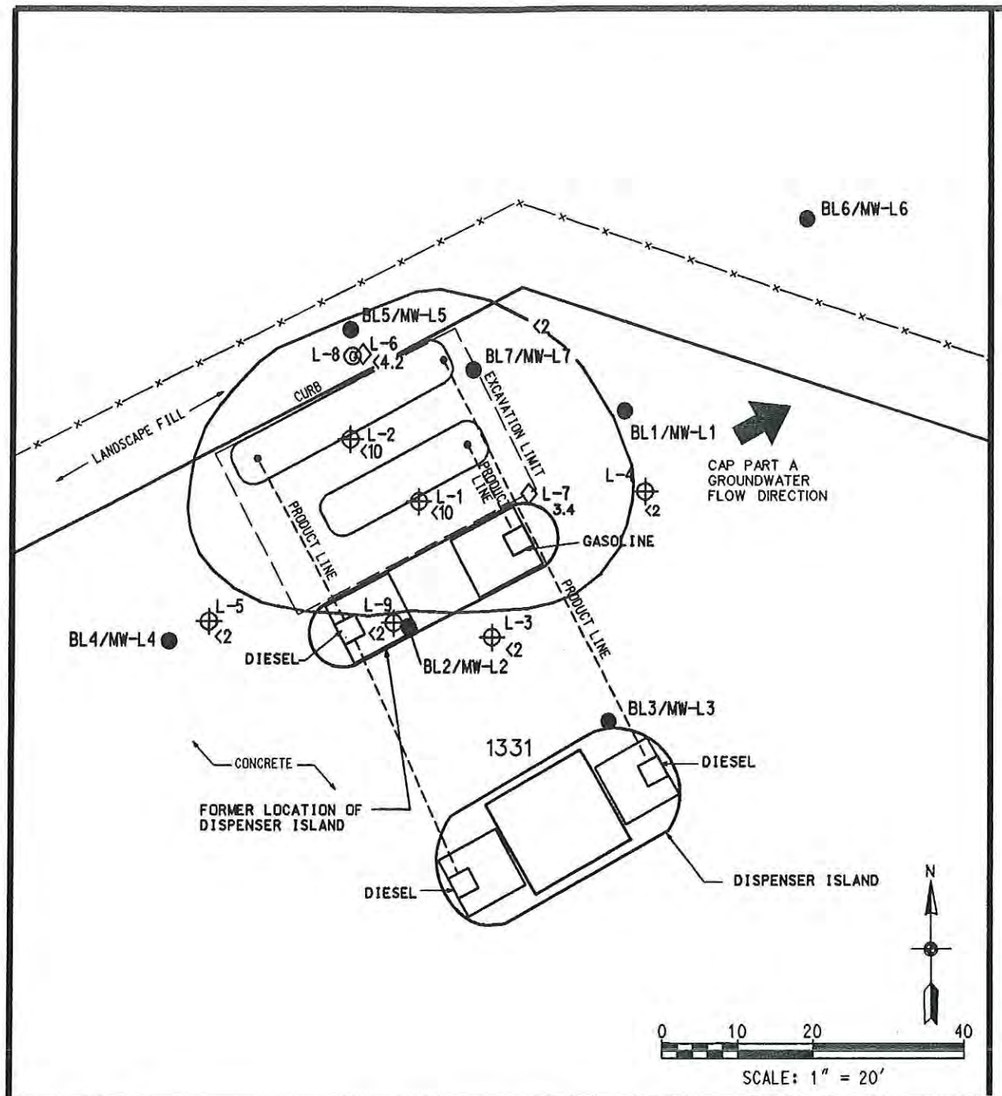
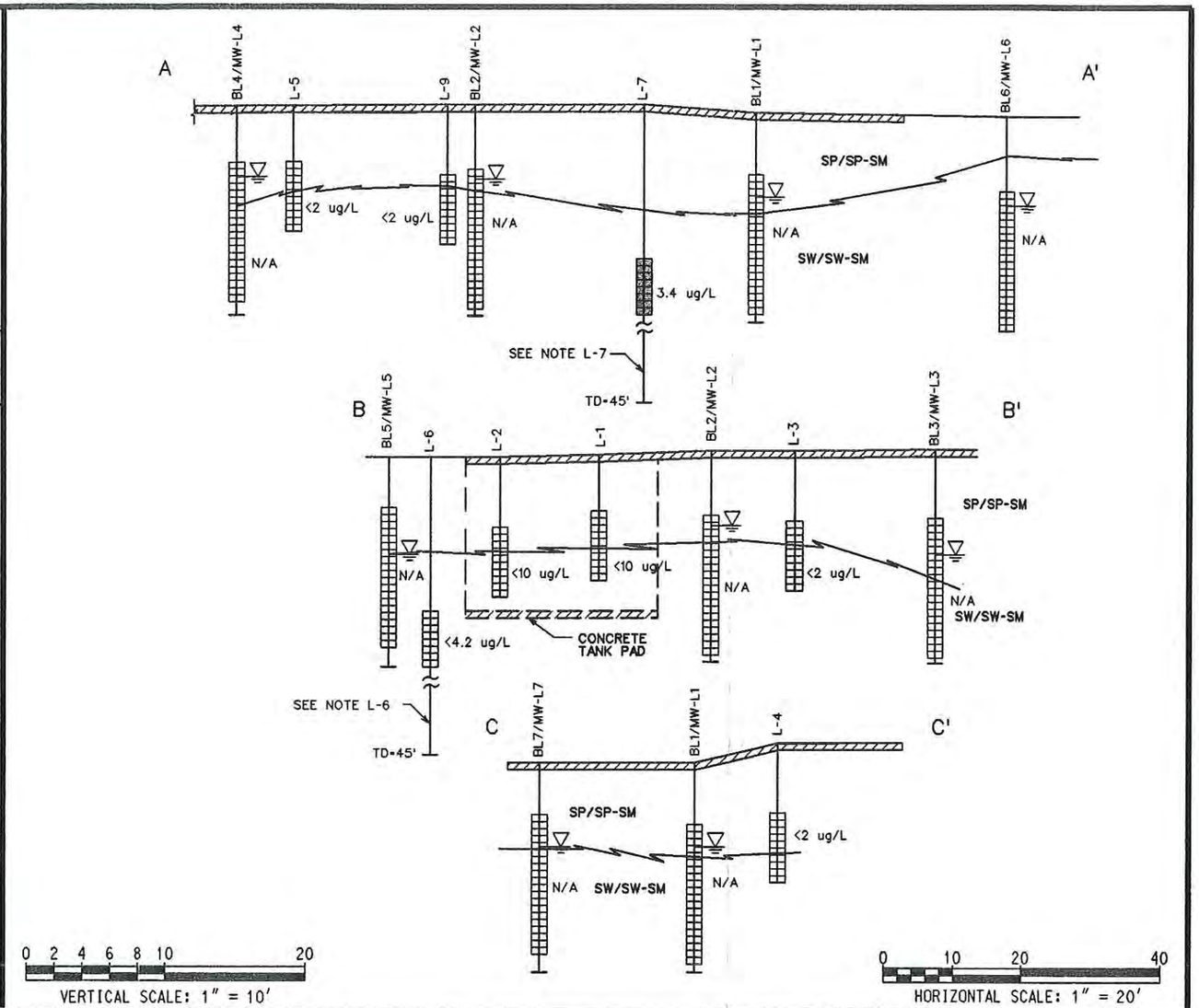
Figure II-5. Benzene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
TOLUENE - 1,000 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <4.2 ug/L
HL6302 (21-25 FEET) : <2 ug/L
HL6303 (31-35 FEET) : <2.1 ug/L
HL6304 (41-45 FEET) : <2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 3.4 ug/L
HL7302 (21-25 FEET) : <2 ug/L
HL7303 (31-35 FEET) : <2 ug/L
HL7304 (41-45 FEET) : <2 ug/L

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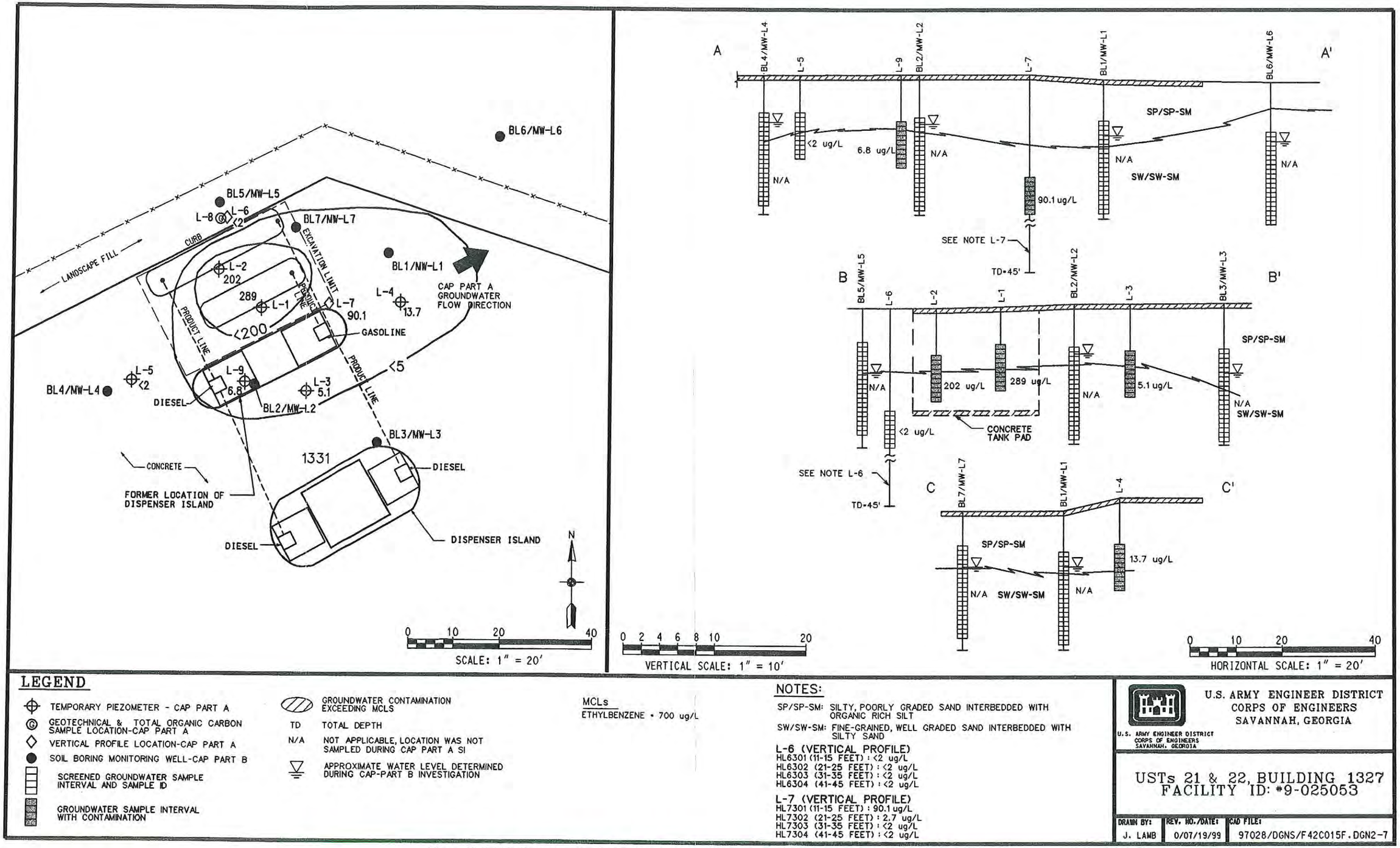
Figure II-6. Toluene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
ETHYLBENZENE • 700 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <2 ug/L
HL6302 (21-25 FEET) : <2 ug/L
HL6303 (31-35 FEET) : <2 ug/L
HL6304 (41-45 FEET) : <2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 90.1 ug/L
HL7302 (21-25 FEET) : 2.7 ug/L
HL7303 (31-35 FEET) : <2 ug/L
HL7304 (41-45 FEET) : <2 ug/L

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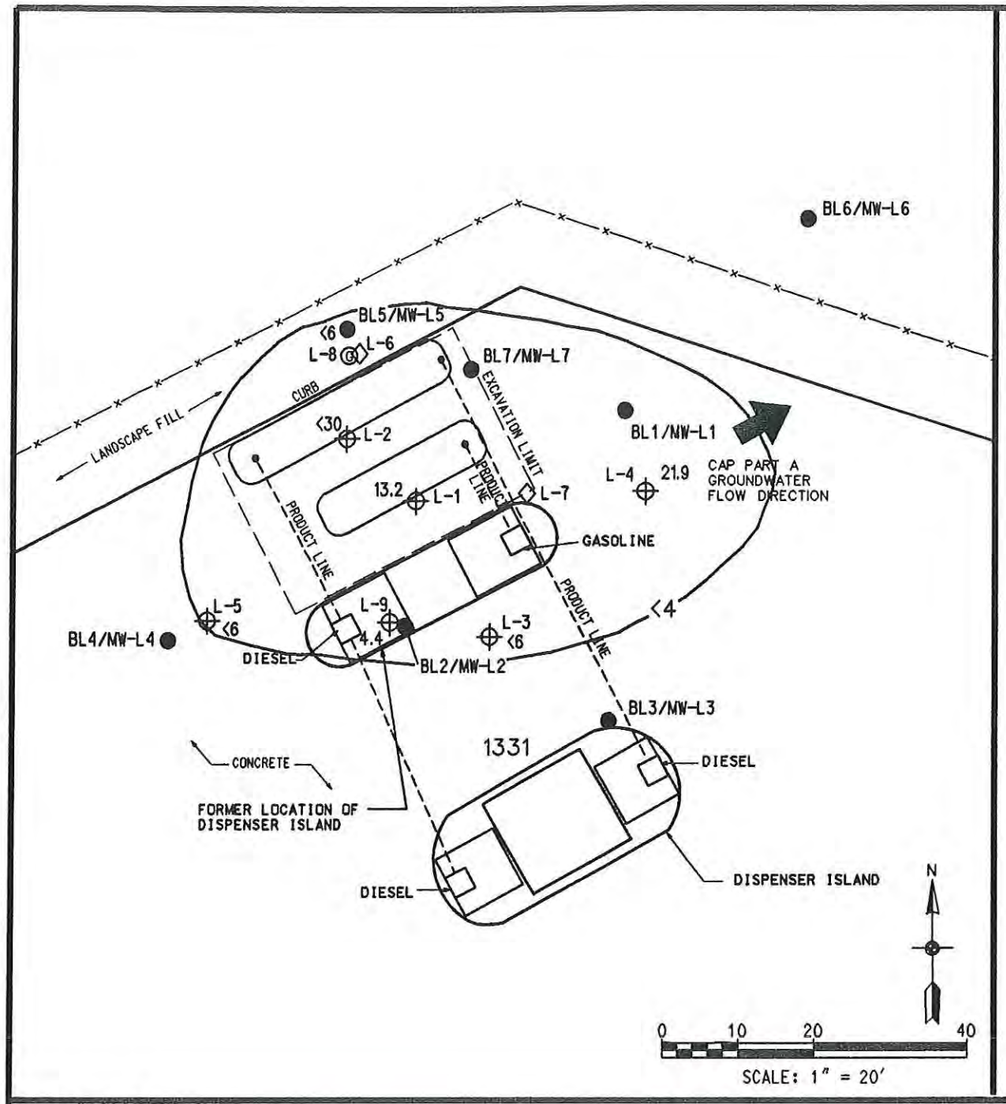
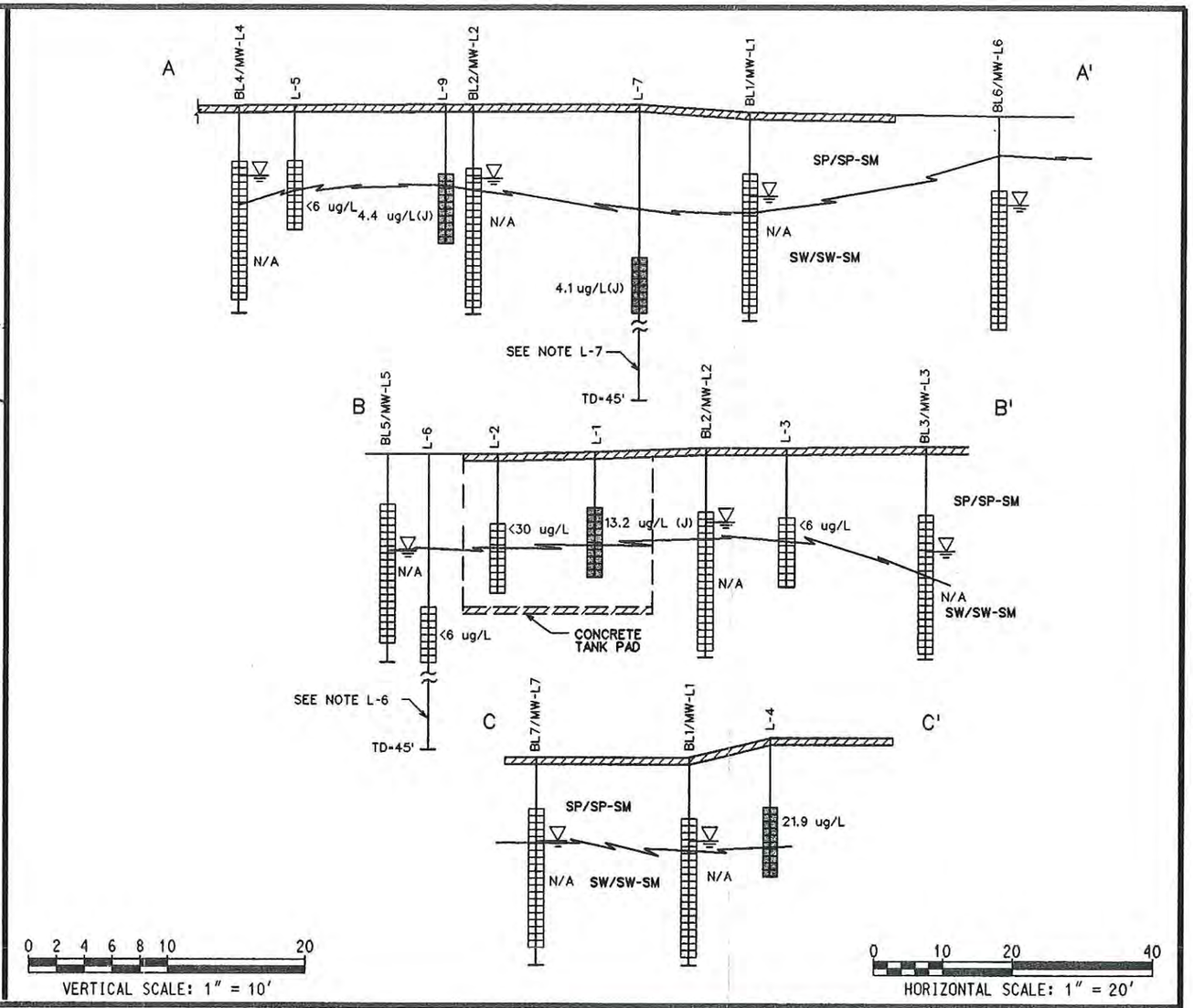
FACILITY ID: #9-025053

DRAWN BY:	REV. NO./DATE:	CAD FILE:
J. LAMB	0/07/19/99	97028/DGNS/F42C015F.DGN2-7

Figure II-7. Ethylbenzene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
TOTAL XYLENES - 10,000 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <6 ug/L
HL6302 (21-25 FEET) : <6 ug/L
HL6303 (31-35 FEET) : <6 ug/L
HL6304 (41-45 FEET) : <6 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 4.1 ug/L(J)
HL7302 (21-25 FEET) : <6 ug/L
HL7303 (31-35 FEET) : <6 ug/L
HL7304 (41-45 FEET) : <6 ug/L

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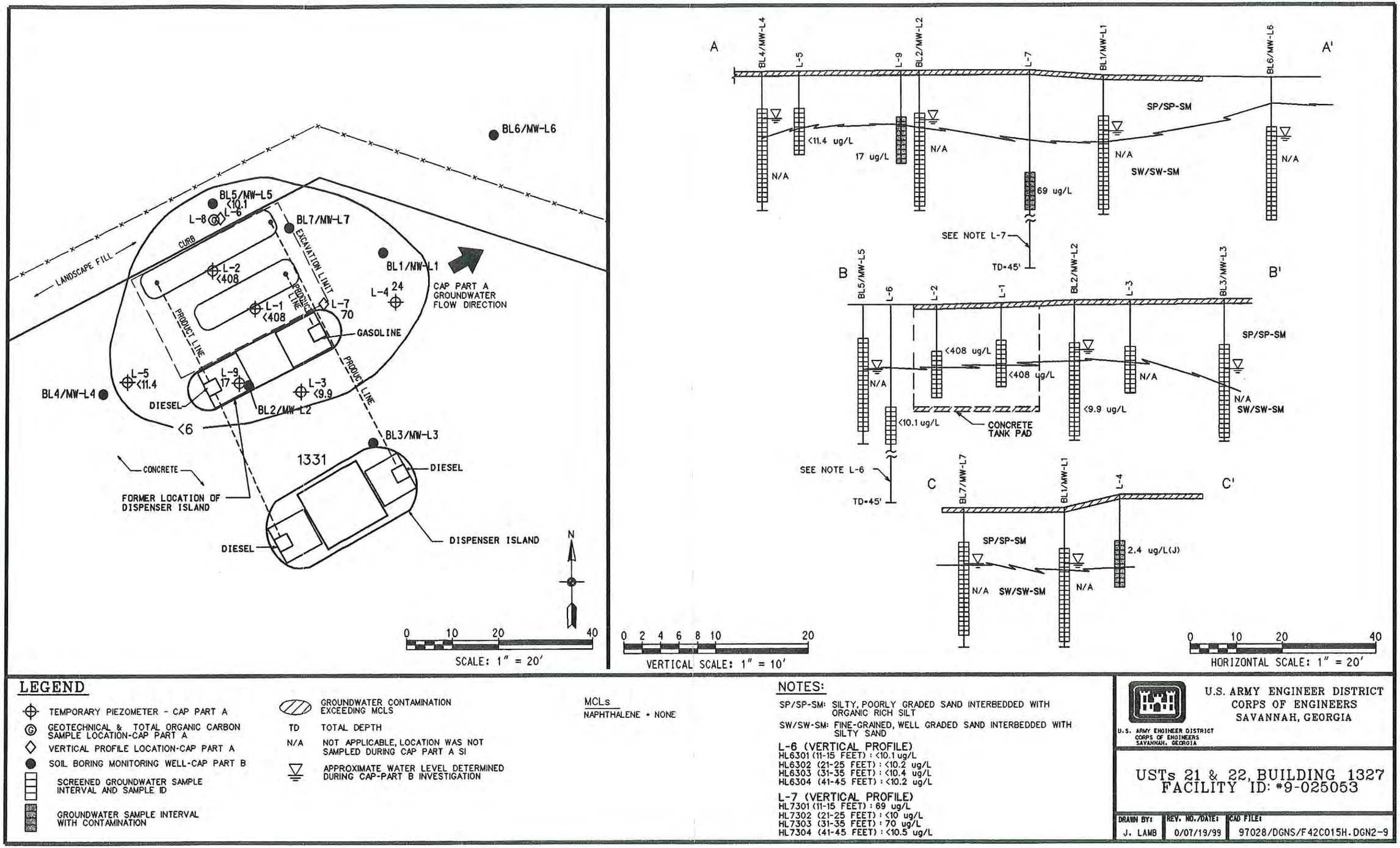
Figure II-8. Total Xylenes Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
NAPHTHALENE • NONE

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <10.1 ug/L
HL6302 (21-25 FEET) : <10.2 ug/L
HL6303 (31-35 FEET) : <10.4 ug/L
HL6304 (41-45 FEET) : <10.2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 69 ug/L
HL7302 (21-25 FEET) : <10 ug/L
HL7303 (31-35 FEET) : 70 ug/L
HL7304 (41-45 FEET) : <10.5 ug/L

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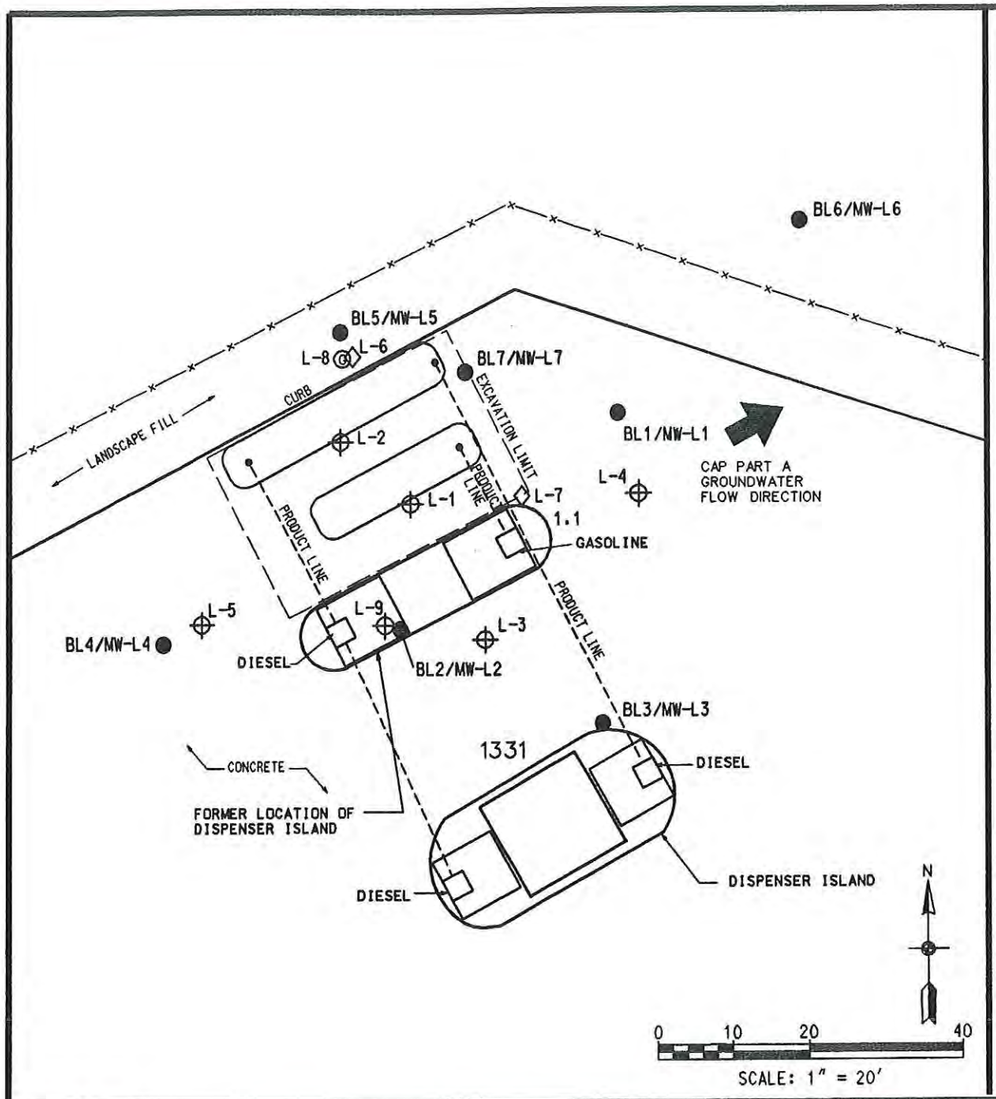
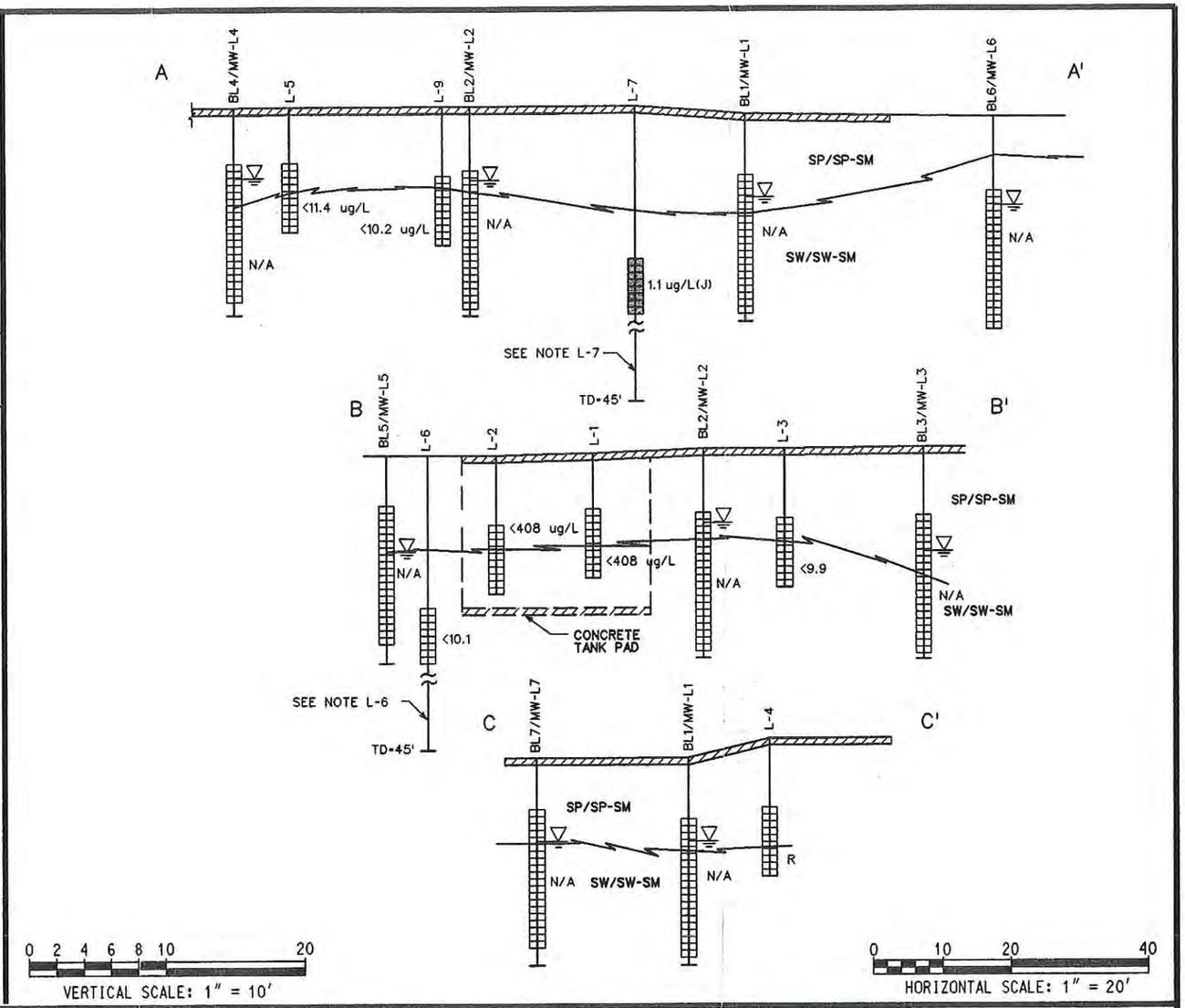
Figure II-9. Naphthalene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
ACENAPHTHENE - NONE

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <10.1 ug/L
HL6302 (21-25 FEET) : <10.2 ug/L
HL6303 (31-35 FEET) : <10.4 ug/L
HL6304 (41-45 FEET) : <10.2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : <10.3 ug/L
HL7302 (21-25 FEET) : <10 ug/L
HL7303 (31-35 FEET) : <10.3 ug/L
HL7304 (41-45 FEET) : <10.5 ug/L

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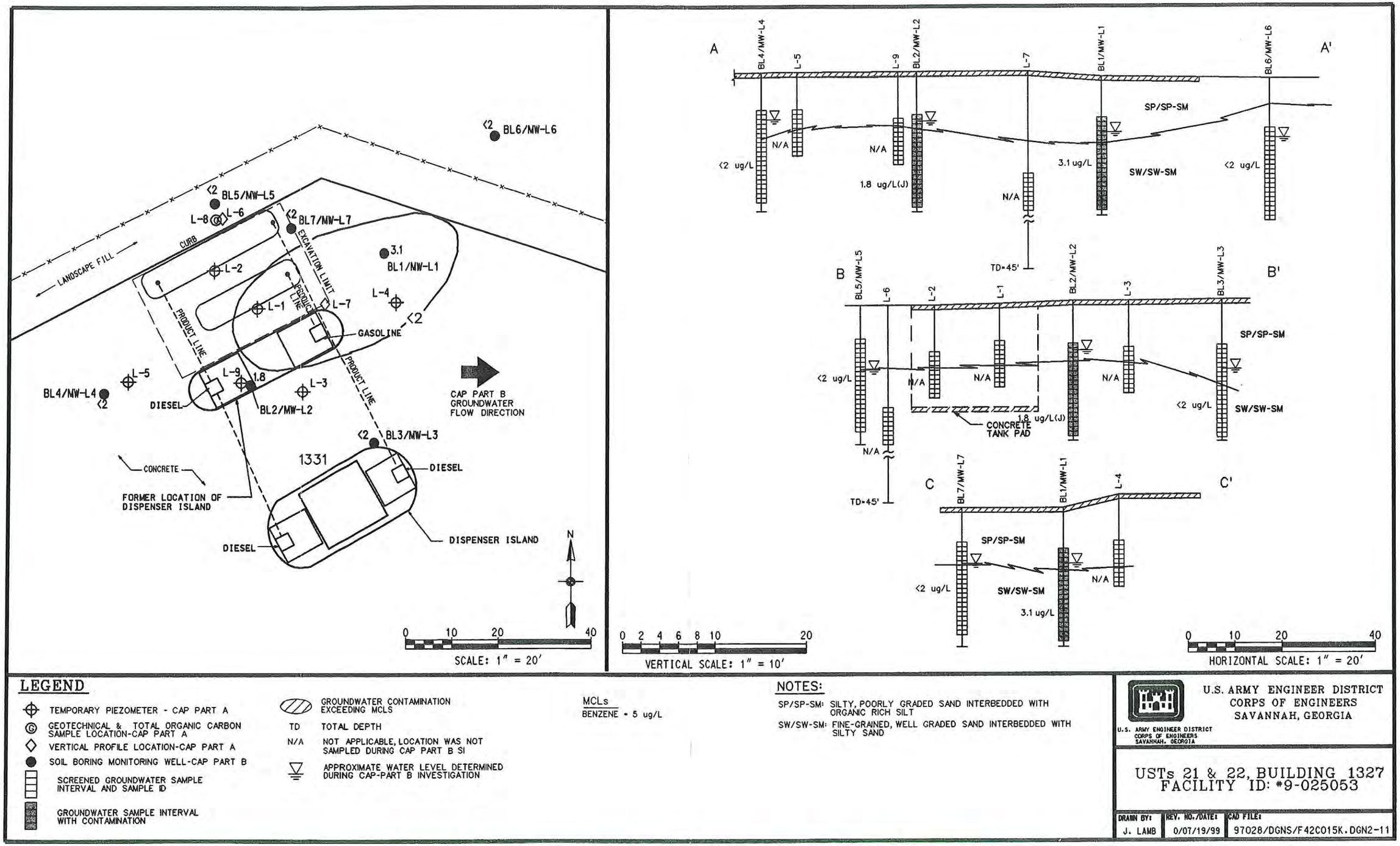
Figure II-10. Acenaphthene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART B SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
BENZENE - 5 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

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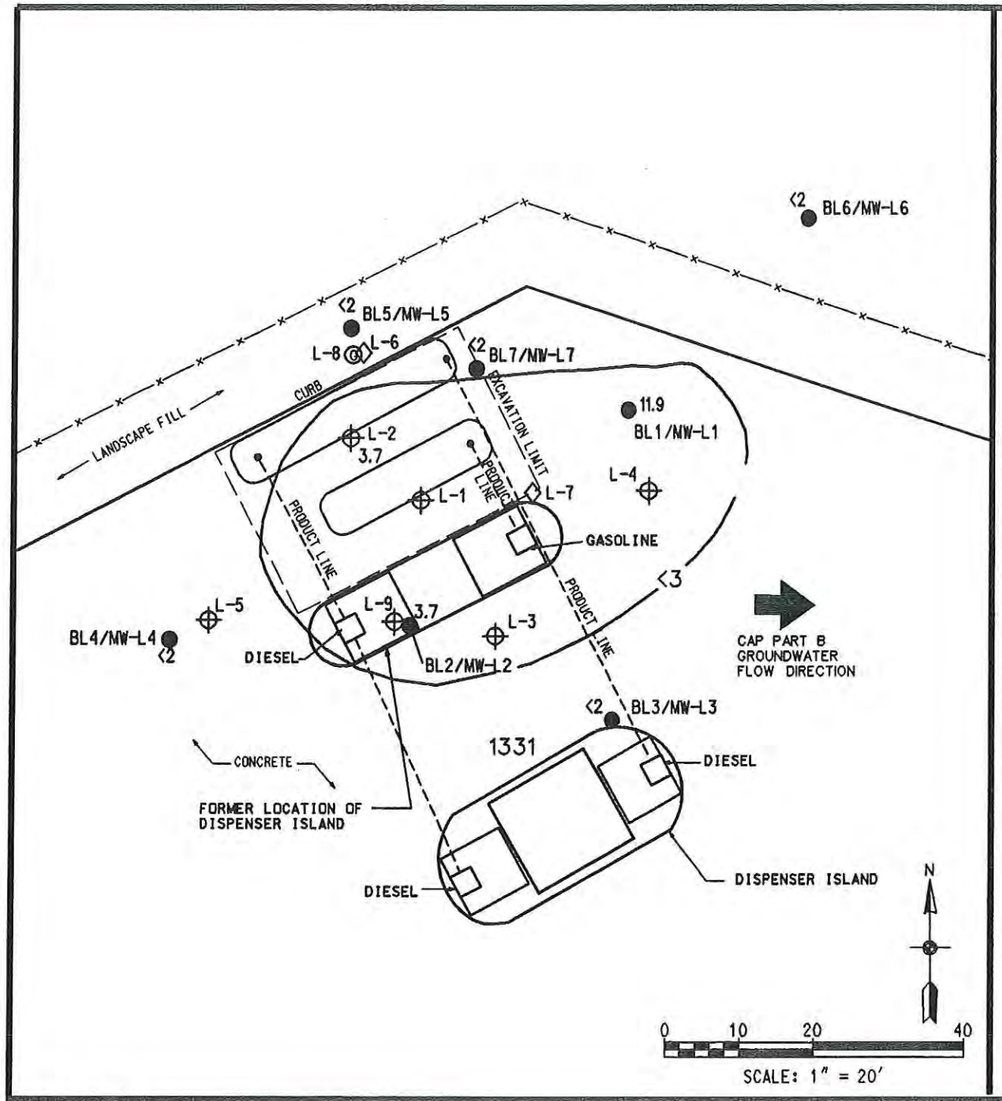
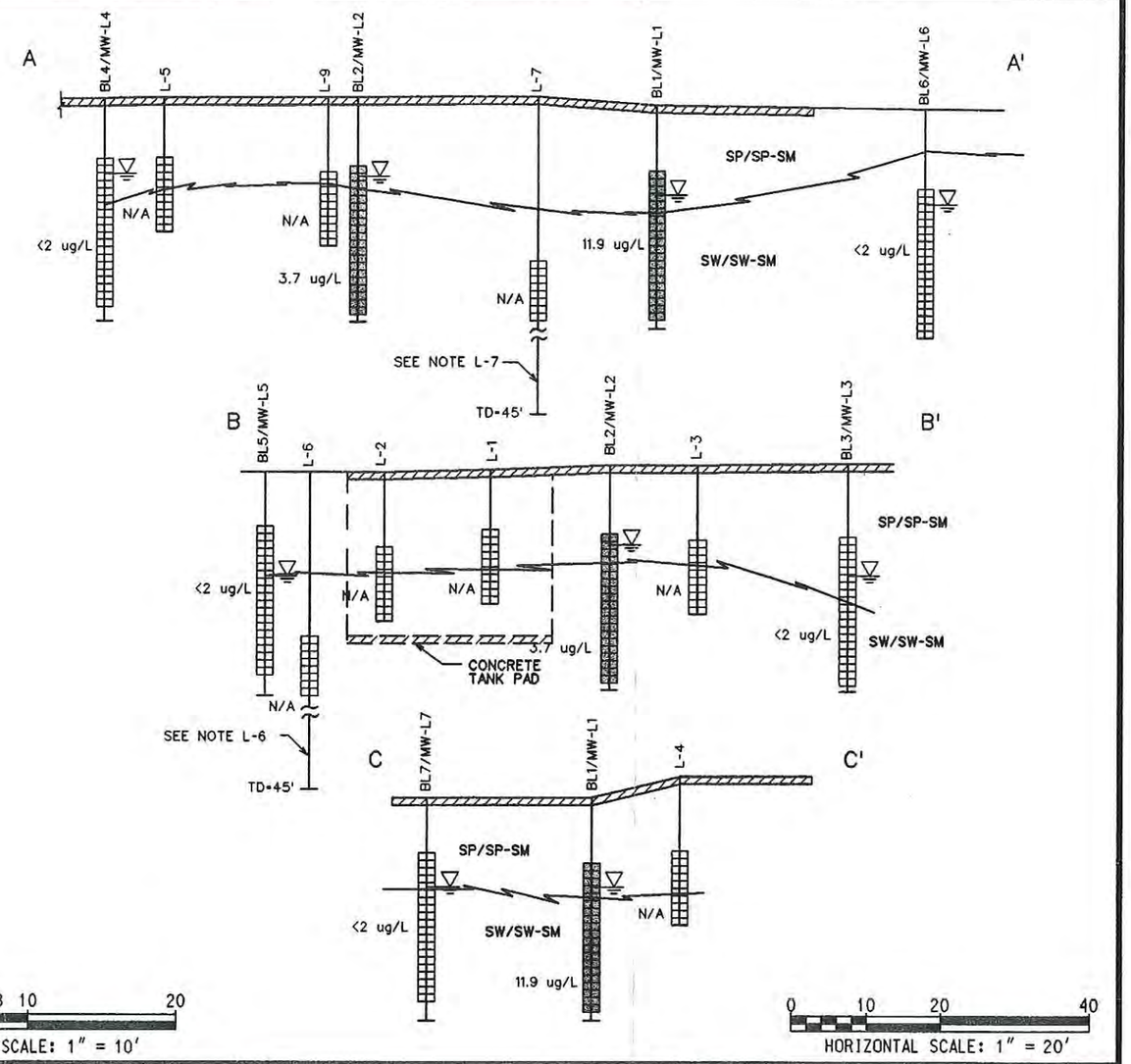
Figure II-11. Benzene Contamination in Groundwater Determined During the CAP-Part B Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART B SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
ETHYLBENZENE - 700 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

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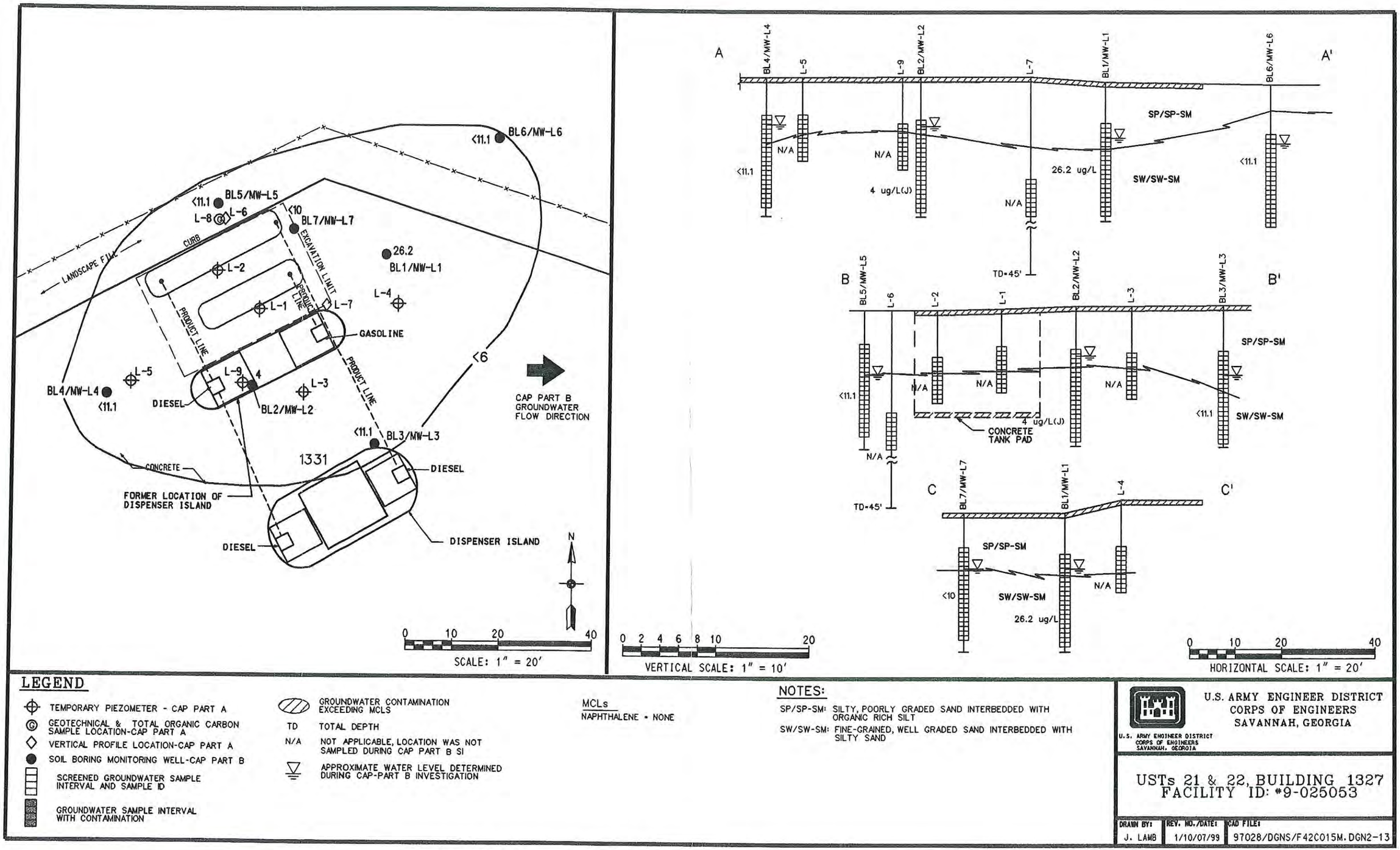
Figure II-12. Ethylbenzene Contamination in Groundwater Determined During the CAP-Part B Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART B SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
NAPHTHALENE - NONE

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

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Figure II-13. Naphthalene Contamination in Groundwater Determined During the CAP-Part B Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.

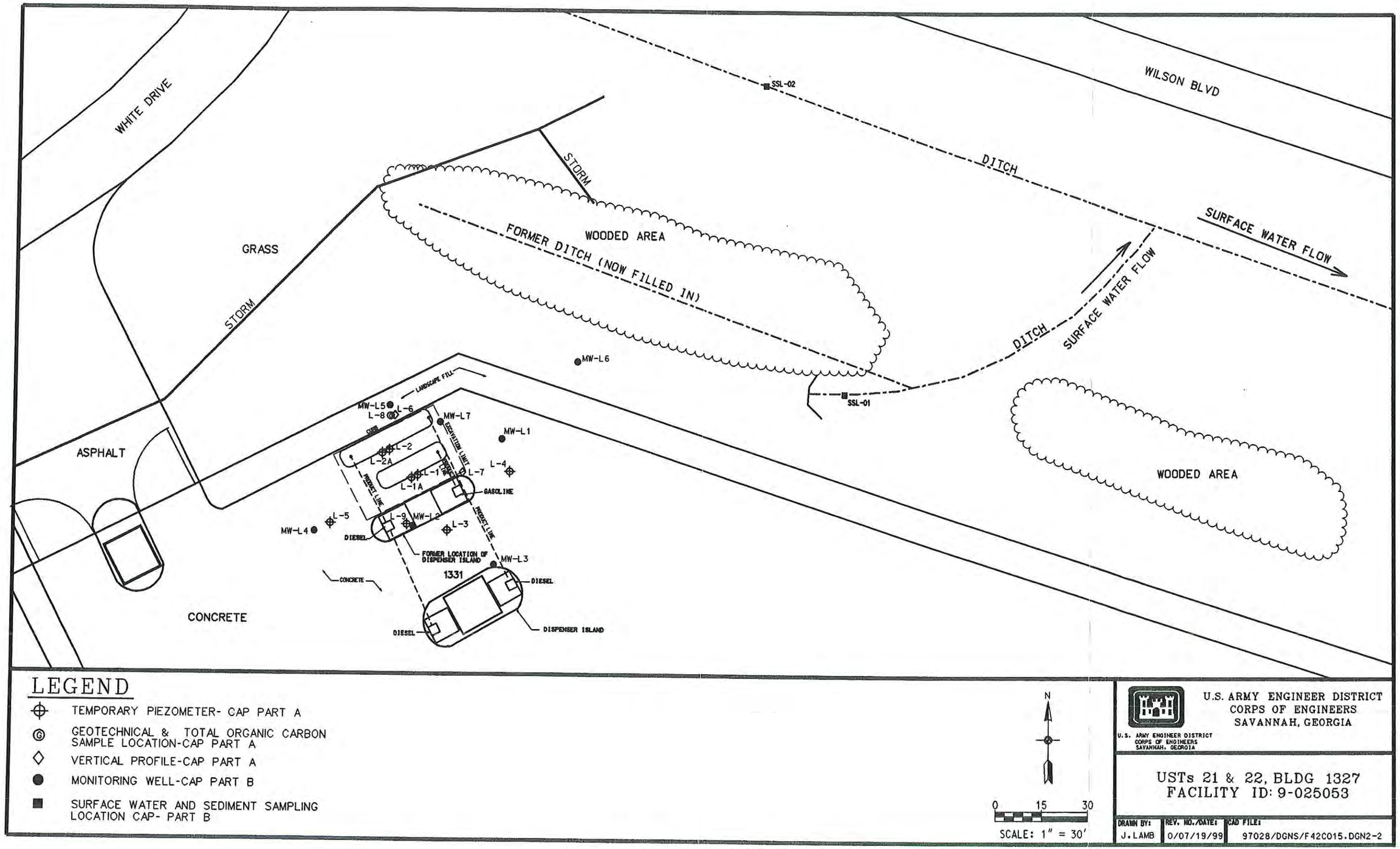
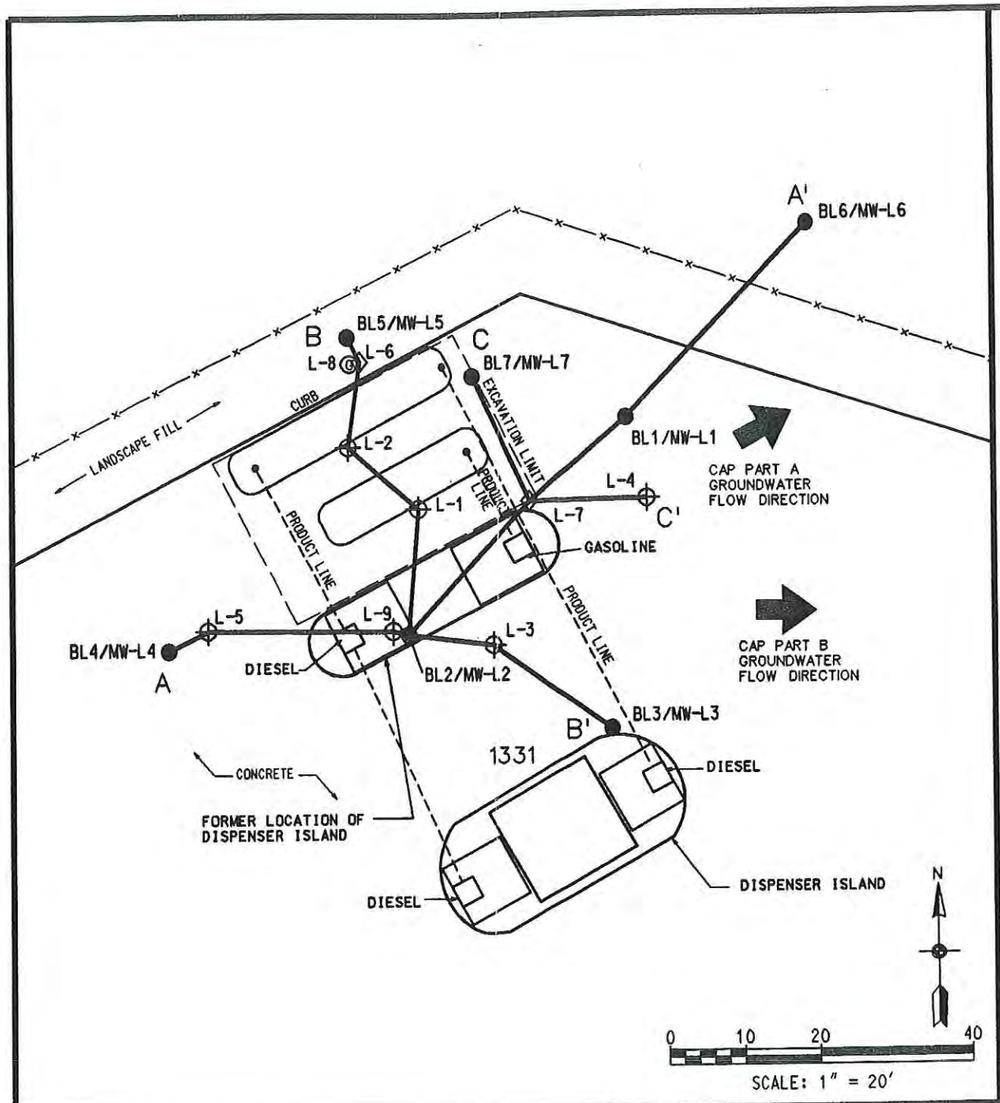
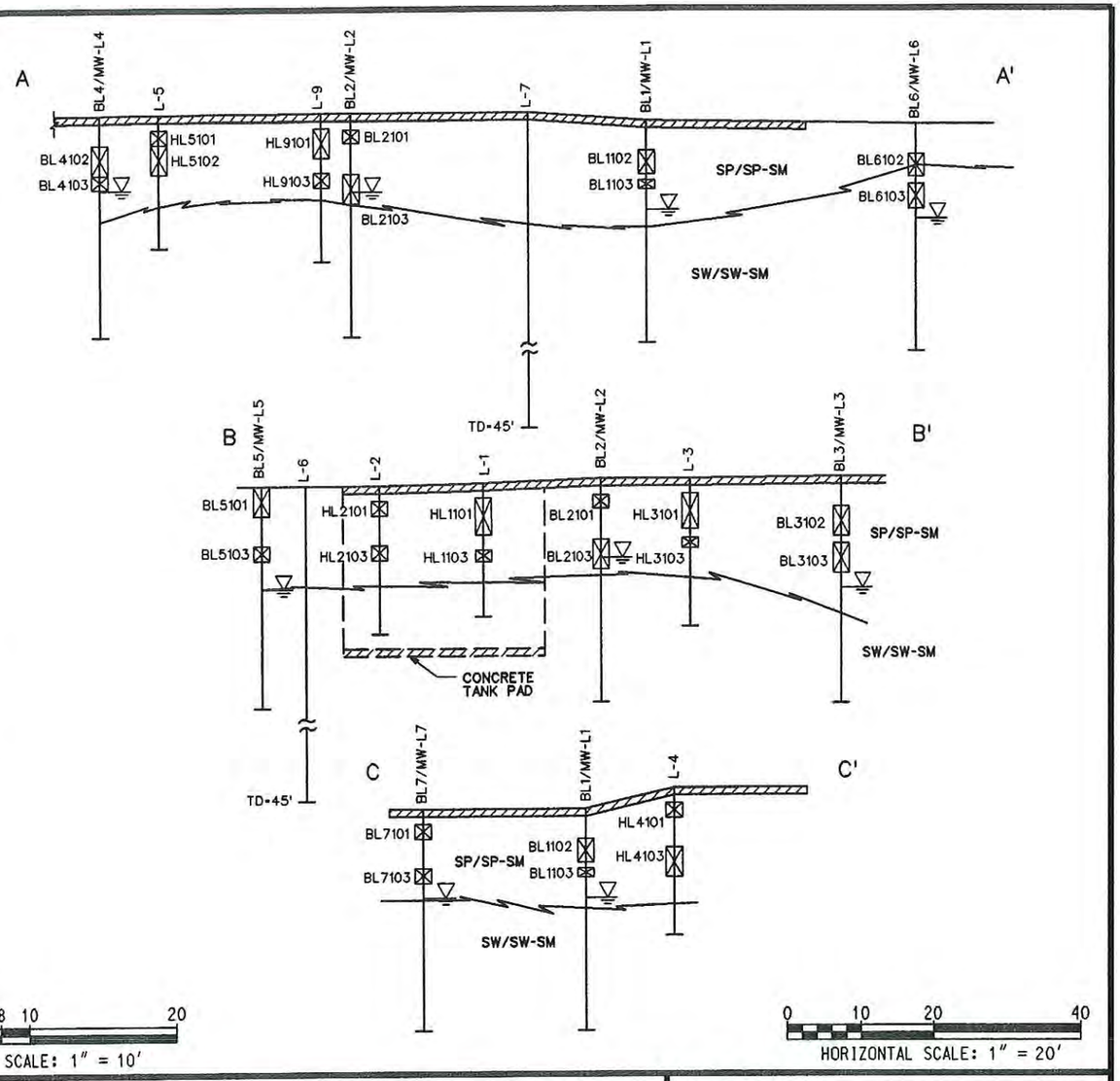


Figure II-2. Site Map of the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SOIL SAMPLE INTERVAL
- SOIL SAMPLE INTERVAL WITH CONTAMINATION THAT EXCEEDS GUST APPLICABLE SOIL THRESHOLD LEVELS
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-7 AND L-6 ARE VERTICAL PROFILES; SOIL SAMPLES NOT COLLECTED

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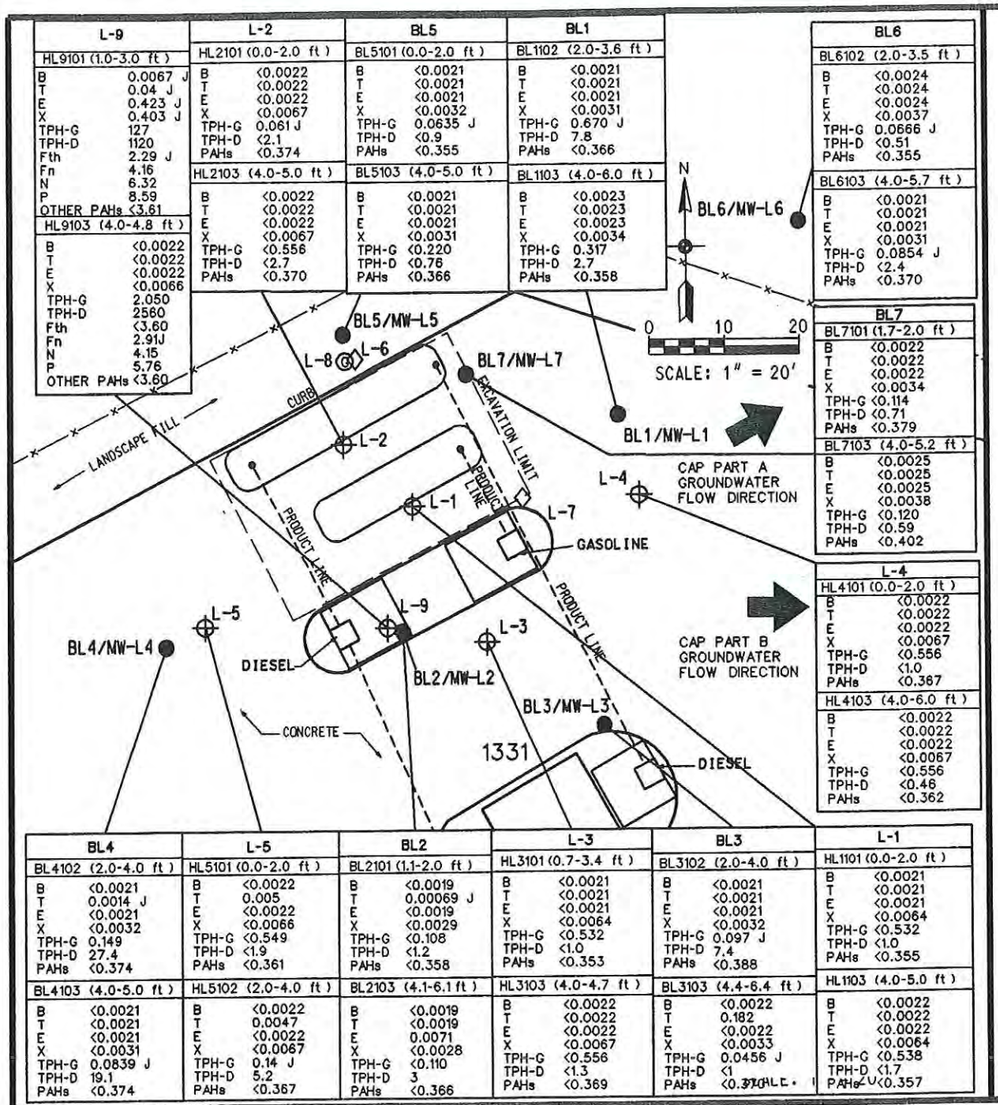
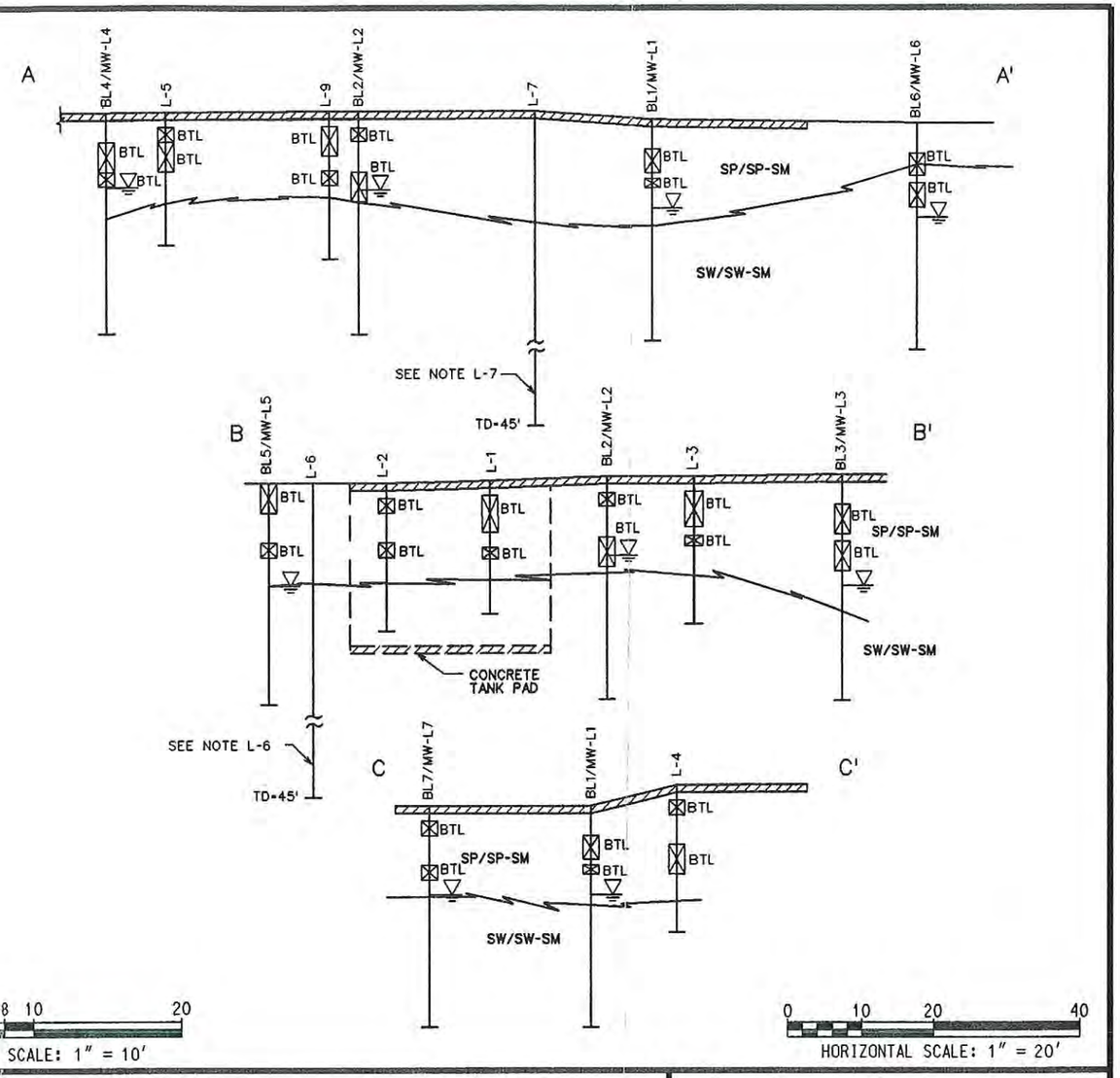
Figure II-3. CAP-Part A and Part B Soil Sampling Locations at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SOIL SAMPLE INTERVAL
- SOIL SAMPLE INTERVAL WITH CONTAMINATION THAT EXCEEDS GUST APPLICABLE SOIL THRESHOLD LEVELS

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES, TOTAL
Fth FLUORANTHENE
Fn FLUORENE
N NAPHTHALENE
P PHENANTHRENE
PAHs POLYNUCLEIC AROMATIC HYDROCARBONS
TPH-G TOTAL PETROLUEM HYDROCARBONS-GASOLINE RANGE ORGANICS
TPH-D TOTAL PETROLUEM HYDROCARBONS-DIESEL RANGE ORGANICS

BTL BELOW THRESHOLD LEVELS
TD TOTAL DEPTH
APPROXIMATE WATER LEVEL DURING CAP PART B INVESTIGATION

THRESHOLD LEVELS
B - 0.008 mg/kg
T - 6.0 mg/kg
E - 10.0 mg/kg
X - 700 mg/kg

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-7 AND L-6 ARE VERTICAL PROFILES; SOIL SAMPLES NOT COLLECTED

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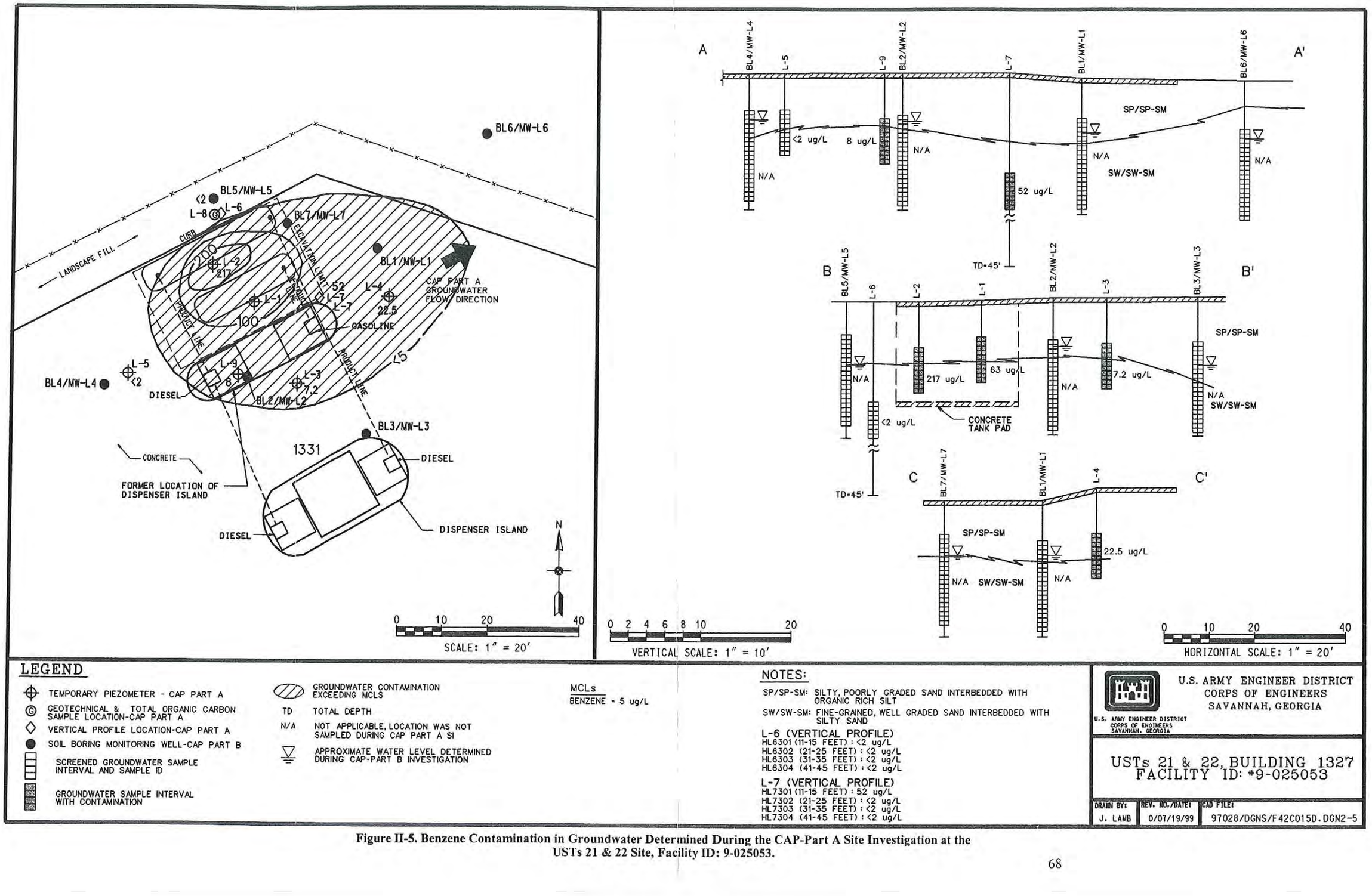
Figure II-4. CAP-Part A and Part B Soil Sampling Analytical Results at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLs
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
BENZENE = 5 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <2 ug/L
HL6302 (21-25 FEET) : <2 ug/L
HL6303 (31-35 FEET) : <2 ug/L
HL6304 (41-45 FEET) : <2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 52 ug/L
HL7302 (21-25 FEET) : <2 ug/L
HL7303 (31-35 FEET) : <2 ug/L
HL7304 (41-45 FEET) : <2 ug/L

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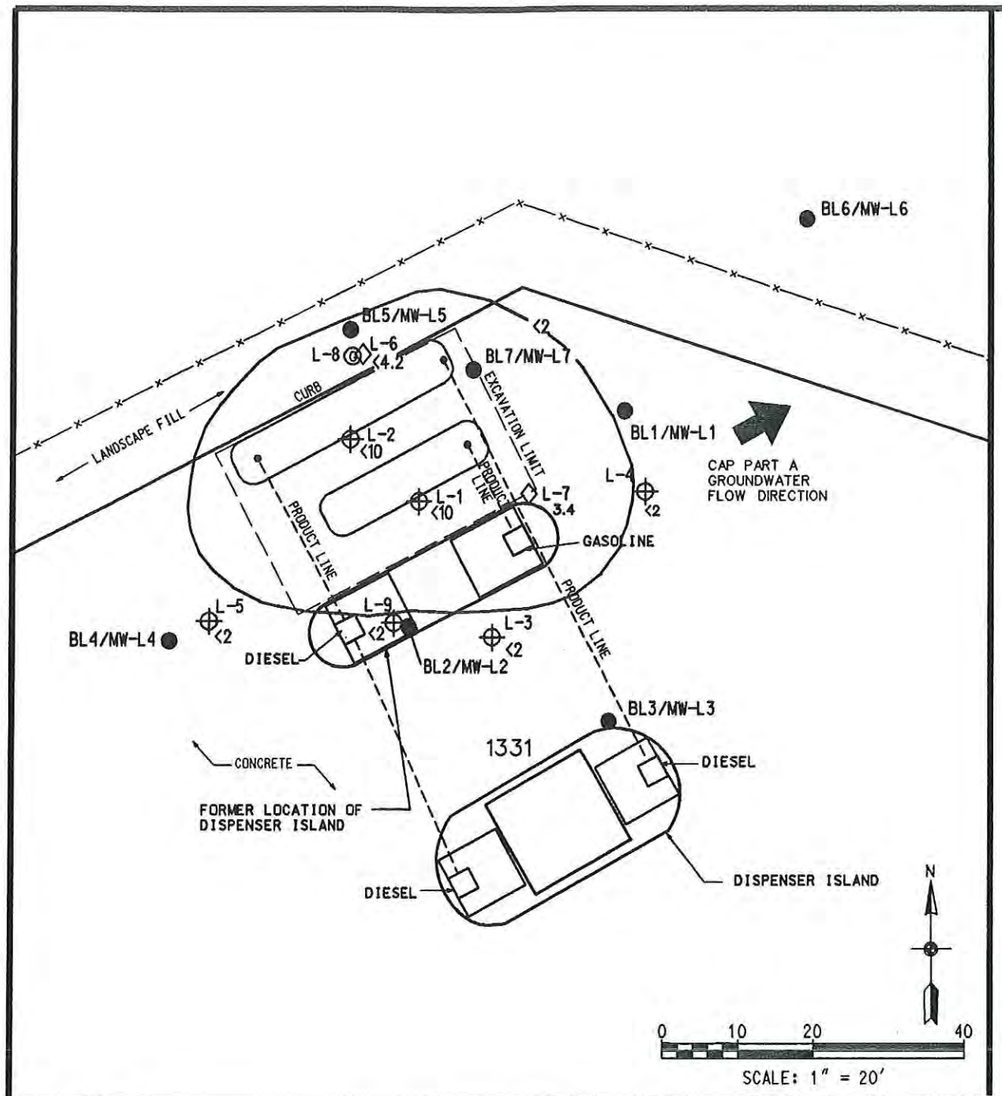
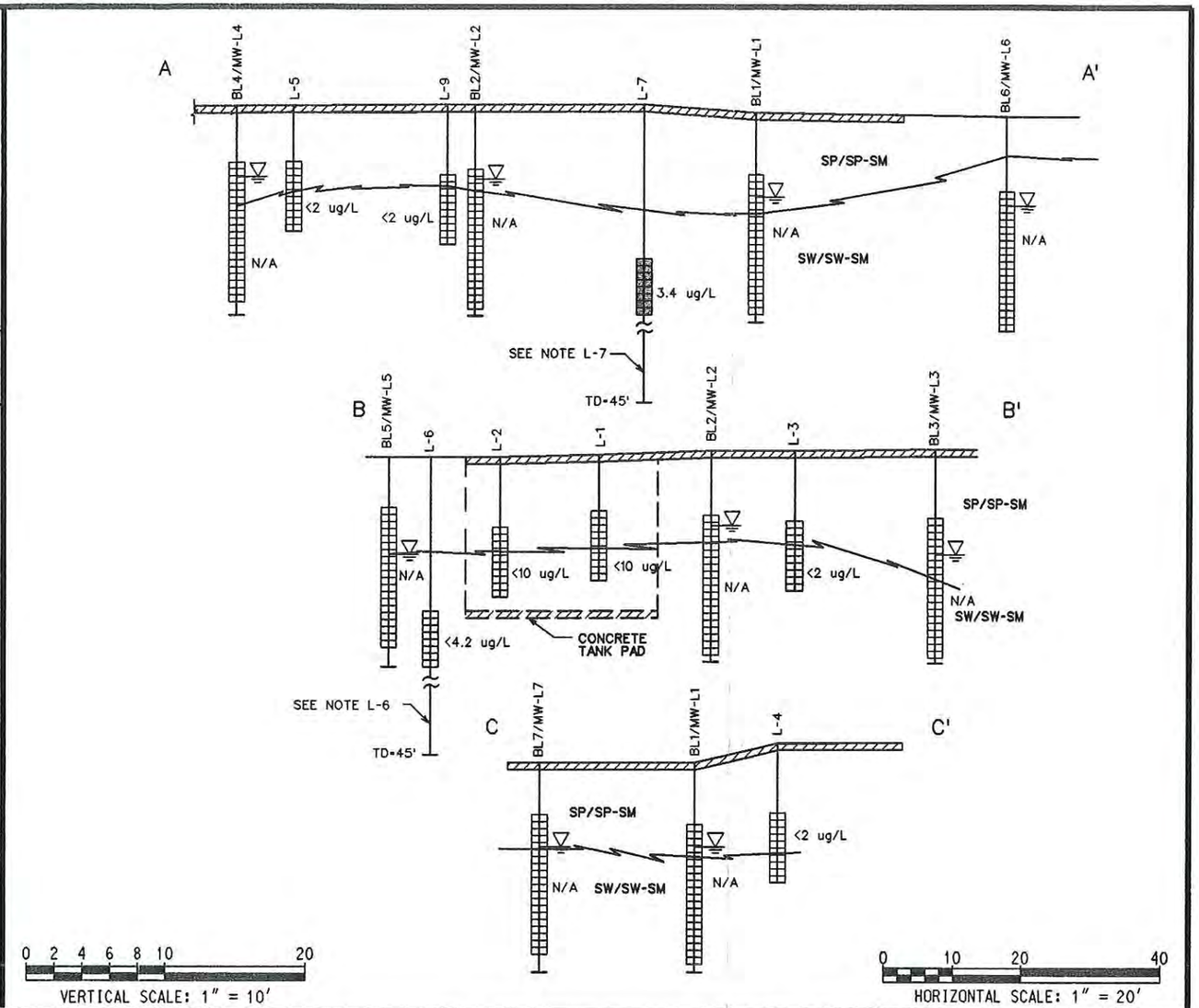
Figure II-5. Benzene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
TOLUENE - 1,000 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <4.2 ug/L
HL6302 (21-25 FEET) : <2 ug/L
HL6303 (31-35 FEET) : <2.1 ug/L
HL6304 (41-45 FEET) : <2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 3.4 ug/L
HL7302 (21-25 FEET) : <2 ug/L
HL7303 (31-35 FEET) : <2 ug/L
HL7304 (41-45 FEET) : <2 ug/L

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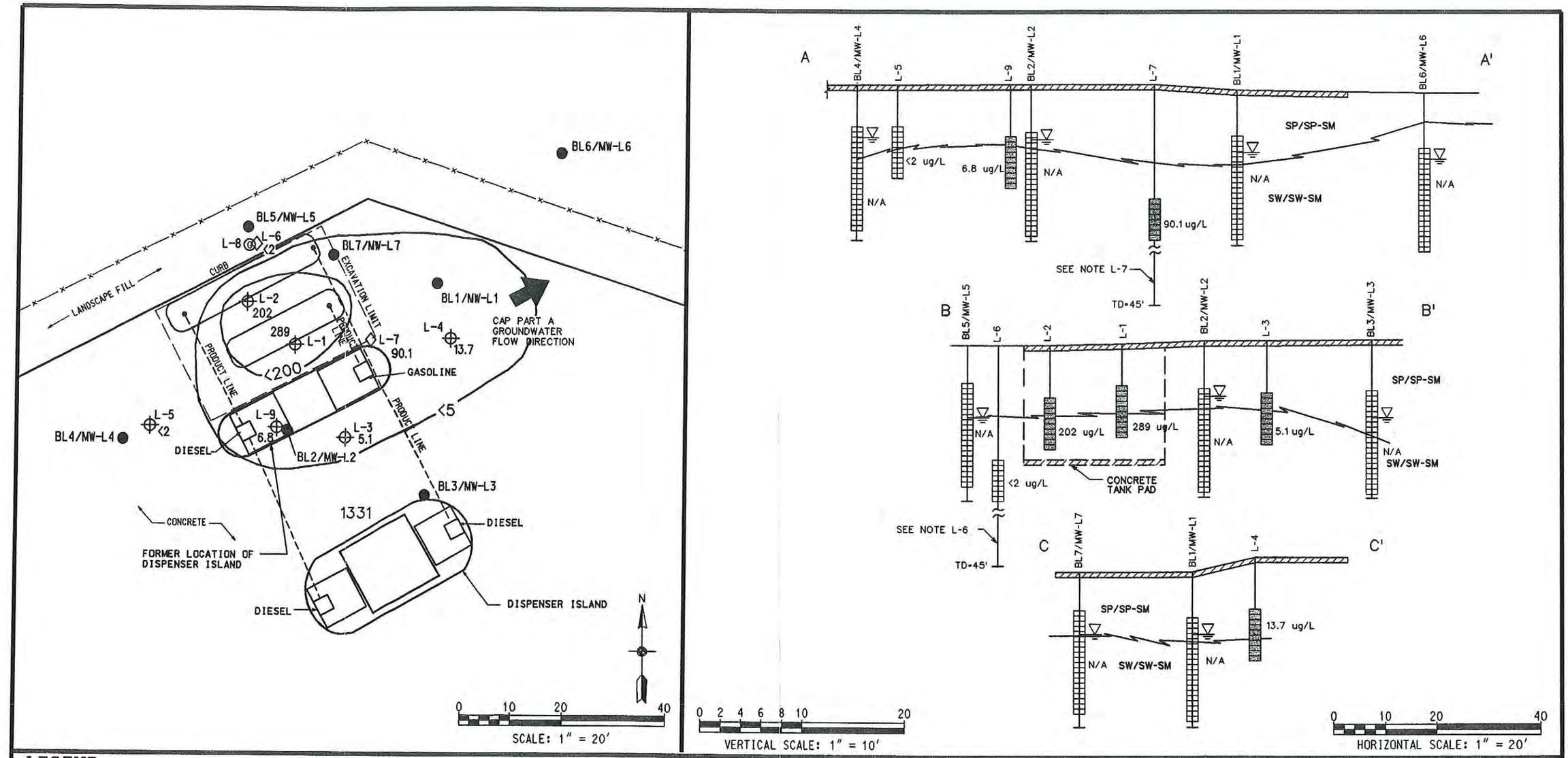
Figure II-6. Toluene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
ETHYLBENZENE • 700 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <2 ug/L
HL6302 (21-25 FEET) : <2 ug/L
HL6303 (31-35 FEET) : <2 ug/L
HL6304 (41-45 FEET) : <2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 90.1 ug/L
HL7302 (21-25 FEET) : 2.7 ug/L
HL7303 (31-35 FEET) : <2 ug/L
HL7304 (41-45 FEET) : <2 ug/L

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FACILITY ID: #9-025053

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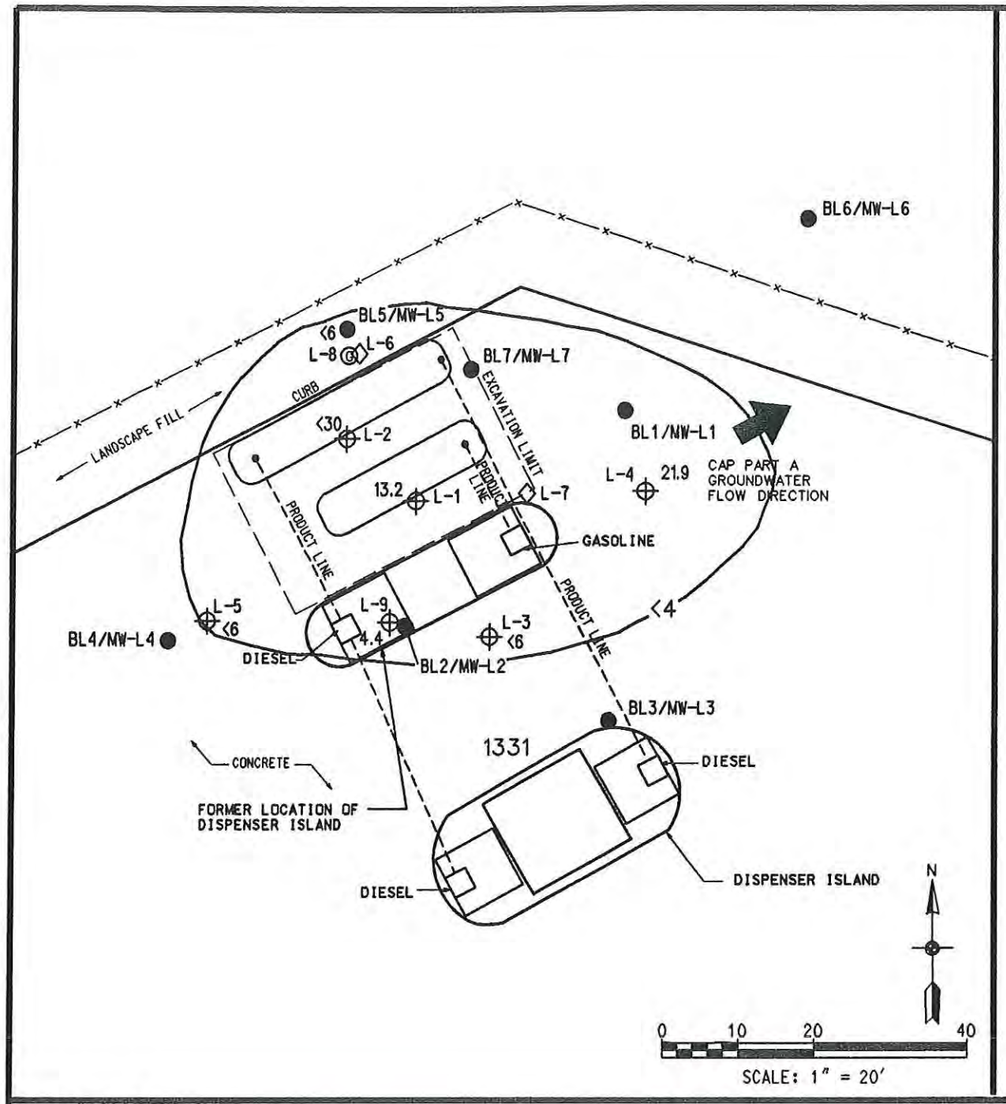
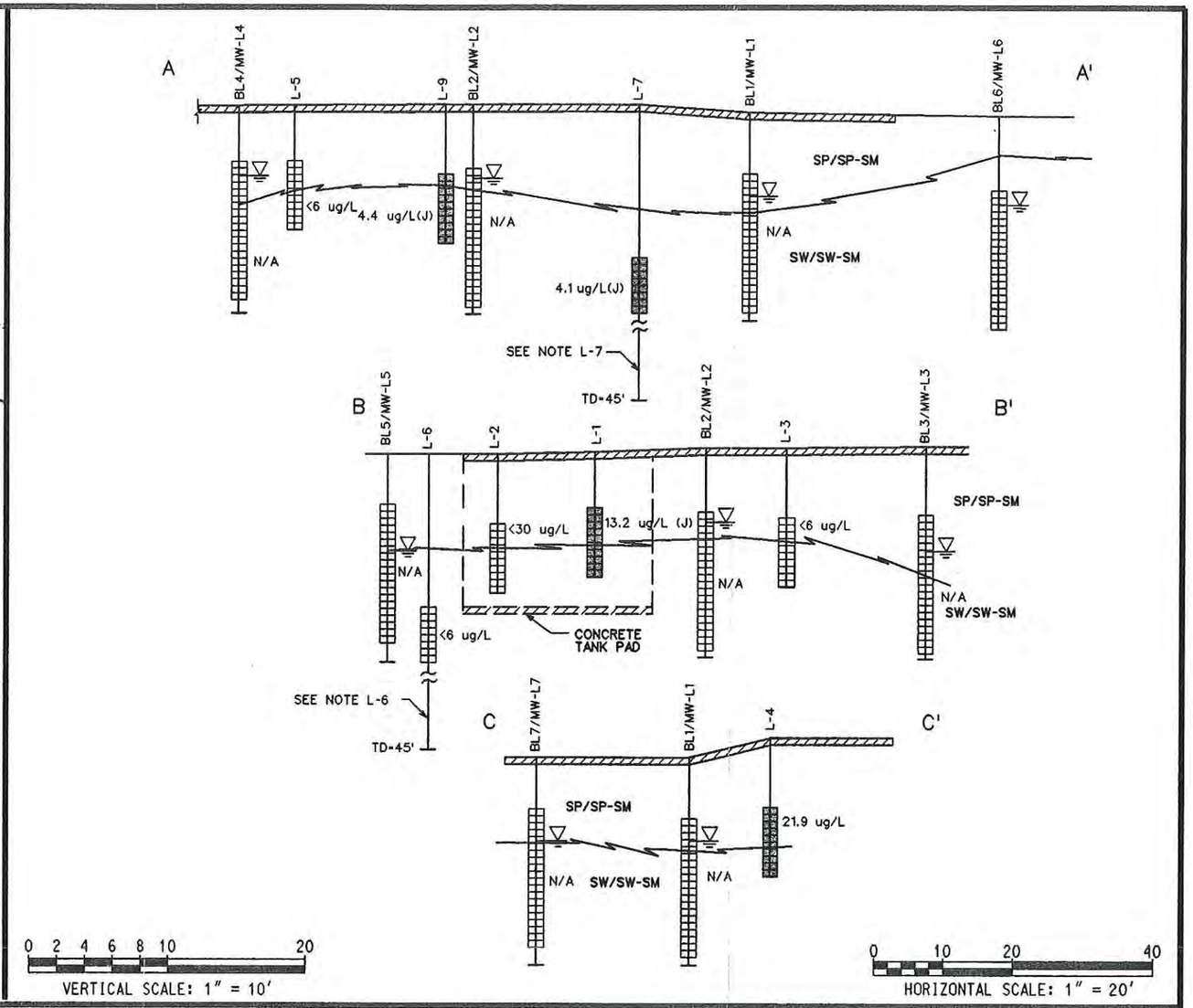
Figure II-7. Ethylbenzene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
TOTAL XYLENES - 10,000 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <6 ug/L
HL6302 (21-25 FEET) : <6 ug/L
HL6303 (31-35 FEET) : <6 ug/L
HL6304 (41-45 FEET) : <6 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 4.1 ug/L(J)
HL7302 (21-25 FEET) : <6 ug/L
HL7303 (31-35 FEET) : <6 ug/L
HL7304 (41-45 FEET) : <6 ug/L

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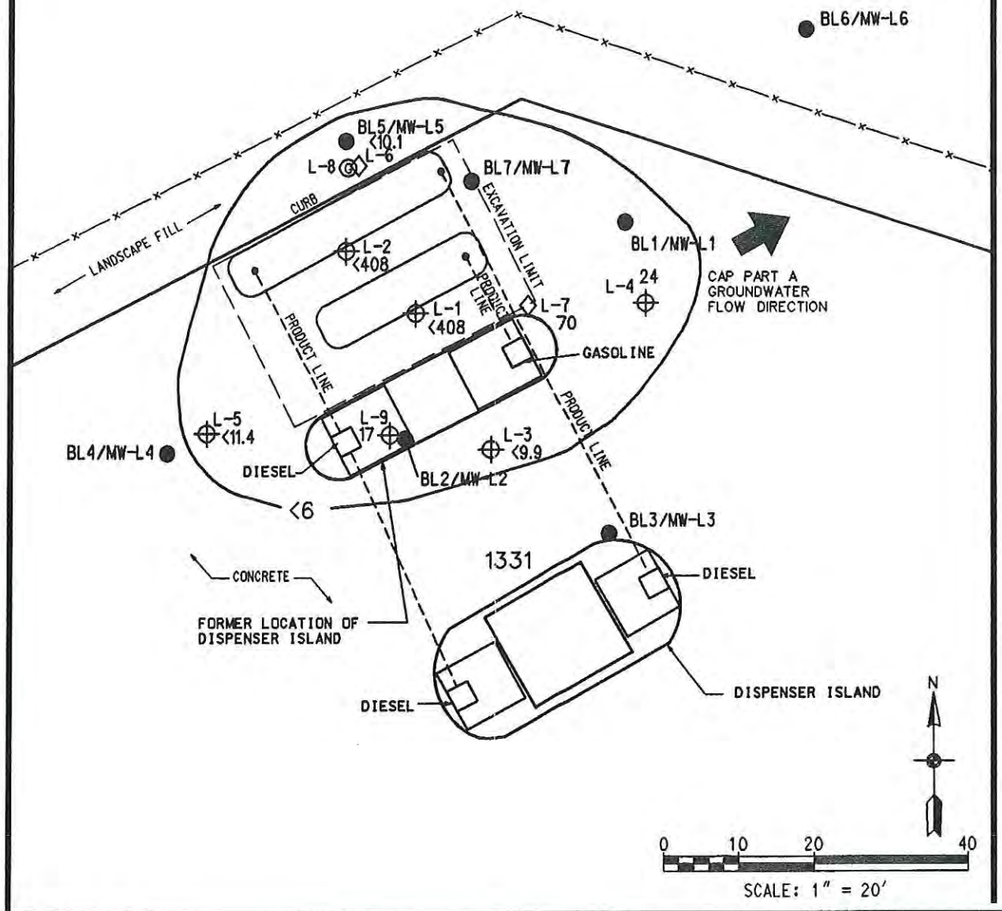
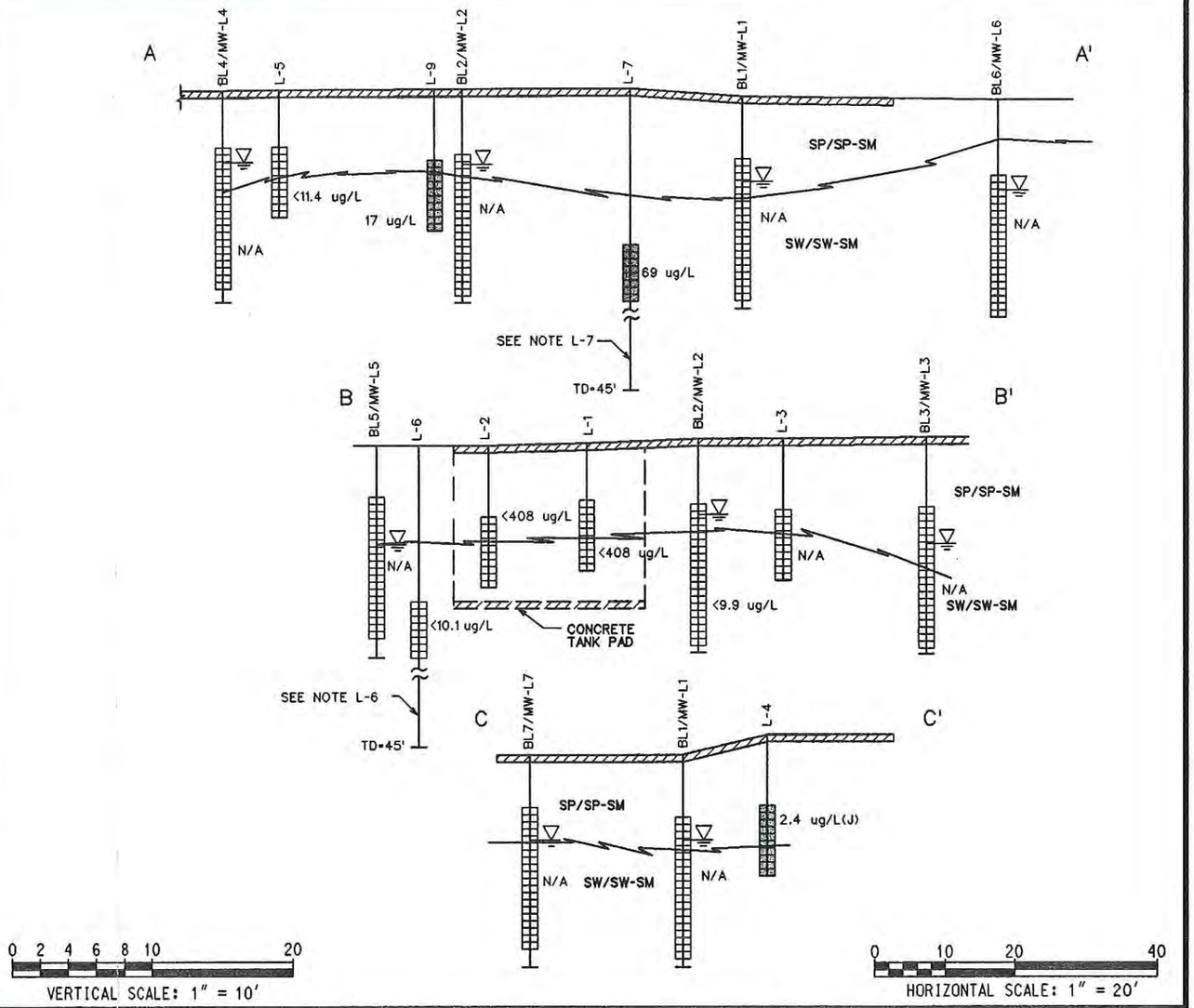
Figure II-8. Total Xylenes Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
NAPHTHALENE • NONE

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <10.1 ug/L
HL6302 (21-25 FEET) : <10.2 ug/L
HL6303 (31-35 FEET) : <10.4 ug/L
HL6304 (41-45 FEET) : <10.2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : 69 ug/L
HL7302 (21-25 FEET) : <10 ug/L
HL7303 (31-35 FEET) : 70 ug/L
HL7304 (41-45 FEET) : <10.5 ug/L

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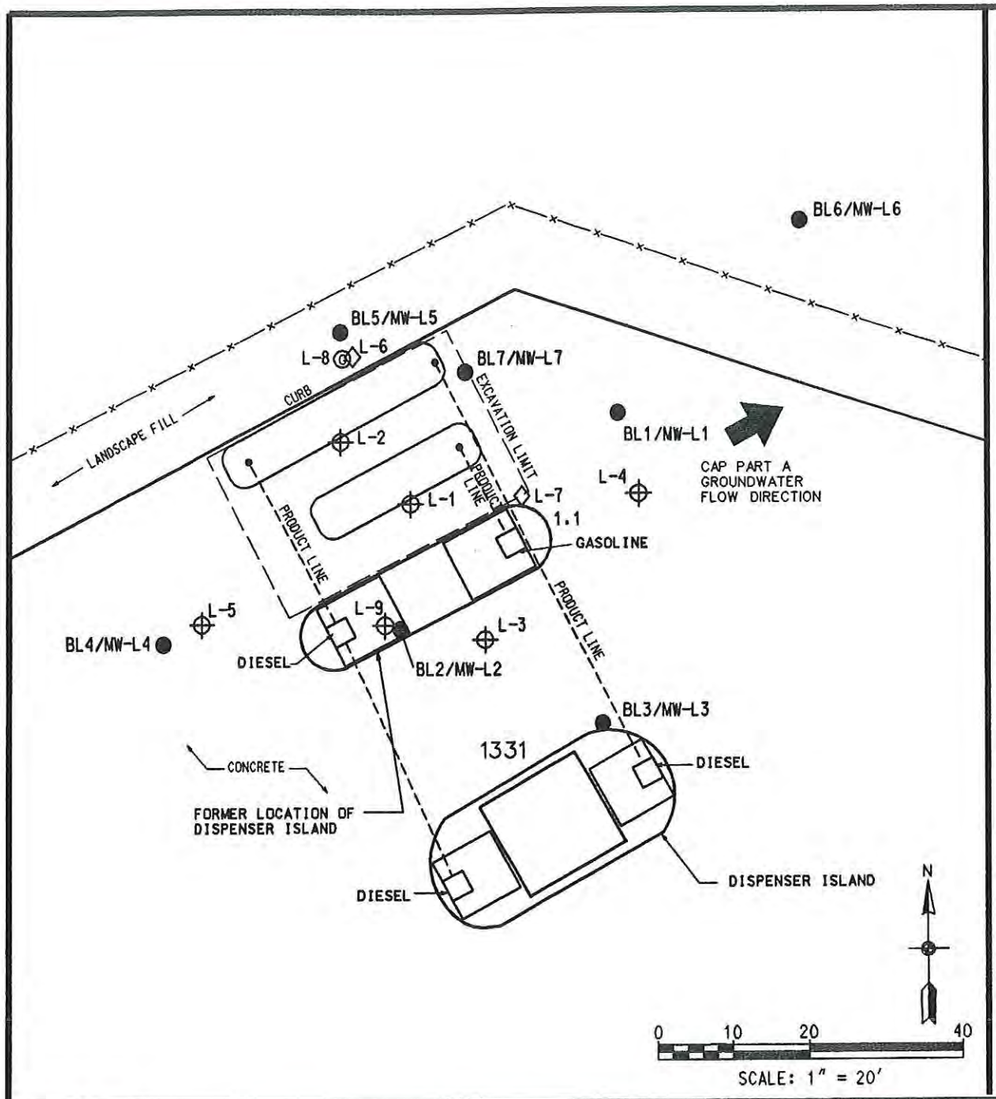
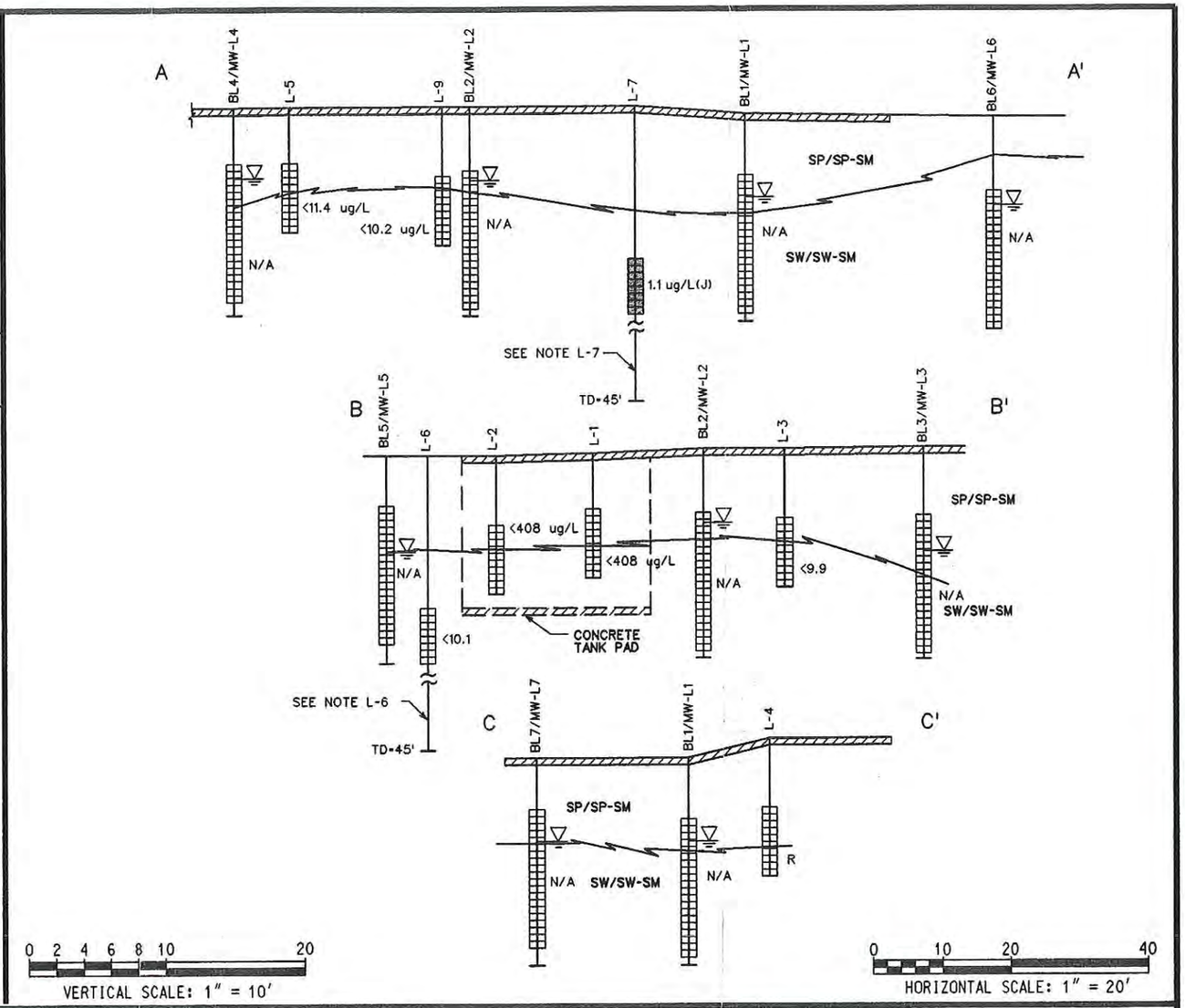
Figure II-9. Naphthalene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART A SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
ACENAPHTHENE - NONE

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

L-6 (VERTICAL PROFILE)
HL6301 (11-15 FEET) : <10.1 ug/L
HL6302 (21-25 FEET) : <10.2 ug/L
HL6303 (31-35 FEET) : <10.4 ug/L
HL6304 (41-45 FEET) : <10.2 ug/L

L-7 (VERTICAL PROFILE)
HL7301 (11-15 FEET) : <10.3 ug/L
HL7302 (21-25 FEET) : <10 ug/L
HL7303 (31-35 FEET) : <10.3 ug/L
HL7304 (41-45 FEET) : <10.5 ug/L

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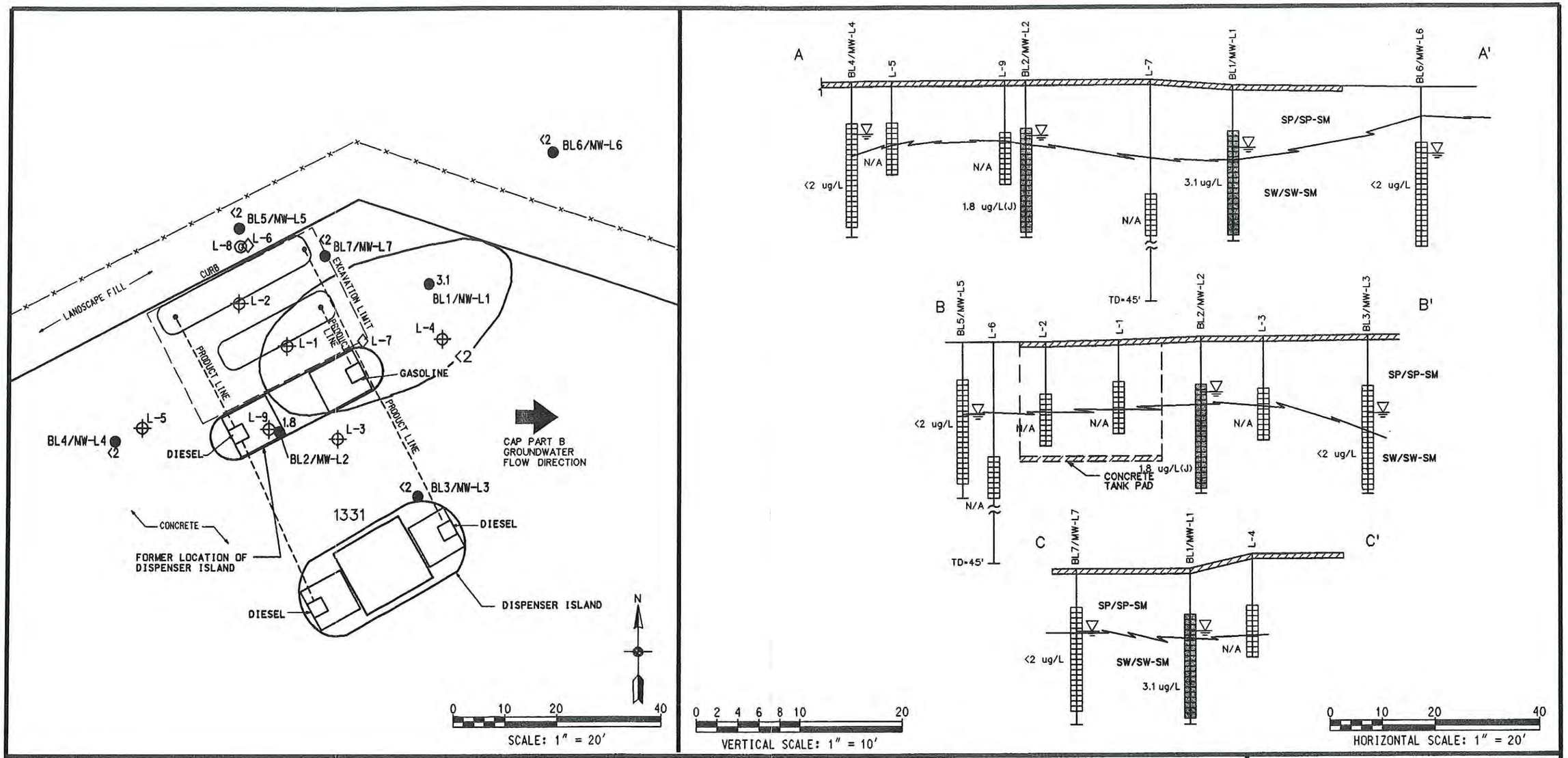
Figure II-10. Acenaphthene Contamination in Groundwater Determined During the CAP-Part A Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART B SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
BENZENE - 5 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

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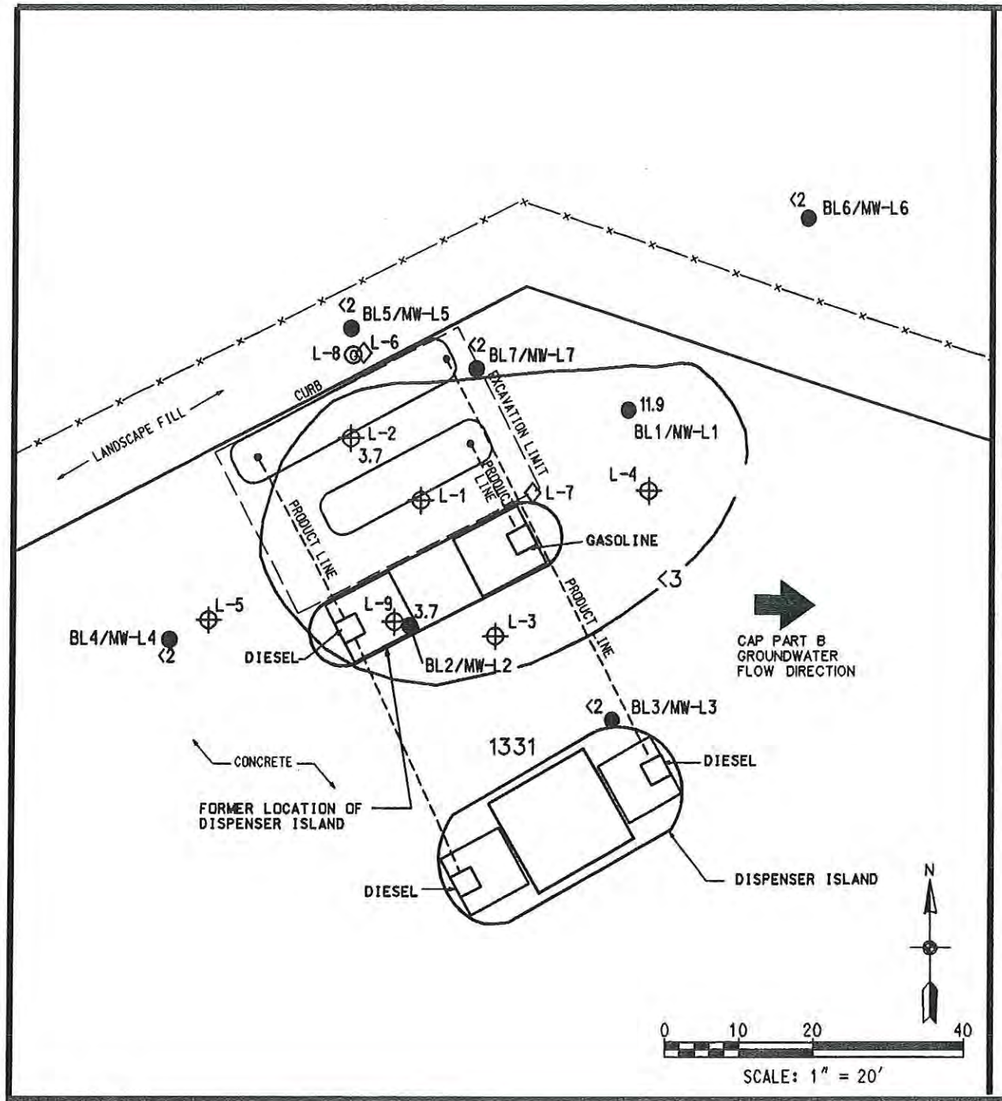
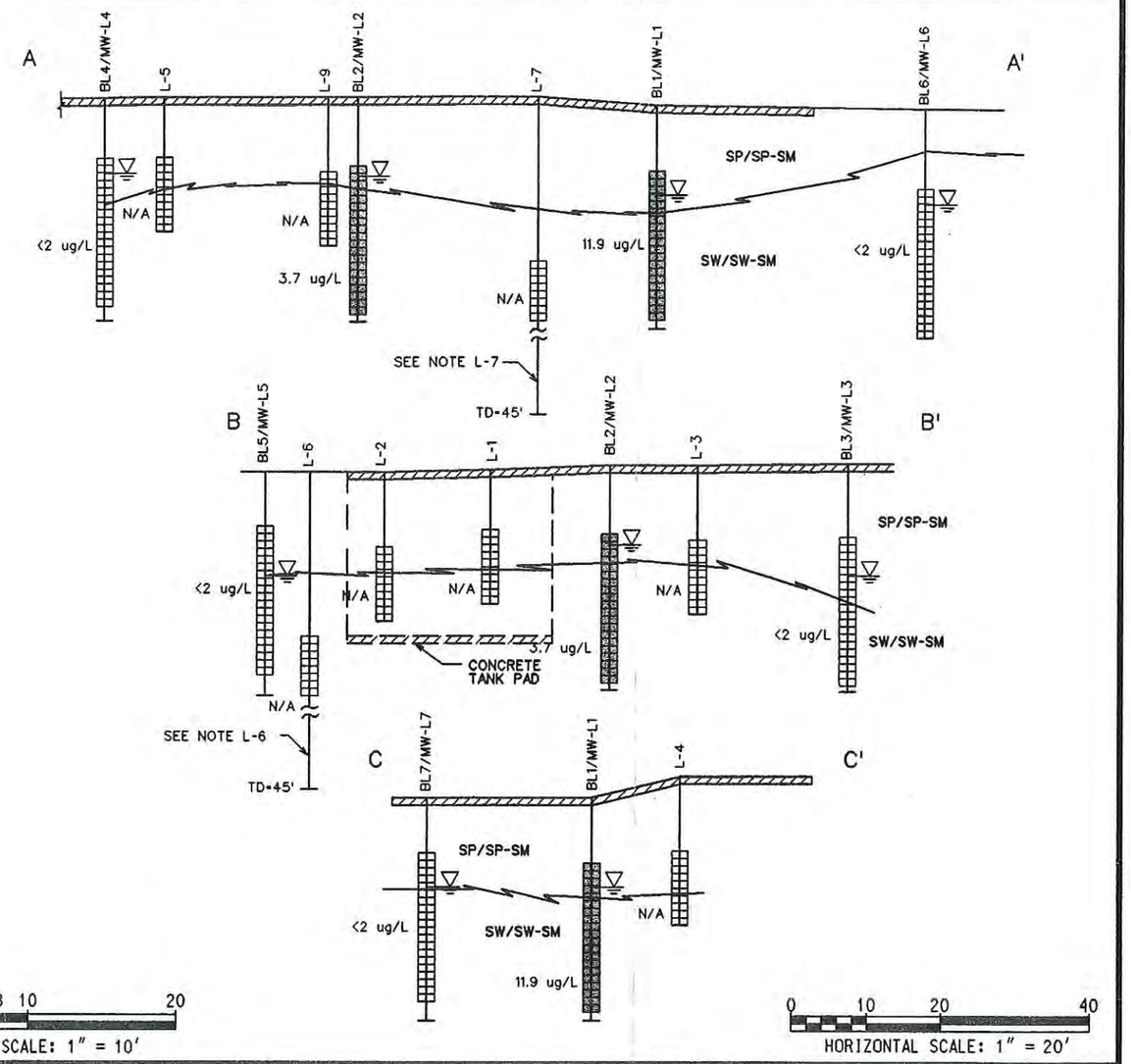
Figure II-11. Benzene Contamination in Groundwater Determined During the CAP-Part B Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.





LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART B SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
ETHYLBENZENE - 700 ug/L

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

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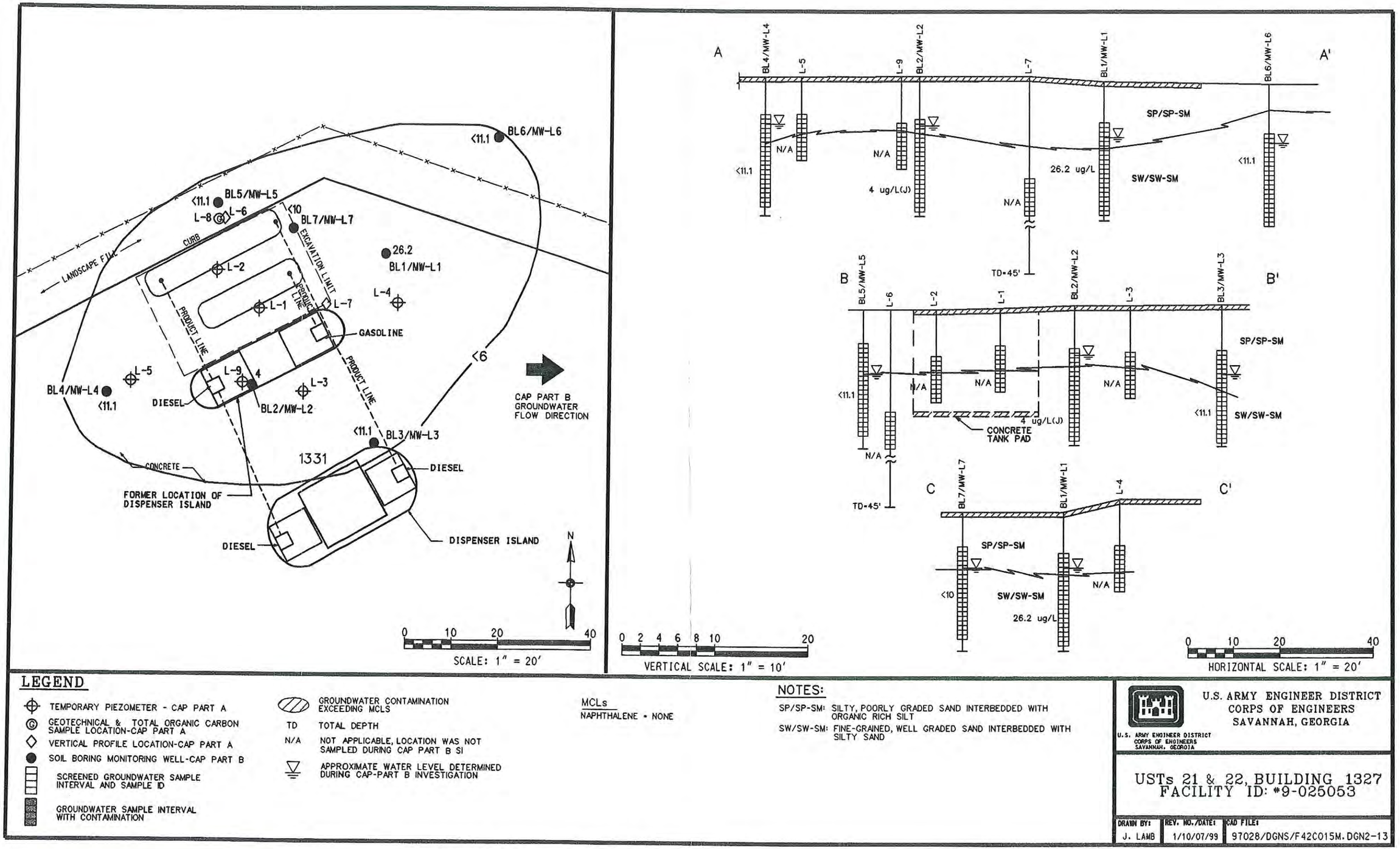
Figure II-12. Ethylbenzene Contamination in Groundwater Determined During the CAP-Part B Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.



LEGEND

- TEMPORARY PIEZOMETER - CAP PART A
- GEOTECHNICAL & TOTAL ORGANIC CARBON SAMPLE LOCATION-CAP PART A
- VERTICAL PROFILE LOCATION-CAP PART A
- SOIL BORING MONITORING WELL-CAP PART B
- SCREENED GROUNDWATER SAMPLE INTERVAL AND SAMPLE ID
- GROUNDWATER SAMPLE INTERVAL WITH CONTAMINATION
- GROUNDWATER CONTAMINATION EXCEEDING MCLS
- TD TOTAL DEPTH
- N/A NOT APPLICABLE, LOCATION WAS NOT SAMPLED DURING CAP PART B SI
- APPROXIMATE WATER LEVEL DETERMINED DURING CAP-PART B INVESTIGATION

MCLs
NAPHTHALENE - NONE

NOTES:

SP/SP-SM: SILTY, POORLY GRADED SAND INTERBEDDED WITH ORGANIC RICH SILT

SW/SW-SM: FINE-GRAINED, WELL GRADED SAND INTERBEDDED WITH SILTY SAND

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FACILITY ID: #9-025053

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J. LAMB	1/10/07/99	97028/DGNS/F42C015M.DGN2-13

Figure II-13. Naphthalene Contamination in Groundwater Determined During the CAP-Part B Site Investigation at the USTs 21 & 22 Site, Facility ID: 9-025053.

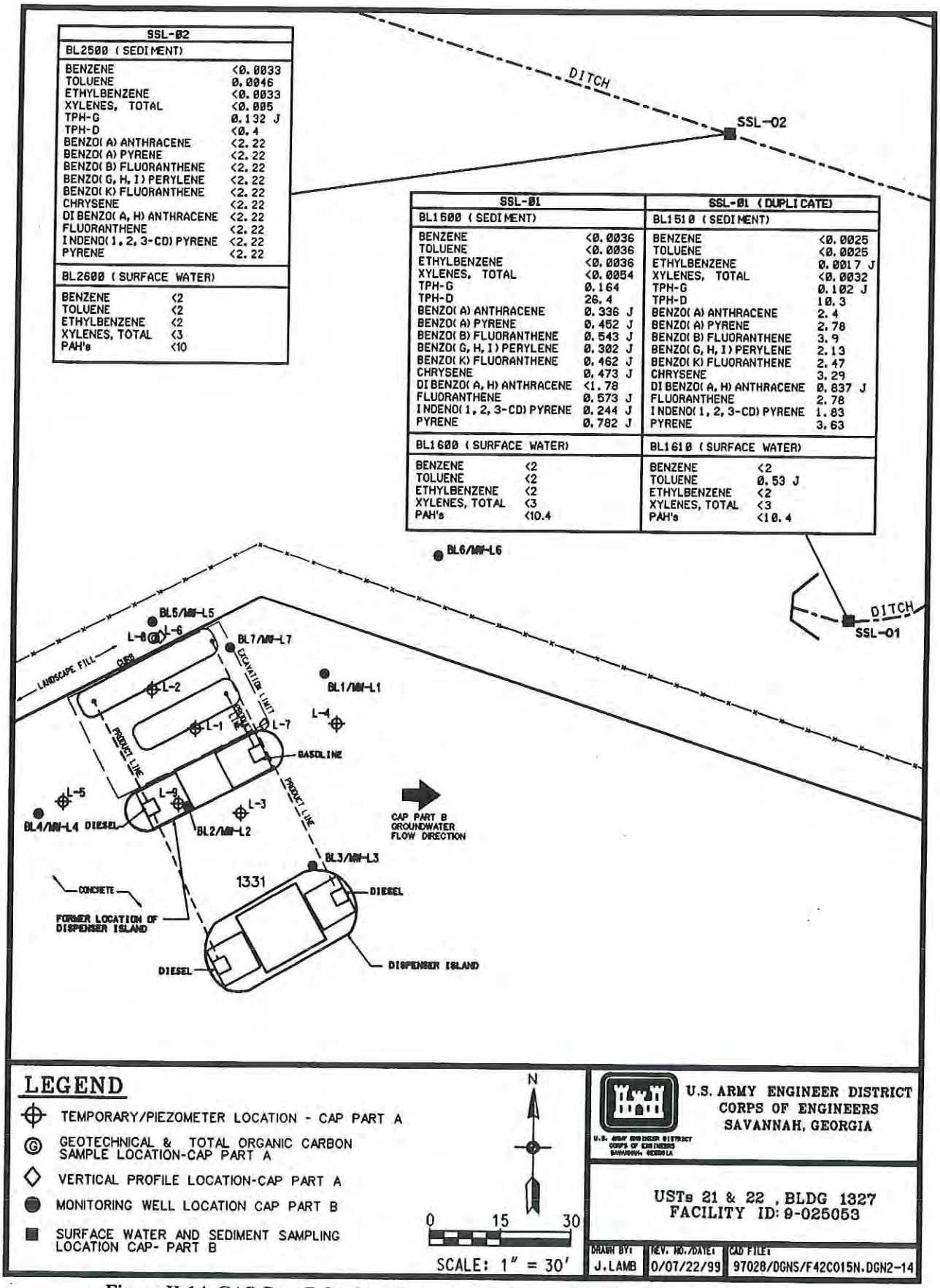

Figure II-14. CAP-Part B Surface Water and Sediment Sampling Analytical Results at the USTs 21 & 22 Site, Facility ID: 9-025053.

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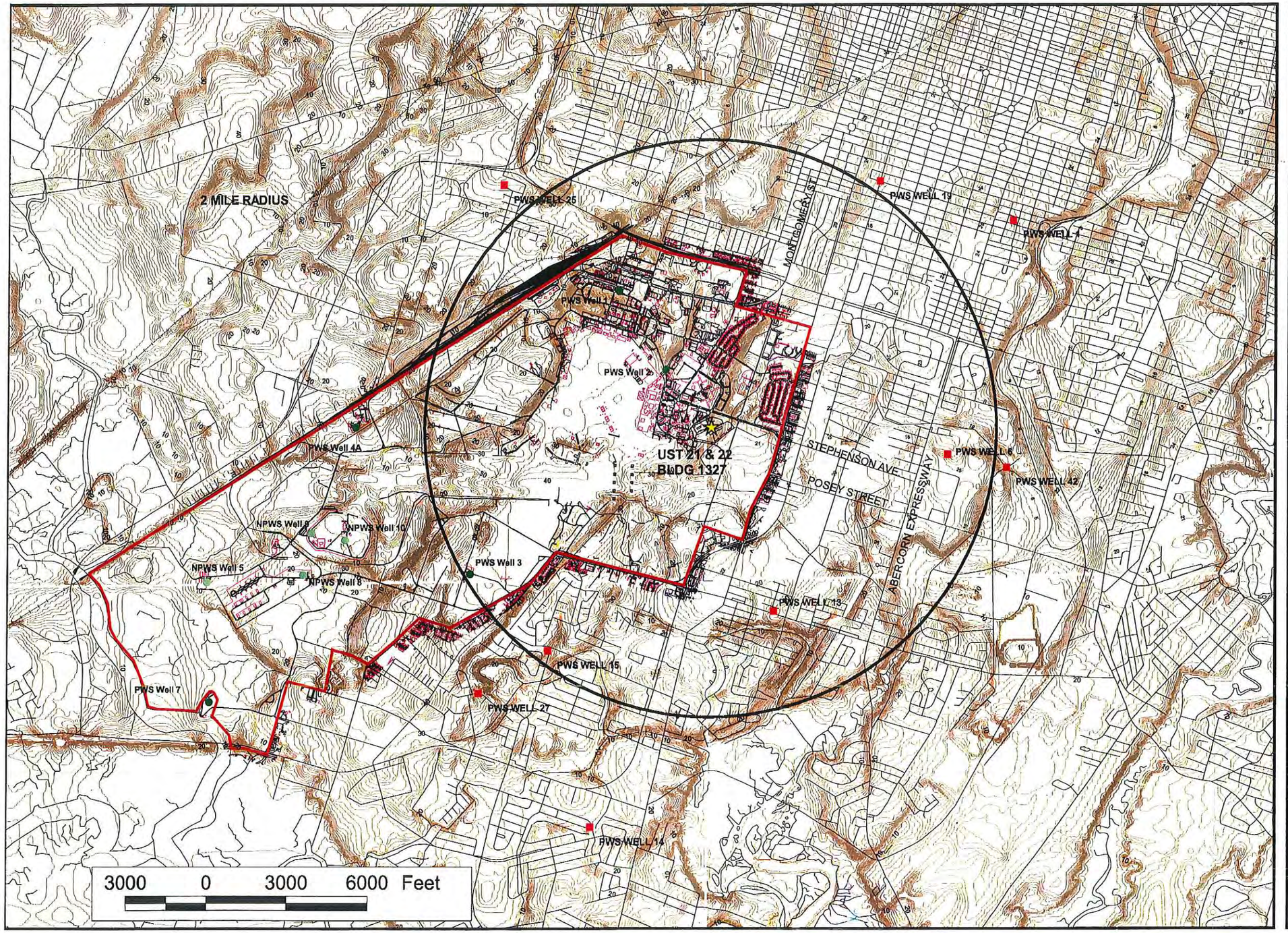

Legend:

- Hunter Army Airfield Boundary
- Surface Water (streams/rivers/drains)
- Railroad
- Roads (primary)
- Buildings and Planimetric Features
- Ground Contour (1 FT Intervals)
- HAAF Non-Public Water Supply Well
- HAAF Public Water Supply Well
- City of Savannah Public Water Supply Well

NOTE:

Contours were created from Digital Elevation Models translated from http://mapping.usgs.gov/, which were obtained from the following U.S.G.S. 7.5 minuteTopographic Quad sheets: Borroughs, Isle of Hope, Savannah, and Garden City. Roads, surface water, and railroad were translated from http://www.gis.state.ga.us/ , Hunter Army Airfield BaseMap received as Microstation files from Fort Stewart.

N

GA State Plane NAD83 (feet)

SAIC
Science Applications International Corporation

UST 21 & 22, BLDG 1327
FACILITY ID: 9-025053

REVISION	DRAWN BY:	CHKD BY:	DATE:
0	M.Norris	A. Bailey	08/17/99

FILE REFERENCES

051rds_polyline
051hyd_polyline
051rr
hunterarea
burroughsctrf
isleofhopectrf
savannahctrf
gardencityctrf
trveh.dgn
bggen.dgn

SHT 1 of 1 DRAWING #

97028\HUNTERUST21.APR ARCVIEW PROJECT NAME

Figure II-15. Locations of Public and Non-Public Supply Wells at Hunter Army Airfield and Surrounding Area.

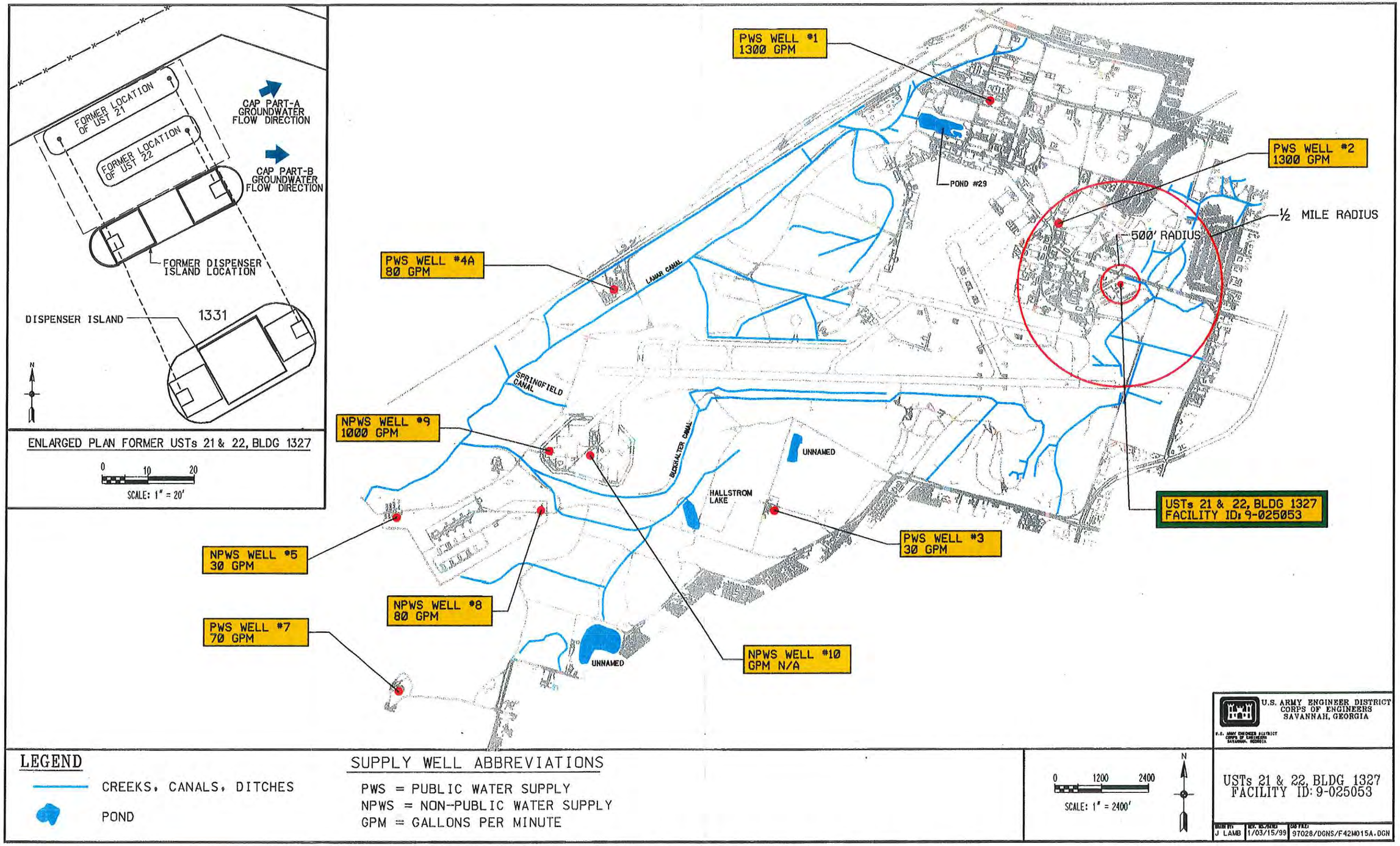

Figure II-16. Locations of Surface Water Bodies and Water Supply Wells at Hunter Army Airfield.

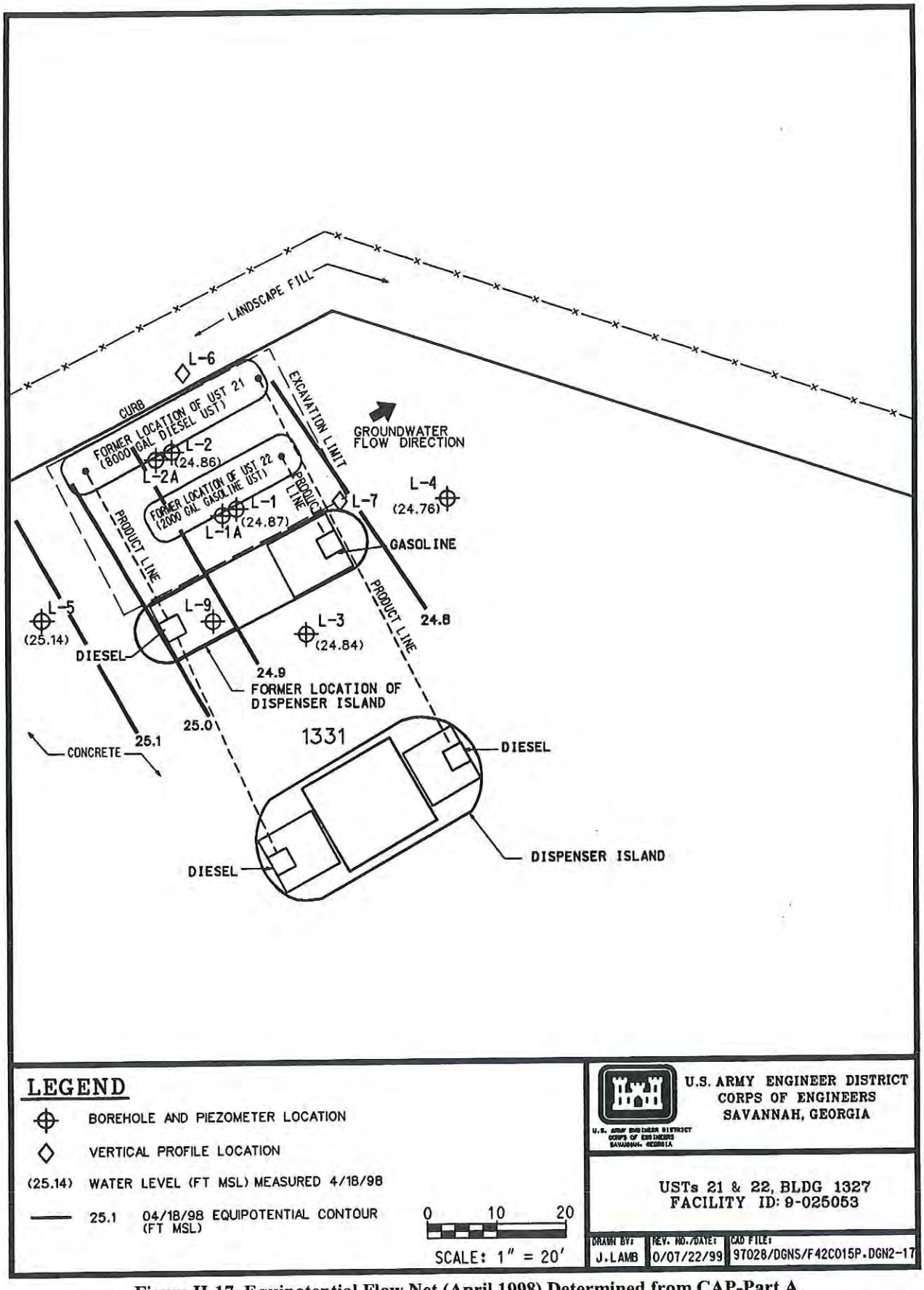

Figure II-17. Equipotential Flow Net (April 1998) Determined from CAP-Part A Temporary Piezometers for the USTs 21 & 22 Site, Facility ID: 9-025053.

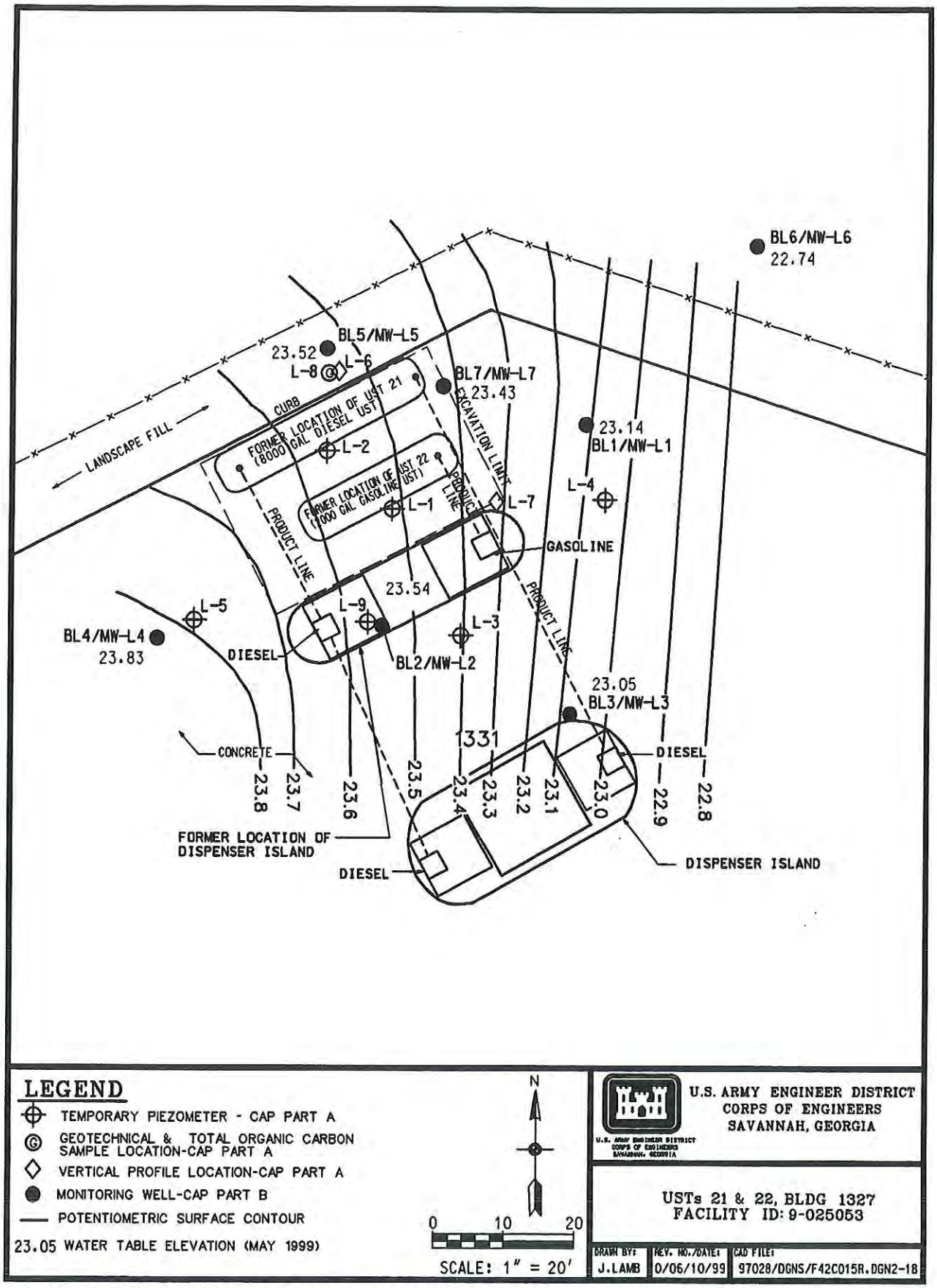

Figure II-18. Groundwater Potentiometric Surface Map (May 1999) Determined from CAP-Part B Monitoring Wells for the USTs 21 & 22 Site, Facility ID: 9-025053.

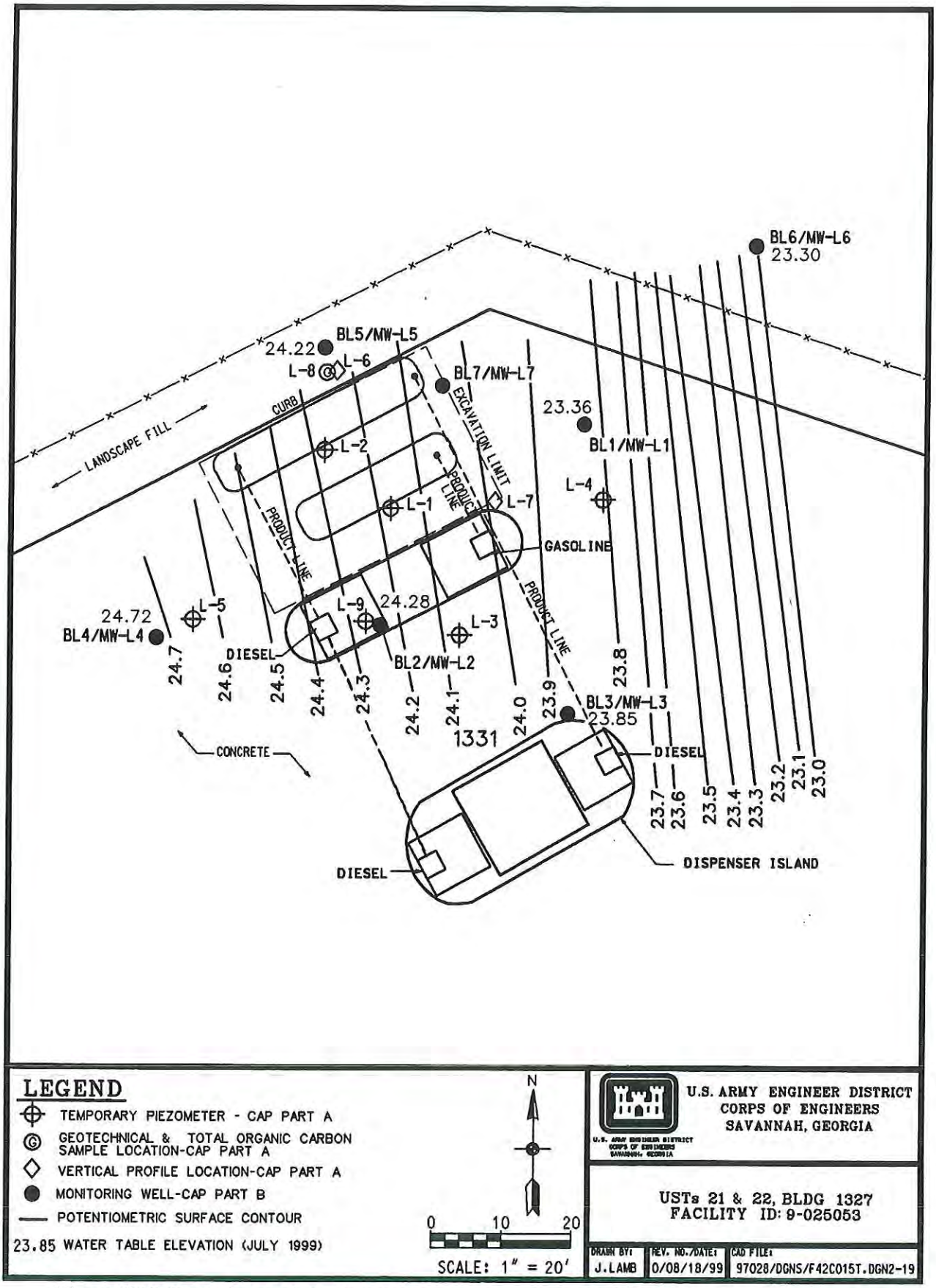

Figure II-19. Groundwater Potentiometric Surface Map (July 1999) Determined from CAP-Part B Monitoring Wells for the USTs 21 & 22 Site, Facility ID: 9-025053.

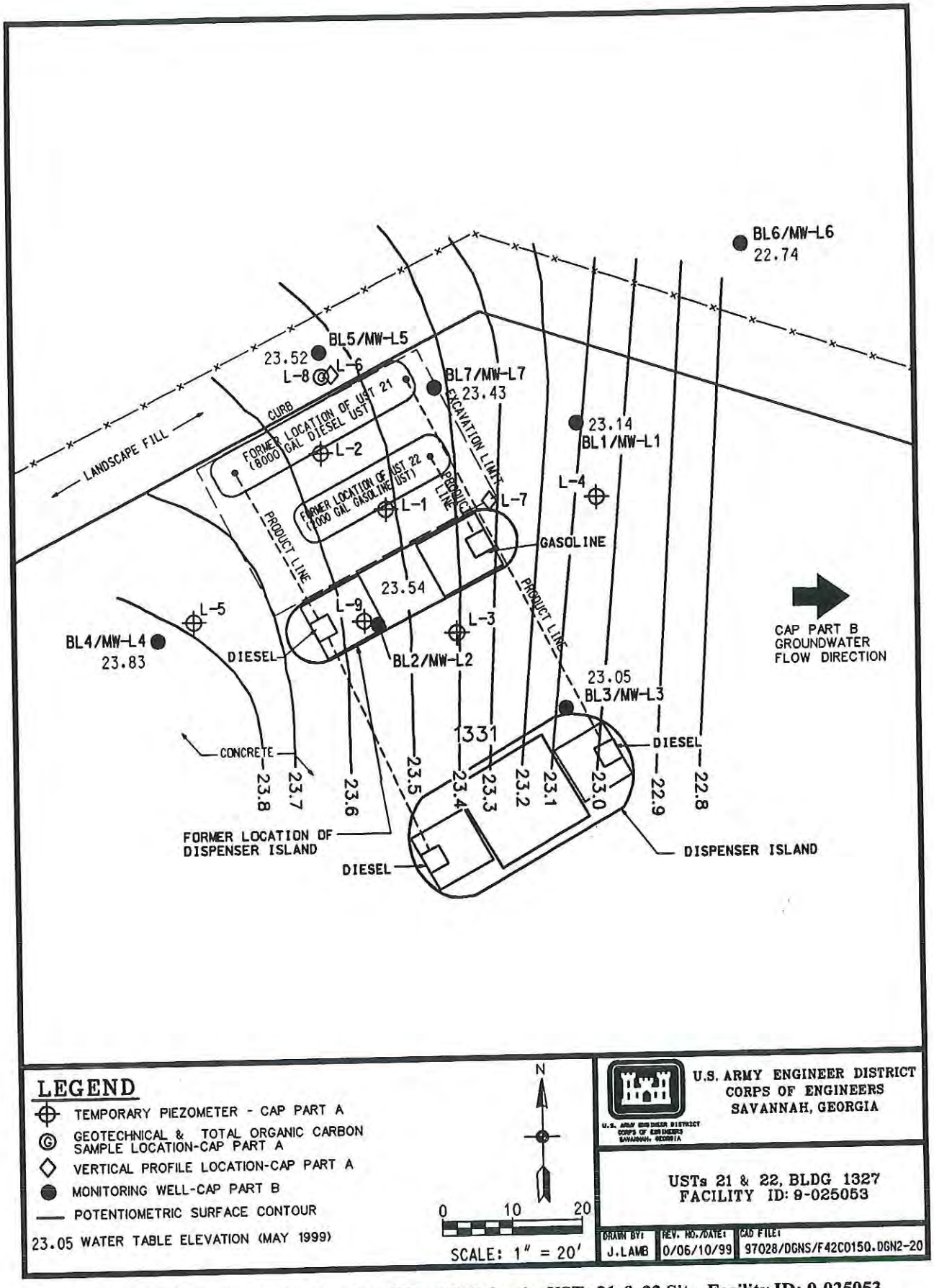

Figure II-20. Equipotential Flow Net (May 1999) for the USTs 21 & 22 Site, Facility ID: 9-025053.

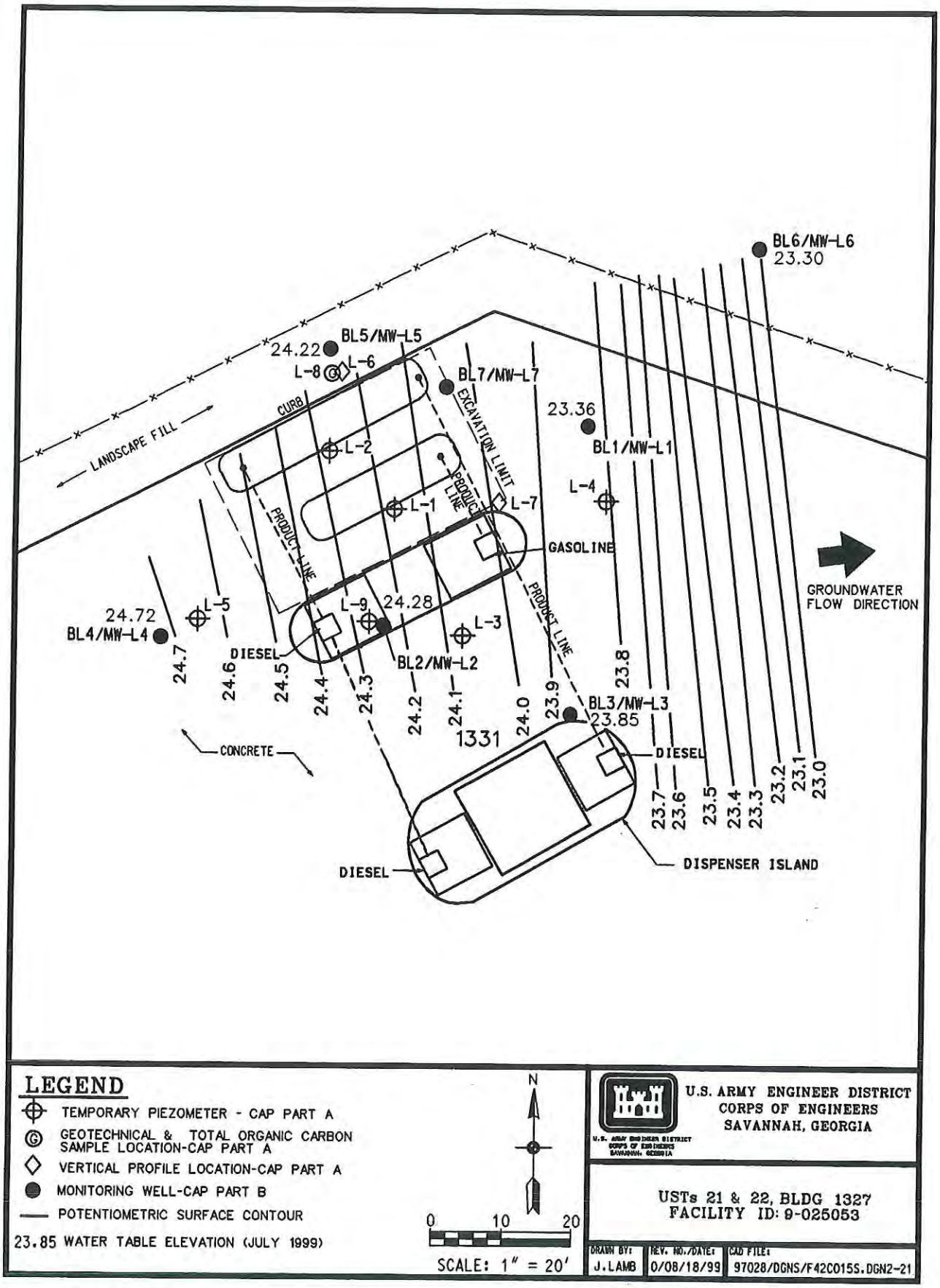

Figure II-21. Equipotential Flow Net (July 1999) for the USTs 21 & 22 Site, Facility ID: 9-025053.

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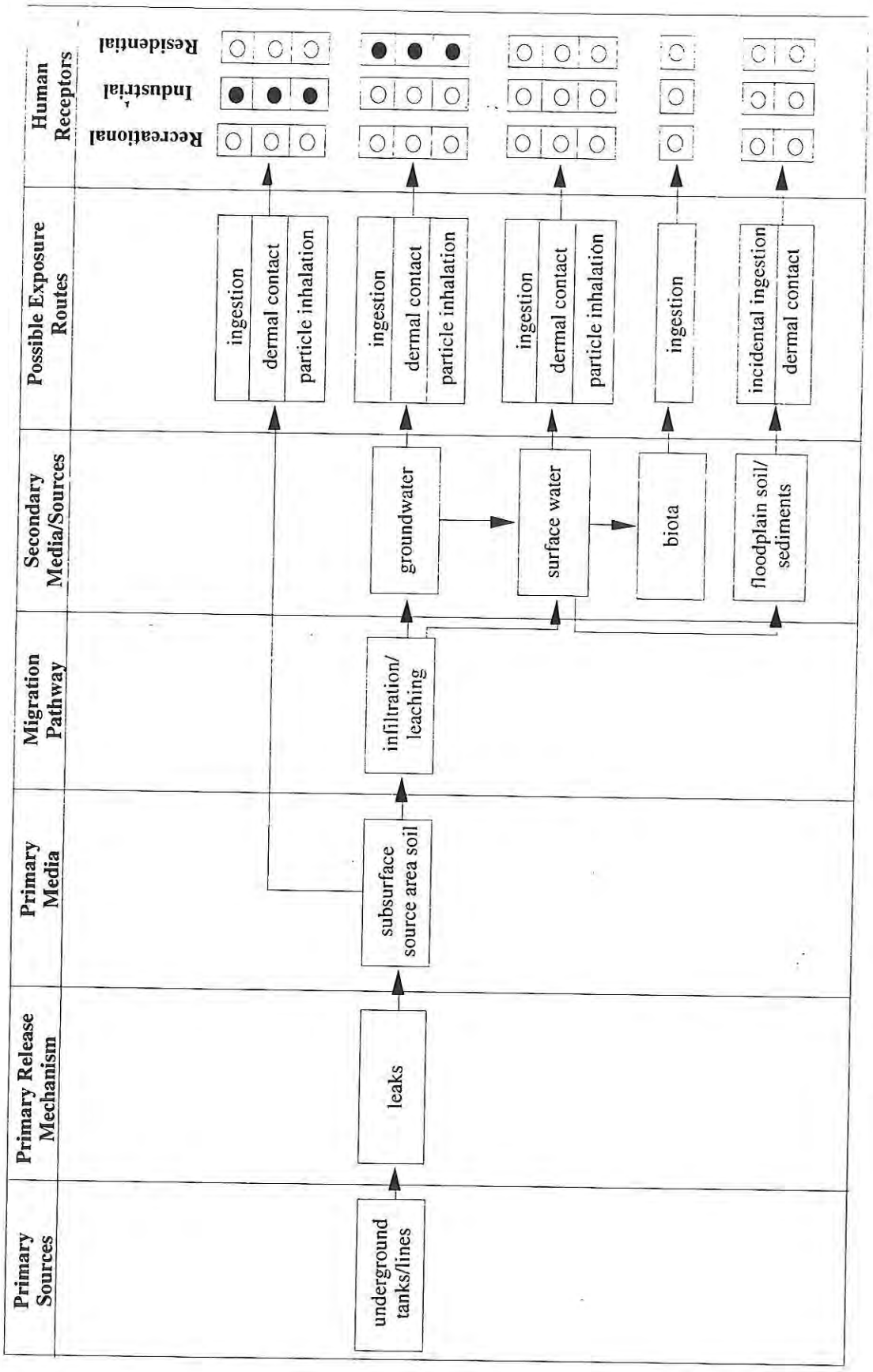

Figure III-1. Conceptual Exposure Model for the USTs 21 & 22 Site, Facility ID: 9-025053

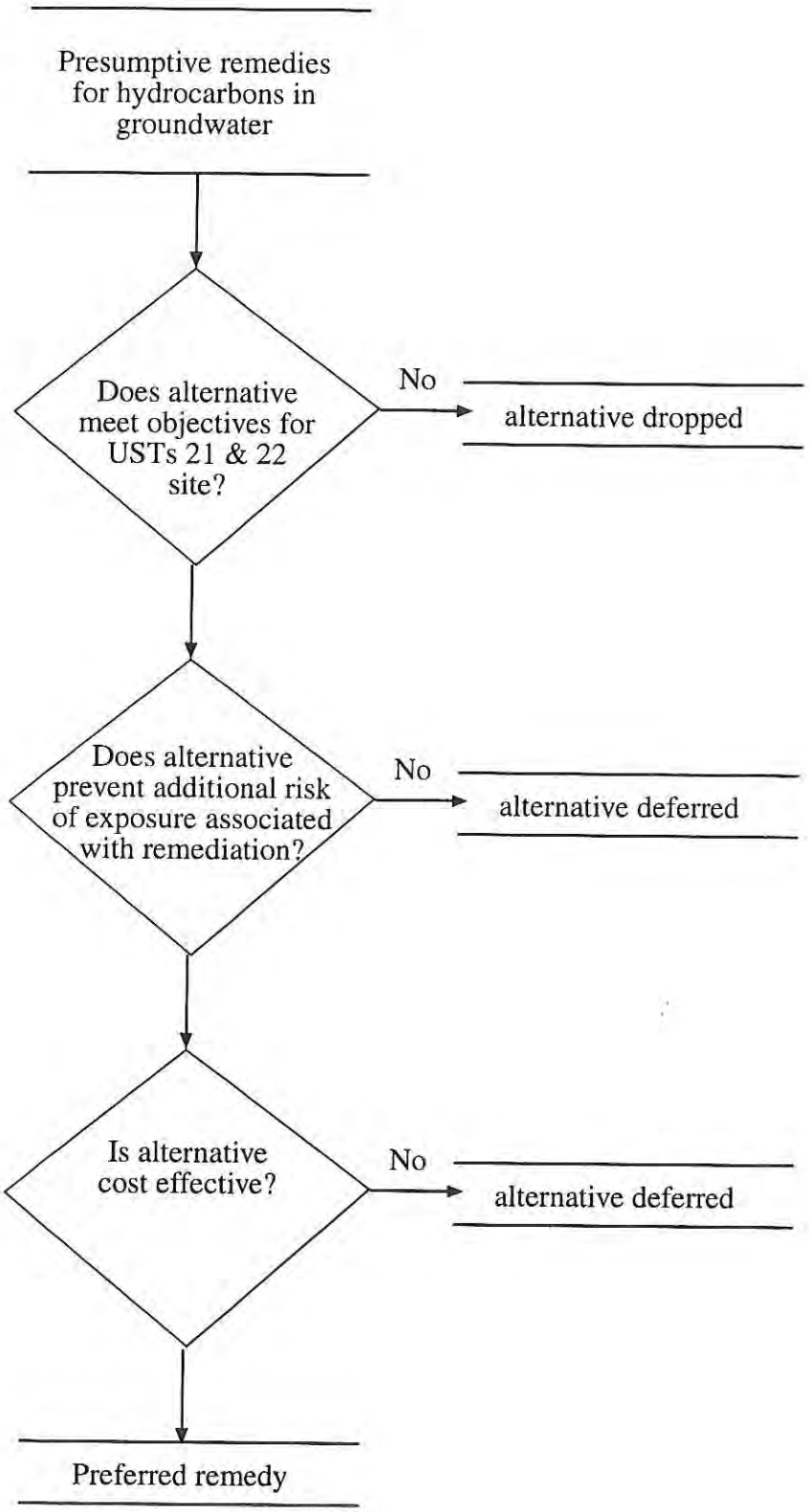

Figure III-2. Remedial Alternatives Selection Process for the USTs 21 & 22 Site, Facility ID: 9-025053

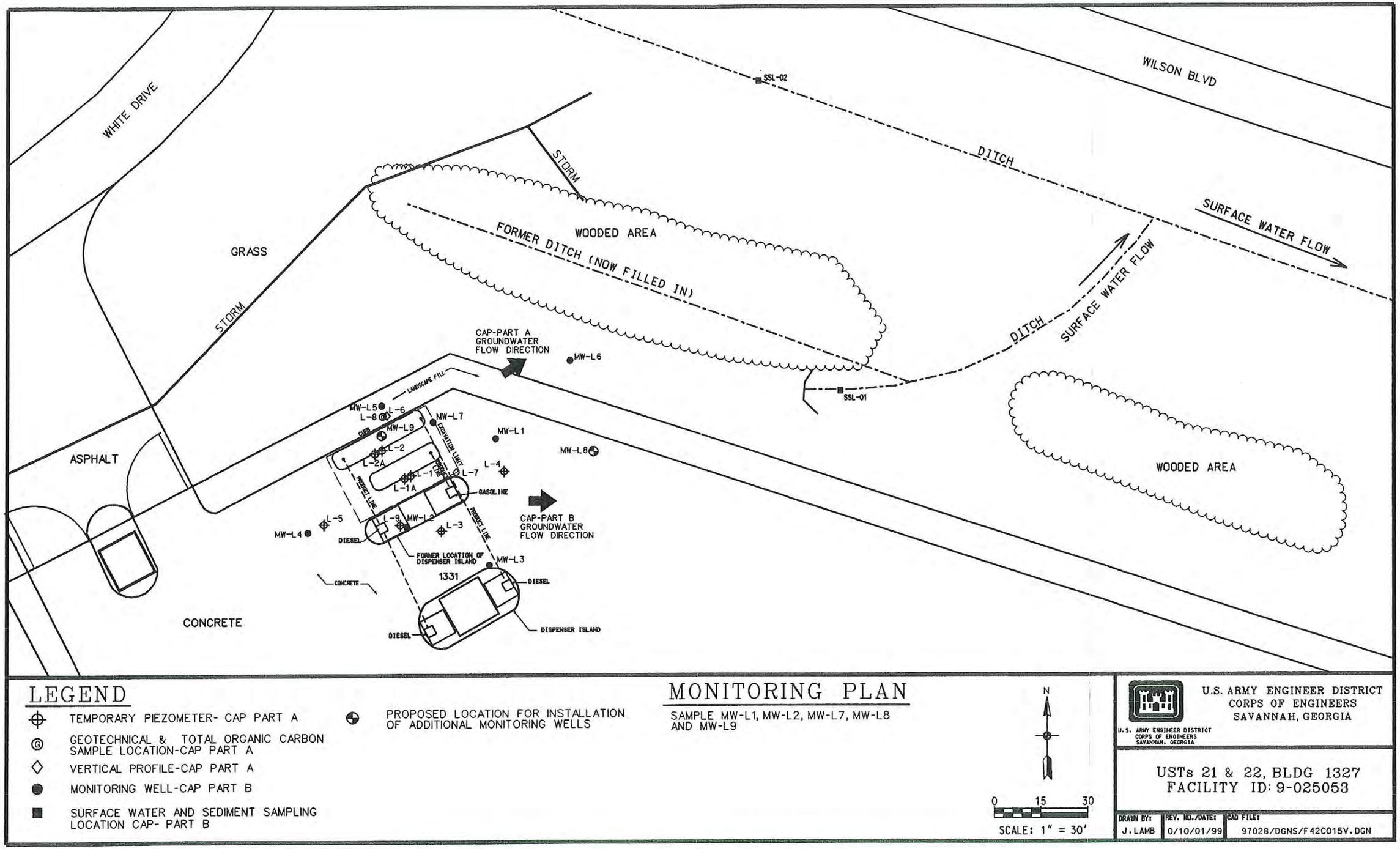

Figure III-3. Proposed Additional Long-term Monitoring Well Locations at the USTs 21 & 22 Site, Facility ID: 9-025053.

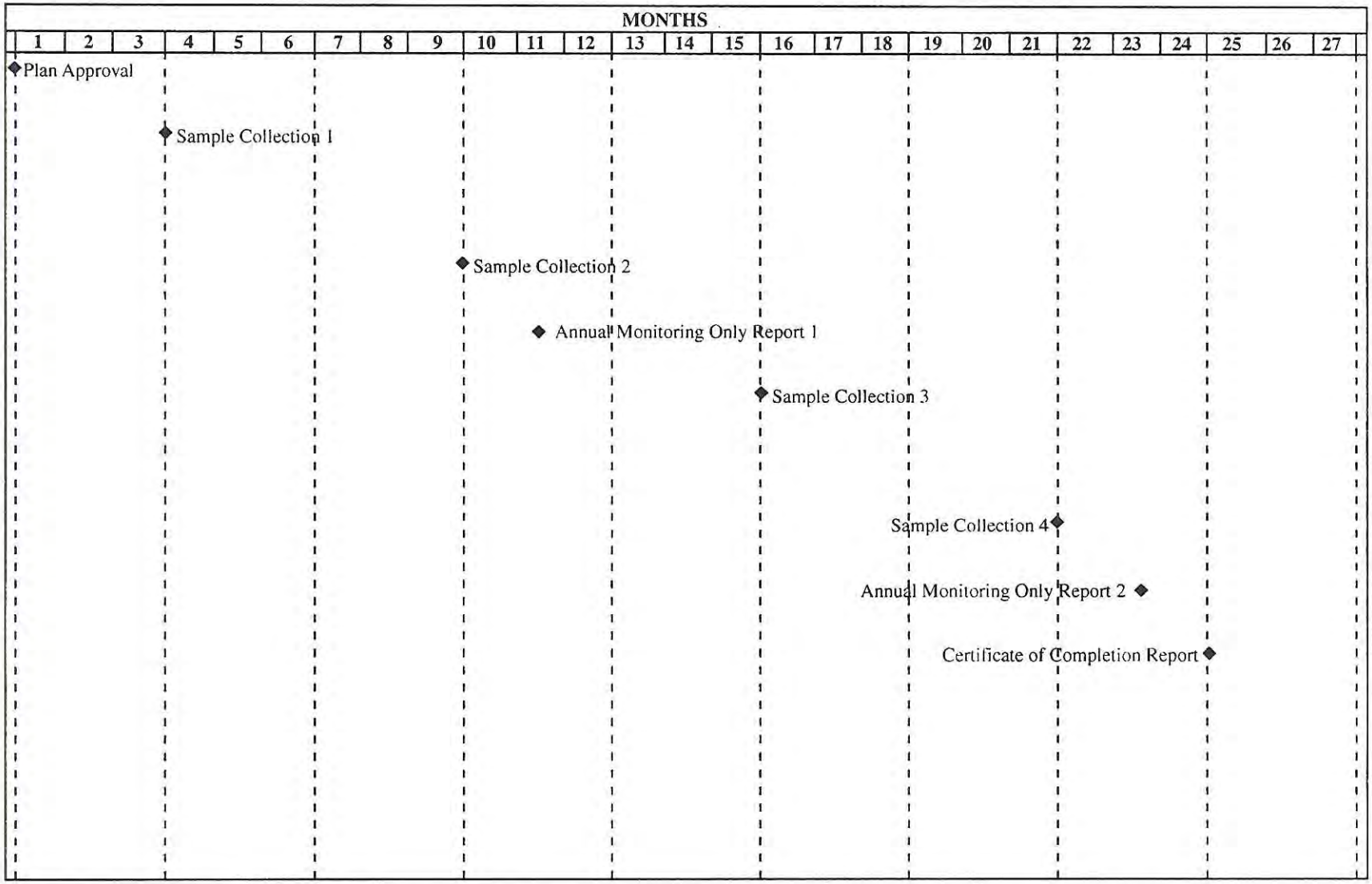

Figure III-4. Remedial Action Milestone Schedule for the USTs 21 & 22 Site, Facility ID: 9-025053

APPENDIX A

CAP-PART B INVESTIGATION LABORATORY ANALYTICAL RESULTS

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL1102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-01

Sample wt/vol: 5.2 (g/mL) G Lab File ID: 8G308

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: not dec. 9 Date Analyzed: 04/28/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	benzene	2.1	U
108-88-3	toluene	2.1	U
100-41-4	ethylbenzene	2.1	U
1330-20-7	xylenes (total)	3.1	U

DATA VALIDATION COPY

FORM I VOA OLM03.0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL1102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4R217

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 04/21/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/27/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	366	U
91-58-7	2-chloronaphthalene	366	U
208-96-8	acenaphthylene	366	U
83-32-9	acenaphthene	366	U
86-73-7	fluorene	366	U
85-01-8	phenanthrene	366	U
120-12-7	anthracene	366	U
206-44-0	fluoranthene	366	U
129-00-0	pyrene	366	U
56-55-3	benzo(a)anthracene	366	U
218-01-9	chrysene	366	U
205-99-2	benzo(b)fluoranthene	366	U
207-08-9	benzo(k)fluoranthene	366	U
50-32-8	benzo(a)pyrene	366	U
193-39-5	indeno(1,2,3-cd)pyrene	366	U
53-70-3	dibenz(a,h)anthracene	366	U
191-24-2	benzo(g,h,i)perylene	366	U

FORM 1 Science Applications20-APR-1999 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL1102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-01

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 038F3801

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: 9 decanted: (Y/N) N Date Extracted:04/23/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/30/99

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	7.8	B	= F08

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL1102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F305

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: not dec. 9 Date Analyzed: 04/21/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	670		J H02, H04

FORM I VOA

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL1103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-02

Sample wt/vol: 4.7 (g/mL) G Lab File ID: 8G309

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: not dec. 7 Date Analyzed: 04/28/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	benzene	2.3	U
108-88-3	toluene	2.3	U
100-41-4	ethylbenzene	2.3	U
1330-20-7	xylenes (total)	3.4	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL1103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4R218

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: 7 decanted: (Y/N) N Date Extracted: 04/21/99

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/27/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	358	U
91-58-7	2-chloronaphthalene	358	U
208-96-8	acenaphthylene	358	U
83-32-9	acenaphthene	358	U
86-73-7	fluorene	358	U
85-01-8	phenanthrene	358	U
120-12-7	anthracene	358	U
206-44-0	fluoranthene	358	U
129-00-0	pyrene	358	U
56-55-3	benzo(a)anthracene	358	U
218-01-9	chrysene	358	U
205-99-2	benzo(b)fluoranthene	358	U
207-08-9	benzo(k)fluoranthene	358	U
50-32-8	benzo(a)pyrene	358	U
193-39-5	indeno(1,2,3-cd)pyrene	358	U
53-70-3	dibenz(a,h)anthracene	358	U
191-24-2	benzo(g,h,i)perylene	358	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL1103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 040F4001

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: 7 decanted: (Y/N) N Date Extracted:04/23/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	2.7	B	= FD8

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL1103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST04S

Matrix: (soil/water) SOIL Lab Sample ID: 9904621-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F306

Level: (low/med) LOW Date Received: 04/20/99

% Moisture: not dec. 7 Date Analyzed: 04/21/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Gasoline Range Organics	317	

FORM I VOA

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-09

Sample wt/vol: 5.6 (g/mL) G Lab File ID: 1E415

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 7 Date Analyzed: 04/15/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
71-43-2	benzene	1.9	U	U
108-88-3	toluene	0.69	J	J
100-41-4	ethylbenzene	1.9	U	U
1330-20-7	xylenes (total)	2.9	U	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5P615

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 7 decanted: (Y/N) N Date Extracted: 04/16/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/18/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	358	U
91-58-7	2-chloronaphthalene	358	U
208-96-8	acenaphthylene	358	U
83-32-9	acenaphthene	358	U
86-73-7	fluorene	358	U
85-01-8	phenanthrene	358	U
120-12-7	anthracene	358	U
206-44-0	fluoranthene	358	U
129-00-0	pyrene	358	U
56-55-3	benzo(a)anthracene	358	U
218-01-9	chrysene	358	U
205-99-2	benzo(b)fluoranthene	358	U
207-08-9	benzo(k)fluoranthene	358	U
50-32-8	benzo(a)pyrene	358	U
193-39-5	indeno(1,2,3-cd)pyrene	358	U
53-70-3	dibenz(a,h)anthracene	358	U
191-24-2	benzo(g,h,i)perylene	358	U

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FORM I SV-1 OLM03.0

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-09

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 057F5701

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 7 decanted: (Y/N) N Date Extracted:04/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	1.2	B	U F01, F07

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-09

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F109

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 7 Date Analyzed: 04/19/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	108	U	U

DATA VALIDATION COPY

FORM I VOA

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-10

Sample wt/vol: 5.9 (g/mL) G Lab File ID: 1E416

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 9 Date Analyzed: 04/15/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
71-43-2	benzene	1.9	U	U
108-88-3	toluene	1.9	U	U
100-41-4	ethylbenzene	7.1		=
1330-20-7	xylenes (total)	2.8	U	U

FORM I VOA OLM03.0

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5P616

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 04/16/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/18/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	52.6	J
91-58-7	2-chloronaphthalene	366	U
208-96-8	acenaphthylene	366	U
83-32-9	acenaphthene	366	U
86-73-7	fluorene	366	U
85-01-8	phenanthrene	24.8	J
120-12-7	anthracene	366	U
206-44-0	fluoranthene	366	U
129-00-0	pyrene	366	U
56-55-3	benzo(a)anthracene	366	U
218-01-9	chrysene	366	U
205-99-2	benzo(b)fluoranthene	366	U
207-08-9	benzo(k)fluoranthene	366	U
50-32-8	benzo(a)pyrene	366	U
193-39-5	indeno(1,2,3-cd)pyrene	366	U
53-70-3	dibenz(a,h)anthracene	366	U
191-24-2	benzo(g,h,i)perylene	366	U

J U ↓ J U ↓

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL2103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-10

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 005F0501

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 9 decanted: (Y/N) N Date Extracted:04/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/02/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	3.0	B	= F08

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-10

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F1010

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 9 Date Analyzed: 04/19/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	110	U	U

FORM I VOA

Duplicate

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2113

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-11

Sample wt/vol: 5.7 (g/mL) G Lab File ID: 1E417

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 9 Date Analyzed: 04/15/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
71-43-2	benzene	1.9	U	U
108-88-3	toluene	1.9	U	U
100-41-4	ethylbenzene	4.9		U
1330-20-7	xylenes (total)	2.9	U	U

Duplicate

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2113

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5P617

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 04/16/99

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/18/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	45.6	J
91-58-7	2-chloronaphthalene	366	U
208-96-8	acenaphthylene	366	U
83-32-9	acenaphthene	366	U
86-73-7	fluorene	366	U
85-01-8	phenanthrene	22.6	J
120-12-7	anthracene	366	U
206-44-0	fluoranthene	366	U
129-00-0	pyrene	366	U
56-55-3	benzo(a)anthracene	366	U
218-01-9	chrysene	366	U
205-99-2	benzo(b)fluoranthene	366	U
207-08-9	benzo(k)fluoranthene	366	U
50-32-8	benzo(a)pyrene	366	U
193-39-5	indeno(1,2,3-cd)pyrene	366	U
53-70-3	dibenz(a,h)anthracene	366	U
191-24-2	benzo(g,h,i)perylene	366	U

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FORM I SV-1 OLM03.0

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FORM 1 Science Applications14-APR-1999 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL2113

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-11

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 059F5901

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 9 decanted: (Y/N) N Date Extracted:04/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	3.0	B	= F08

DATA VALIDATION COPY

FORM I SV

Duplicate

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL2113

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F1014

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 9 Date Analyzed: 04/19/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	97.6	J	J

FORM I VOA

DATA VALIDATION

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL3102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-06

Sample wt/vol: 5.5 (g/mL) G Lab File ID: 1E508

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 14 Date Analyzed: 04/16/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	benzene	2.1	U
108-88-3	toluene	2.1	U
100-41-4	ethylbenzene	2.1	U
1330-20-7	xylenes (total)	3.2	U

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL3102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5P613

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 14 decanted: (Y/N) N Date Extracted:04/16/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/18/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	388	U
91-58-7	2-chloronaphthalene	388	U
208-96-8	acenaphthylene	388	U
83-32-9	acenaphthene	388	U
86-73-7	fluorene	388	U
85-01-8	phenanthrene	388	U
120-12-7	anthracene	388	U
206-44-0	fluoranthene	388	U
129-00-0	pyrene	388	U
56-55-3	benzo(a)anthracene	388	U
218-01-9	chrysene	388	U
205-99-2	benzo(b)fluoranthene	388	U
207-08-9	benzo(k)fluoranthene	388	U
50-32-8	benzo(a)pyrene	388	U
193-39-5	indeno(1,2,3-cd)pyrene	388	U
53-70-3	dibenz(a,h)anthracene	388	U
191-24-2	benzo(g,h,i)perylene	388	U

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FORM 1 Science Applications14-APR-1999 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL3102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-06

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 003F0301

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 14 decanted: (Y/N) N Date Extracted:04/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/02/99

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Diesel Range Organics	7.4	B

= FDB

FORM I SV

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL3102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F107

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 14 Date Analyzed: 04/19/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	97.0	J	J

FORM I VOA

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1E406

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 10 Date Analyzed: 04/15/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
71-43-2	benzene	2.2	U	U
108-88-3	toluene	182 ~~171~~ ~~D~~	D	=
100-41-4	ethylbenzene	2.2	U	U
1330-20-7	xylenes (total)	3.3	U	U

MMP 5/10/99

USP

FORM I VOA OLM03.0

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5P614

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 10 decanted: (Y/N) N Date Extracted:04/16/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/18/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	370	U
91-58-7	2-chloronaphthalene	370	U
208-96-8	acenaphthylene	370	U
83-32-9	acenaphthene	370	U
86-73-7	fluorene	370	U
85-01-8	phenanthrene	370	U
120-12-7	anthracene	370	U
206-44-0	fluoranthene	370	U
129-00-0	pyrene	370	U
56-55-3	benzo(a)anthracene	370	U
218-01-9	chrysene	370	U
205-99-2	benzo(b)fluoranthene	370	U
207-08-9	benzo(k)fluoranthene	370	U
50-32-8	benzo(a)pyrene	370	U
193-39-5	indeno(1,2,3-cd)pyrene	370	U
53-70-3	dibenz(a,h)anthracene	370	U
191-24-2	benzo(g,h,i)perylene	370	U

U

FORM 1 Science Applications14-APR-1999 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-07

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 004F0401

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: 10 decanted: (Y/N) N Date Extracted:04/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/02/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	1.0	B	U F01, F07

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST01S

Matrix: (soil/water) SOIL Lab Sample ID: 9904395-07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F108

Level: (low/med) LOW Date Received: 04/14/99

% Moisture: not dec. 10 Date Analyzed: 04/19/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	45.6	J	J

FORM I VOA

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL4102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST02S

Matrix: (soil/water) SOIL Lab Sample ID: 9904479-07

Sample wt/vol: 5.3 (g/mL) G Lab File ID: 1F316

Level: (low/med) LOW Date Received: 04/15/99

% Moisture: not dec. 11 Date Analyzed: 04/21/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
71-43-2	benzene	2.1	U	U
108-88-3	toluene	1.4	J	J
100-41-4	ethylbenzene	2.1	U	U
1330-20-7	xylenes (total)	3.2	U	U

FORM I VOA OLM03.0

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL4102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST02S

Matrix: (soil/water) SOIL Lab Sample ID: 9904479-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5Q415

Level: (low/med) LOW Date Received: 04/15/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 04/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	374	U
91-58-7	2-chloronaphthalene	374	U
208-96-8	acenaphthylene	374	U
83-32-9	acenaphthene	374	U
86-73-7	fluorene	374	U
85-01-8	phenanthrene	374	U
120-12-7	anthracene	374	U
206-44-0	fluoranthene	374	U
129-00-0	pyrene	374	U
56-55-3	benzo(a)anthracene	374	U
218-01-9	chrysene	374	U
205-99-2	benzo(b)fluoranthene	374	U
207-08-9	benzo(k)fluoranthene	374	U
50-32-8	benzo(a)pyrene	374	U
193-39-5	indeno(1,2,3-cd)pyrene	374	U
53-70-3	dibenz(a,h)anthracene	374	U
191-24-2	benzo(g,h,i)perylene	374	U

U

FORM 1 Science Applications15-APR-1999 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BL4102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST02S

Matrix: (soil/water) SOIL Lab Sample ID: 9904479-07

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 007F0701

Level: (low/med) LOW Date Received: 04/15/99

% Moisture: 11 decanted: (Y/N) N Date Extracted:04/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/02/99

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	27.4	B	= F08

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL4102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST02S

Matrix: (soil/water) SOIL Lab Sample ID: 9904479-07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1F1022

Level: (low/med) LOW Date Received: 04/15/99

% Moisture: not dec. 11 Date Analyzed: 04/19/99

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Gasoline Range Organics	149	

FORM I VOA

Client:	Science Applications International Corp. P.O. Box 2502 800 Oak Ridge Turnpike Oak Ridge, Tennessee 37831
Contact:	Ms. Leslie Barbour
Project Description:	Hunter Army Airfield CAP-Part B UST

cc: SAIC00499 Report Date: May 03, 1999

Sample ID	: BL4102
Lab ID	: 9904479-07
Matrix	: Soil
Date Collected	: 04/14/99
Date Received	: 04/15/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
Total Rec. Petro. Hydrocarbons		109 =	22.2	44.8	mg/kg	1.0	AAT	05/02/99	1000	147917	1
Evaporative Loss @ 105 C		11.0 =	1.00	1.00	wt%	1.0	GJ	04/20/99	1515	147094	2

M = Method	Method-Description
M 1	EPA 418.1 Modified
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

Data reported in mass/mass units is reported as 'dry weight'.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis at (843) 769-7391.

Reviewed By

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL4103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST02S

Matrix: (soil/water) SOIL Lab Sample ID: 9904479-08

Sample wt/vol: 5.4 (g/mL) G Lab File ID: 1F317

Level: (low/med) LOW Date Received: 04/15/99

% Moisture: not dec. 11 Date Analyzed: 04/21/99

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(ml) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
71-43-2	benzene	2.1	U	U
108-88-3	toluene	2.1	U	
100-41-4	ethylbenzene	2.1	U	
1330-20-7	xylenes (total)	3.1	U	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BL4103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HBUST02S

Matrix: (soil/water) SOIL Lab Sample ID: 9904479-08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5Q416

Level: (low/med) LOW Date Received: 04/15/99

% Moisture: 11 decanted: (Y/N) N Date Extracted: 04/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	374	U
91-58-7	2-chloronaphthalene	374	U
208-96-8	acenaphthylene	374	U
83-32-9	acenaphthene	374	U
86-73-7	fluorene	374	U
85-01-8	phenanthrene	374	U
120-12-7	anthracene	374	U
206-44-0	fluoranthene	374	U
129-00-0	pyrene	374	U
56-55-3	benzo(a)anthracene	374	U
218-01-9	chrysene	374	U
205-99-2	benzo(b)fluoranthene	374	U
207-08-9	benzo(k)fluoranthene	374	U
50-32-8	benzo(a)pyrene	374	U
193-39-5	indeno(1,2,3-cd)pyrene	374	U
53-70-3	dibenz(a,h)anthracene	374	U
191-24-2	benzo(g,h,i)perylene	374	U