FINAL

CORRECTIVE ACTION PLAN – PART B
UNDERGROUND STORAGE TANKS 48 & 49
FACILITY ID: 9-089054
BUILDING 1175
FORT STEWART, GEORGIA

Prepared for:
U.S. Army Corps of Engineers
Savannah District
Under Contract Number DACA21-95-D-022
Delivery Order No. 0035

Prepared by:
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January 2000

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List of Abbreviations and Acronyms

ACE	Anderson Columbia Environmental, Inc.
ACL	alternate concentration limit
ARAR	applicable, relevant, and appropriate requirement
ASTM	American Society for Testing and Materials
ATL	alternate threshold level
AT123D	Analytical Transient 1-,2-,3-Dimensional Model
BGS	below ground surface
BTEX	benzene, ethylbenzene, toluene, and total xylenes
CAP	Corrective Action Plan
COPC	chemical of potential concern
DAF	dilution attenuation factor
DPW	Directorate of Public Works
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
FSMR	Fort Stewart Military Reservation
GA EPD	Georgia Environmental Protection Division
GRO	gasoline range organics
GUST	Georgia Underground Storage Tank Management Program
ISC	Initial Site Characterization
IWQS	In-stream Water Quality Standard
MCL	Maximum Contaminant Level
NGVD	National Geodetic Vertical Datum
PAH	polynuclear aromatic hydrocarbon
PVC	polyvinyl chloride
QC	quality control
SAIC	Science Applications International Corporation
SI	Site Investigation
STL	soil threshold level
TPH	total petroleum hydrocarbons
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
UST	underground storage tank
USTMP	Underground Storage Tank Management Program
VOC	volatile organic compound

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
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CORRECTIVE ACTION PLAN
PART B

Facility Name: Building 1175, USTs 48 & 49 Site

Street Address: Tilman Avenue and West 4th Street

City: Fort Stewart **County:** Liberty

Facility ID #: 9-089054

Submitted by UST Owner/Operator:

Name: Thomas C. Fry/Environmental Branch
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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

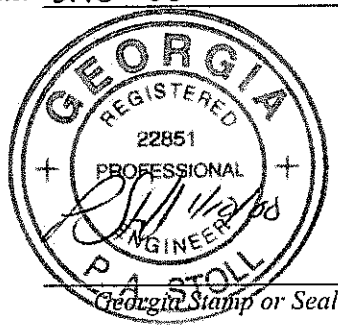
Signature: Thomas C. Fry Date: 01/31/00

B. Professional Engineer or Professional Geologist

Name: Patricia Stoll

Signature: Patricia A Stoll

Date: 1/10/00



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 6)
  - ☒ Potentiometric Map (Figures 17 and 18)
  - ☒ Flow Net Superimposed on a Base Map (Figure 19)

III. REMEDIAL ACTION PLAN:

A. Corrective Action Completed or In-Progress:

- ☐ Recovery/Removal of Free-Product (Non-aqueous Phase Hydrocarbons)
- ☐ Remediation/Treatment of Contaminated Backfill Material & 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)

☒ Provide Risk-Based Corrective Action (Reference CAP B App. VI) (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

OR

☒ No Further Action Required - Soil and/or Groundwater Contamination is Below Levels in Rule -.09 (3)

C. Design 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 represents the Site Investigation (SI) Report for the former underground storage tanks (USTs) 48 & 49, Facility ID No. 9-089054, located near Building 1175 at Fort Stewart, Georgia. This Corrective Action Plan (CAP)-Part B report follows the guidance published by Georgia Environmental Protection Division (GA EPD) in February 1995, however, the organization of the appendices for this report mirrors the appendices listed in the CAP-Part A template issued by GA EPD in May 1998. Report figures and tables are located in Appendices I and II, respectively.

The USTs 48 & 49 site is located in the motorpool of the DOL Maintenance at the intersection of Tilman Avenue and West 4th Street, as illustrated in Figure 1. The USTs 48 & 49 site is located within an average or higher groundwater pollution susceptibility area and is greater than 500 feet from a withdrawal point and less than 500 feet to a surface water body. Since public water supply wells exist within 2 miles of the site as defined in Georgia Underground Storage Tank (GUST) Management Rule 391-5-15-.09, the appropriate soil threshold levels (STLs) are those presented in Table A, Column 2 of GUST Rules 391-5-15. According to operational information maintained by the Fort Stewart Directorate of Public Works (DPW), UST 48 had a capacity of 5,000 gallons and was used for storing gasoline and UST 49 had a capacity of 5,000 gallons and was used for storing diesel. The tanks were constructed of fiberglass-reinforced plastic and the associated piping was galvanized steel. The tanks and piping were installed on or about January 1, 1983. The tanks were excavated and removed on March 22, 1995. The piping was closed in-place due to the overlying 10 to 12 inches of high strength concrete.

Anderson Columbia Environmental, Inc. (ACE) performed the Initial Site Characterization (ISC) in March 1995. The ISC consisted of the tank removal and collecting 11 soil samples from the tank pit, along the piping, and at the dispenser island. The samples were analyzed for benzene, toluene, ethylbenzene, and xylenes, (BTEX) polyaromatic hydrocarbons (PAHs), and total petroleum hydrcarbons (TPH), TPH-diesel range organics (DRO), and/or TPH-gasoline range organics (GRO). Two groundwater samples were collected from the tank pit and analyzed for BTEX and/or PAHs. During UST removal and excavation activities in 1995, toluene, ethylbenzene, xylenes, and several PAH compounds were present in soil samples at concentrations below the applicable GUST STLs (Table 1) (ACE 1995). However, elevated concentrations of TPH were observed in the soil from the tank pit and the detection limits for benzene exceeded the applicable STL (i.e., Table A, Column 2). In addition, a groundwater sample collected from the excavation contained toluene, ethylbenzene, xylenes, and naphthalene, but at concentrations below their respective Georgia In-Stream Water Quality Standards (IWQS). In 1997, additional closure sampling was conducted in the former tank pit, along the piping, and at the former dispenser island. BTEX, TPH-DRO, and TPH-GRO were not detected in the soil samples collected along the piping and at the former dispensers. However, benzene was detected in a soil sample from the former UST 48 tank pit that exceeded its respective STL. A groundwater sample collected from the former UST 49 tank pit contained concentrations of BTEX; however, only the benzene concentration exceeded the Georgia IWQS.

Following the ISC, the CAP-Part A SI was conducted in 1998 by Science Applications International Corporation (SAIC). The CAP-Part A SI consisted of drilling five soil borings; collecting soil samples for BTEX, PAHs, TPH-DRO, TPH-GRO, and volatile organic compound (VOC) headspace analysis; installing piezometers for groundwater sampling, water level measurements, and detection of free product; collecting groundwater samples for BTEX and PAH analysis; and conducting a survey of public and non-public drinking water supplies within a 2.0- and 0.5-mile radius of the site. The CAP-Part A Report (SAIC 1998) was submitted to GA EPD, Underground Storage Tank Management Program (USTMP) in December 1998, describing the results of the ISC and the CAP-Part A SI. A CAP-Part B SI was determined to be necessary to define the extent of identified groundwater contamination and to collect additional hydrologic and geologic

information. The SI Plan provided in the CAP-Part A Report described the technical approach for the SI and was approved by GA EPD in correspondence dated May 4, 1999 (McAllister 1999).

The CAP-Part B SI was conducted in 1999 by SAIC. The CAP-Part B SI was performed in accordance with the technical approach described in the SI Plan and the requirements of the *Work Plan for Preliminary Groundwater and Corrective Action Plan – Part A/Part B Investigations at Former Underground Storage Tank Sites, Fort Stewart, Georgia* (SAIC 1996). The CAP-Part B SI field activities included drilling seven monitoring well borings for soil and groundwater sampling, water level measurement, and slug testing; collecting soil samples from monitoring wells for BTEX, PAH, TPH-DRO, TPH-GRO, VOC headspace, and geotechnical analysis; collecting groundwater samples for BTEX and PAH analysis; performing rising head slug tests; and collecting a comprehensive round of site water level measurements. The CAP-Part B SI soil and groundwater analytical laboratory results are included in Appendices V and VIII, respectively, of this document. This SI Report presents the findings of the CAP-Part B investigation.

The CAP-Part B for USTs 48 & 49 was performed for Fort Stewart, DPW, Environmental Branch, through the U.S. Army Corps of Engineers (USACE), Savannah District, by SAIC, in February and September/October 1999, under contract DACA21-95-D-022, delivery order 0035.

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.

II.A.1. Delineation of Soil Contamination

Petroleum-related contaminants detected in soil at the USTs 48 & 49 site during the ISC, CAP-Part A SI, and CAP-Part B SI included BTEX, 2-methylnaphthalene, anthracene, acenaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. These constituents were present in 5 of 11 soil samples collected during the ISC and 12 of the 26 soil samples collected during the CAP-Part A and CAP-Part B investigations. The constituents were present in low concentrations in the boreholes surrounding the tank pit. However, only soil samples collected during the ISC contained benzene concentrations in excess of applicable GUST STLs (i.e., Table A, Column 2).

II.A.1.a. Contaminant concentrations

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

During the ISC, four soil samples were collected from the walls of the tank pit excavation in 1995. Seven additional soil samples were collected along the piping and at the former dispenser island in 1997. Soil analytical data from the tank removal sampling indicated that the soil from the tank pit contained concentrations of BTEX and numerous PAH constituents (Table 1). Benzene exceeded the applicable STL (i.e., Table A, Column 2) in one sample and two samples contained benzene detection limits that exceeded the applicable STL. GUST Rule 391-3-15-.09(3) (i.e., Table A, Column 2) does not provide any STLs for the PAH compounds.

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

During the Part A SI, 14 soil samples were collected for geochemical analysis from 4 shallow soil borings and 1 vertical profile boring presented in Figure 2. Analytical results are presented in Table 2 and sample locations

are presented in Figure 3. In May 1998, four shallow soil borings were drilled around the former tank pit to depths of 8.0 to 10.0 feet below ground surface (BGS). The vertical profile boring (79-05) was drilled to 34.0 feet BGS to determine the vertical extent of groundwater contamination through soil sampling. Field screening methods were used during drilling to select soil samples for geochemical analysis.

Seven of the 14 soil samples collected had detectable levels of toluene, and 1 of the 14 soil samples collected had estimated levels of ethylbenzene and xylenes. Benzene was not present in any of the 14 soil samples collected during the CAP-Part A SI. Numerous PAH compounds were detected in 10 of the 14 soil samples as indicated in Table 2. Analytical results for soil sampling are presented in the plan view in Figure 4 and the results exceeding applicable GUST STLs are presented in the cross-sections in Figure 4. None of the BTEX or PAH concentrations observed during the CAP-Part A SI exceeded the applicable GUST STLs (i.e., Table A, Column 2). Benzo(a)pyrene exceeded the risk-based screening level in one soil sample; however, there is no GUST STL for this compound. The remaining soil samples were below the analytical detection limits achieved during the CAP-Part A SI.

The detection limits for soil sample analyses during the CAP-Part A SI were 0.0022 to 0.0049 mg/kg for BTEX constituents and 0.358 to 0.434 mg/kg for PAH constituents.

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

During the CAP-Part B SI, 12 soil samples were collected for geochemical analysis from 6 of the 7 borings presented in Figure 2. Monitoring well 79-12 was installed outside the area of soil contamination in September 1999 for the sole purpose of monitoring the groundwater, and as such, no soil samples were collected. Analytical results are presented in Table 2 and sample locations are presented in Figure 3. These samples were collected in accordance with the technical approach presented in the SI Plan of the CAP-Part A Report, which was approved by GA EPD in correspondence dated May 4, 1999 (McAllister 1999). The CAP-Part B SI soil borings were drilled to 15.0 feet BGS. All seven of the soil borings were converted to monitoring wells to delineate the extent of contamination. Field screening methods were used during drilling to select soil samples for geochemical analysis.

Benzene was detected in sample 790711 at 0.0034 mg/kg, toluene was detected in sample 790621 at 0.00083J mg/kg, ethylbenzene was detected in sample 790821 at 0.00018J mg/kg, and xylenes were detected in sample 790621 at 0.001J mg/kg. Numerous PAH constituents were detected in samples 790811 and 790821 as indicated in Table 2. Analytical results are shown in plan view in Figure 5 and the results exceeding applicable GUST STLs are presented in the cross-sections in Figure 5. None of the BTEX or PAH concentrations observed during the CAP-Part B SI exceeded the applicable GUST STLs (i.e., Table A, Column 2).

The detection limits for soil samples during the CAP-Part B SI ranged from 0.0018 to 0.0026 mg/kg for BTEX constituents and 0.358 to 0.444 mg/kg for PAH constituents.

II.A.1.b. Field screening results

Field screening through VOC headspace was performed during drilling for soil collected during the CAP-Part A SI and CAP-Part B SI. For each 4- or 5-foot interval drilled, two 2.0- or 2.5-foot soil grab samples were collected into glass jars and covered with aluminum foil. This sample corresponded to potential analytical sample aliquots collected from the same interval. After allowing at least 15 minutes for volatilization and temperature equilibration, headspace VOC concentration was measured with a photoionization detector to quantify the VOCs present. Table 3 presents the field screening results for the CAP-Part A SI and CAP-Part B SI. In cases where no contamination was detected by field headspace gas analysis in any of the borehole intervals, two soil

samples were sent for chemical analyses: one from the interval nearest to the midpoint between the ground surface and the water table and one from the interval above the water table. In cases where contamination was detected by field headspace gas analysis in one or more of the borehole intervals, two soil samples were sent for chemical analyses: one from the interval with the highest detected organic vapor concentration, and one from the interval with the lowest detected organic vapor concentration.

II.A.2. Delineation of Groundwater Contamination

Petroleum-related contaminants detected in groundwater at the USTs 48 & 49 site during the ISC, CAP-Part A SI, and CAP-Part B SI included benzene, ethylbenzene, toluene, total xylenes, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, and pyrene. These constituents were present in 9 of the 11 groundwater samples collected during the CAP-Part A and CAP-Part B investigations. However, all of the PAH concentrations, except for naphthalene, were estimated to be present at concentrations below the analytical reporting limits. Two samples collected during the CAP-Part A SI exceeded the Georgia IWQS of 71.28 µg/L for benzene. Other constituents detected were all below applicable regulatory threshold values. Concentrations of BTEX, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene in groundwater exceeded their respective risk-based screening criteria. Alternate concentration limits (ACLs) based on fate and transport modeling were developed for these compounds in the USTs 48 & 49 site Remedial Action Plan (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 was collected from the tank pit in 1995, which contained concentrations of toluene, ethylbenzene, xylenes, and naphthalene (Table 1); however, the concentrations were below applicable IWQS. The detection limit for benzene in this sample was elevated at 100 µg/L. Another groundwater sample was collected in 1997 during investigation of the piping and former dispenser island. This sample contained elevated BTEX concentrations, and the benzene concentration exceeded the IWQS.

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

During the CAP-Part A SI, four groundwater samples were collected for geochemical analysis from four temporary piezometers as presented in Table 4. The temporary piezometers (79-01 through 79-04) were located around the perimeter of the former tank pit and were screened from ground surface to the total depth of the borehole.

Benzene was identified above analytical reporting limits in the four groundwater samples during the CAP-Part A SI. Samples 790112, 790212, 790312, and 790412 contained 940 µg/L, 188 µg/L, 5.7 µg/L, and 7.6 µg/L of benzene, respectively, as illustrated in plan view and cross-section on Figure 6. The concentrations 790112 and 790212 were above the Georgia IWQS of 71.28 µg/L. All four detected concentrations exceed the federal maximum contaminant level (MCL) of 5 µg/L and the risk-based screening level of 0.36 µg/L. The concentrations were below the site ACL for benzene of 22,310 µg/L (Appendix VI). The analytical detection limit for benzene was 5 µg/L in all samples.

Toluene was identified above analytical detection limits in the four groundwater samples during the CAP-Part A SI. Samples 790112, 790212, 790312, and 790412 contained 15,300 µg/L, 196 µg/L, 39.5 µg/L, and 37.9 µg/L of toluene as illustrated in plan view and cross-section on Figure 7. The concentrations do not exceed the Georgia IWQS of 200,000 µg/L. The concentration in 790112 exceeds the federal MCL of 1,000 µg/L and

the risk-based screening level of 750 µg/L. The concentrations are below the site ACL for toluene of 62,600,000 µg/L (Appendix VI). The analytical detection limit for toluene was 5 µg/L in all samples.

Ethylbenzene was identified above the analytical reporting limit in the four groundwater samples during the CAP-Part A SI. Samples 790112, 790212, 790312, and 790412 contained 3,980 µg/L, 197 µg/L, 10.3 µg/L, and 8.1 µg/L of ethylbenzene, respectively, as illustrated in plan view and cross-section on Figure 8. The concentrations do not exceed the Georgia IWQS of 28,718 µg/L. The concentration in 790112 exceeds the federal MCL of 700 µg/L and the risk-based screening level of 1,300 µg/L. The concentrations are below the site ACL for ethylbenzene of 8,988,000 µg/L (Appendix VI). The analytical detection limit for ethylbenzene was 5 µg/L in all samples.

Total xylenes were identified above analytical reporting limits in the four groundwater samples during the CAP-Part A SI. Samples 790112, 790212, 790312, and 790412 contained 23,800J µg/L, 1,140 µg/L, 49.2 µg/L, and 27.7 µg/L of xylenes, respectively, as illustrated in plan view and cross-section on Figure 9. There is no Georgia IWQS for xylene. The concentration in 790112 exceeds the federal MCL of 10,000 µg/L and the risk-based screening level of 12,000 µg/L. The concentrations are below the site ACL for xylenes of 3,756,000 µg/L (Appendix VI). The analytical detection limit for xylenes was 5 µg/L in all samples.

Several PAH compounds were estimated at concentrations below the analytical reporting limit of 20 µg/L in the groundwater samples. The compounds include benzo(b)fluoranthene, fluoranthene, and pyrene.

Naphthalene was identified above analytical detection limits in two groundwater samples during the CAP-Part A SI. Samples 790112 and 790212 contained 616 µg/L and 46 µg/L of naphthalene, respectively, as illustrated in plan view and cross-section on Figure 10. 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. The concentrations are below the site ACL for naphthalene of 2,304 µg/L (Appendix VI). The analytical detection limits for naphthalene were at or below 20 µg/L.

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

During the CAP-Part B SI, seven groundwater samples were collected for geochemical analysis from seven groundwater monitoring wells as presented in Table 4. The groundwater monitoring wells (79-06, 79-07, 79-08, 79-09, 79-10, 79-11) were installed in March 1999 and drilled between 11.0 and 15.0 feet BGS. Monitoring well 79-08 is located in the area of highest CAP-Part A contamination; monitoring wells 79-06, 79-07, 79-09, 79-10, and 79-11 surround the perimeter of the plume. Monitoring well and soil boring locations are presented in Figure 2. Upon review of the analytical data collected in March 1999, one of the perimeter borings (79-09) contained elevated benzene concentrations; thus, boring 79-12 was installed in September 1999 to determine the horizontal extent of contamination

Benzene was identified above analytical reporting limits in one groundwater sample and estimated below the analytical reporting limit in three groundwater samples during the CAP-Part B SI. Samples 790612, 790712, 790812, and 790912 contained 0.51J µg/L, 1.3J µg/L, 1.8J µg/L, and 16.8 µg/L of benzene, respectively, as illustrated in plan view and cross-section on Figure 11. The concentrations were not above the Georgia IWQS of 71.28 µg/L, but the concentration in 790912 exceeds the federal MCL of 5µg/L. All four detected concentrations exceed the risk-based screening level of 0.36 µg/L. The concentrations in all samples were below the site ACL for benzene of 22,310 µg/L (Appendix VI). The analytical detection limit for benzene was 2 µg/L in all samples.

Toluene was identified above analytical reporting limits in three groundwater samples and estimated below the analytical reporting limit in one groundwater sample during the CAP-Part B SI. Samples 790612, 790712, 790812, and 790912 contained 3.3 µg/L, 3.3 µg/L, 5.9 µg/L, and 1.5J µg/L of toluene, respectively, as illustrated in plan view and cross-section on Figure 12. The concentrations do not exceed the Georgia IWQS of 200,000 µg/L, the federal MCL of 1,000 µg/L, and the risk-based screening level of 750 µg/L. The concentrations are below the site ACL for toluene of 62,600,000 µg/L (Appendix VI). The analytical detection limit for toluene was 2 µg/L.

Ethylbenzene was estimated below the analytical reporting limits in two groundwater samples during the CAP-Part B SI. Samples 790612 and 790812 contained estimated concentrations of 1.1J µg/L and 1.1J µg/L of ethylbenzene, respectively, as illustrated in plan view and cross-section on Figure 13. The concentrations do not exceed the Georgia IWQS of 28,718 µg/L, the federal MCL of 700 µg/L, and the risk-based screening level of 1,300 µg/L. The concentrations are below the site ACL for ethylbenzene of 8,988,000 µg/L (Appendix VI). The analytical detection limit for ethylbenzene was 2 µg/L.

Total xylenes were identified above analytical reporting limits in two groundwater samples and estimated below analytical reporting limits in two groundwater samples during the CAP-Part B SI. Samples 790612, 790712, 790812, and 790912 contained 6.8 µg/L, 1.1J µg/L, 6.5 µg/L, and 2.3J µg/L of total xylenes, respectively, as illustrated in plan view and cross-section on Figure 14. This compound does not have a Georgia IWQS. The concentrations were below the federal MCL of 10,000 µg/L, below the risk-based screening level of 12,000 µg/L, and below the site ACL for xylenes of 3,756,000 µg/L (Appendix VI). The analytical detection limits for total xylenes were below 4 µg/L.

Several PAH compounds were estimated at concentrations below the analytical reporting limit of 11.1 µg/L in the groundwater sample from 79-12. The compounds include benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene.

Naphthalene was not identified above analytical detection limits in any of the groundwater samples during the CAP-Part B SI as illustrated in plan view and cross-section on Figure 15. This compound does not have a federal MCL or Georgia IWQS, but the detection limits were below the risk-based screening level of 2,034 µg/L. The analytical detection limits for naphthalene were at or below 11.1 µg/L.

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

Figures 6 through 15 demonstrate that the horizontal extent of petroleum contaminants in groundwater has been delineated to its respective analytical detection limit. The horizontal extent of these constituents has been estimated based on nearby concentrations and the distribution of similar contaminants.

Petroleum contaminants identified in groundwater at the USTs 48 & 49 site include BTEX constituents normally associated with diesel and gasoline releases as well as PAH constituents, which likely represent less soluble biodegradation products of the release. The USTs 48 & 49 site is a likely candidate for natural attenuation since the source of the contamination has been removed, the size of the plume has not expanded to the outer perimeter of monitoring wells installed at the site, and the maximum observed concentrations decreased substantially between the CAP-Part A and CAP-Part B investigations. There is no groundwater contamination in downgradient wells 79-10 and 79-12, located approximately 120 feet from the former tank pit, thus indicating that the residual contamination is being degraded before it reaches the downgradient wells. Site groundwater flow and the geology are conducive to aerobic biodegradation, which is known to produce the most rapid biodegradation rates for hydrocarbons.

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 was delineated through soil sampling below the water table per GUST technical direction. Soil boring 79-05 was advanced below the water table and soil samples were collected from 2 to 4, 4 to 6, 10 to 12, 16 to 18, 24 to 26, 30 to 32, and 32 to 34 feet BGS. Drilling was stopped after several 2.0 foot sample intervals contained headspace readings of zero. The Hawthorn Formation was not encountered during drilling of boring 79-05, but is estimated to be located within 6 to 10 feet of the bottom of this boring. Since the 30 to 32 and 32 to 34 foot sample intervals did not indicate the presence of BTEX or PAH constituents, the vertical extent of groundwater contamination has been determined and is limited to the surficial aquifer (i.e., <30 feet BGS).

II.A.3. Delineation of Free Product Plume

No free product has been identified at the USTs 48 & 49 site during the ISC, CAP-Part A SI, or CAP-Part B SI.

II.A.4. Delineation of Surface Water Contamination

No surface water contamination has been identified or reported in association with the USTs 48 & 49 site. The nearest surface water bodies, which are potential groundwater discharge receptors, are a drainage ditch located approximately 400 feet west of the site and Mill Creek located approximately 3,000 feet west of the site (Figure 16). Due to the distance to the surface water bodies, the absence of any known impact, and the potential for other sources of petroleum contamination within the watershed, no surface water sampling has been conducted.

II.B. LOCAL AND SITE HYDROGEOLOGY

Discussion of the local and site hydrogeology is based on field observations and investigative activities performed during the ISC, CAP-Part A SI, and CAP-Part B SI of the USTs 48 & 49 site.

II.B.1. Documentation of Local Groundwater Conditions

II.B.1.a. Groundwater usage

According to the Groundwater Pollution Susceptibility Map of Georgia (GA EPD 1992), USTs 48 & 49, Facility ID #9-089054 is located within an average or higher groundwater pollution susceptibility area. A total of seven groundwater supply wells are located within a 2-mile radius of the Fort Stewart garrison area. Six of these wells are located within the confines of the garrison area. The other well is located at Wright Army Airfield, approximately 1.2 miles northeast of the garrison area. All of the groundwater supply wells are classified as public wells that supply water to Fort Stewart for drinking and nondrinking purposes. These wells are approximately 450 feet deep and draw groundwater from the Principal Artesian (also known as the Floridan) aquifer. Chlorine and fluoride are added into the groundwater at the well heads prior to being pumped into storage tanks and/or water towers, according to Fort Stewart DPW personnel. The location of these wells, along with a 500-foot radius drawn around each well, is shown in Figure 16. Based on the location of Facility ID #9-089054 relative to the identified groundwater supply wells, this site is classified as being located greater than 500 feet to a withdrawal point.

II.B.1.b. Aquifer description

The hydrogeology in the vicinity of Fort Stewart is dominated by two aquifers referred to as the Principal Artesian and the surficial aquifers. The Principal Artesian aquifer is the lowermost hydrologic unit and is regionally extensive from South Carolina through Georgia, Alabama, and most of Florida. Known elsewhere as the Floridan, this aquifer is composed primarily of Tertiary-age limestone, including the Bug Island Formation, the Ocala Group, and the Suwannee Limestone. These formations are approximately 800 feet thick, and groundwater from this aquifer is used primarily for drinking water (Arora 1984).

The uppermost hydrologic unit is the surficial aquifer, which consists of widely varying amounts of sand and clay ranging from 55 to 150 feet in thickness. This aquifer is primarily used for domestic lawn and agricultural irrigation. The top of the water table ranges from approximately 2 to 10 feet BGS. The base of the aquifer corresponds to the top of the underlying dense clay of the Hawthorn Group. The Hawthorn Group was not encountered during drilling at this site but is believed to be located at 40 to 50 feet BGS; thus, the effective aquifer thickness would be approximately 35 to 45 feet. Soil surveys for Liberty and Long Counties describe the occurrence of a perched water table within the Stilson loamy sands present within Fort Stewart (Looper 1980).

The confining layer for the Principal Artesian aquifer is the phosphatic clay of the Hawthorn Group and ranges in thickness from 15 to 90 feet. The vertical hydraulic conductivity of this confining unit is on the order of 10^{-8} cm/sec. There are minor occurrences of aquifer material within the Hawthorn Group; however, they have limited utilization (Miller 1990). The Hawthorn Group has been divided into three formations: Coosawhatchie Formation, Markshead Formation, and the Parachula Formation, which are listed from youngest to oldest.

The Coosawhatchie Formation is composed predominantly of clay but also has sandy clay, argillaceous sand, and phosphorite units. The formation is approximately 170 feet thick in the Savannah, Georgia, area. This unit disconformabily overlies the Markshead Formation and is distinguished from the underlying unit by dark phosphatic clays or phosphorite in the lower part and fine-grained sand in the upper part.

The Markshead Formation is approximately 70 feet thick in the Savannah, Georgia, area and consists of light-colored phosphatic, slightly dolomitic, argillacerous sand to fine-grained sandy clay with scattered beds of dolostone and limestone.

The Parachula Formation consists of sand, clay, limestone, and dolomite, and is approximately 10 feet thick in the Savannah, Georgia, area. The Parachula Formation generally overlies the Suwannee Limestone in Georgia.

II.B.1.c. Surface water

The water resources survey conducted during the CAP-Part A SI is presented in Appendix III. Several surface water bodies are located within a 1-mile radius of the Fort Stewart garrison area and are shown in Figure 16. In the direction of groundwater flow, a drainage ditch is located approximately 400 feet west of the site, and Mill Creek is located approximately 3,000 feet west of the site. Based on the surface water features discussed in Appendix III, the USTs 48 & 49 site, Facility ID #9-089054, is classified as being located less than 500 feet to a surface water body.

Run-off from the USTs 48 & 49 site moves over the existing concrete and asphalt cover to the Fort Stewart storm water drainage system. Since petroleum contamination at the site primarily impacts groundwater, the surface water run-off pathway is not a viable contaminant transport mechanism because of the concrete acting as a barrier and the location of the nearest surface water body.

There are underground utilities at the site that could act as potential preferential pathways for contaminant migration. A storm water drain is located approximately 115 feet west (i.e., downgradient) of the site. The invert depth of this line is 3.6 feet BGS or an elevation of 79.65 feet AMSL. The groundwater elevation downgradient of the tank pit is approximately 78.0 feet AMSL and is lower than groundwater elevation near the former tank pit. Thus, the invert of the storm water drain was approximately 1.5 feet above the water table in October 1999. The October 1999 groundwater measurements were the highest observed at the site during the CAP-Part A and CAP-Part B investigations. In addition to the downgradient utility, there are two utilities, an industrial wastewater line and storm drain, located approximately 40 feet east (i.e., upgradient) of the former tank pit.

II.B.2. Stratigraphic Boring Logs

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

II.B.2.a. Local stratigraphy

Fort Stewart is located within the coastal plain physiographic province. This province is typified by nine southeastward dipping strata that increase in thickness from 0 feet at the fall line located approximately 150 miles inland from the Atlantic coast, to approximately 4,200 feet at the coast. State geologic records describe a probable petroleum exploration well (the No. 1 Jelks-Rogers) located in the region as encountering crystalline basement rocks at a depth of 4,254 feet BGS. This well provides the most complete record for Cretaceous, Tertiary, and Quaternary sedimentary strata in the region.

The Cretaceous section was found to be approximately 1,970 feet thick and dominated by clastics. The Tertiary section was found to be approximately 2,170 feet thick and dominated by limestone with a 175-foot-thick cap of dark green phosphatic clay. This clay is regionally extensive and is known as the Hawthorn Group. The interval from approximately 110 feet to the surface is Quaternary in age and composed primarily of sand with interbeds of clay or silt. This section is undifferentiated into separate formations (Herrick and Vochis 1963).

State geologic records contain information regarding a well drilled in October 1942, 1.8 miles north of Flemington at Liberty Field of Camp Stewart (now known as Fort Stewart). This well is believed to be an artesian well located approximately one-quarter mile north of the runway at Wright Army Airfield within the Fort Stewart Military Reservation (FSMR). The log for this well describes a 410-foot section, the lowermost 110 feet of which consisted predominantly of limestone sediments, above which 245 feet of dark green phosphatic clay typical of the Hawthorn Group was encountered. The uppermost portion of the section was found to be Quaternary-age interbedded sands and clays. The top 15 feet of these sediments were described as sandy clay (Herrick and Vochis 1963).

The surface soil located throughout the Fort Stewart garrison area consists of Stilson loamy sand. The surface layer of this soil is typically dark grayish-brown loamy sand measuring approximately 6 inches in depth. The surface layer is underlain by material consisting of pale yellow loamy sand and extends to a depth of approximately 29 inches. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more (Herrick and Vochis 1963).

II.B.2.b. Site stratigraphy

As determined from soil borings drilled during the CAP-Part A SI and CAP-Part B SI, the lithologies present within 15 feet of the surface at the USTs 48 & 49 site appear to correlate with the regional stratigraphic section. CAP-Part B SI soil boring logs are located in Appendix IV. The lithology underlying the study area consists of interbedded layers of sand with varying amounts of silt and clay.

II.B.3. Stratigraphic Cross-Sections

Stratigraphic cross-sections have been developed based on the CAP-Part A SI and CAP-Part B SI soil boring logs. Figure 3 presents a west/east cross-section (A-A'), a north/south (B-B') cross-section, a and northwest/southeast (C-C') cross-section and illustrates the geology described in Section II.B.2.b.

II.B.4. Referenced or Documented Calculations

Referenced or documented calculations performed to support the CAP-Part B SI include those used in developing and interpreting the results of geotechnical analysis and groundwater slug testing.

II.B.4.a. Geotechnical analysis

Disturbed soil samples were collected from soil borings 79-06, 79-07, 79-08, 79-09, 79-10, and 79-11 in order to determine selected engineering properties of the saturated zone underlying the USTs 48 & 49 site. In addition, an undisturbed soil sample was collected from soil boring 79-03. The engineering properties measured included Unified Soil Classification System (USCS) classification, grain size, moisture content, Atterberg limits, porosity, specific gravity, and permeability, as presented in Table 5 and Attachment A.1. The methods used for performing the geotechnical analyses were American Society for Testing and Materials (ASTM) D 422 (grain size distribution), ASTM D 2216 (moisture content), ASTM D 4318 (Atterberg Limits), ASTM D 5084 (permeability), and EM 1110-2-1906 (specific gravity and porosity).

II.B.4.b. Slug testing

A rising head slug test was conducted in monitoring well 79-11 to obtain a value for the hydraulic conductivity of the water bearing zone (Attachment A.2). A Troll data logger was used to obtain accurate results during the slug tests, and the results were analyzed using the Bouwer and Rice Method (Bouwer and Rice 1976).

Due to the high conductivity of the formation, the water level recovered to static within approximately one minute after removal of the slug. As a result, the initial portion of the drawdown-time curve was used to estimate the conductivity value. The calculated value for hydraulic conductivity obtained from the slug test was 4.50×10^{-3} cm/sec (Attachment A.2).

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 5.0 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 height above the screen, and thickness of the bentonite seal were modified in the field.

Monitoring well casing consisted of 3/4-inch or 2-inch inside diameter schedule 40 flush-thread polyvinyl chloride (PVC) risers and screens in 5- and 10-foot sections. The well screen slot size was 0.010 inches. Table 6 summarizes construction details for CAP-Part A SI temporary piezometers and CAP-Part B SI monitoring wells. Well construction diagrams are presented in Appendix VII. Following installation of the well casing, filter pack sand was poured while the 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 0.5 feet above the top of the well screen.

Well seals were composed of 3/8-inch bentonite pellets and allowed to hydrate before filling the annular space above the seal. The total volume of potable water used to hydrate the pellets averaged 2 gallons per well. The well seal extended to a measured level of at least 0.5 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 with a 14-inch-diameter × 4-inch-thick, high-strength concrete pad. 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 during the CAP-Part A SI 24 hours after piezometer installation in May 1998 and during CAP-Part B SI groundwater sampling activities in March 1999 and October 1999. Data obtained from these measurements are presented in Table 7. During the Part A SI in 1998, groundwater flowed to the northwest with a gradient of 0.0063 foot/foot. Placement of wells 79-06 through 79-12 was in and around the area of highest CAP-Part A contamination. CAP-Part B SI data were used to construct groundwater potentiometric surface maps for March 1999 and October 1999 (Figures 17 and 18). During the CAP-Part B SI in October 1999, groundwater flowed to the west with a gradient of 0.0137 foot/foot.

II.B.5.c. Equipotential flow net

An equipotential flow net based on the October 1999 water level measurements and the contoured potentiometric surface is presented in Figure 19.

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III. REMEDIAL ACTION PLAN

III.A. CORRECTIVE ACTION COMPLETED OR IN PROGRESS

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

No evidence of free product has been identified at the USTs 48 & 49 site; therefore, no recovery/removal of free product has been performed.

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

The former UST 48 was a 5,000-gallon gasoline tank and former UST 49 was a 5,000-gallon diesel tank. USTs 48 & 49 were removed in March 1995 and were in service for approximately 12 years. The UST, along with soil, was excavated and removed from the site. Notification letters, a Closure Report Form (GUST-29), and a revised Notification Data for UST Form (GUST-42) were submitted to GA EPD in association with the UST removal activity. A Closure Report was submitted to GA EPD in correspondence dated April 15, 1996, and an addendum to the Closure Report was submitted in correspondence date August 4, 1997. Elevated concentrations of BTEX and PAH constituents were detected in tank pit soils during UST removal and excavation activities. The benzene concentration in one sample and detection limits in two samples exceeded the applicable STLs during closure sampling. No further excavation of potentially contaminated backfill or native soils has occurred at the USTs 48 & 49 site.

III.B. OBJECTIVES OF CORRECTIVE ACTION

III.B.1. Removal of Free Product That Exceeds One-Eighth Inch

The ISC, CAP-Part A SI, and CAP-Part B SI determined that there is no evidence of free product at the USTs 48 & 49 site; therefore, no recovery/removal of free product has been performed, nor was it required based on known site conditions.

III.B.2. Remediate Groundwater Contamination

The CAP-Part A SI documented groundwater contamination that exceeded IWQS in two CAP-Part A SI borings. Benzene exceeded its IWQS in two of the five CAP-Part A groundwater samples. Further investigation during the CAP-Part B SI provided more groundwater contaminant data indicating that the contaminant concentrations decreased significantly in a year. The results of the CAP-Part B SI suggest that contaminant concentrations within the plume are below IWQS, and concentrations at the perimeter of the plume are below MCLs.

Groundwater is flowing toward the west, and conservative fate and transport modeling using the AT123D model (Attachment B) suggests that benzene (the most conservative representative compound) will not exceed its IWQS at the drainage ditch located 400 feet west of the site. The model results for this compound indicate that there is no groundwater impact at a distance of 500 feet from the area of highest contamination. These results were confirmed by the CAP-Part B groundwater sampling of 79-12, located 140 feet downgradient of the former tank pit, that was conducted in September/October 1999. The invert of a storm water drain that is located approximately 115 feet west of the former tank pit is approximately 1.5 feet above the water table during high groundwater conditions and is not considered a preferential pathway. Therefore, active remediation of groundwater is not recommended for this site.

III.B.3. Remediate Soil Contamination

The ISC documented soil contamination above applicable GUST STLs (i.e., Table A, Column 2) in one location. The contaminant that exceeded threshold levels was benzene. Further investigation during the CAP-Part A SI and CAP-Part B SI provided more soil contaminant data that indicate contaminant concentrations at the perimeter of the site are below STLs. 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 aid in the decision making process to determine the need for further action at the USTs 48 & 49 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 as a result of the 10 to 12 inches of concrete overlying the majority of the site.

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 documents were supplemented by the additional guidance documents on risk assessment methods referenced in this section. In general, the risk-based corrective action approach is performed in two steps:

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

2. Site-specific ACLs were 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 the routes of exposure through which the receptors might be exposed. Figure 20 presents potentially complete and incomplete pathways for contaminant sources at the USTs 48 & 49 site.

The USTs 48 & 49 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 5,000 feet to the north. Mill Creek is located approximately 3,000 feet west 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 separates the surficial aquifer from the deep drinking water aquifer, the Floridan aquifer, which is approximately 90 feet of clay. There appears to be no vertical migration from the surficial aquifer to the Floridan aquifer. However, the Hawthorn Group, a thick and highly effective confining unit, separates the water supply wells from the surficial aquifer.

No current on-site receptors have 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 screen 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 ASTM (ASTM 1995) Tier 1-type risk evaluation process will be applied to the data collected for the USTs 48 & 49 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 potential COPCs exist at the site.
- Compare detection limits to screening levels to identify potential false negative screening results.

The screening levels for the USTs 48 & 49 site data have been taken from the following sources based on GA EPD guidance (GA EPD 1996):

- Georgia IWQS (GA EPD 1998);
- GUST STLs (i.e., Table A, Column 2);
- soil screening levels developed by the U.S. Environmental Protection Agency (EPA) (EPA 1996); and
- soil and groundwater risk-based concentrations developed by EPA Region 3 (EPA 1996).

These values reflect screening levels based on a combination of regulatory screening levels (i.e., IWQS and GUST STLs) 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 48 & 49 site.

If applicable, 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 COPCs. Constituent concentrations below risk- or ARAR-based screening levels are not considered COPCs and are not evaluated further. Tables 8 and 9 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 10 and 11 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.

Benzo(a)pyrene was detected above the risk-based screening level for soil in one location (79-04) collected for the Part A SI. No other constituents were detected above regulatory or risk-based screening levels for the CAP-Part A SI soil data. Toluene, ethylbenzene, xylenes, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, lead, and TPH were detected below applicable screening levels during the CAP-Part A sampling. BTEX, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene, lead, and TPH were detected in soils below applicable screening levels during the CAP-Part B sampling. Benzo(a)pyrene was identified as a COPC for USTs 48 & 49 site soils.

The detection limits for the CAP-Part A and CAP-Part B data were below screening levels. The TPH-DRO results were rejected (R qualified) in two samples (790551 and 790571) during the CAP-Part A SI due to a low laboratory control sample recovery. No COPCs for soils were selected for the site based on the detection limit screening or qualifier screening.

Benzene was detected above water quality standards in two wells (79-01 and 79-02) and above risk-based levels in all four wells sampled during the CAP-Part A SI. Toluene, ethylbenzene, and xylenes were detected above risk-based screening levels in well 79-01. Benzo(b)fluoranthene was detected above risk-based screening levels in one location (79-04) and naphthalene in two locations (79-01 and 79-02) during the CAP-Part A. During the CAP-Part B, benzene was detected in four locations above the risk-based screening level

(79-06, 79-07, 79-08, and 79-09). Benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene were detected above the risk-based screening level in well 79-12 during the CAP-Part B. The results for benzo(k)fluoranthene and indeno(1,2,3-cd) for the sample collected from this well also exceeded the water quality standard. Toluene, ethylbenzene, xylenes, fluoranthene, and pyrene were detected below screening values during the CAP-Part A. Toluene, ethylbenzene, xylenes, and benzo(g,h,i)perylene were detected below screening values during the CAP-Part B. BTEX, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene were identified as COPCs for USTs 48 & 49 site groundwater.

The detection limit for benzene exceeded the risk-based screening level in three locations during the CAP-Part B. Detection limits achieved during both the CAP-Part A and CAP-Part B for several PAHs exceeded the water quality standard and/or risk-based screening levels for the groundwater data. For these chemicals, screening levels represent values below analytically achievable levels. 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 from the fate and transport modeling and applicable regulatory levels.

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

Benzo(a)pyrene was selected as a COPC for soil at the site based on one soil sample collected during the CAP-Part A investigation that exceeded the risk-based screening criteria for an industrial scenario. However, the concentration in the sample was below the leaching to groundwater screening value, and there is no GUST STL for benzo(a)pyrene. Thus, an alternative threshold level (ATL) was not calculated for this compound.

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

BTEX, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene were identified as COPCs for groundwater at the site. Benzene was modeled to two potential downgradient locations where a receptor may come in contact with migrating site contamination. These locations included a drainage ditch 400 feet downgradient, and Mill Creek 3,000 feet downgradient from the site. Fate and transport modeling was used to develop site-specific DAFs between the source and the receptor locations (see III.B.4.c.3 below). The modeling results estimated DAFs for benzene of 313 for the drainage ditch and infinity for Mill Creek. Compound-specific regulatory levels or risk-based screening criteria were used in conjunction with the site-specific DAFs identified for the potential migration of contamination from the site to determine the ACL for each compound. The ACL calculations are presented in Appendix VI. The ACLs associated with the drainage ditch receptor were determined to be:

- 22,310 µg/L for benzene (i.e., 313 × 71.28 µg/L);
- 62,600,000 µg/L for toluene (i.e., 313 × 200,000 µg/L);
- 8,988,000 µg/L for ethylbenzene (i.e., 313 × 28,718 µg/L);
- 3,756,000 µg/L for toluene (i.e., 313 × 12,000 µg/L);
- 28.8 µg/L for benzo(b)fluoranthene (i.e., 313 × 0.092 µg/L);
- 9.7 µg/L for benzo(k)fluoranthene (i.e., 313 × 0.0311 µg/L);
- 9.7 µg/L for indeno(1,2,3-cd)pyrene (i.e., 313 × 0.0311 µg/L); and
- 2,034 µg/L for naphthalene (i.e., 313 × 6.5 µg/L).

The infinite DAF at Mill Creek indicates that contamination will never reach this location; thus, no ACLs were developed for Mill Creek.

In the event that the storm water drain, located approximately 1.5 feet above the water table, is considered a potential receptor, then the DAF for benzene would be 8. Thus, the ACLs with respect to the storm water drain would be lower. Of primary interest would be the ACL for benzene, which would be 570 µg/L (i.e., 8 × 71.28 µg/L). The maximum observed benzene concentration during the CAP-Part B investigation is less than the ACL and the IWQS.

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

Site-specific DAFs between the source and the receptor locations were 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 DAFs reflect the natural attenuation concepts outlined in the ASTM's risk-based corrective action 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 Model (AT123D) 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. This 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 48 & 49 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. Potential receptors are a drainage ditch located 400 feet west of the site and Mill Creek located approximately 3,000 feet west of the site. There are several underground utilities at the site. A storm drain line is located approximately 115 feet downgradient of the site; the invert depth of this line is approximately 3.6 feet BGS, which is above the water

table. Thus, the storm drain is not considered a potential receptor. The other utilities are located upgradient of the former tank pit and are not impacted by the groundwater plume.

Vertical migration of the contaminant plume through the confining unit to the Principal Artesian aquifer is improbable. The confining unit has a vertical hydraulic conductivity on the order of 10^{-8} cm/sec 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 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 Attachment B. Two potential downgradient locations, a drainage ditch and Mill Creek, at which a receptor might encounter migrating groundwater contamination were modeled. These are the nearest possible locations at which a receptor might encounter migrating groundwater contamination due to a possible hydraulic connection between the groundwater and the surface water in the ditch and the creek. Contaminant fate and transport simulations were performed to predict the maximum concentrations at these receptor locations over a simulation period of 100 years, assuming a continuous source based on the maximum observed benzene concentration (i.e., 940 µg/L) in groundwater. The modeling results indicate that the maximum benzene concentrations are predicted to be 3 µg/L at the drainage ditch and 0 µg/L at Mill Creek. Therefore, the potential receptors and surface water located outside the plume will not be impacted at concentrations above IWQS or MCLs by the current site conditions at the USTs 48 & 49 site, Facility ID #: 9-089054.

Based on modeling results the estimated DAF for benzene at the drainage ditch is 313. The DAF for benzene at Mill Creek is infinity. Simulations were also performed to predict the maximum concentrations of benzene over a simulation period of two years in the monitoring wells at the site. The predicted two-year maximum concentrations are presented in Table 12.

III.B.4.d. Conclusions and recommendations

The conclusions below are based on a review of the CAP-Part A SI and CAP-Part B SI results using a risk-based approach and the fate and transport modeling assuming a continuous source of contamination of infinite duration at the site based on the maximum observed benzene concentration (i.e., 940 µg/L) in groundwater during the CAP-Part A investigation.

- Free product was not detected during the CAP-Part A or CAP-Part B investigations.
- The vertical extent of soil and groundwater contamination was determined during the CAP-Part A and CAP-Part B investigations.
- Risk-based screening results show that BTEX, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene concentrations in groundwater exceed the initial screening levels.
- The modeling of benzene estimated a DAF of 313 for the drainage ditch resulting in an ACL of 22,210 µg/L. Benzene concentrations at the site during the CAP-Part A and CAP-Part B investigations were below the ACL.
- ACLs were calculated for all COPCs in groundwater based on the benzene DAF for the drainage ditch. The COPC concentrations during the CAP-Part A and CAP-Part B investigations were below the respective ACLs for each compound.

- The modeling of benzene estimated a DAF of infinity for Mill Creek indicating that contamination will never reach this location; thus, no ACLs were developed for this locations.

- Fate and transport modeling of benzene indicates that contamination does not exceed Georgia IWQS at the conservatively defined downgradient receptors, a drainage ditch and Mill Creek.

- Based on the CAP-Part B data, the environmental site ranking score is 500 (Appendix X), which is an allowable score for no-further-action-required status.

Considering the site characteristics, natural attenuation has been occurring at the site, and the contaminant concentrations have decreased substantially and are below their respective IWQS. Based on the current site conditions and the site ranking score of 500, a no-further-action-required status is recommended for this site.

III.C. DESIGN AND OPERATION OF CORRECTIVE ACTION SYSTEMS

A corrective action system is not required for this site because no further action is being recommended for the site.

III.D. IMPLEMENTATION

There is no corrective action to be implemented at the site. Fort Stewart is submitting a petition for permanent closure in conjunction with this CAP-Part B Report. Fort Stewart requests that all monitoring wells at the site be decommissioned. Upon approval from GA EPD, decommissioning of the monitoring wells will be completed according to the USACE design manual for monitoring wells and will comply with all applicable state and federal standards.

III.E. PUBLIC NOTIFICATION

The USTs 48 & 49 site is located entirely within the confines of FSMR, a federal facility. The U.S. Government owns all of the property contiguous to the site. The Fort Stewart DPW has complied with the public notice requirements defined by GA EPD guidance by publishing an announcement in the *Savannah Morning News* on November 21 and 28, 1999. A copy of the newspaper announcement used for public notification is presented in Appendix XI of this report.

IV. CLAIM FOR REIMBURSEMENT

Fort Stewart is a federally owned facility and has funded the investigation for the USTs 48 & 49 site, Facility ID #9-089054 using Department of Defense Environmental Restoration Account Funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

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APPENDIX I

REPORT FIGURES

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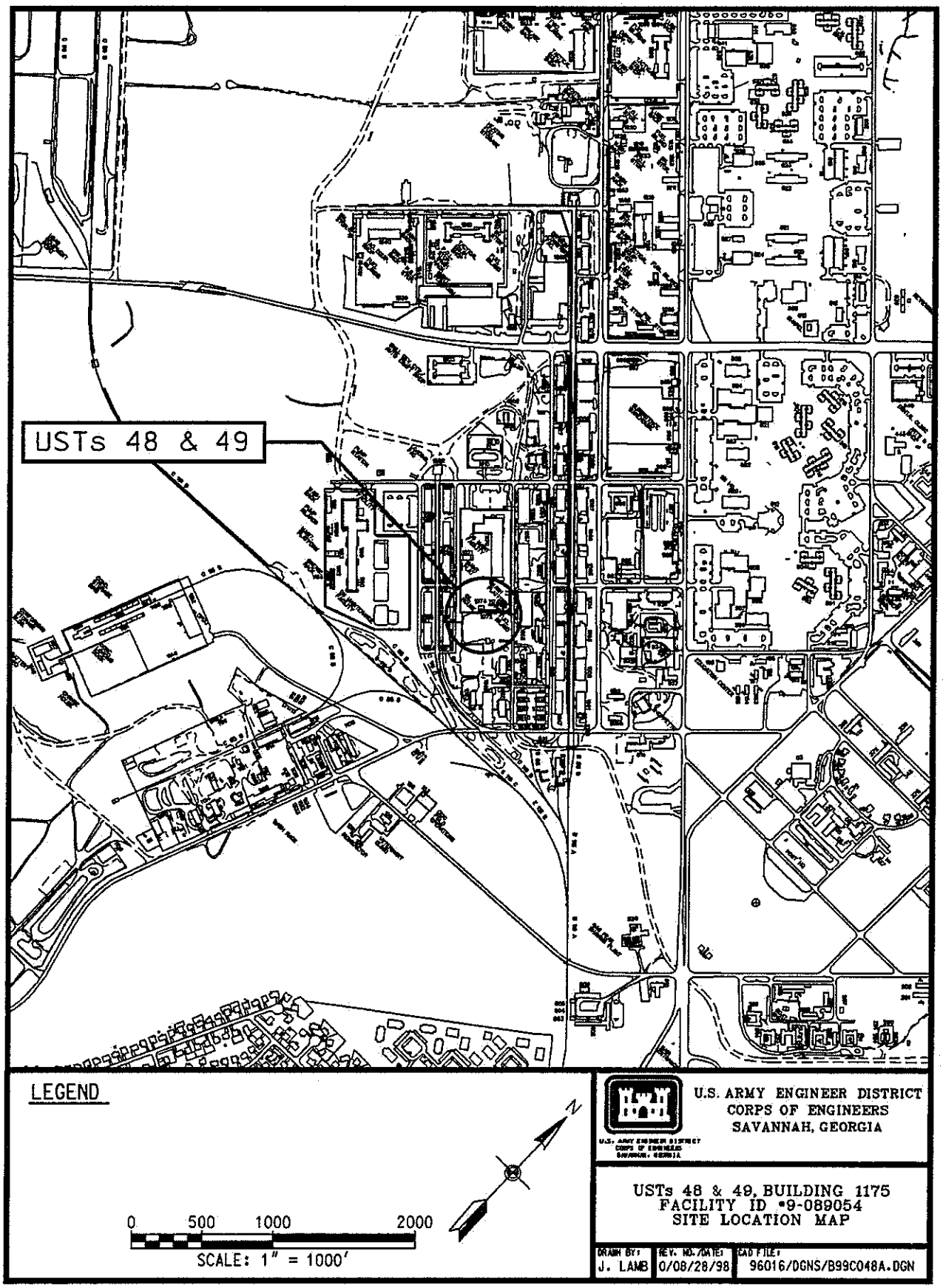

Figure 1. Location Map for the USTs 48 & 49 Site, Facility ID #9-089054

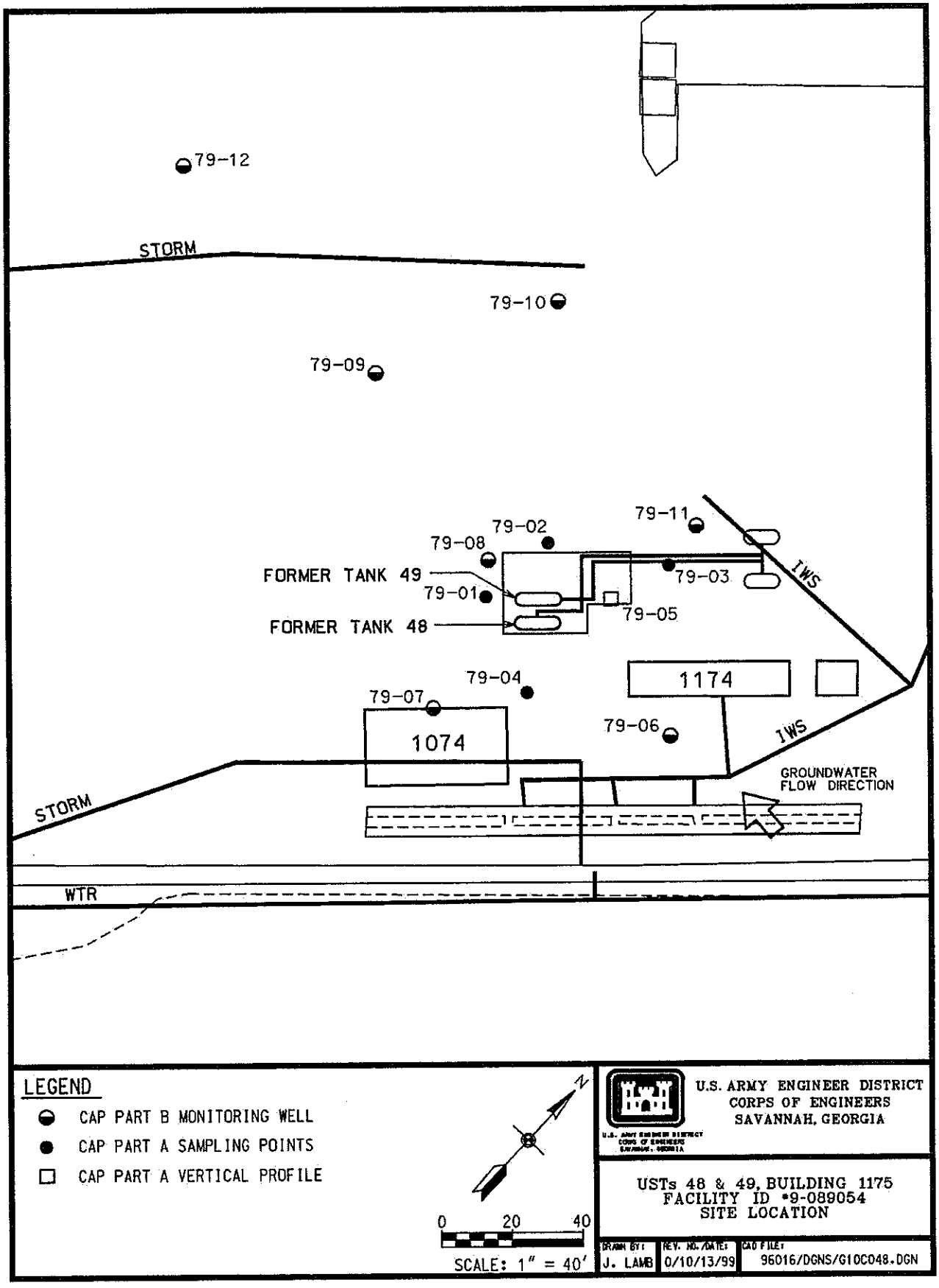

Figure 2. Site Map of the USTs 48 & 49 Site, Facility ID #9-089054

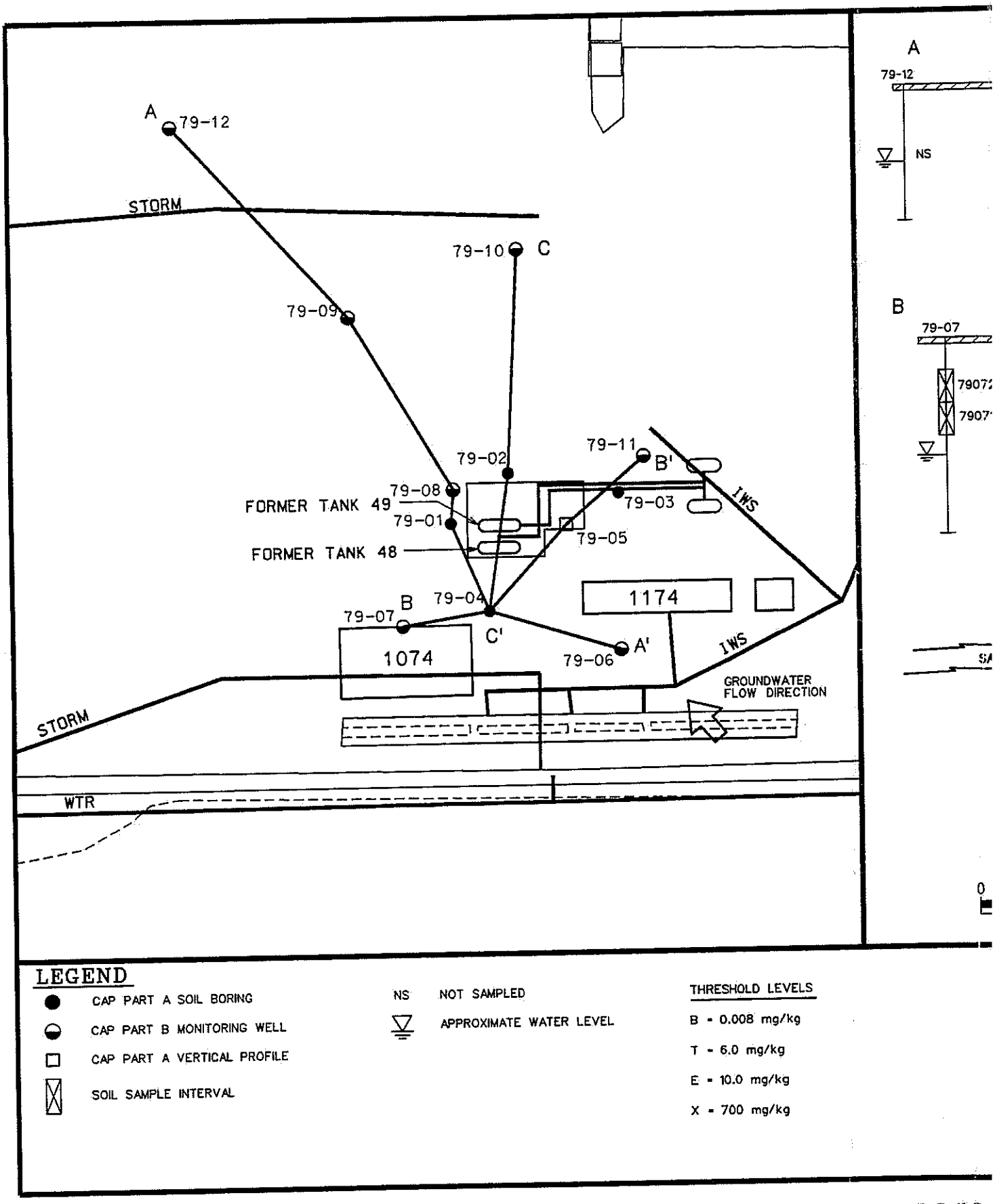

Figure 3. CAP-Part A and CAP-Part B Soil Sa
Facility ID #

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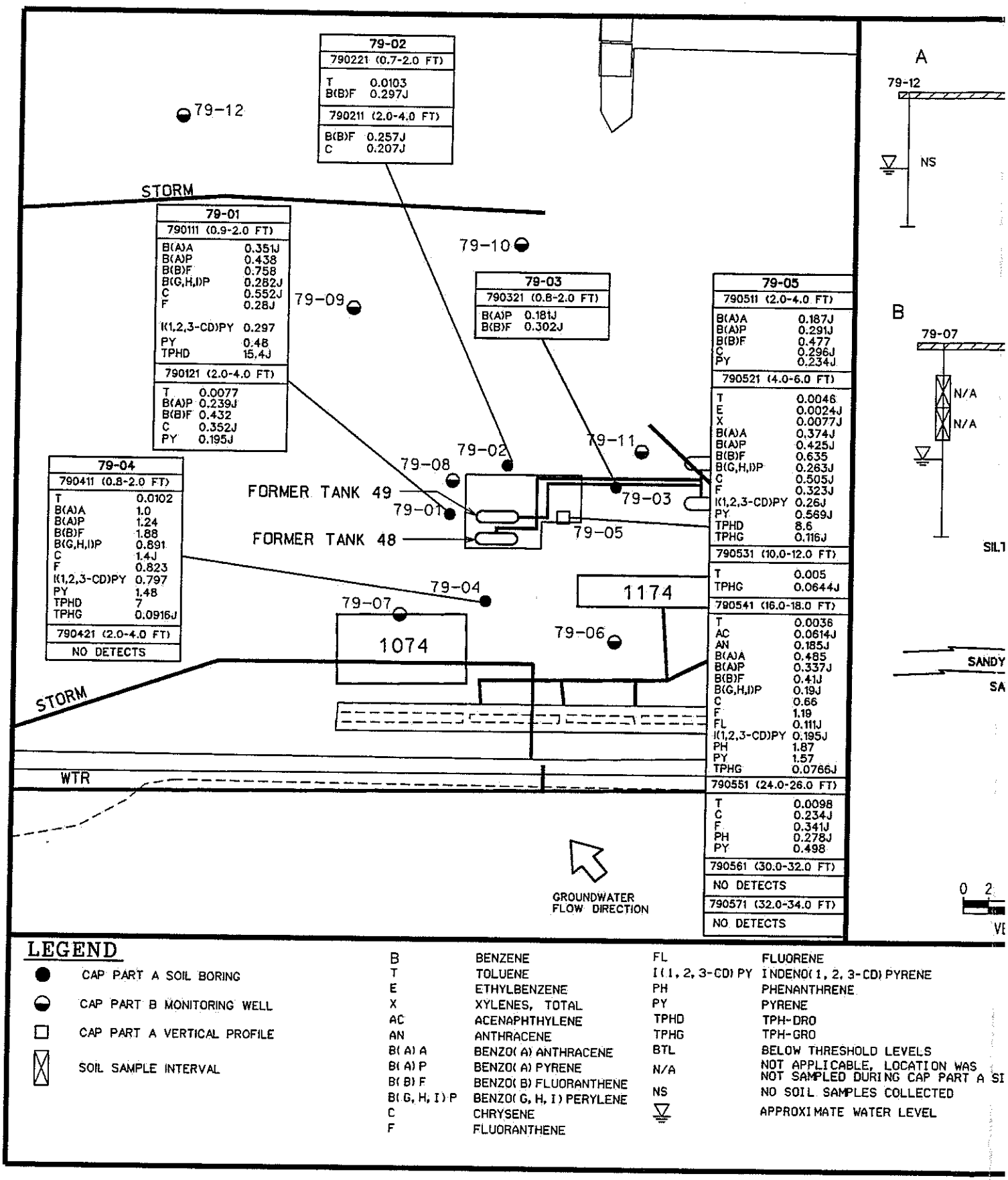

Figure 4. CAP-Part A Soil Sampling Analytica
Facility ID #9-08

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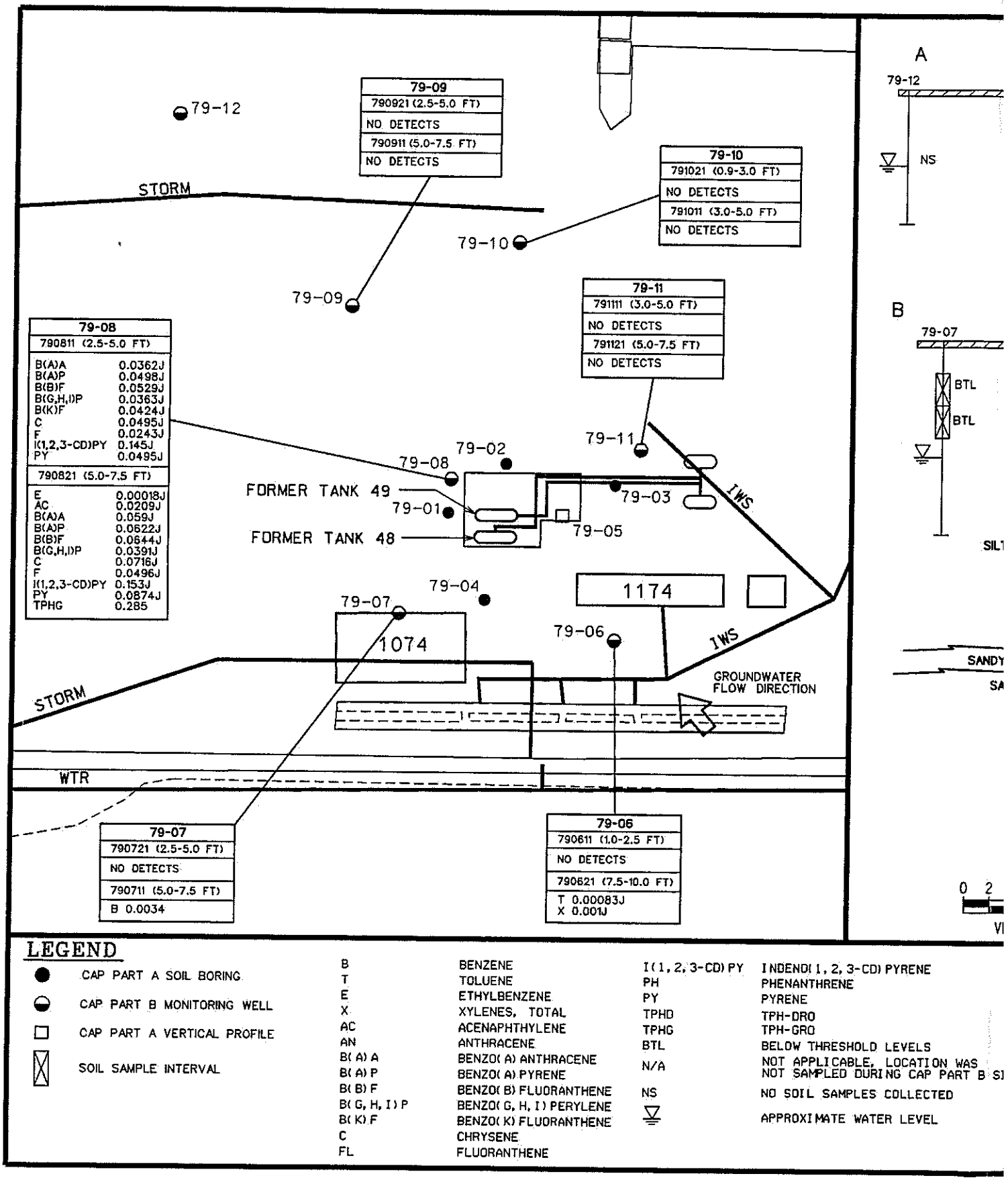

Figure 5. CAP-Part B Soil Sampling Analytica
Facility ID #9-08

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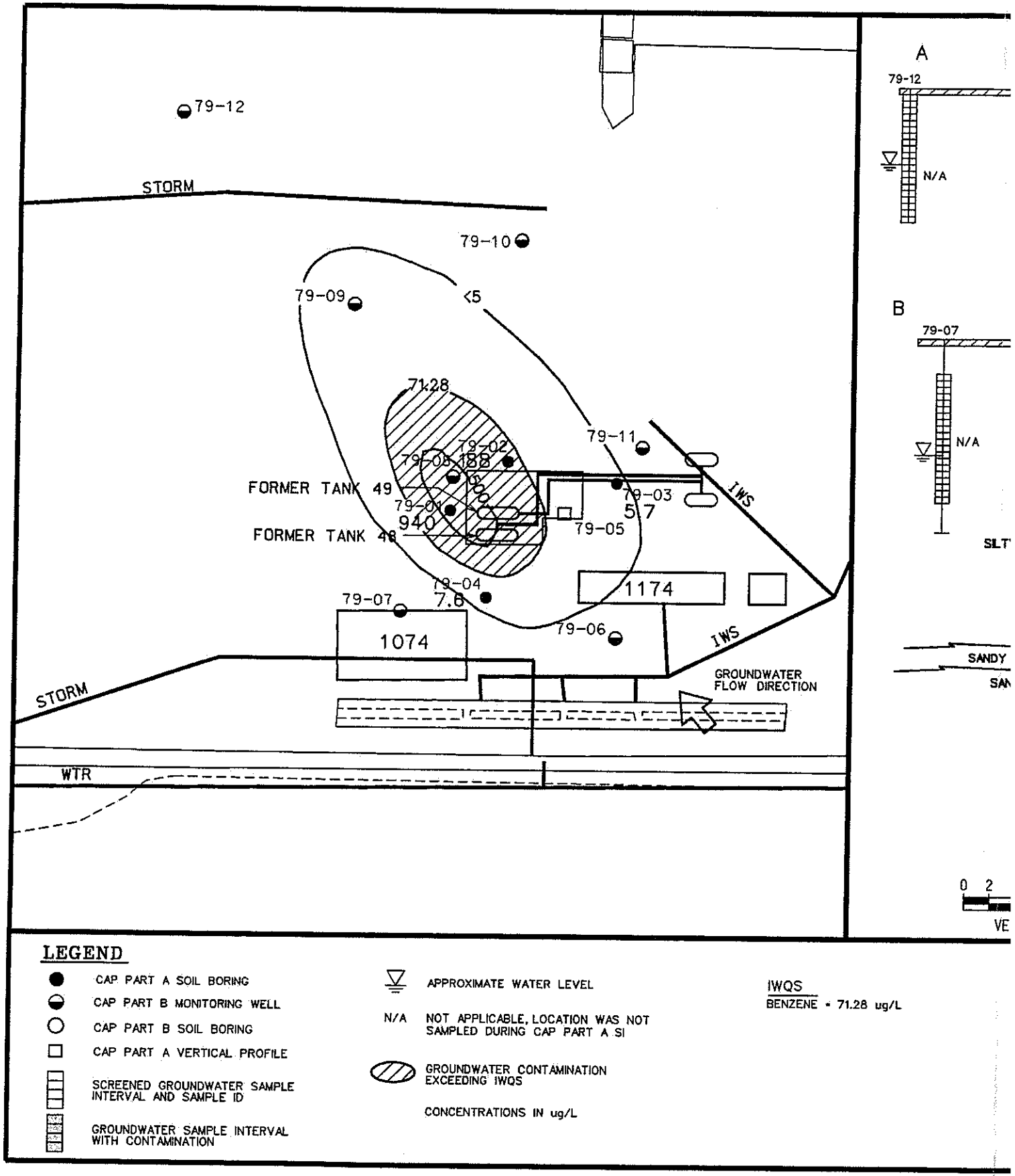

Figure 6. Benzene Contamination in Groundwater D
Investigation at the USTs 48 & 49 Sit

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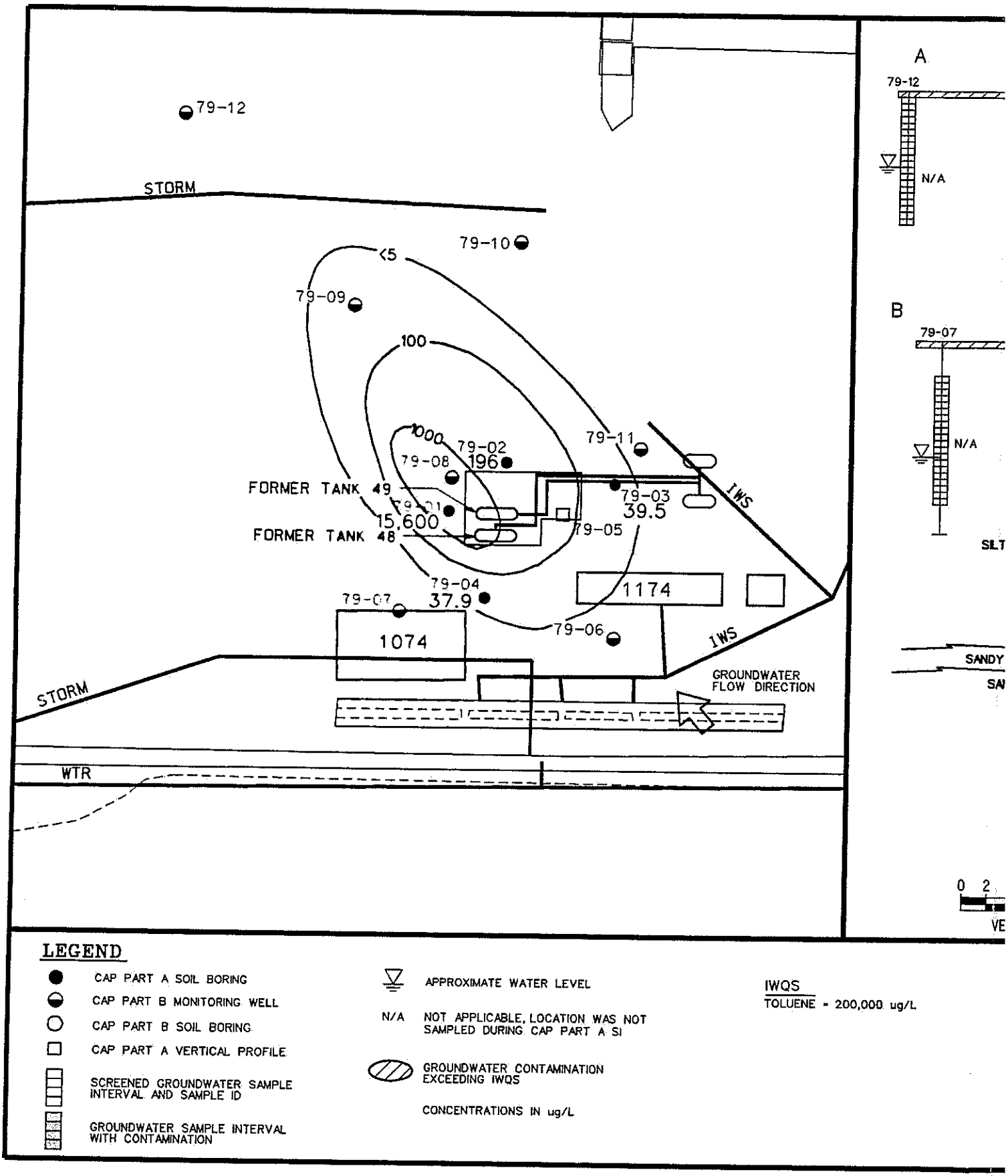

Figure 7. Toluene Contamination in Groundwater
Investigation at the USTs 48 & 49 S

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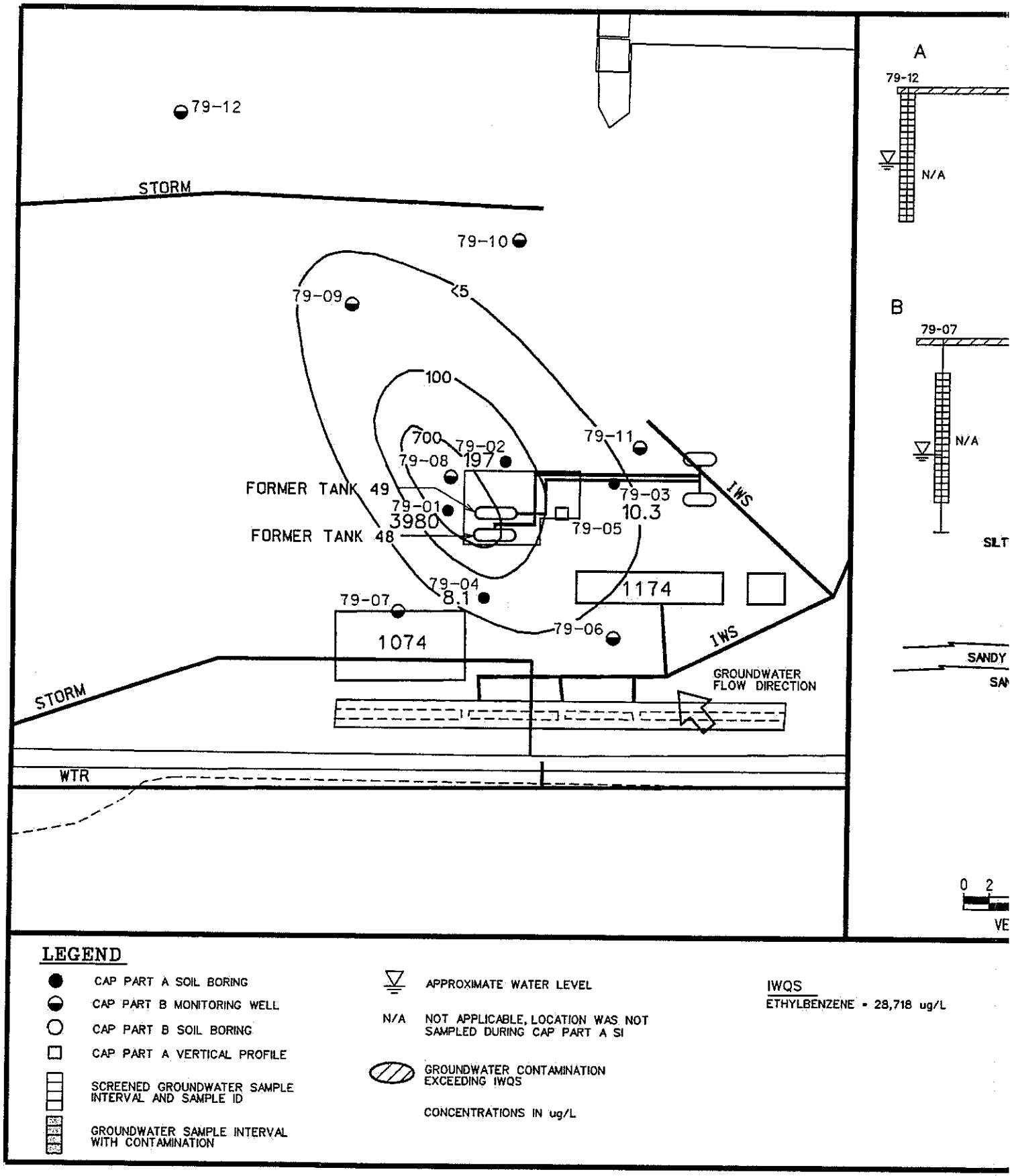

Figure 8. Ethylbenzene Contamination in Groundwate
Investigation at the USTs 48 & 49 Si

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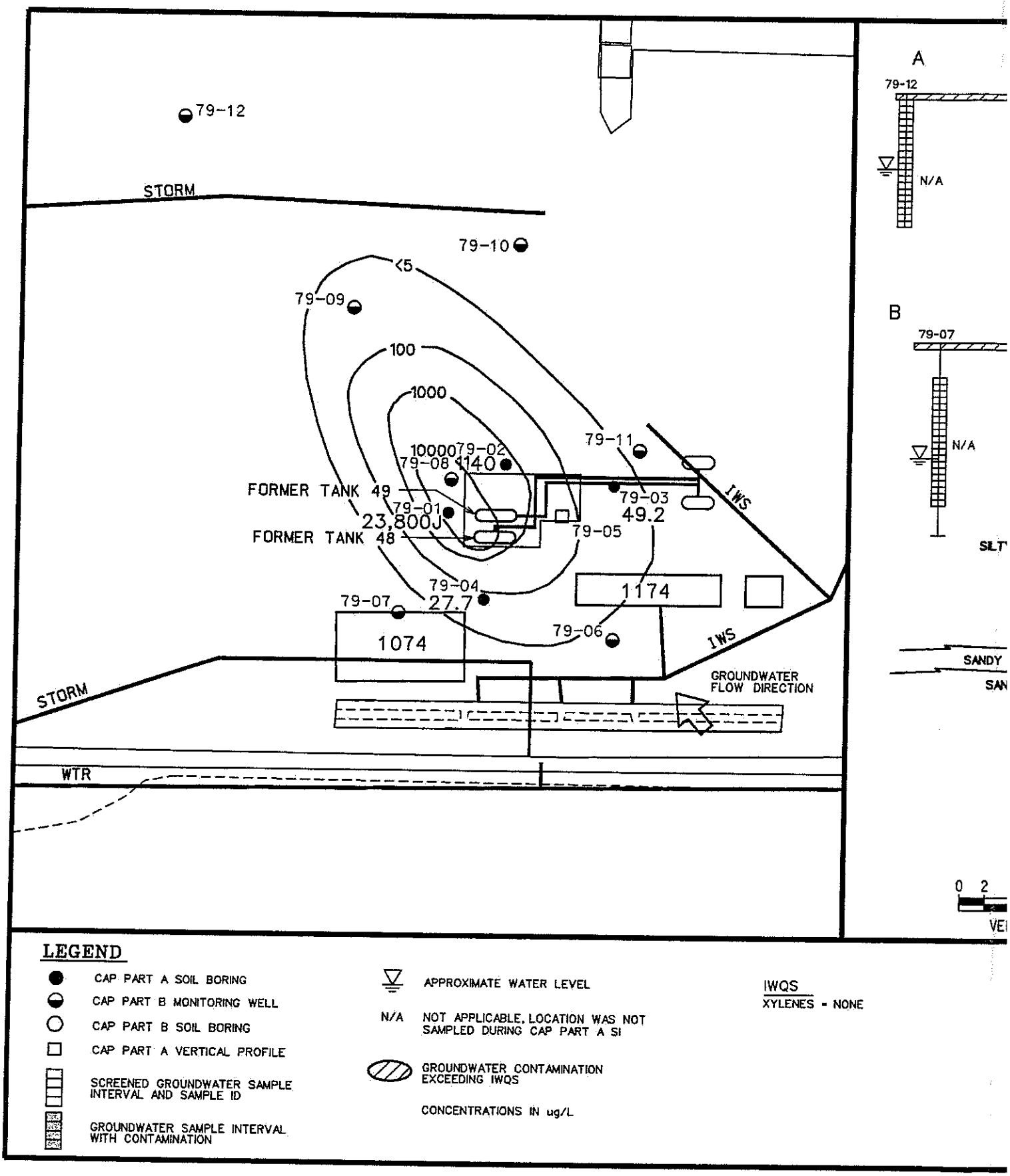

Figure 9. Total Xylenes Contamination in Groundwater Investigation at the USTs 48 & 49 Site

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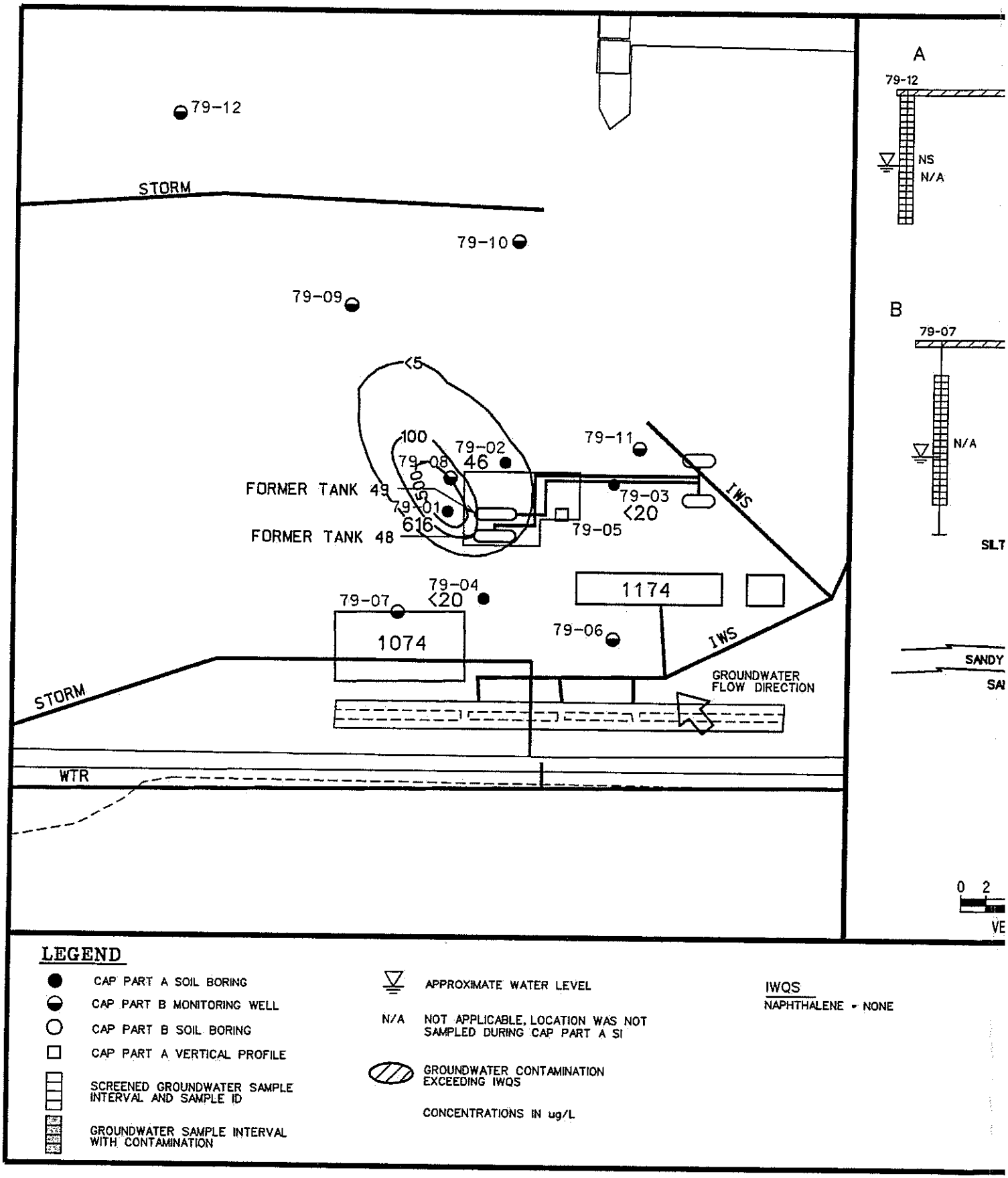

Figure 10. Naphthalene Contamination in Groundwa
Investigation at the USTs 48 & 49 S

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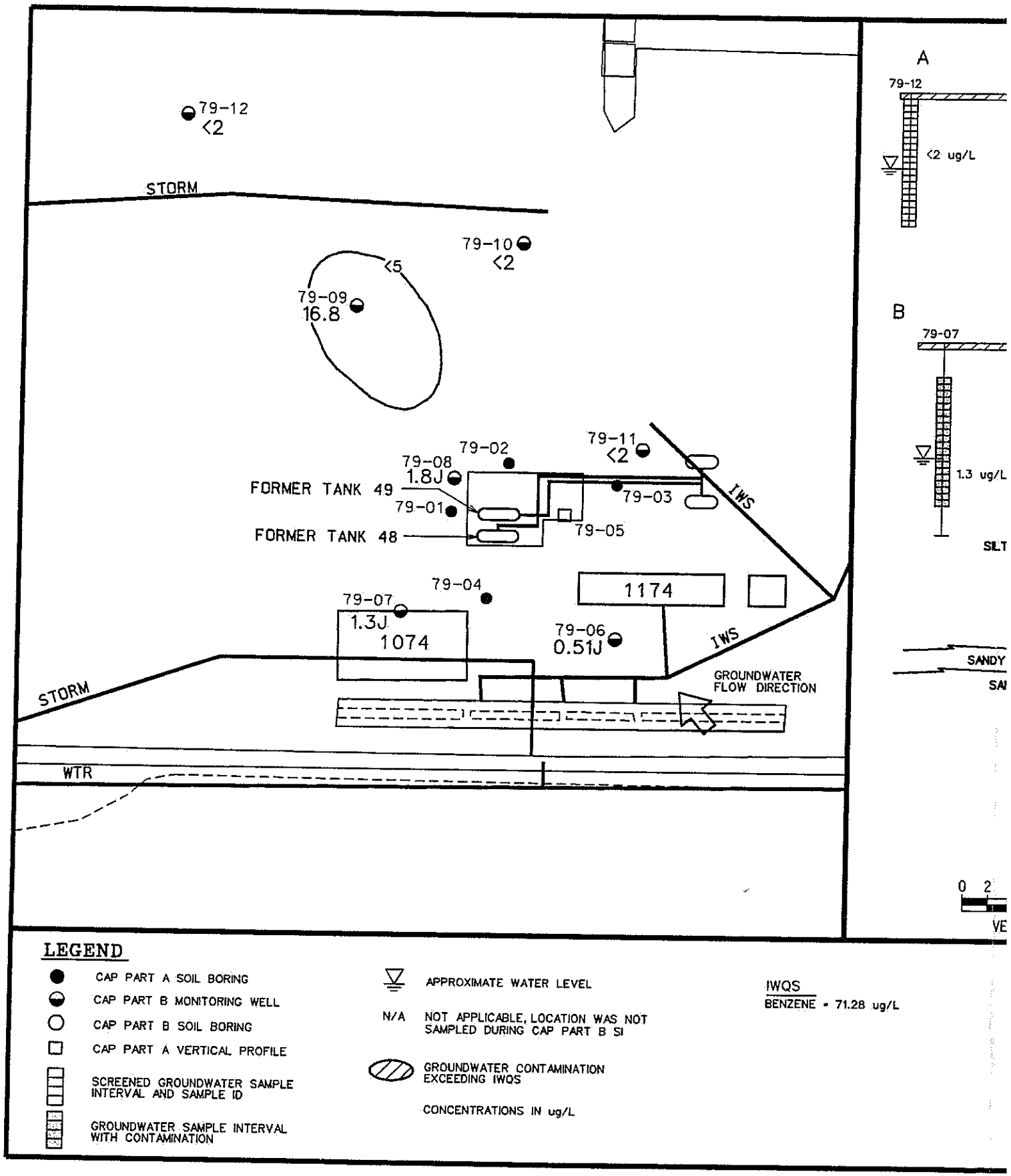

Figure 11. Benzene Contamination in Groundwate
Investigation at the USTs 48 & 49 S

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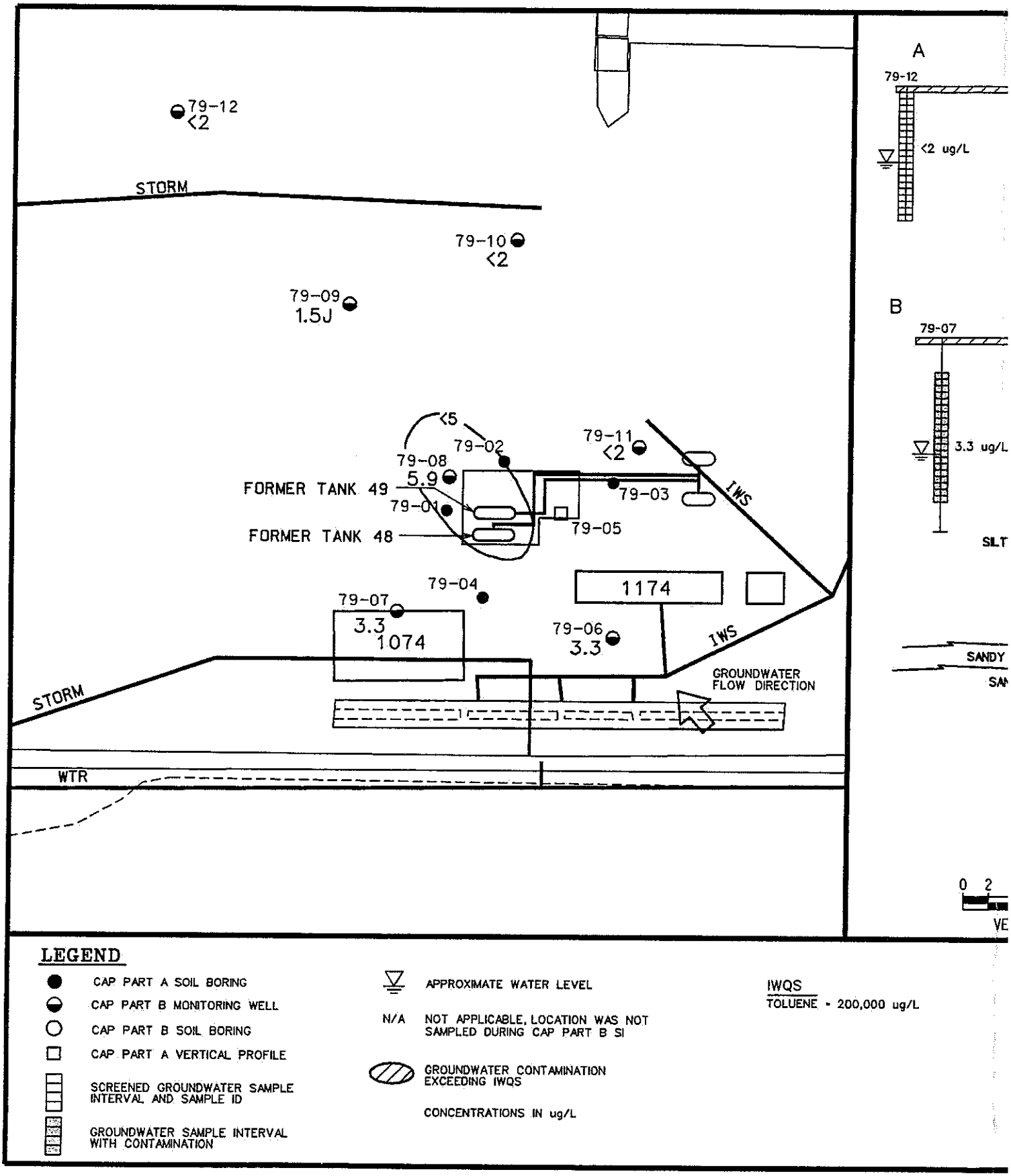

Figure 12. Toluene Contamination in Groundwater Determ
Investigation at the USTs 48 & 49 Site, Facil

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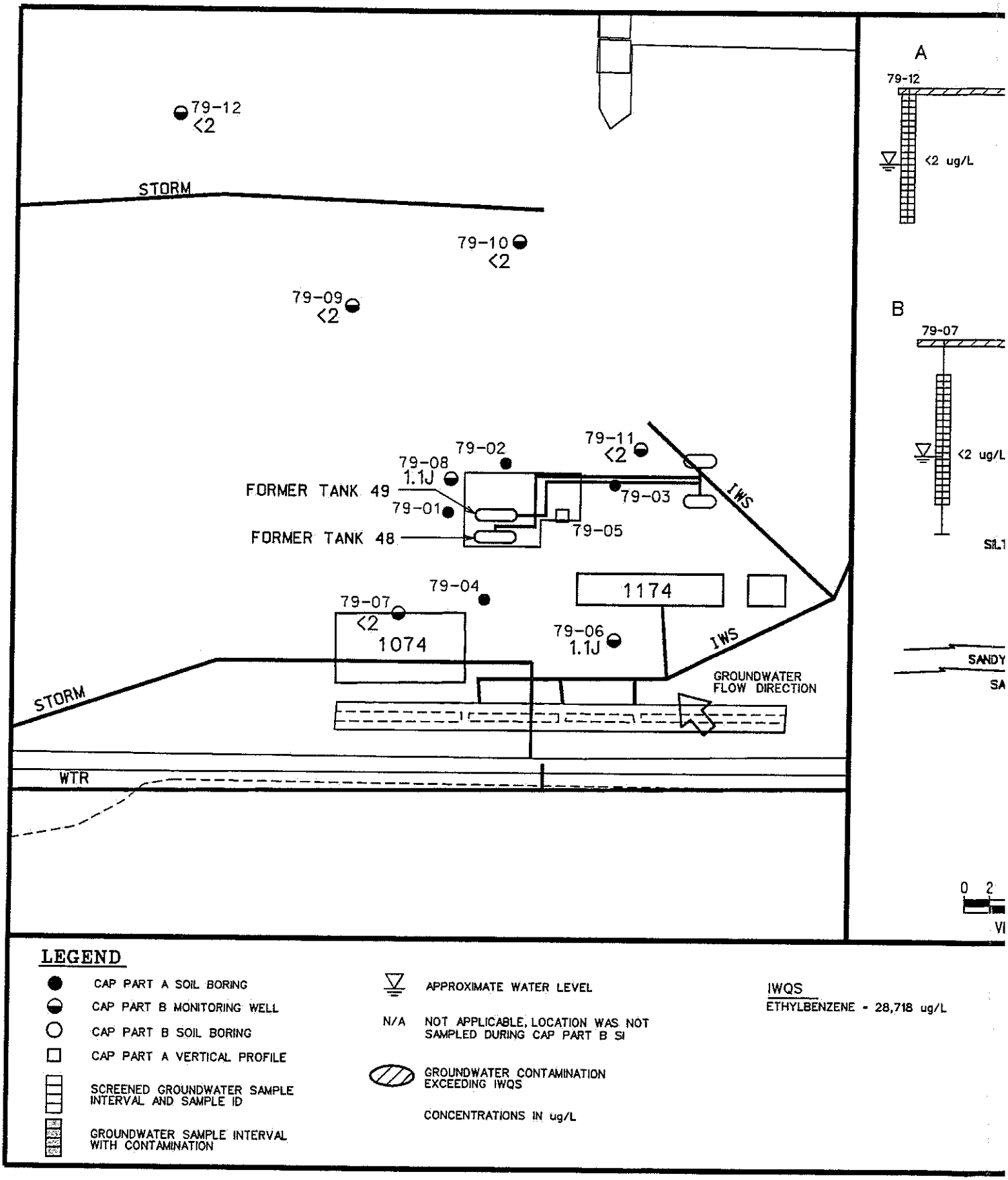

Figure 13. Ethylbenzene Contamination in Groundwa
Investigation at the USTs 48 & 49 S

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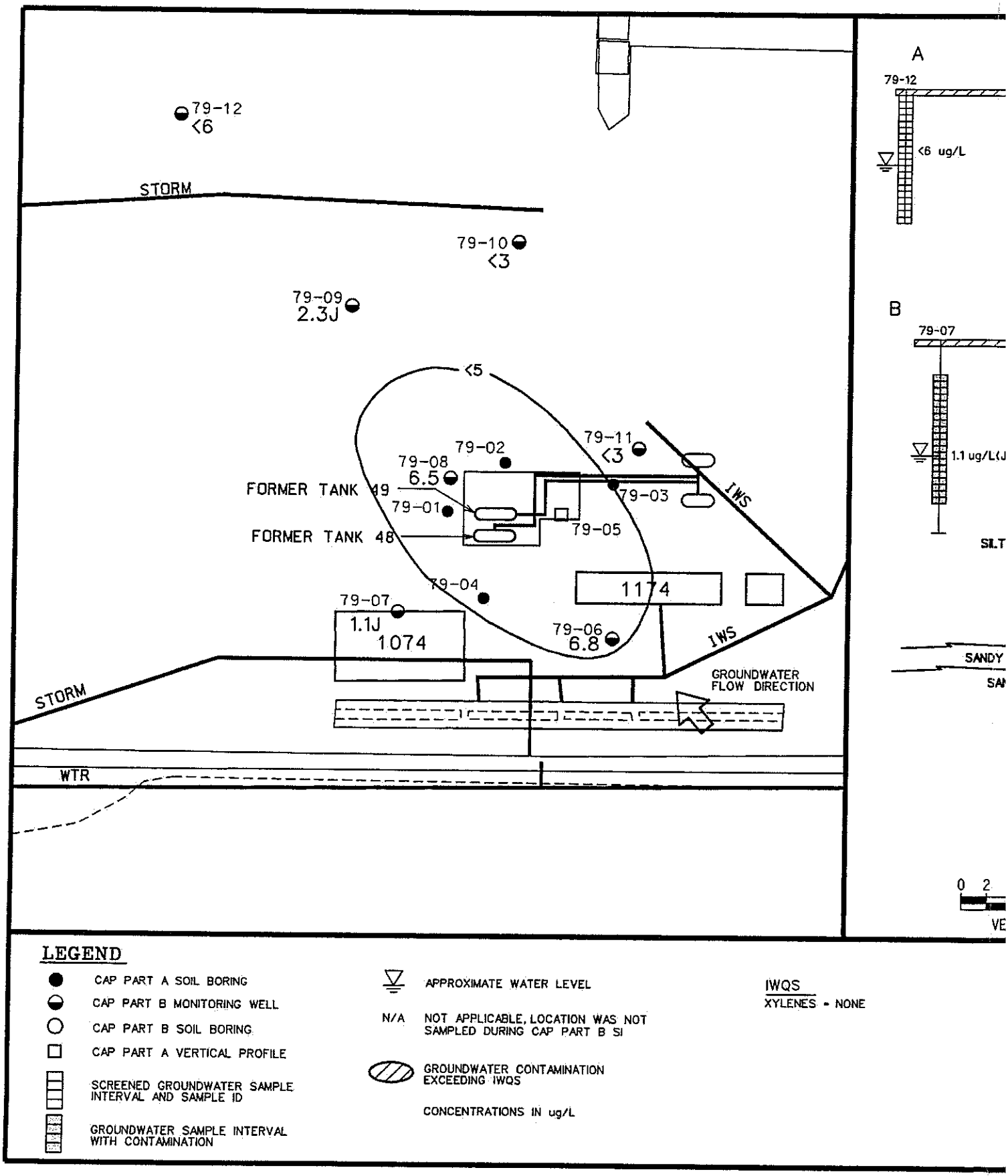

Figure 14. Total Xylenes Contamination in Groundw
Investigation at the USTs 48 & 49

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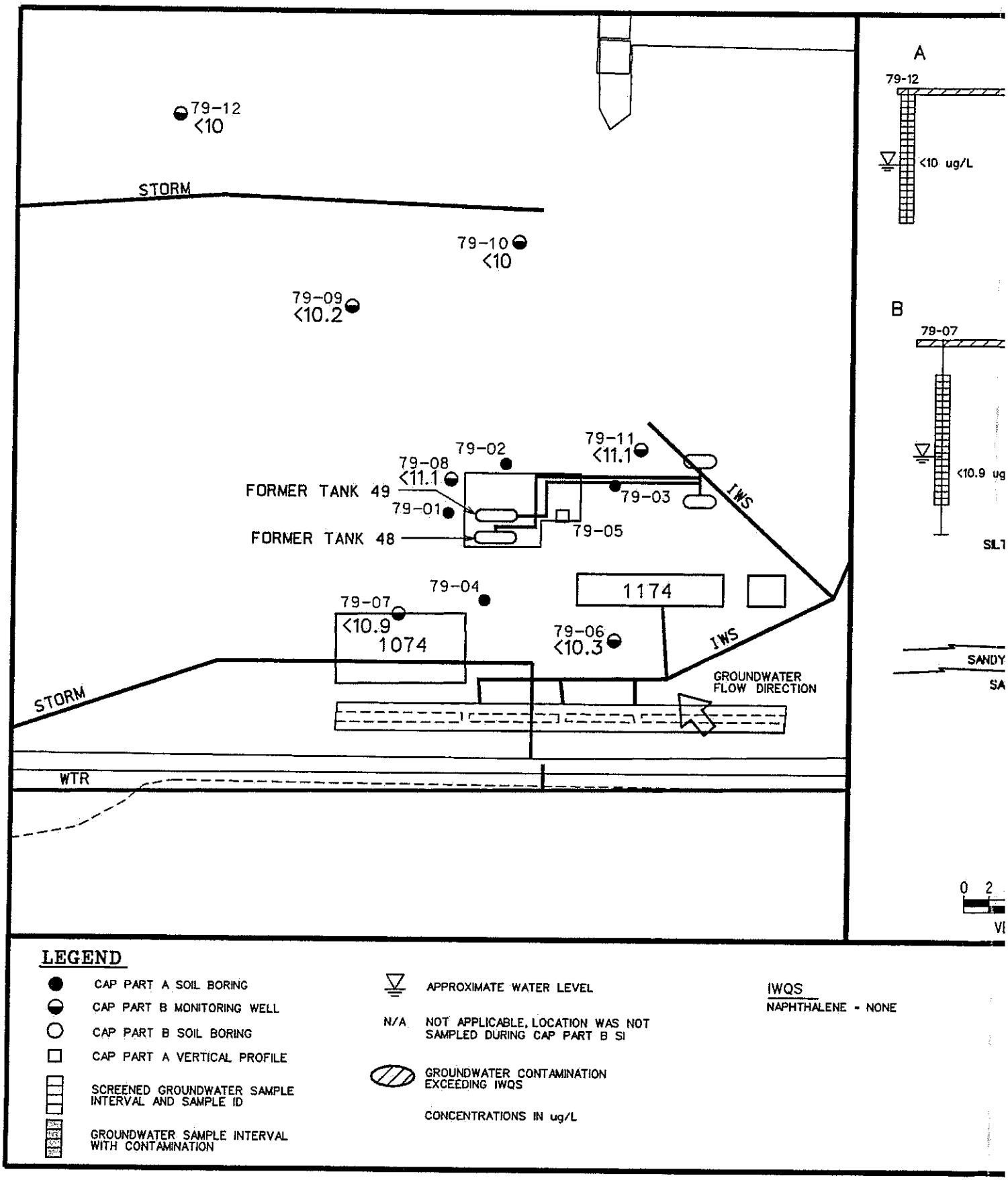

Figure 15. Naphthalene Contamination in Groundw
Investigation at the USTs 48 & 49

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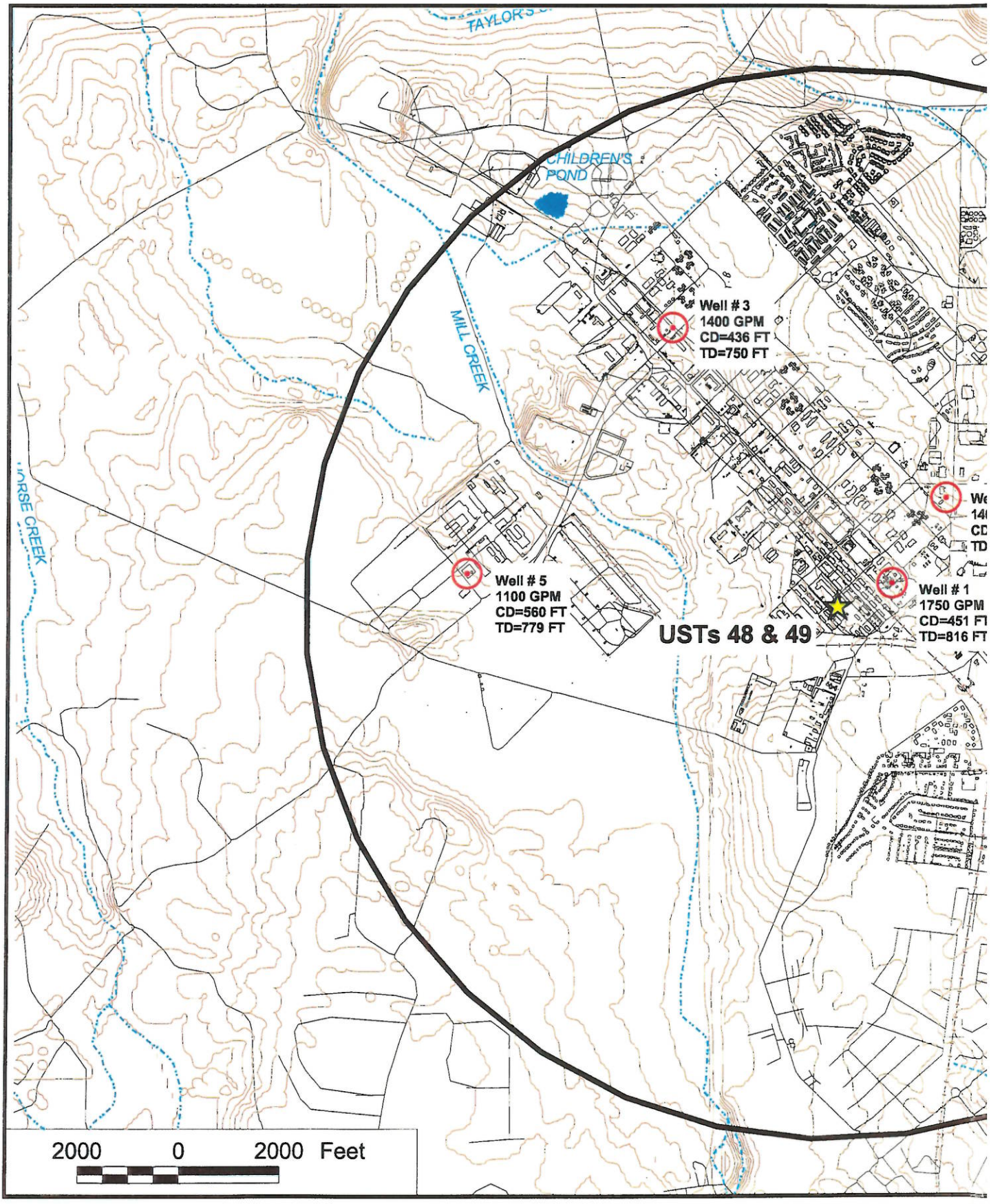

Figure 16. Locations of Groundwater Supply W
USTs 48 & 49 Site,

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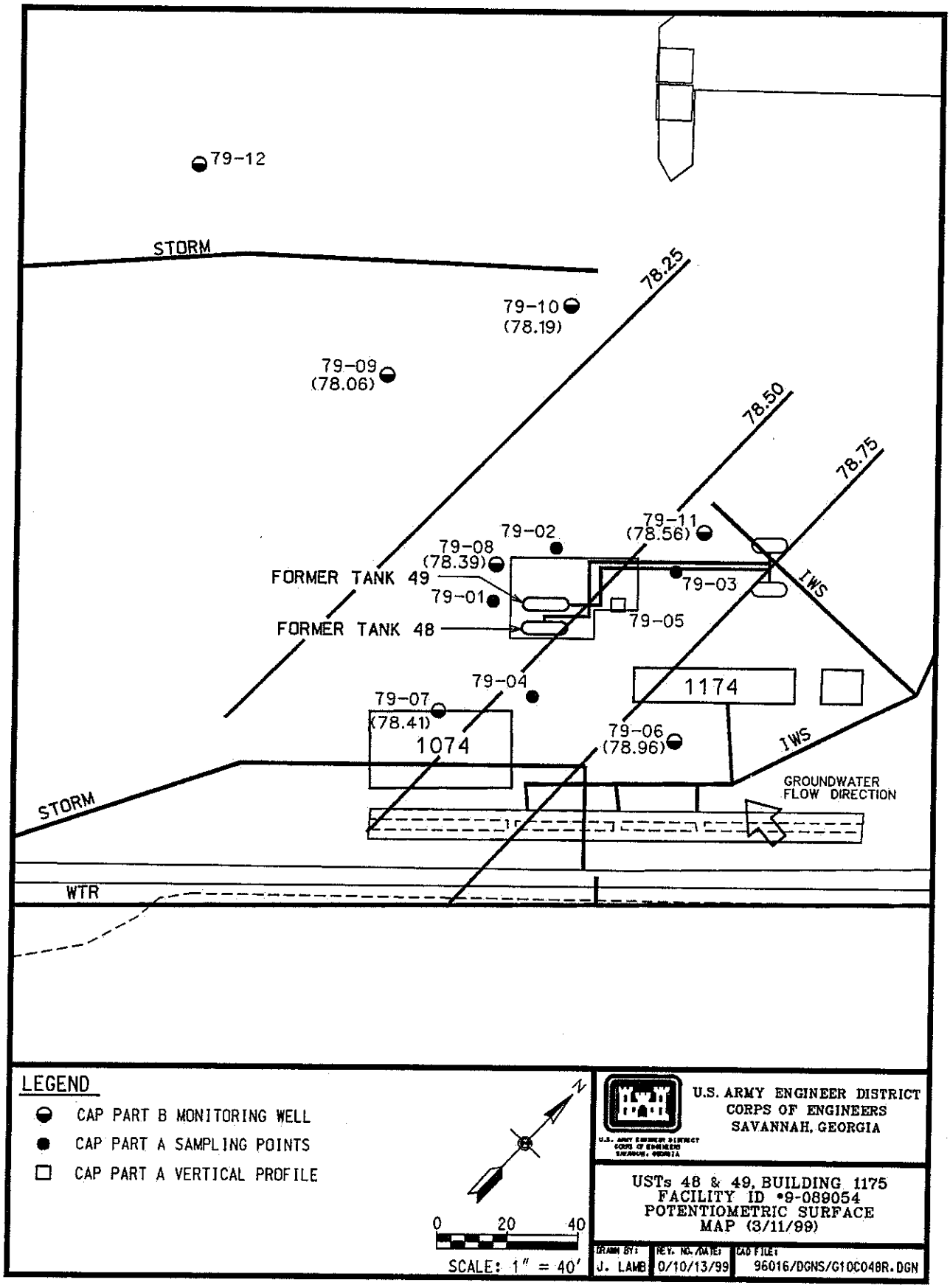

Figure 17. Groundwater Potentiometric Surface Map (March 1999) for the USTs 48 & 49 Site, Facility ID #9-089054

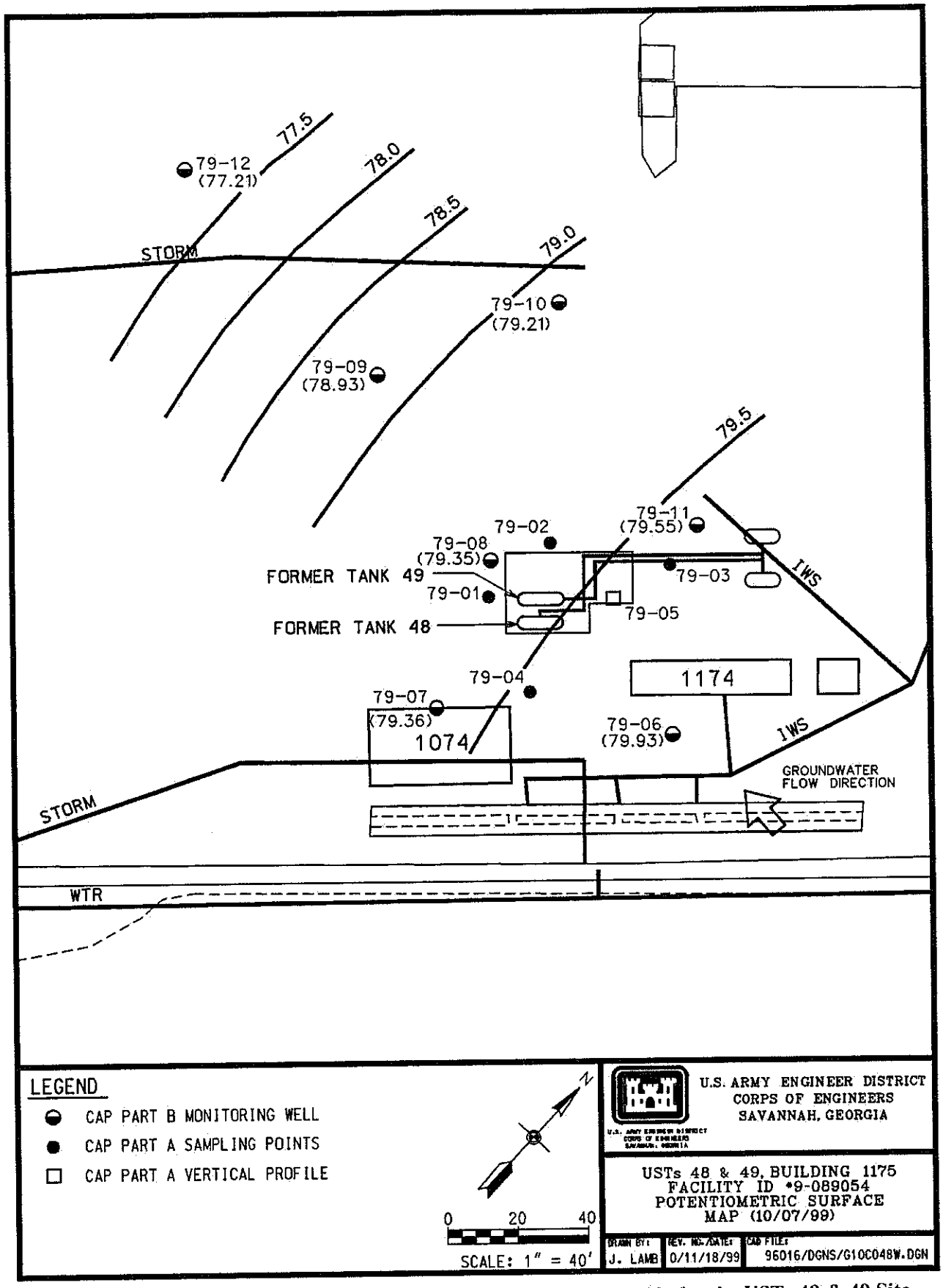

Figure 18. Groundwater Potentiometric Surface Map (October 1999) for the USTs 48 & 49 Site, Facility ID #9-089054

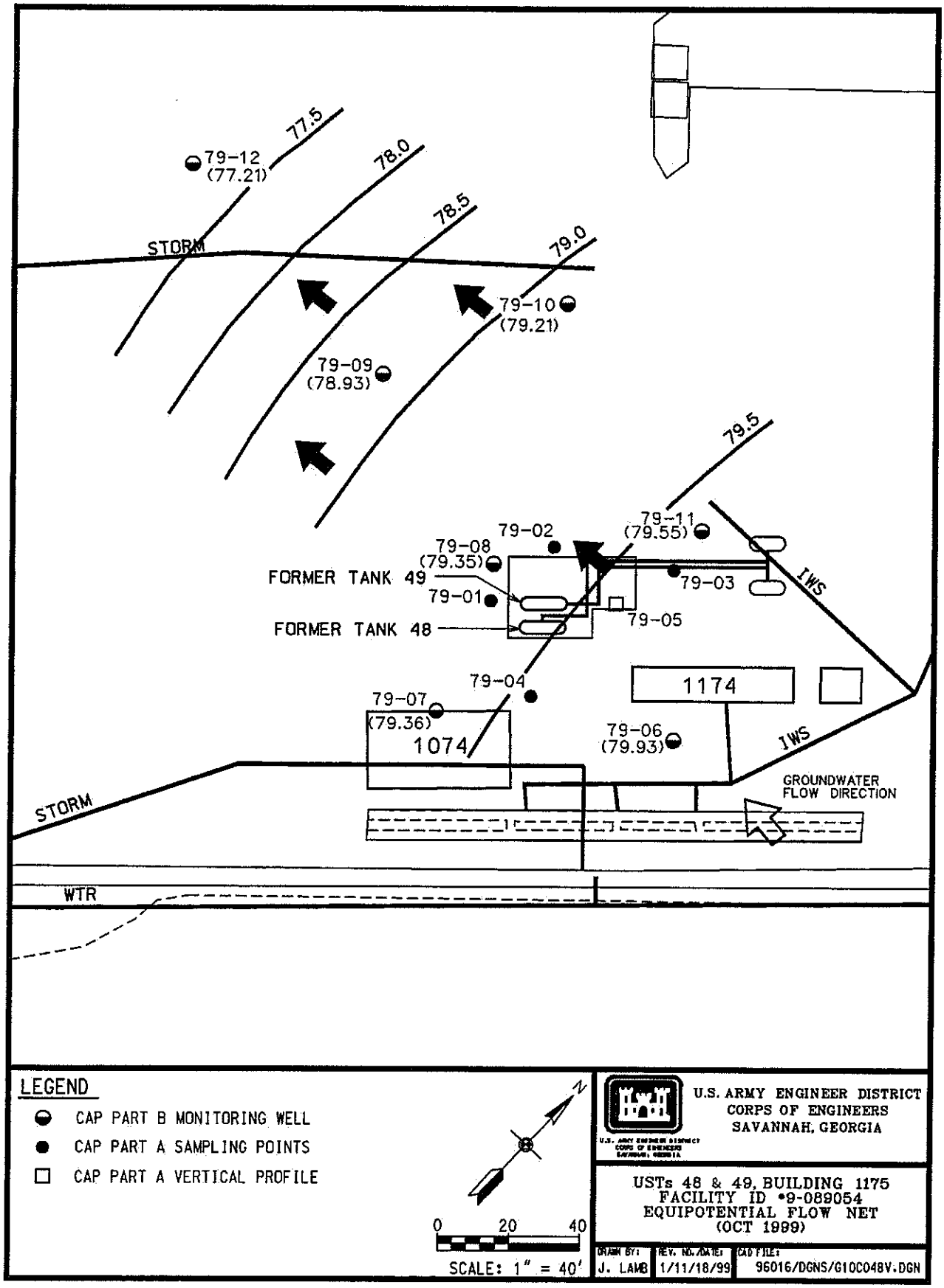

Figure 19. Equipotential Flow Net (October 1999) for the USTs 48 & 49 Site, Facility ID #9-089054

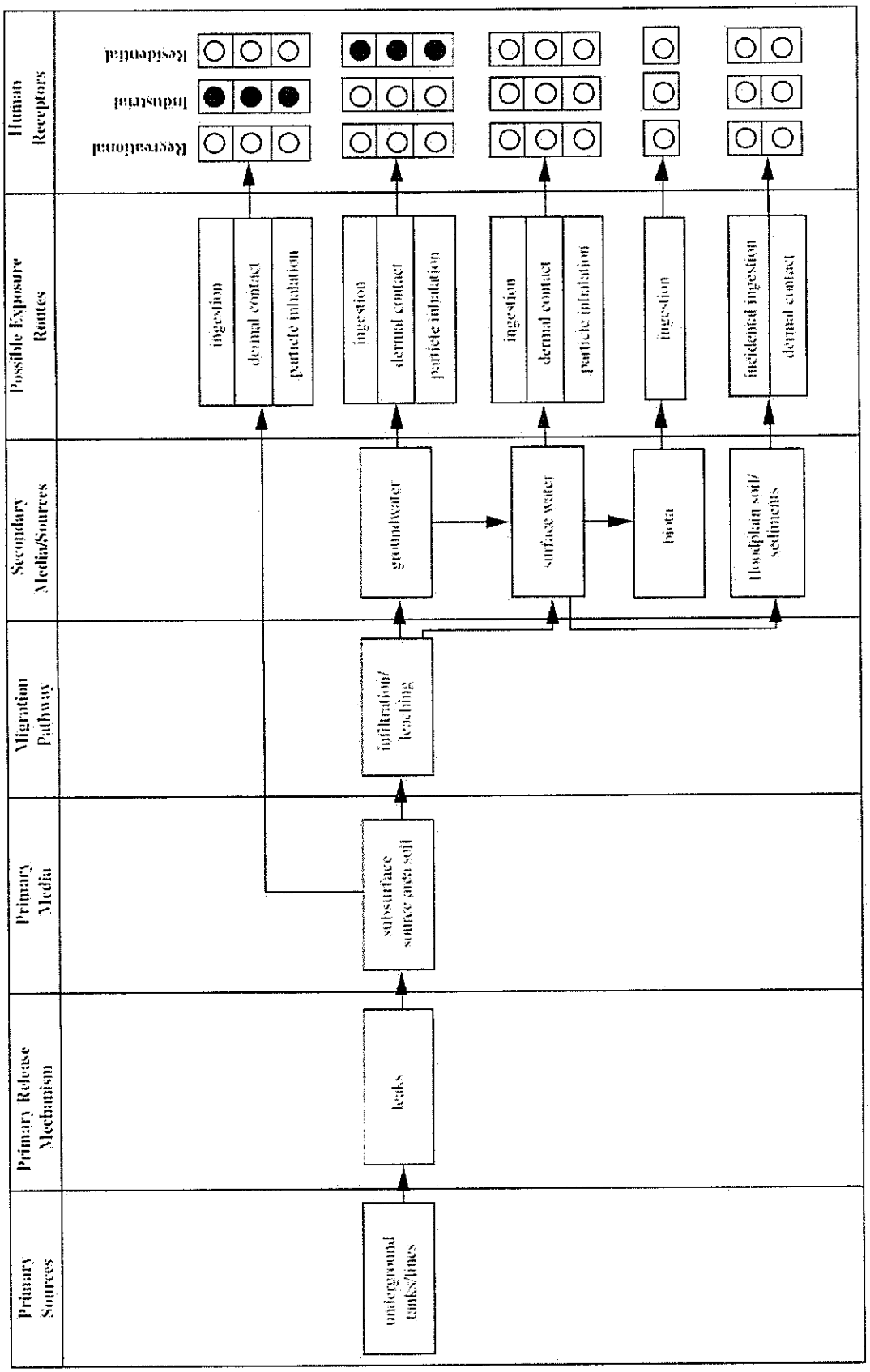

Figure 20. Conceptual Exposure Model for the USTs 48 & 49 Site, Facility ID #9-089054

APPENDIX II

REPORT TABLES

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Table 1a. UST System Closure – Soil Analytical Results
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Depth (ft BGS)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH (mg/kg)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)
48-49-N.W.	N/A	03/21/95	0.00103 U	0.00186 =	0.00103 U	0.00588 =	0.00774	61.4 =	N/A	N/A
48-49-E.W.	N/A	03/21/95	0.00102 U	0.00225 =	0.00102 U	0.00409 =	0.00634	51.1 =	N/A	N/A
48-49-S.W.	N/A	03/21/95	0.255 U	2.75 =	3.98 =	46.2 =	53.185	259 =	N/A	N/A
48-49-W.W.	N/A	03/21/95	0.252 U	2.49 =	2.76 =	34.3 =	39.802	327 =	N/A	N/A
48-S1	N/A	06/11/97	0.0024 U	0.0024 U	0.0024 U	0.0072 U	ND	N/A	N/A	0.6 U
48-S2-4.75	N/A	06/12/97	0.388 =	0.51 =	0.837 =	4.61 =	6.345	N/A	N/A	109 =
49-S1	N/A	06/11/97	0.0058 U	0.0058 U	0.0058 U	0.017 U	ND	N/A	12 U	N/A
48-PIPE	N/A	06/11/97	0.0012 U	0.0012 U	0.0012 U	0.0037 U	ND	N/A	N/A	0.12 U
49-PIPE	N/A	06/11/97	0.0011 U	0.0011 U	0.0011 U	0.0033 U	ND	N/A	11 U	0.11 U
1175-DISP1	N/A	06/11/97	0.0022 U	0.0022 U	0.0022 U	0.0067 U	ND	N/A	11 U	0.56 U
1175-DISP2	N/A	06/11/97	0.0022 U	0.0022 U	0.0022 U	0.0067 U	ND	N/A	11 U	0.56 U
GUST Soil Threshold Levels (Table A, Column 2)			0.008	6	10	700	NRC	NRC	NRC	NRC

NOTES:

BGS	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
GUST	Georgia Underground Storage Tank Management Program
N/A	Not applicable, analyte was not analyzed for during closure sampling
ND	Not detected
NRC	No regulatory criteria
PAH	Polynuclear aromatic hydrocarbon
TPH	Total petroleum hydrocarbons
UST	Underground storage tank

Laboratory Qualifiers

U	Indicates the compound was not detected at the concentration reported.
UJ	Indicates the compound was not detected above an approximated sample quantitation limit.
J	Indicates the value for the compound is an estimated value.
=	Indicates the compound was detected at the concentration reported.

Table 1b. UST System Closure – Soil Analytical Results
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)							
			Napthalene	2-Methylnaphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene
48-49-N.W.	N/A	03/21/95					0.83 =	0.83 =	1.2 =	1.77 =
48-49-E.W.	N/A	03/21/95								
48-49-S.W.	N/A	03/21/95	8.98 =				3.45 =	3.45 =	5.98 =	6.5 =
48-49-W.W	N/A	03/21/95	16 =		2.49 =	2.29 =	4.12 =	4.12 =	7.59 =	7.41 =
48-S1	N/A	06/11/97								
48-S2-4.75	N/A	06/12/97	1.21 =	2.62 =						
49-S1	N/A	06/11/97								
48-PIPE	N/A	06/11/97								
49-PIPE	N/A	06/11/97					1.07 =		0.87 =	1.16 =
1175-DISP1	N/A	06/11/97								
1175-DISP2	N/A	06/12/97								
GUST Soil Threshold Levels (Table A, Column 2)			NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC

Sample Location	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)								Total PAHs (mg/kg)
			Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indo (1,2,3-cd) pyrene	Dibenz (a,h) Anthracene	Benzo (g,h,i) perylene	
48-49-N.W.	N/A	03/21/95	1.68 =	1.68 =	3.28 =	3.28 =	2.05 =	1.33 =	1.33 =	2.88 =	22.13
48-49-E.W.	N/A	03/21/95									ND
48-49-S.W.	N/A	03/21/95	2.85 =	2.85 =	2.45 =	2.45 =	6.55 =			2.22 =	47.73
48-49-W.W	N/A	03/21/95	3.83 =	3.83 =	3.36 =	3.36 =	8.3 =			2.77 =	16.47
48-S1	N/A	06/11/97									ND
48-S2-4.75	N/A	06/12/97									1.21
49-S1	N/A	06/11/97									ND
48-PIPE	N/A	06/11/97									ND
49-PIPE	N/A	06/11/97	0.41 =	0.48 =	0.41 =		0.37 =				4.77
1175-DISP1	N/A	06/11/97									ND
1175-DISP2	N/A	06/12/97									ND
GUST Soil Threshold Levels (Table A, Column 2)			NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC

Same notes and laboratory qualifiers as Table 1a.

Table 1c. UST System Closure – Groundwater Analytical Results
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Depth (ft BGS)	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)
48-49-G.W	N/A	03/21/95	100 U	460 =	230 =	1235 =	1925
49-GRW	N/A	06/12/97	748 =	2940 =	2600 =	15000 =	21288
In-Stream Water Quality Standards (GA Chapter 391-3-6)			71.28	200,000	28,718	NRC	NRC

Table 1d. UST System Closure – Groundwater Analytical Results
(POLYNUCLEAR ANALYTICAL RESULTS)

Sample Location	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (µg/L)				Total PAHs (µg/L)
			Napthalene				
48-49-G.W.	N/A	03/21/95	3130 =				3130
49-GRW	N/A	06/12/97					NR
In-Stream Water Quality Standards (GA Chapter 391-3-6)			NRC				NRC

NOTES:

BGS	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
N/A	Not applicable
ND	Not detected
NR	Not requested during closure sampling
NRC	No regulatory criteria.

Laboratory Qualifiers

U	Indicates the compound was not detected at the concentration reported.
UJ	Indicates the compound was not detected above an approximated sample quantitation limit.
J	Indicates the value for the compound is an estimated value.
=	Indicates the compound was detected at the concentration reported.

Table 2a. CAP-Part A/B – Soil Analytical Results
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)
CAP-Part A Investigation										
79-01	790111	0.9 – 2.0	05/12/98	0.0043 U	0.0043 U	0.0043 U	0.13 U	0.1429	15.4 J	1.09 U
79-01	790121	2.0 – 4.0	05/12/98	0.0022 U	0.007 =	0.0022 U	0.0065 U	0.007	1.6 U	1.09 U
79-02	790211	2.0 – 4.0	05/12/98	0.0022 U	0.0022 U	0.0022 U	0.0066 U	ND	0.52 U	1.1 U
79-02	790221	0.7 – 2.0	05/12/98	0.0022 U	0.0103 =	0.0022 U	0.0067 U	0.0103	0.45 U	1.11 U
79-03	790321	0.8 – 2.0	05/12/98	0.0022 U	0.0022 U	0.0022 U	0.0064 U	ND	0.37 UJ	1.08 U
79-04	790411	0.8 – 2.0	05/12/98	0.0022 U	0.0102 =	0.0022 U	0.0066 U	0.0102	7 =	0.0916 J
79-04	790421	2.0 – 4.0	05/12/98	0.0044 U	0.0044 U	0.0044 U	0.0133 U	ND	0.3 U	1.11 U
79-05	790511	2.0 – 4.0	05/12/98	0.0044 U	0.0044 U	0.0044 U	0.0132 U	ND	0.86 U	1.1 U
79-05	790521	4.0 – 6.0	05/12/98	0.0026 U	0.0046 =	0.0024 J	0.0077 J	0.0147	8.6 =	0.116 J
79-05	790531	10.0 – 12.0	05/12/98	0.0026 U	0.005 =	0.0026 U	0.0079 U	0.005	0.71 U	0.0644 J
79-05	790541	16.0 – 18.0	05/12/98	0.0026 U	0.0036 =	0.0026 U	0.0079 U	0.0036	1.6 U	0.0766 J
79-05	790551	24.0 – 26.0	05/12/98	0.0049 U	0.0098 =	0.0049 U	0.0147 U	0.0098	1.4 R	1.23 U
79-05	790561	30.0 – 32.0	05/12/98	0.0033 U	0.0033 U	0.0033 U	0.0098 U	ND	0.6 U	1.32 U
79-05	790571	32.0 – 34.0	05/12/98	0.0047 U	0.0047 U	0.0047 U	0.0141 U	ND	1.3 R	1.18 U
CAP-Part B Investigation										
79-06	790611	1.0 – 2.5	02/17/99	0.002 U	0.002 U	0.002 U	0.003 U	ND	0.37 U	0.108 U
79-06	790621	7.5 – 10.0	02/17/99	0.0024 U	0.00083 J	0.0024 U	0.001 J	0.00183	1 U	0.125 U
79-07	790711	5.0 – 7.5	02/18/99	0.0034 =	0.0022 U	0.0022 U	0.0033 U	0.0034	0.25 U	0.123 U
79-07	790721	2.5 – 5.0	02/18/99	0.0021 U	0.0021 U	0.0021 U	0.0032 U	ND	0.21 UJ	0.122 U
79-08	790811	2.5 – 5.0	02/18/99	0.002 U	0.002 U	0.002 U	0.003 U	ND	0.22 U	0.118 U
79-08	790821	5.0 – 7.5	02/18/99	0.0021 U	0.0021 U	0.00018 J	0.0032 U	0.00018	0.4 U	0.285 =
79-09	790911	5.0 – 7.5	02/18/99	0.0024 U	0.0024 U	0.0024 U	0.0036 U	ND	0.32 U	0.123 U
79-09	790921	2.5 – 5.0	02/18/99	0.0021 U	0.0021 U	0.0021 U	0.0032 U	ND	0.47 U	0.122 U
79-10	791011	3.0 – 5.0	02/18/99	0.0021 U	0.0021 U	0.0021 U	0.0031 U	ND	0.49 U	0.123 U
79-10	791021	0.9 – 3.0	02/18/99	0.0018 U	0.0018 U	0.0018 U	0.0027 U	ND	0.87 U	0.108 U
79-11	791111	3.0 – 5.0	02/18/99	0.0021 U	0.0021 U	0.0021 U	0.0032 U	ND	0.18 U	0.122 U
79-11	791121	5.0 – 7.5	02/18/99	0.0026 U	0.0026 U	0.0026 U	0.0038 U	ND	0.38 U	0.133 U
GUST Soil Threshold Levels (Table A, Column 2)				0.008	6.000	10	700	NRC	NRC	NRC

NOTES:

May 1998 sampling was performed prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during that sampling event; however, the new SW-846 analytical methods were used on all samples collected in 1999.

BGS Below ground surface
BTEX Benzene, toluene, ethylbenzene, and total xylenes
DRO Diesel Range Organics
GRO Gasoline Range Organics
ND Not detected
NRC No regulatory criteria
TPH Total petroleum hydrocarbon

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.
UJ Indicates the compound was not detected above an approximated sample quantitation limit.
J Indicates the value for the compound was an estimated value.
= Indicates the compound was detected at the concentration reported.

Table 2b. CAP-Part A/B – Soil Analytical Results
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)												Total PAHs (mg/kg)
				acenaphthylene	anthracene	benzo (a) anthracene	benzo (a) pyrene	benzo (g,h,i) perylene	benzo (b) fluoranthene	chrysene	fluoranthene	fluorene	indeno (1,2,3-cd) pyrene	phenanthrene	pyrene	
CAP-Part A Investigation																
79-01	790111	0.9 – 2.0	05/12/98			0.0351 J	0.438 =	0.282 J	0.758 =	0.552 J	0.28 J		0.297 J		0.48 =	3.087
79-01	790121	2.0 – 4.0	05/12/98				0.239 J		0.432 =	0.252 J					0.195 J	1.118
79-02	790211	2.0 – 4.0	05/12/98						0.257 J	0.207 J						0.464 J
79-02	790221	0.7 – 2.0	05/12/98						0.279 J							0.279 J
79-03	790321	0.8 – 2.0	05/12/98				0.181 J		0.302 J							0.483 J
79-04	790411	0.8 – 2.0	05/12/98			1.0 =	1.24 =	0.891 =	1.88 =	1.4 J	0.823 =		0.797 =		1.48 =	9.511 =
73-04	790421	2.0 – 4.0	05/12/98													ND
79-05	790511	2.0 – 4.0	05/12/98			0.187 J	0.291 J		0.477 =	0.296 J					0.234 J	1.485
79-05	790521	4.0 – 6.0	05/12/98			0.374 J	0.425 J	0.263 J	0.635 =	0.505 J	0.323 J		0.26 J		0.569 J	3.354
79-05	790531	10.0 – 12.0	05/12/98													ND
79-05	790541	16.0 – 18.0	05/12/98	0.0614 J	0.185 J	0.485 =	0.337 J	0.19 J	0.41 J	0.66 =	1.19 =	0.111 J	0.195 J	1.87 =	1.57 =	7.2644
79-05	790551	24.0 – 26.0	05/12/98							0.234 J	0.341 J			0.278 J	0.498 =	1.351
79-05	790561	30.0 – 32.0	05/12/98													ND
79-05	790571	32.0 – 34.0	05/12/98													ND
GUST Soil Threshold Levels (Table A, Column 2)				NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC

NOTES:

May 1998 sampling was performed prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during that sampling event; however, the new SW-846 analytical methods were used on all samples collected in 1999.

ND Not detected; refer to Appendix V, Tables V-A and V-B, for complete list of PAH results
BGS Below ground surface
N/A Not applicable
PAH Polynuclear aromatic hydrocarbon

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.
UJ Indicates the compound was not detected above an approximated sample quantitation limit.
J Indicates the value for the compound was an estimated value.
= Indicates the compound was detected at the concentration reported.

Table 2b. CAP-Part A/B – Soil Analytical Results (continued)
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)										Total PAHs (mg/kg)
				acenaphthylene	benzo (a) anthracene	benzo (a) pyrene	benzo (b) fluoranthene	benzo (g,h,i) perylene	benzo (k) fluoranthene	chrysene	fluoranthene	indeno (1,2,3-cd) pyrene	pyrene	
CAP-Part B Investigation														
79-06	790611	1.0 – 2.5	02/17/99											ND
79-06	790621	7.5 – 10.0	02/17/99											ND
79-07	790711	5.0 – 7.5	02/18/99											ND
79-07	790721	2.5 – 5.0	02/18/99		0.0362 J	0.0498 J	0.0529 J	0.0363 J	0.0424 J	0.0495 J	0.0243 J	0.145 J	0.0495 J	0.4859
79-08	790811	2.5 – 5.0	02/18/99							0.0716 J	0.0496 J	0.153 J	0.0874 J	0.6072
79-08	790821	5.0 – 7.5	02/18/99	0.0209 J	0.059 J	0.0622 J	0.0644 J	0.0391 J						ND
79-09	790911	5.0 – 7.5	02/18/99											ND
79-09	790921	2.5 – 5.0	02/18/99											ND
79-10	791011	3.0 – 5.0	02/18/99											ND
79-10	791021	0.9 – 3.0	02/18/99											ND
79-11	791111	3.0 – 5.0	02/18/99											ND
79-11	791121	5.0 – 7.5	02/18/99											
GUST Soil Threshold Levels (Table A, Column 2)				NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC	NRC

NOTES:
May 1998 sampling was performed prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during that sampling event.; however, the new SW-846 analytical methods were used on all samples collected in 1999.

ND Not detected; refer to Appendix V, Tables V-A and V-B, for complete list of PAH results
BGS Below ground surface
N/A Not applicable
PAH Polynuclear aromatic hydrocarbon

Laboratory Qualifiers
U Indicates the compound was not detected above the reported sample quantitation limit.
UJ Indicates the compound was not detected above an approximated sample quantitation limit.
J Indicates the value for the compound was an estimated value.
= Indicates the compound was detected at the concentration reported.

Table 3. CAP-Part A/B – Soil Field Screening (Headspace[1]) Data

Depth (ft BGS)	79-01 (ppm)	79-02 (ppm)	79-03 (ppm)	79-04 (ppm)	79-05 (ppm)
0.0 – 2.0	12.6	21.4	0.0	NC	0.0
2.0 – 4.0	21.7	0.0	0.0	NC	0.0
4.0 – 6.0	NC	NC	NC	NC	0.4
6.0 – 8.0	NC	NC	NC	NC	0.0
8.0 – 10.0	NA	NA	NC	NC	NC
10.0 – 12.0	NA	NA	NA	NA	0.0
12.0 – 14.0	NA	NA	NA	NA	NC
14.0 – 16.0	NA	NA	NA	NA	NC
16.0 – 18.0	NA	NA	NA	NA	20.2
18.0 – 20.0	NA	NA	NA	NA	NC
20.0 – 22.0	NA	NA	NA	NA	NC
22.0 – 24.0	NA	NA	NA	NA	NC
24.0 – 26.0	NA	NA	NA	NA	0.0
26.0 – 28.0	NA	NA	NA	NA	NC
28.0 – 30.0	NA	NA	NA	NA	NC
30.0 – 32.0	NA	NA	NA	NA	0.0
32.0 – 34.0	NA	NA	NA	NA	0.0

Depth (ft BGS)	79-06 (ppm)	79-07 (ppm)	79-08 (ppm)	79-09 (ppm)	79-10 (ppm)	79-11 (ppm)	79-12 (ppm)
0.0 – 2.5	3.2	58.0	8.0	6.6	18.0	16.2	NC
2.5 – 5.0	6.2	73.0	6.6	10.8	13.5	16.1	NC
5.0 – 7.5	19.0	8.0	11.9	5.3	14.9	60.0	NC
7.5 – 10.0	38.0	36.0	NC	NC	NC	NC	NC
10.0 – 12.5	NC	NC	NC	NC	NC	NC	NA
12.5 – 15.0	NC	NC	NC	NC	NC	NC	NA

[1] Headspace measured using a photoionization detector.
NA Not applicable; interval is below the total depth of boring.
NC Not collected due to no sample recovery, sample interval below the water table, or headspace measurements were not recorded.
ppm parts per million

Table 4a. CAP-Part A/B – Groundwater Analytical Results

(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Sample ID	Screened Interval (ft BGS)	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)
CAP-Part A Investigation								
79-01	790112	0.0 – 8.0	05/12/98	**940** =	15600 =	3980 =	23800 J	44320
79-02	790212	0.0 – 8.0	05/12/98	**188** =	196 =	197 =	1140 =	1721
79-03	790312	0.0 – 10.0	05/12/98	5.7 =	39.5 =	10.3 =	49.2 =	104.7
79-04	790412	0.0 – 8.0	05/12/98	7.6 =	37.9 =	8.1 =	27.7 =	81.3
CAP-Part B Investigation								
79-06	790612	3.1 – 13.1	03/09/99	0.51 J	3.3 =	1.1 J	6.8 =	11.71
79-07	790712	2.7 – 12.7	03/09/99	1.3 J	3.3 =	2 U	1.1 J	5.7
79-08	790812	2.5 – 12.5	03/10/99	1.8 J	5.9 =	1.1 J	6.5 =	15.3
79-09	790912	2.0 – 12.0	03/09/99	16.8 =	1.5 J	2 U	2.3 J	20.6
79-10	791012	2.5 – 12.5	03/10/99	2 U	2 U	2 U	3 U	ND
79-11	791112	1.9 – 11.9	03/10/99	2 U	2 U	2 U	3 U	ND
79-12	791212	0.5 – 10.5	09/22/99	2 U	2 U	2 U	6 U	ND
In-Stream Water Quality Standards (GA Chapter 391-3-6)				71.28	200,000	28,718	NRC	NRC

NOTES:

May 1998 sampling was performed prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during that sampling event; however, the new SW-846 analytical methods were used on all samples collected in 1999.

BGS Below ground surface
BTEX Benzene, toluene, ethylbenzene, and total xylenes
ND Not detected
NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.
UJ Indicates the compound was not detected above an approximated sample quantitation limit.
J Indicates the value for the compound was an estimated value.
= Indicates the compound was detected at the concentration reported.

Table 4b. CAP-Part A/B – Groundwater Analytical Results
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Screened Interval (ft BGS)	Date Sampled	Detected PAH Compounds (µg/L)							Total PAH (µg/L)
				benzo (b) fluoranthene	benzo (k) fluoranthene	benzo (g,h,i) perylene	fluoranthene	indeno(1,2,3-cd) pyrene	naphthalene	pyrene	
CAP-Part A Investigation											
79-01	790112	0.0 – 8.0	05/12/98				1.0 J		616.0 =	1.9 J	618.9
79-02	790212	0.0 – 8.0	05/12/98						46.0 =		46
79-03	790312	0.0 – 10.0	05/12/98								ND
79-04	790412	0.0 – 8.0	05/12/98	3.1 J			1.0 J			2.2 J	6.3
CAP-Part B Investigation											
79-06	790612	3.1 – 13.1	03/09/99								ND
79-07	790712	2.7 – 12.7	03/09/99								ND
79-08	790812	2.5 – 12.5	03/10/99								ND
79-09	790912	2.0 – 12.0	03/09/99								ND
79-10	791012	2.5 – 12.5	03/10/99								ND
79-11	791112	1.9 – 11.9	03/10/99								ND
79-12	791212	0.5 – 10.5	09/22/99	7.0 J	1.9 J	0.75 J		5.9 J			15.55
In-Stream Water Quality Standards (GA Chapter 391-3-6)				NRC	0.0311	NRC	370	NRC	NRC	NRC	NRC

NOTES:

May 1998 sampling was performed prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during that sampling event; however, the new SW-846 analytical methods were used on all samples collected in 1999.

BGS Below ground surface
ND Not detected
NRC No regulatory criteria
PAH Polynuclear aromatic hydrocarbons

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.
UJ Indicates the compound was not detected above an approximated sample quantitation limit.
J Indicates the value for the compound was an estimated value.
= Indicates the compound was detected at the concentration reported.

Table 5. CAP-Part A/B – Geotechnical Results

Boring ID	Sample ID	Depth Interval (ft BGS)	Grain size analysis - % Fines	Grain size analysis - % Sand	Grain size analysis - % Gravel	Liquid Limit	Plastic Limit	Plasticity Index	Natural Moisture Content (%)	Porosity	Specific Gravity	Permeability (cm/sec)
79-03	790331	8.0 – 10.0	5	95	0	NP	NP	NP	19.0	0.38	2.61	8.56×10^{-6}
79-06	790631	8.5 – 10.0	3	96	1	NP	NP	NP	16.9	—	—	—
79-07	790731	10.0 – 12.5	3	96	1	NP	NP	NP	18.5	—	—	—
79-08	790831	10.0 – 13.0	2	97	1	NP	NP	NP	21.8	—	—	—
79-09	790931	7.5 – 10.0	2	92	6	NP	NP	NP	20.2	—	—	—
79-10	791031	9.0 – 10.0	2	95	3	NP	NP	NP	18.8	—	—	—
79-11	791131	9.0 – 10.0	1	99	0	NP	NP	NP	18.6	—	—	—

NOTES:
BGS Below ground surface
NP Non-plastic

Table 6. CAP-Part A/B – Well Construction Details

Boring/Well Number	Date Installed	Boring Depth (ft BGS)	Screened Interval (ft BGS)	Type of Completion	Coordinates (NAD 88)	Ground Surface Elevation (NGVD 29)	Top of Casing Elevation (NGVD 29)
CAP-Part A Investigation							
79-01	5/12/98	8.0	0.0 – 8.0	temporary piezometer	N 677461.35 E 826782.41	83.99	86.84
79-02	5/12/98	8.0	0.0 – 8.0	temporary piezometer	N 677484.60 E 826784.87	83.95	86.37
79-03	5/12/98	10.0	0.0 – 10.0	temporary piezometer	N 677503.15 E 826813.92	83.87	86.94
79-04	5/12/98	8.0	0.0 – 8.0	temporary piezometer	N 677449.50 E 826809.40	83.90	86.79
79.05	5/12/98	34.0	N/A	vertical profile	N 677485.11 E 826808.77	83.89	N/A
CAP-Part B Investigation							
79-06	2/17/99	15.0	3.1 – 13.1	2-inch PVC	N 677468.15 E 826847.40	83.85	83.51
79-07	2/18/99	15.0	2.7 – 12.7	2-inch PVC	N 677428.09 E 826793.13	83.67	83.37
79-08	2/18/99	15.0	2.5 – 12.5	2-inch PVC	N 677469.45 E 826775.92	83.94	83.62
79-09	2/18/99	15.0	2.0 – 12.0	2-inch PVC	N 677486.56 E 826716.46	83.20	82.79
79-10	2/18/99	15.0	2.5 – 12.5	2-inch PVC	N 677536.73 E 826740.32	83.46	83.18
79-11	2/18/99	15.0	1.9 – 11.9	2-inch PVC	N 677516.61 E 826812.10	83.82	83.46
79-12	9/22/99	15.0	0.5 – 10.5	¾-inch PVC	N 677493.98 E 826635.68	83.34	83.13

NOTES:
NA Not applicable
PVC Polyvinyl chloride

Table 7. CAP-Part A/B - Groundwater Elevations

Well Number	Date Measured	Ground Surface Elev. (ft MSL)	Top of Casing Elev. (ft MSL)	Depth of Screened Interval (ft BGS)	Depth of Free Product (ft BTOC)	Water Depth (ft BTOC)	Product Thickness (ft)	Specific Gravity Adjustment	Corrected Groundwater Elev. (ft MSL)
CAP-Part A Investigation									
79-01	05/13/98	83.99	86.84	0.0 – 8.0	N/A	6.45	N/A	N/A	79.36
79-02	05/13/98	83.95	86.37	0.0 – 8.0	N/A	6.87	N/A	N/A	79.36
79-03	05/13/98	83.87	86.94	0.0 – 10.0	N/A	6.15	N/A	N/A	79.54
79-04	05/13/98	83.90	86.79	0.0 – 8.0	N/A	6.15	N/A	N/A	79.61
CAP-Part B Investigation									
79-06	3/11/99	83.85	83.51	3.1 – 13.1	N/A	4.55	N/A	N/A	78.96
79-07	3/11/99	83.67	83.37	2.7 – 12.7	N/A	4.96	N/A	N/A	78.41
79-08	3/11/99	83.94	83.62	2.5 – 12.5	N/A	5.23	N/A	N/A	78.39
79-09	3/11/99	83.20	82.79	2.0 – 12.0	N/A	4.73	N/A	N/A	78.06
79-10	3/11/99	83.46	83.18	2.5 – 12.5	N/A	4.99	N/A	N/A	78.19
79-11	3/11/99	83.82	83.46	1.9 – 11.9	N/A	4.90	N/A	N/A	78.56
79-06	10/7/99	83.85	83.51	3.1 – 13.1	N/A	3.58	N/A	N/A	79.93
79-07	10/7/99	83.67	83.37	2.7 – 12.7	N/A	4.01	N/A	N/A	79.36
79-08	10/7/99	83.94	83.62	2.5 – 12.5	N/A	4.27	N/A	N/A	79.35
79-09	10/7/99	83.20	82.79	2.0 – 12.0	N/A	3.86	N/A	N/A	78.93
79-10	10/7/99	83.46	83.18	2.5 – 12.5	N/A	3.97	N/A	N/A	79.21
79-11	10/7/99	83.82	83.46	1.9 – 11.9	N/A	3.91	N/A	N/A	79.55
79-12	10/6/99	83.34	83.13	0.5 – 10.5	N/A	5.92	N/A	N/A	77.21

NOTES:

BGS	Below ground surface
BTOC	Below top of casing
MSL	Mean sea level
N/A	Not applicable

Table 8. CAP-Part A - Soil Data Risk-based Screening Results

Station:	Screening Levels			79-01	79-01	79-02	79-02	79-03	79-04	79-04
Sample ID:	GUST Soil	Risk-based		790111	790121	790211	790221	790321	790411	790421
Sample Interval:	Threshold	Screening	Leaching to	0.0 – 2.0	2.0 – 3.6	2.0 – 3.3	0.0 – 2.0	0.2 – 2.9	0.0 – 2.0	0.0 – 2.0
Collection Date:	Level[a]	Level[b]	Groundwater[c]	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98
Units:	(µg/kg)	(µg/kg)	(µg/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
VOLATILE ORGANIC COMPOUNDS										
Benzene	8	197,400	30	4.3 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.4 U
Toluene	6000	408,800,000	12,000	4.3 U	7.7 =	2.2 U	10.3 =	2.2 U	10.2 =	4.4 U
Ethylbenzene	10000	204,400,000	13,000	4.3 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.4 U
Xylenes, Total	700000	4,088,000,000	190,000	13 U	6.5 U	6.6 U	6.7 U	6.4 U	6.6 U	13.3 U
POLYNUCLEAR AROMATIC HYDROCARBONS										
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	361 U	362 U	366 U	370 U	358 U	350 U	368 U
Acenaphthene	N/A[e]	12,264,000	570,000	361 U	362 U	366 U	370 U	358 U	350 U	368 U
Acenaphthylene	N/A[e]	61,320,000	4,200,000	361 U	362 U	366 U	370 U	358 U	350 U	368 U
Anthracene	N/A[e]	613,200,000	12,000,000	361 U	362 U	366 U	370 U	358 U	350 U	368 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	351 J	362 U	366 U	370 U	358 U	350 U	368 U
Benzo(a)pyrene	N/A[e]	784	8,000	438 =	239 J	366 U	370 U	358 U	1000 =	368 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	758 =	432 =	257 J	370 U	181 J	*1240* =	368 U
Benzo(g,h,i)perylene	N/A[e]	--	--	282 J	362 U	366 U	279 J	302 J	1880 =	368 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	361 U	362 U	366 U	370 U	358 U	891 =	368 U
Chrysene	N/A[e]	784,000	160,000	552 J	252 J	207 J	370 U	358 U	350 U	368 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	361 U	362 U	366 U	370 U	358 U	1400 J	368 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	280 J	362 U	366 U	370 U	358 U	350 U	368 U
Fluorene	N/A[e]	81,760,000	560,000	361 U	362 U	366 U	370 U	358 U	823 =	368 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	297 J	362 U	366 U	370 U	358 U	350 U	368 U
Naphthalene	N/A[e]	40,880,000	4,200,000	361 U	362 U	366 U	370 U	358 U	797 =	368 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	361 U	362 U	366 U	370 U	358 U	350 U	368 U
Pyrene	N/A[e]	61,320,000	84,000	480 =	195 J	366 U	370 U	358 U	1480 =	368 U
OTHER ANALYTES										
Lead	--	5,000,000	--		3700 =		4500 =	1900 =		3300 =
TPH-Diesel Range Organics	--	--	--	15400 J	1600 U	520 U	450 U	370 UJ	7000 =	300 U
TPH-Gasoline Range Organics	--	--	--	1090 U	1090 U	1100 U	1110 U	1080 U	91.6 J	1110 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.
Bold values indicate results exceeding Georgia UST action levels.
Italicized values indicate results exceeding risk-based screening levels.
Underlined values indicate results exceeding leaching to groundwater screening levels.
U Indicates the compound was not detected above the reported sample quantitation limit.
J Indicates the value for the compound was an estimated value.
UJ Indicates the sample was not detected above an approximate sample quantitation limit.
R Indicates the sample results are unusable and the presence or absence of the compound could not be verified.
= Indicates the compound was detected at the concentration reported.

Table 8. CAP-Part A - Soil Data Risk-based Screening Results (continued)

Station:	Screening Levels			79-05	79-05	79-05	79-05	79-05	79-05	79-05
Sample ID:	GUST Soil	Risk-based		790511	790521	790531	790541	790551	790561	790571
Sample Interval:	Threshold	Screening	Leaching to	2.0 – 4.0	4.0 – 6.0	10.0 – 12.0	16.0 – 18.0	24.0 – 26.0	30.0 – 32.0	32.0 – 34.0
Collection Date:	Level[a]	Level[b]	Groundwater[c]	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-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										
Benzene	8	197,400	30	4.4 U	2.6 U	2.6 U	2.6 U	4.9 U	3.3 U	4.7 U
Toluene	6000	408,800,000	12,000	4.4 U	4.6 =	5 =	3.6 =	9.8 =	3.3 U	4.7 U
Ethylbenzene	10000	204,400,000	13,000	4.4 U	2.4 J	2.6 U	2.6 U	4.9 U	3.3 U	4.7 U
Xylenes, Total	700000	4,088,000,000	190,000	13.2 U	7.7 J	7.9 U	7.9 U	14.7 U	9.8 U	14.1 U
POLYNUCLEAR AROMATIC HYDROCARBONS										
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	360 U	434 U	397 U	434 U	409 U	427 U	388 U
Acenaphthene	N/A[e]	12,264,000	570,000	360 U	434 U	397 U	434 U	409 U	427 U	388 U
Acenaphthylene	N/A[e]	61,320,000	4,200,000	360 U	434 U	397 U	61.4 J	409 U	427 U	388 U
Anthracene	N/A[e]	613,200,000	12,000,000	360 U	434 U	397 U	185 J	409 U	427 U	388 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	187 J	374 J	397 U	485 =	409 U	427 U	388 U
Benzo(a)pyrene	N/A[e]	784	8,000	291 J	425 J	397 U	337 J	409 U	427 U	388 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	477 =	635 =	397 U	410 J	409 U	427 U	388 U
Benzo(g,h,i)perylene	N/A[e]	--	--	360 U	263 J	397 U	190 J	409 U	427 U	388 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	360 U	434 U	397 U	434 U	409 U	427 U	388 U
Chrysene	N/A[e]	784,000	160,000	296 J	505 J	397 U	660 =	234 J	427 U	388 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	360 U	434 U	397 U	434 U	409 U	427 U	388 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	360 U	323 J	397 U	1190 =	341 J	427 U	388 U
Fluorene	N/A[e]	81,760,000	560,000	360 U	434 U	397 U	111 J	409 U	427 U	388 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	360 U	260 J	397 U	195 J	409 U	427 U	388 U
Naphthalene	N/A[e]	40,880,000	4,200,000	360 U	434 U	397 U	434 U	409 U	427 U	388 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	360 U	434 U	397 U	1870 =	278 J	427 U	388 U
Pyrene	N/A[e]	61,320,000	84,000	234 J	569 J	397 U	1570 =	498 =	427 U	388 U
OTHER ANALYTES										
Lead	--	5,000,000	--	3500 =						
TPH-Diesel Range Organics	--	--	--	860 U	8600 =	710 U	1600 U	1400 R	600 U	1300 R
TPH-Gasoline Range Organics	--	--	--	1100 U	116 J	64.4 J	76.6 J	1230 U	1320 U	1180 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.

Bold values indicate results exceeding Georgia UST action levels.
Italicized values indicate results exceeding risk-based screening levels.
Underlined values indicate results exceeding leaching to groundwater screening levels.

U Indicates the compound was not detected above the reported sample quantitation limit.
J Indicates the value for the compound was an estimated value.
UJ Indicates the sample was not detected above an approximate sample quantitation limit.
R Indicates the sample results are unusable and the presence or absence of the compound could not be verified.
= Indicates the compound was detected at the concentration reported.

Table 9. CAP-Part B - Soil Data Risk-based Screening Results

Station:	Screening Levels			79-06	79-06	79-07	79-07	79-08	79-08
Sample ID:	GUST Soil	Risk-based		790611	790621	790711	790721	790811	790821
Sample Interval (ft BGS):	Threshold	Screening	Leaching to	1.0 – 2.5	7.5 – 10.0	5.0 – 7.5	2.5 – 5.0	2.5 – 5.0	5.0 – 7.5
Collection Date:	Level[a]	Level[b]	Groundwater[c]	17-Feb-99	17-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99
Units:	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
VOLATILE ORGANIC COMPOUNDS									
Benzene	8	197,400	30	2 U	2.4 U	3.4 =	2.1 U	2 U	2.1 U
Toluene	6000	408,800,000	12,000	2 U	0.83 J	2.2 U	2.1 U	2 U	2.1 U
Ethylbenzene	10000	204,400,000	13,000	2 U	2.4 U	2.2 U	2.1 U	2 U	0.18 J
Xylenes, Total	700000	4,088,000,000	190,000	3 U	1 J	3.3 U	3.2 U	3 U	3.2 U
POLYNUCLEAR AROMATIC HYDROCARBONS									
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	358 U	417 U	412 U	406 U	392 U	412 U
Acenaphthene	N/A[e]	12,264,000	570,000	358 U	417 U	412 U	406 U	392 U	412 U
Acenaphthylene	N/A[e]	61,320,000	4,200,000	358 U	417 U	412 U	406 U	392 U	20.9 J
Anthracene	N/A[e]	613,200,000	12,000,000	358 U	417 U	412 U	406 U	392 U	412 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	358 U	417 U	412 U	406 U	36.2 J	59.0 J
Benzo(a)pyrene	N/A[e]	784	8,000	358 U	417 U	412 U	406 U	49.8 J	62.2 J
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	358 U	417 U	412 U	406 U	52.9 J	64.4 J
Benzo(g,h,i)perylene	N/A[e]	--	--	358 U	417 U	412 U	406 U	36.3 J	39.1 J
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	358 U	417 U	412 U	406 U	42.4 J	412 U
Chrysene	N/A[e]	784,000	160,000	358 U	417 U	412 U	406 U	49.5 J	71.6 J
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	358 U	417 U	412 U	406 U	392 U	412 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	358 U	417 U	412 U	406 U	24.3 J	49.6 J
Fluorene	N/A[e]	81,760,000	560,000	358 U	417 U	412 U	406 U	392 U	412 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	358 U	417 U	412 U	406 U	145 J	153 J
Naphthalene	N/A[e]	40,880,000	84,000	358 U	417 U	412 U	406 U	392 U	412 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	358 U	417 U	412 U	406 U	392 U	412 U
Pyrene	N/A[e]	61,320,000	4,200,000	358 U	417 U	412 U	406 U	49.5 J	87.4 J
OTHER ANALYTES									
Lead	--	5,000,000	--		4900 =		7700 =		6600 =
Total Organic Carbon	--	--	--		19600000 =		19000000 =		11400000 =
TPH–Diesel Range Organics	--	--	--	370 U	1000 U	250 U	210 UJ	220 U	400 U
TPH–Gasoline Range Organics	--	--	--	108 U	125 U	123 U	122 U	118 U	285 =

[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.

Bold values indicate results exceeding Georgia UST action levels.
Italicized values indicate results exceeding risk-based screening levels.
Underlined values indicate results exceeding leaching to groundwater screening levels.

U Indicates the compound was not detected above the reported sample quantitation limit.
J Indicates the value for the compound was an estimated value.
UJ Indicates the sample was not detected above an approximate sample quantitation limit.
R Indicates the sample results are unusable and the presence or absence of the compound could not be verified.
= Indicates the compound was detected at the concentration reported.

Table 9. CAP-Part B - Soil Data Risk-based Screening Results (continued)

Station:	Screening Levels			79-09	79-09	79-10	79-10	79-11	79-11
Sample ID:	GUST Soil	Risk-based		790911	790921	791011	791021	791111	791121
Sample Interval (ft BGS):	Threshold	Screening	Leaching to	5.0 – 7.5	2.5 – 5.0	3.0 – 5.0	0.9 – 3.0	3.0 – 5.0	5.0 – 7.5
Collection Date:	Level[a]	Level[b]	Groundwater[c]	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99
Units:	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
VOLATILE ORGANIC COMPOUNDS									
Benzene	8	197,400	30	2.4 U	2.1 U	2.1 U	1.8 U	2.1 U	2.6 U
Toluene	6000	408,800,000	12,000	2.4 U	2.1 U	2.1 U	1.8 U	2.1 U	2.6 U
Ethylbenzene	10000	204,400,000	13,000	2.4 U	2.1 U	2.1 U	1.8 U	2.1 U	2.6 U
Xylenes, Total	700000	4,088,000,000	190,000	3.6 U	3.2 U	3.1 U	2.7 U	3.2 U	3.8 U
POLYNUCLEAR AROMATIC HYDROCARBONS									
2-Chloronaphthalene[d]	N/A[e]	40,880,000	84,000	412 U	406 U	412 U	358 U	406 U	444 U
Acenaphthene	N/A[e]	12,264,000	570,000	412 U	406 U	412 U	358 U	406 U	444 U
Acenaphthylene	N/A[e]	61,320,000	4,200,000	412 U	406 U	412 U	358 U	406 U	444 U
Anthracene	N/A[e]	613,200,000	12,000,000	412 U	406 U	412 U	358 U	406 U	444 U
Benzo(a)anthracene	N/A[e]	7,840	2,000	412 U	406 U	412 U	358 U	406 U	444 U
Benzo(a)pyrene	N/A[e]	784	8,000	412 U	406 U	412 U	358 U	406 U	444 U
Benzo(b)fluoranthene	N/A[e]	7,840	5,000	412 U	406 U	412 U	358 U	406 U	444 U
Benzo(g,h,i)perylene	N/A[e]	--	--	412 U	406 U	412 U	358 U	406 U	444 U
Benzo(k)fluoranthene	N/A[e]	78,400	49,000	412 U	406 U	412 U	358 U	406 U	444 U
Chrysene	N/A[e]	784,000	160,000	412 U	406 U	412 U	358 U	406 U	444 U
Dibenzo(a,h)anthracene	N/A[e]	784	2,000	412 U	406 U	412 U	358 U	406 U	444 U
Fluoranthene	N/A[e]	81,760,000	4,300,000	412 U	406 U	412 U	358 U	406 U	444 U
Fluorene	N/A[e]	81,760,000	560,000	412 U	406 U	412 U	358 U	406 U	444 U
Indeno(1,2,3-cd)pyrene	N/A[e]	7,840	14,000	412 U	406 U	412 U	358 U	406 U	444 U
Naphthalene	N/A[e]	40,880,000	84,000	412 U	406 U	412 U	358 U	406 U	444 U
Phenanthrene[f]	N/A[e]	61,320,000	4,200,000	412 U	406 U	412 U	358 U	406 U	444 U
Pyrene	N/A[e]	61,320,000	4,200,000	412 U	406 U	412 U	358 U	406 U	444 U
OTHER ANALYTES									
Lead	--	5,000,000	--		8700 =		2100 =		10000 =
Total Organic Carbon	--	--	--		6490000 =		2380000 =		16700000 =
TPH–Diesel Range Organics	--	--	--	320 U	470 U	490 U	870 U	180 U	380 U
TPH–Gasoline Range Organics	--	--	--	123 U	122 U	123 U	108 U	122 U	133 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.

Bold values indicate results exceeding Georgia UST action levels.
Italicized values indicate results exceeding risk-based screening levels.
Underlined values indicate results exceeding leaching to groundwater screening levels.

U Indicates the compound was not detected above the reported sample quantitation limit.
J Indicates the value for the compound was an estimated value.
UJ Indicates the sample was not detected above an approximate sample quantitation limit.
R Indicates the sample results are unusable and the presence or absence of the compound could not be verified.
= Indicates the compound was detected at the concentration reported.

Table 10. CAP-Part A - Groundwater Data Risk-based Screening Results

Station:	Screening Levels		79-01	79-02	79-03	79-04
Sample ID:	In-Stream		790112	790212	790312	790412
Screened Interval (ft BGS)	Water Quality		0.0 – 8.0	0.0 – 8.0	0.0 – 8.0	0.0 – 8.0
Collection Date:	Standards	Risk-based[a]	12-May-98	12-May-98	12-May-98	12-May-98
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
VOLATILE ORGANIC COMPOUNDS						
Benzene	71.28	0.36	**940** =	**188** =	5.7 =	7.6 =
Toluene	200000	750	15600 =	196 =	39.5 =	37.9 =
Ethylbenzene	28718	1300	3980 =	197 =	10.3 =	8.1 =
Xylenes, Total	-	12000	23800 J	1140 =	49.2 =	27.7 =
POLYNUCLEAR AROMATIC HYDROCARBONS						
2-Chloronaphthalene[b]	-	6.5	20 U	20 U	20 U	20 U
Acenaphthene	-	365	20 U	20 U	20 U	20 U
Acenaphthylene[c]	-	182.5	20 U	20 U	20 U	20 U
Anthracene	110000	182.5	20 U	20 U	20 U	20 U
Benzo(a)anthracene	0.0311	0.092	**20 U**	**20 U**	**20 U**	**20 U**
Benzo(a)pyrene	0.0311	0.0092	**20 U**	**20 U**	**20 U**	**20 U**
Benzo(b)fluoranthene	-	0.092	20 U	20 U	20 U	3.1 J
Benzo(g,h,i)perylene	-	-	20 U	20 U	20 U	20 U
Benzo(k)fluoranthene	0.0311	0.92	**20 U**	**20 U**	**20 U**	**20 U**
Chrysene	0.0311	9.2	**20 U**	**20 U**	**20 U**	**20 U**
Dibenzo(a,h)anthracene	0.0311	0.0092	**20 U**	**20 U**	**20 U**	**20 U**
Fluoranthene	370	1460	1 J	20 U	20 U	1 J
Fluorene	14000	243	20 U	20 U	20 U	20 U
Indeno(1,2,3-cd)pyrene	0.0311	0.092	**20 U**	**20 U**	**20 U**	**20 U**
Naphthalene	-	6.5	616 =	46 =	20 U	20 U
Phenanthrene[c]	-	182.5	20 U	20 U	20 U	20 U
Pyrene	11000	182.5	1.9 J	20 U	20 U	2.2 J

[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.
Bold values indicate results exceeding Georgia In-Stream Water Quality Standards.
Underlined values indicate results exceeding risk-based screening levels.

U Indicates the compound was not detected above the reported sample quantitation limit.
J Indicates the value for the compound was an estimated value.
UJ Indicates the sample was not detected above an approximate sample quantitation limit.
R Indicates the sample results are unusable and the presence or absence of the compound could not be verified.
= Indicates the compound was detected at the concentration reported.

Table 11. CAP-Part B - Groundwater Data Risk-based Screening Results

Station:	Screening Levels		79-06	79-07	79-08	79-09	79-10	79-11	79-12
Sample ID:	In-Stream		790612	790712	790812	790912	791012	791112	791212
Screened Interval (ft BGS)	Water Quality		3.1 - 13.1	2.7 - 12.7	2.5 - 12.5	2.0 - 12.0	2.5 - 12.5	1.9 - 11.9	0.5 - 10.0
Collection Date:	Standards	Risk-based[a]	09-Mar-99	09-Mar-99	10-Mar-99	09-Mar-99	10-Mar-99	10-Mar-99	
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
VOLATILE ORGANIC COMPOUNDS									
Benzene	71.28	0.36	0.51 J	1.3 J	1.8 J	16.8 =	2 U	2 U	2 U
Toluene	200000	750	3.3 =	3.3 =	5.9 =	1.5 J	2 U	2 U	2 U
Ethylbenzene	28718	1300	1.1 J	2 U	1.1 J	2 U	2 U	2 U	2 U
Xylenes, Total	-	12000	6.8 =	1.1 J	6.5 =	2.3 J	3 U	3 U	6 U
POLYNUCLEAR AROMATIC HYDROCARBONS									
2-Chloronaphthalene[b]	-	6.5	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Acenaphthene	-	365	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Acenaphthylene[c]	-	182.5	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Anthracene	110000	182.5	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Benzo(a)anthracene	0.0311	0.092	**10.3 UJ**	**10.9 UJ**	**11.1 UJ**	**10.2 UJ**	**10 UJ**	**11.1 UJ**	**10 U**
Benzo(a)pyrene	0.0311	0.0092	**10.3 UJ**	**10.9 UJ**	**11.1 UJ**	**10.2 UJ**	**10 UJ**	**11.1 UJ**	**10 U**
Benzo(b)fluoranthene	-	0.092	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	7 J
Benzo(g,h,i)perylene	-	-	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	0.75 J
Benzo(k)fluoranthene	0.0311	0.92	**10.3 UJ**	**10.9 UJ**	**11.1 UJ**	**10.2 UJ**	**10 UJ**	**11.1 UJ**	**1.9 J**
Chrysene	0.0311	9.2	**10.3 UJ**	**10.9 UJ**	**11.1 UJ**	**10.2 UJ**	**10 UJ**	**11.1 UJ**	**10 U**
Dibenzo(a,h)anthracene	0.0311	0.0092	**10.3 UJ**	**10.9 UJ**	**11.1 UJ**	**10.2 UJ**	**10 UJ**	**11.1 UJ**	**10 U**
Fluoranthene	370	1460	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Fluorene	14000	243	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Indeno(1,2,3-cd)pyrene	0.0311	0.092	**10.3 UJ**	**10.9 UJ**	**11.1 UJ**	**10.2 UJ**	**10 UJ**	**11.1 UJ**	**5.9 J**
Naphthalene	-	6.5	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Phenanthrene[c]	-	182.5	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Pyrene	11000	182.5	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	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.

Bold values indicate results exceeding Georgia In-Stream Water Quality Standards.
Underlined values indicate results exceeding risk-based screening levels.

U Indicates the compound was not detected above the reported sample quantitation limit.
J Indicates the value for the compound was an estimated value.
UJ Indicates the sample was not detected above an approximate sample quantitation limit.
R Indicates the sample results are unusable and the presence or absence of the compound could not be verified.
= Indicates the compound was detected at the concentration reported.

Table 12. AT123D Predicted Maximum 2-Year Concentrations at the USTs 48 & 49 Monitoring Well Locations

Station ID	Distance from the Source (feet)	Predicted 2-Year Maximum Concentration in Groundwater (µg/L)
79-06	37.0	227
79-07	30.0	228
79-08	10.0	219
79-09	60.0	209
79-10	70.0	195
79-11	20.0	226
79-12	125.0	99.9

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APPENDIX III

WATER RESOURCES SURVEY DOCUMENTATION

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WATER RESOURCES SURVEY DOCUMENTATION

1.0 LOCAL WATER RESOURCES

As required by the GA EPD UST CAP-Part A guidance, a water resource survey documenting information for public and non-public water supply wells, surface water bodies, underground utilities, and potential receptors was conducted for the Fort Stewart UST investigation sites. The information presented in this appendix provides the supporting documentation for Section II.B.1.c of the CAP-Part B Report.

1.1 WATER SUPPLY WELL SURVEY

The water supply well survey was conducted using the following GA EPD guidelines/requirements:

- Fort Stewart is located in an area of average or higher groundwater pollution susceptibility.
- Locate all public supply wells as defined by GA EPD that exist within 2 miles of the investigation sites.
- Locate all non-public supply wells that exist within 0.5 miles of the investigation sites.
- Locate all supply wells nearest the investigation sites.
- Locate all wells downgradient of the investigation sites.

A total of seven groundwater supply wells are located within a 2-mile radius of the Fort Stewart garrison area. Six of these wells are located within the confines of the garrison area. The other well is located at Wright Army Airfield, approximately 1.2 miles northeast of the garrison area. All of the groundwater supply wells are classified as public wells that supply water to Fort Stewart for drinking and nondrinking purposes. These wells are approximately 450 feet deep and draw groundwater from the Principal Artesian (also known as the Floridan) aquifer. Chlorine and fluoride are added into the groundwater at the well heads prior to being pumped into storage tanks and/or water towers, according to Fort Stewart DPW personnel. The location of these wells, along with a 500-foot radius drawn around each well, is shown in Figure 16.

1.2 SURFACE WATER BODIES

Surface water(s) in the State of Georgia, as defined by Rules and Regulations for Water Quality Control, Chapter 391-3-6, shall mean any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs producing 100,000 gallons per day, and all other bodies of surface water, natural or artificial, lying within or forming part of the boundaries of the State, which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation. The surface water body survey was conducted using the following GA EPD guidelines/requirements:

- surface water bodies that exist within 1 mile of the investigation sites,
- all surface water bodies nearest the investigation sites if these bodies lie outside the 1-mile radius of concern,
- all surface water bodies downgradient of the investigation sites, and
- the storm and sanitary sewers adjacent to the investigation sites.

Several surface water bodies are located within a 1-mile radius of the Fort Stewart garrison area. These are shown in Figure 3 and include Mill Creek, Taylors Creek, Peacock Creek, Children's Pond, and two unnamed ponds. Mill Creek extends along the western side of the garrison area and flows into Taylors Creek located approximately 0.75 miles northwest of the garrison area. Taylors Creek then flows northward approximately 3.5 miles to its confluence with Canoochee Creek. Peacock Creek originates near the east corner of the garrison area and flows southward from the garrison. Mill Creek, Taylors Creek, and Peacock Creek all have natural streambeds and exhibit perennial flow.

Children's Pond is located at the northwest end of the garrison area. The two unnamed ponds are located at the northwest end of the facility golf course in the vicinity of Children's Pond. All of the ponds are isolated water bodies that are relatively small in size, measuring less than 500 feet in diameter.

Typically, surface water run-off from the UST site moves over the existing concrete and asphalt cover to the Fort Stewart storm water drainage system. Since petroleum contamination at the sites primarily impacts surficial groundwater, the surface water run-off pathway is not a viable contaminant transport mechanism because of the concrete acting as a barrier and the location of the nearest surface water body.

2.0 POTENTIAL RECEPTOR SURVEY SUMMARY OF THE USTs 48 & 49 SITE

A field potential receptor survey was conducted for the USTs 48 & 49 site in May 1998 during the CAP-Part A investigation. The site and adjacent areas were surveyed for locations of surface water bodies, utility lines, and basements. Basements do not exist in the buildings adjacent to the site. Additional information, provided by DPW, was used to determine the location of the nearest public and non-public water supply wells and downgradient surface water bodies not located during the field survey.

2.1 Water Supply Wells Near the USTs 48 & 49

The USTs 48 & 49 site is located approximately 1,110 feet southwest (side gradient) of Well #2. The nearest downgradient water supply well is Well #8. This well is located 7,500 feet northwest (downgradient) of the USTs 48 & 49 site. Therefore, the USTs 48 & 49 site is classified as being located greater than 500 feet to a withdrawal point.

2.2 Surface Water Bodies Near the USTs 48 & 49 Site

At the closest point and in the direction of groundwater flow, a drainage ditch is located approximately 400 feet west of the site, and Mill Creek is located approximately 3,000 feet west of the site. Based on the distances between the UST and the nearest surface water body, the site is classified as being located less than 500 feet to a downgradient surface water body.

2.3 Underground Utilities near the USTs 48 & 49 Site

A storm water drain is located approximately 115 feet west (i.e., downgradient) of the site. The invert depth of this line is 3.6 feet BGS or an elevation of 79.65 feet AMSL. The groundwater elevation downgradient of the tank pit is approximately 78.0 feet AMSL and is lower than groundwater elevation near the former tank pit. Thus, the invert of the storm water drain was approximately 1.5 feet above the water table in October 1999. The October 1999 groundwater measurements were the highest observed at the site during the CAP-Part A and CAP-Part B investigations.

In addition, an industrial wastewater sewer line and storm drain are located 40 feet to the east (i.e., upgradient) of the site. The invert depths of these two utilities range from 4 to 6 feet BGS.

APPENDIX IV

SOIL BORING LOGS

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HTRW DRILLING LOG

HOLE NUMBER 79-06

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	1	Concrete				
	2	SAND, fine grained, weak, unconsolidated, massive, dry, yellow (10YR 7/6), grading to light gray, faint bedding	3.2ppm		Soil Sample 79011	Ran 4.0 Rec. 3.5
	3	SAND, fine grained, weak, unconsolidated, massive, dry, black (2.5N)				
	4	Increasing in silt content to 20% silt	6.2ppm			
	5	No Recovery				
	6	As above some rootlets				Ran 5.0 Rec. 5.0
	7	rare beds of yellow sand (as above)	19.0ppm			
	8	Becoming wet				▼ Wet below 8.0 FT BGS
	9	silty SAND, very dense, very hard, friable w/pressure dark red brown (5YR 2/1)	38ppm		Soil Sample 79021	
	10	coarse SAND, friable, loose, black (5YR 2.5/1), wet				

HTRW DRILLING LOG

HOLE NUMBER 79-06

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 2 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	11	SAND, fine grained, dark reddish brown (5YR3/4), wet, massive with scattered bed of coarse sand. Some hard (packed) zones unconsolidated	N/A			Ran 5.0, Rec. 5.0
	12					
	13		N/A			
	14					
	15	End of drilling at 15.0 FT BGS				
	16					
	17					
	18					
	19					
	20					

HTRW DRILLING LOG

HOLE NUMBER 79-07

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0–1	Concrete				
	1–2	SAND, fine grained, pale yellow (2.5Y 7/4), dry to moist, unconsolidated, loose, friable increasing silt with depth. Grades to brown (10YR 4/3)	58ppm			Ran 4.0, Rec. 3.4
	2–3	SAND/silty SAND, fine grained, black (10YR 2/1), moist, unconsolidated, packed, increasing moisture with depth	73ppm		Soil Sample 79072	
	3–4					
	4–5	No Recovery				
	5–6	SAND, black (as above)	8ppm		Soil Sample 79071	Ran 5.0, Rec. 4.3
	6–7					
	7–8					
	8–9	silty SAND, fine grained, dark reddish brown (5YR 3/2) moist, packed, semi-cemented	360ppm			▼ Wet below = 9.0 FT BGS
	9–10	No Recovery				

HTRW DRILLING LOG

HOLE NUMBER 79-07

PROJECT: Fort Stewart USTs

INSPECTOR T. Coffey

SHEET 2 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	11	Silty SAND, (as above) with scattered layers/beds of coarse sand, wet, packed	N/A	Soil Sample 79073		Ran 5.0, Rec. 4.4
	12					
	13		N/A			
	14					
	15	No Recovery				
	16	End of drilling at 15.0 FT BGS				
	17					
	18					
	19					
	20					

HTRW DRILLING LOG

HOLE NUMBER 79-08

PROJECT: Fort Stewart USTs

INSPECTOR T. Coffey

SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	Concrete				
	1	silty SAND, fine grained, very dark gray (10YR3/1), dry, slightly cemented, massive	8 ppm			Ran 4.1, Rec. 2.7
		SAND, very pale brown (10YR8/2)				
	2	Silty SAND, fine grained, dark red-brown (5YR3/2), moist, slightly cemented, massive				
	3		6.6ppm		Soil Sample 79081	
	4	No Recovery				
	5					
	6	SAND, fine grained, some gravel sized fragments, black (10YR2/1), moist to wet, generally massive	11.9ppm		Soil Sample 79082	Ran 5.0, Rec. 2.6 ▼ Wet below 6.5 FT BGS
	7	SAND, fine grained, white (10YR8/1) and dark gray (10YR4/1), wet, unconsolidated, laminated				
	8	No Recovery	N/A			
	9					
	10					

HTRW DRILLING LOG

HOLE NUMBER 79-08

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 2 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	10	SAND, fine to medium grained, light gray (10YR 7/2), wet, massive, unconsolidated		Soil Sample FT0831		Ran 5.0, Rec. 3.0
	11	Grave bed: up to 1"; undiff.				
		SAND with silty sand, fine to medium grained, dark red-brown (5YR 3/2), wet, stained, unconsolidated to weakly cemented near bottom, some beds of coarse sand	N/A			
	12					
	13					
		No Recovery	N/A			
	14					
	15	End of drilling at 15.0 FT BGS				
	16					
	17					
	18					
	19					
	20					

HTRW DRILLING LOG

HOLE NUMBER 79-09

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	Concrete				
	1	silty, clayey SAND, fine grained, very pale brown (10YR7/4), moist, packed, unconsolidated, massive, (~10% clay)	6.6ppm			Ran 4.1 Rec. 3.3
	2					
	3	silty SAND, fine grained, dark gray-brown (10YR4/2) to black (10YR2/1), moist, loose, unconsolidated, massive; Top contact is gradational from upper unit, darker downward	10.8ppm		Soil Sample #0021	
	4					
	5	No Recovery				
	6	silty SAND (as above) fine to medium grained, black, massive with scattered coarse sand beds; some intervals are packed and weakly cemented	5.3ppm		Soil Sample #0011	Ran 5.0 Rec 4.6
	7					▼ Wet below 7.2 FT BGS
	8	SAND, coarse grained, black (10YR2/1), wet, massive	N/A	Soil Sample #0031		
	9	silty SAND, fine grained dark red-brown (5YR3/2), wet; some places moderate cementation, massive				
	10	No Recovery				

HTRW DRILLING LOG

HOLE NUMBER 79-09

SHEET 2 OF 2

PROJECT: Fort Stewart USTs

INSPECTOR T. Coffey

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	11	SAND, fine grained, dark red-brown (5YR3/2), wet, with scattered coarse sand beds/zones (similar to above, but less cemented throughout the interval)	N/A			Ran 5.0, Rec. 5.0
	12					
	13					
	14					
	15	End of drilling at 15 FT BGS				
	16					
	17					
	18					
	19					
	20					

HTRW DRILLING LOG

HOLE NUMBER 79-10

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	Concrete	18 ppm		Soil Sample 791021	Ran 4.1, Rec. 3.3
	1	silty SAND, fine grained, unconsolidated, massive with some laminations, dry to moist, very pale brown (10YR 7/4) and gray (10YR 6/1)				
	2	silty SAND, fine grained, packed (loosens under pressure), massive, dark gray brown (10YR 4/2) to black (10YR 2/1), dry color darkens with depth. wood fragments Gradational with upper unit	13.5 ppm		Soil Sample 791011	
	3	No Recovery				
	4	silty SAND, black (10YR 2/1) (as above)	14.9 ppm			Ran 5.0, Rec. 4.9
	5	silty SAND, fine grained, packed to weakly cemented, massive, moist, dark red brown (5YR 3/2)				▼ Wet below 7.0 FT BGS
	6	SAND, coarse grained, massive, loose, friable, wet, dark red brown (5YR 3/2)	N/A	Soil Sample 791031		
	7					
	8					
	9					
	10					

HTRW DRILLING LOG

HOLE NUMBER 79-10

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 2 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	11	SAND, fine to medium grained, with scattered gravel size fragments and thin coarse sand layers, some zones weakly cemented (concretionary), wet, dark red brown (5YR3/2)	N/A			Ran 5.0, Rec. 5.0
	12					
	13					
	14					
	15	End of drilling at 15.0FT BGS				
	16					
	17					
	18					
	19					
	20					

HTRW DRILLING LOG

HOLE NUMBER 79-11

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	Concrete				Ran 4.2, Rec. 3.5
	1	silty SAND, fine grained, unconsolidated, loose, generally massive, friable, moist, very pale brown (10YR 7/4)	16.2ppm			
	2	silty SAND, fine grained, unconsolidated, loose to packed, massive, moist, dark gray brown (10YR 4/2)				
	3	silty SAND, fine grained, massive, unconsolidated, packed moist, black (10YR 2/1)	16.1ppm		Soil Sample 79111	
	4	No Recovery				
	5	silty SAND, fine grained, weakly cemented induration decreasing with depth (and increasing water), moist (moisture increasing with depth), black (10YR 2/1)	60ppm		Soil Sample 79112	Ran 5.0, Rec. 4.7
	6					
	7					▼ = Wet below 7.5ft BGS
	8		N/A			
	9	SAND, coarse grained, massive, wet, dark red brown (5YR 3/2)		Soil Sample 79113		
	10					

HTRW DRILLING LOG

HOLE NUMBER 79-11

PROJECT: Fort Stewart USTs | INSPECTOR T. Coffey | SHEET 2 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	11–13	SAND, generally fine to medium grained with thin beds of coarse sand, loose, friable, rare weakly cemented concretionary zones, wet, dark red brown (5YR3/2)	N/A	↓		Ran 5.0, Rec. 3.7
	14	No Recovery				
	15	End of drilling at 15.0 FT BGS				
	16–20					

HTRW DRILLING LOG

HOLE NUMBER 79-12

PROJECT: Fort Stewart USTs | INSPECTOR S. Budd | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		CONCRETE				
	1	Sandy SILT, well sorted, subangular, pale brown to black				
	2					
	3					
	4					
	5					
	6					▽ = wet below 6.0 FT BGS
	7					
	8					Collected groundwater sample 791212 from monitoring point
	9					
	10					Pushed to 11.0 ft BGS to set 3/4" monitoring point screened from 0.5 to 10.5 ft BGS

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APPENDIX V

SOIL LABORATORY REPORTS

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Table V-A. Summary of CAP-Part A Soil Analytical Results

Station:	Georgia UST	79-01	79-01	79-02	79-02	79-03
Sample ID:	Soil	790111	790121	790211	790221	790321
Sample Interval (ft BGS):	Threshold	0.9 – 2.0	2.0 – 4.0	2.0 – 4.0	0.7 – 2.0	0.8 – 2.0
Collection Date:	Levels[1]	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOUNDS						
Benzene	0.008	0.0043 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U
Toluene	6	0.0043 U	0.0077 =	0.0022 U	0.0103 =	0.0022 U
Ethylbenzene	10	0.0043 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U
Xylenes, Total	700	0.013 U	0.0065 U	0.0066 U	0.0067 U	0.0064 U
POLYNUCLEAR AROMATIC HYDROCARBONS						
2-Chloronaphthalene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Acenaphthene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Acenaphthylene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Anthracene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Benzo(a)anthracene	NRC	0.351 J	0.362 U	0.366 U	0.37 U	0.358 U
Benzo(a)pyrene	NRC	0.438 =	0.239 J	0.366 U	0.37 U	0.181 J
Benzo(b)fluoranthene	NRC	0.758 =	0.432 =	0.257 J	0.297 J	0.302 J
Benzo(g,h,i)perylene	NRC	0.282 J	0.362 U	0.366 U	0.37 U	0.358 U
Benzo(k)fluoranthene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Chrysene	NRC	0.552 J	0.352 J	0.207 J	0.37 U	0.358 U
Dibenzo(a,h)anthracene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Fluoranthene	NRC	0.28 J	0.362 U	0.366 U	0.37 U	0.358 U
Fluorene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Indeno(1,2,3-cd)pyrene	NRC	0.297 J	0.362 U	0.366 U	0.37 U	0.358 U
Naphthalene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Phenanthrene	NRC	0.361 U	0.362 U	0.366 U	0.37 U	0.358 U
Pyrene	NRC	0.48 =	0.195 J	0.366 U	0.37 U	0.358 U
OTHER ANALYTES						
Lead	--		3.7 =		4.5 =	1.9 =
TPH–Diesel Range Organics	--	15.4 J	1.6 U	0.52 U	0.45 U	0.37 UJ
TPH–Gasoline Range Organics	--	1.09 U	1.09 U	1.1 U	1.11 U	1.08 U

NOTE:

CAP-Part A sampling performed in May 1998 was conducted prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during the CAP-Part A sampling event.

[1] Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

J Indicates the value for the compound was an estimated value.

= Indicates the compound was detected at the concentration reported.

Table V-A. Summary of CAP-Part A Soil Analytical Results (continued)

Station:	Georgia UST	79-04	79-04	79-05	79-05	79-05
Sample ID:	Soil	790411	790421	790511	790521	790531
Sample Interval (ft BGS):	Threshold	0.8 – 2.0	2.0 – 4.0	2.0 – 4.0	4.0 – 6.0	10.0 – 12.0
Collection Date:	Levels[1]	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOUNDS						
Benzene	0.008	0.0022 U	0.0044 U	0.0044 U	0.0026 U	0.0026 U
Toluene	6	0.0102 =	0.0044 U	0.0044 U	0.0046 =	0.005 =
Ethylbenzene	10	0.0022 U	0.0044 U	0.0044 U	0.0024 J	0.0026 U
Xylenes, Total	700	0.0066 U	0.0133 U	0.0132 U	0.0077 J	0.0079 U
POLYNUCLEAR AROMATIC HYDROCARBONS						
2-Chloronaphthalene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Acenaphthene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Acenaphthylene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Anthracene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Benzo(a)anthracene	NRC	1.0 =	0.368 U	0.187 J	0.374 J	0.397 U
Benzo(a)pyrene	NRC	1.24 =	0.368 U	0.291 J	0.425 J	0.397 U
Benzo(b)fluoranthene	NRC	1.88 =	0.368 U	0.477 =	0.635 =	0.397 U
Benzo(g,h,i)perylene	NRC	0.891 =	0.368 U	0.36 U	0.263 J	0.397 U
Benzo(k)fluoranthene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Chrysene	NRC	1.4 J	0.368 U	0.296 J	0.505 J	0.397 U
Dibenzo(a,h)anthracene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Fluoranthene	NRC	0.823 =	0.368 U	0.36 U	0.323 J	0.397 U
Fluorene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Indeno(1,2,3-cd)pyrene	NRC	0.797 =	0.368 U	0.36 U	0.26 J	0.397 U
Naphthalene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Phenanthrene	NRC	0.35 U	0.368 U	0.36 U	0.434 U	0.397 U
Pyrene	NRC	1.48 =	0.368 U	0.234 J	0.569 J	0.397 U
OTHER ANALYTES						
Lead	NRC		3.3 =	3.5 =		
TPH–Diesel Range Organics	NRC	7 =	0.3 U	0.86 U	8.6 =	0.71 U
TPH–Gasoline Range Organics	NRC	0.0916 J	1.11 U	1.1 U	0.116 J	0.0644 J

NOTE:

CAP-Part A sampling performed in May 1998 was conducted prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during the CAP-Part A sampling event.

[1] Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

J Indicates the value for the compound was an estimated value.

= Indicates the compound was detected at the concentration reported.

Table V-A. Summary of CAP-Part A Soil Analytical Results (continued)

Station:	Georgia UST	79-05	79-05	79-05	79-05
Sample ID:	Soil	790541	790551	790561	790571
Sample Interval (ft BGS):	Threshold	16.0 – 18.0	24.0 – 26.0	30.0 – 32.0	32.0 – 34.0
Collection Date:	Levels[1]	12-May-98	12-May-98	12-May-98	12-May-98
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOUNDS					
Benzene	0.008	0.0026 U	0.0049 U	0.0033 U	0.0047 U
Toluene	6	0.0036 =	0.0098 =	0.0033 U	0.0047 U
Ethylbenzene	10	0.0026 U	0.0049 U	0.0033 U	0.0047 U
Xylenes, Total	700	0.0079 U	0.0147 U	0.0098 U	0.0141 U
POLYNUCLEAR AROMATIC HYDROCARBONS					
2-Chloronaphthalene	NRC	0.434 U	0.409 U	0.427 U	0.388 U
Acenaphthene	NRC	0.434 U	0.409 U	0.427 U	0.388 U
Acenaphthylene	NRC	0.0614 J	0.409 U	0.427 U	0.388 U
Anthracene	NRC	0.185 J	0.409 U	0.427 U	0.388 U
Benzo(a)anthracene	NRC	0.485 =	0.409 U	0.427 U	0.388 U
Benzo(a)pyrene	NRC	0.337 J	0.409 U	0.427 U	0.388 U
Benzo(b)fluoranthene	NRC	0.41 J	0.409 U	0.427 U	0.388 U
Benzo(g,h,i)perylene	NRC	0.19 J	0.409 U	0.427 U	0.388 U
Benzo(k)fluoranthene	NRC	0.434 U	0.409 U	0.427 U	0.388 U
Chrysene	NRC	0.66 =	0.234 J	0.427 U	0.388 U
Dibenzo(a,h)anthracene	NRC	0.434 U	0.409 U	0.427 U	0.388 U
Fluoranthene	NRC	1.19 =	0.341 J	0.427 U	0.388 U
Fluorene	NRC	0.111 J	0.409 U	0.427 U	0.388 U
Indeno(1,2,3-cd)pyrene	NRC	0.195 J	0.409 U	0.427 U	0.388 U
Naphthalene	NRC	0.434 U	0.409 U	0.427 U	0.388 U
Phenanthrene	NRC	1.87 =	0.278 J	0.427 U	0.388 U
Pyrene	NRC	1.57 =	0.498 =	0.427 U	0.388 U
OTHER ANALYTES					
Lead	NRC				
TPH–Diesel Range Organics	NRC	1.6 U	1.4 R	0.6 U	1.3 R
TPH–Gasoline Range Organics	NRC	0.0766 J	1.23 U	1.32 U	1.18 U

NOTE:

CAP-Part A sampling performed in May 1998 was conducted prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during the CAP-Part A sampling event.

[1] Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

J Indicates the value for the compound was an estimated value.

= Indicates the compound was detected at the concentration reported.

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Analytical data sheets associated with the CAP-Part A investigation were provided in the CAP-Part A Report, dated December 1998.

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Table V-B. Summary of CAP-Part B Soil Analytical Results

Station:	GA UST	79-06	79-06	79-07	79-07	79-08	79-08
Sample ID:	Soil	790611	790621	790711	790721	790811	790821
Sample Interval (ft BGS):	Threshold	1.0 – 2.5	7.5 – 10.0	5.0 – 7.5	2.5 – 5.0	2.5 – 5.0	5.0 – 7.5
Collection Date:	Level[1]	17-Feb-99	17-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOUNDS							
Benzene	0.008	0.002 U	0.0024 U	0.0034 =	0.0021 U	0.002 U	0.0021 U
Toluene	6	0.002 U	0.00083 J	0.0022 U	0.0021 U	0.002 U	0.0021 U
Ethylbenzene	10	0.002 U	0.0024 U	0.0022 U	0.0021 U	0.002 U	0.00018 J
Xylenes, Total	700	0.003 U	0.001 J	0.0033 U	0.0032 U	0.003 U	0.0032 U
POLYNUCLEAR AROMATIC HYDROCARBONS							
2-Chloronaphthalene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Acenaphthene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Acenaphthylene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.0209 J
Anthracene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Benzo(a)anthracene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0362 J	0.059 J
Benzo(a)pyrene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0498 J	0.0622 J
Benzo(b)fluoranthene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0529 J	0.0644 J
Benzo(g,h,i)perylene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0363 J	0.0391 J
Benzo(k)fluoranthene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0424 J	0.412 U
Chrysene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0495 J	0.0716 J
Dibenzo(a,h)anthracene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Fluoranthene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0243 J	0.0496 J
Fluorene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Indeno(1,2,3-cd)pyrene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.145 J	0.153 J
Naphthalene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Phenanthrene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.392 U	0.412 U
Pyrene	NRC	0.358 U	0.417 U	0.412 U	0.406 U	0.0495 J	0.0874 J
OTHER ANALYTES							
Lead	NRC		4.9 =		7.7 =		6.6 =
Total Organic Carbon	NRC		19600 =		19000 =		11400 =
TPH–Diesel Range Organics	NRC	0.37 U	1 U	0.25 U	0.21 UJ	0.22 U	0.4 U
TPH–Gasoline Range Organics	NRC	0.108 U	0.125 U	0.123 U	0.122 U	0.118 U	0.285 =

NOTE:

CAP-Part B field work performed in 1999 was conducted in accordance with the CAP-Part A guidance published in May 1998; thus, the new SW-846 analytical methods were used during the CAP-Part B investigation conducted in 1999.

Analytical data for QA/QC sample 790623 (duplicate) are contained within this appendix, but are not summarized in this table.

[1] Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

J Indicates the value for the compound was an estimated value.

= Indicates the compound was detected at the concentration reported.

Table V-B. Summary of CAP-Part B Soil Analytical Results (continued)

Station:	GA UST	79-09	79-09	79-10	79-10	79-11	79-11
Sample ID:	Soil	790911	790921	791011	791021	791111	791121
Sample Interval (ft BGS):	Threshold	5.0 – 7.5	2.5 – 5.0	3.0 – 5.0	0.9 – 3.0	3.0 – 5.0	5.0 – 7.5
Collection Date:	Level[1]	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99	18-Feb-99
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(µg/kg)
VOLATILE ORGANIC COMPOUNDS							
Benzene	0.008	0.0024 U	0.0021 U	0.0021 U	0.0018 U	0.0021 U	0.0026 U
Toluene	6	0.0024 U	0.0021 U	0.0021 U	0.0018 U	0.0021 U	0.0026 U
Ethylbenzene	10	0.0024 U	0.0021 U	0.0021 U	0.0018 U	0.0021 U	0.0026 U
Xylenes, Total	700	0.0036 U	0.0032 U	0.0031 U	0.0027 U	0.0032 U	0.0038 U
POLYNUCLEAR AROMATIC HYDROCARBONS							
2-Chloronaphthalene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Acenaphthene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Acenaphthylene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Anthracene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Benzo(a)anthracene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Benzo(a)pyrene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Benzo(b)fluoranthene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Benzo(g,h,i)perylene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Benzo(k)fluoranthene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Chrysene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Dibenzo(a,h)anthracene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Fluoranthene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Fluorene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Indeno(1,2,3-cd)pyrene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Naphthalene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Phenanthrene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
Pyrene	NRC	0.412 U	0.406 U	0.412 U	0.358 U	0.406 U	0.444 U
OTHER ANALYTES							
Lead	NRC		8.7 =		2.1 =		10 =
Total Organic Carbon	NRC		6490 =		2380 =		16700 =
TPH–Diesel Range Organics	NRC	0.32 U	0.47 U	0.49 U	0.87 U	0.18 U	0.38 U
TPH–Gasoline Range Organics	NRC	0.123 U	0.122 U	0.123 U	0.108 U	0.122 U	0.133 U

NOTE:

CAP-Part B field work performed in 1999 was conducted in accordance with the CAP-Part A guidance published in May 1998; thus, the new SW-846 analytical methods were used during the CAP-Part B investigation conducted in 1999.

Analytical data for QA/QC sample 790623 (duplicate) are contained within this appendix, but are not summarized in this table.

[1] Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

J Indicates the value for the compound was an estimated value.

= Indicates the compound was detected at the concentration reported.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790611

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-03

Sample wt/vol: 5.3 (g/mL) G Lab File ID: 5X407

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: not dec. 7 Date Analyzed: 02/25/99

GC Column: DB624 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	2.0	U
108-88-3	toluene	2.0	U
100-41-4	ethylbenzene	2.0	U
1330-20-7	xylenes (total)	3.0	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790611

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4I110

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: 7 decanted: (Y/N) N Date Extracted:02/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 02/22/99

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	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

U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790611

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A056

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: 7 decanted: (Y/N) N Date Extracted:02/24/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/04/99

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	0.37	BJ	U F01, F06

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790611

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X109

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: not dec. 7 Date Analyzed: 02/22/99

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

FORM I VOA

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790621

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-13

Sample wt/vol: 5.3 (g/mL) G Lab File ID: 5X414

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: not dec. 20 Date Analyzed: 02/25/99

GC Column: DB624 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	2.4	U	U
108-88-3	toluene	0.83	J	J
100-41-4	ethylbenzene	2.4	U	U
1330-20-7	xylenes (total)	1.0	J	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790621

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4I120

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 02/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 02/23/99

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	417	U
91-58-7	2-chloronaphthalene	417	U
208-96-8	acenaphthylene	417	U
83-32-9	acenaphthene	417	U
86-73-7	fluorene	417	U
85-01-8	phenanthrene	417	U
120-12-7	anthracene	417	U
206-44-0	fluoranthene	417	U
129-00-0	pyrene	417	U
56-55-3	benzo(a)anthracene	417	U
218-01-9	chrysene	417	U
205-99-2	benzo(b)fluoranthene	417	U
207-08-9	benzo(k)fluoranthene	417	U
50-32-8	benzo(a)pyrene	417	U
193-39-5	indeno(1,2,3-cd)pyrene	417	U
53-70-3	dibenz(a,h)anthracene	417	U
191-24-2	benzo(g,h,i)perylene	417	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790621

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A067

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 02/24/99

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 03/04/99

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 FD1, FD7

FORM I SV

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790621

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-13

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X1020

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: not dec. 20 Date Analyzed: 02/22/99

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_____	125	U	U

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: CAP-Part A and B UST Sites

cc: SAIC00299 Report Date: March 12, 1999

Sample ID	: 790621
Lab ID	: 9902752-13
Matrix	: Soil
Date Collected	: 02/17/99
Date Received	: 02/18/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry												
TOTAL ORGANIC CARBON (TOC)		19600	=	86.2	200	mg/kg	1.0	JHC	02/27/99	1620	143154	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

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.

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

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB01S

Method Type: Total Metals

Sample ID: 9902752-13

Client ID: 790621

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: SOIL Date Received: 2/18/99 Level: LOW

% Solids: 80.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	4.9	mg/kg	=		P	0.80	TJA61 Trace ICPAES	990303-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

DUPLICATE

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790623

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-11

Sample wt/vol: 4.9 (g/mL) G Lab File ID: 5X423

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: not dec. 20 Date Analyzed: 02/25/99

GC Column: DB624 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	2.5	U
108-88-3	toluene	2.5	U
100-41-4	ethylbenzene	2.5	U
1330-20-7	xylenes (total)	3.8	U

UJ GDL

DUPLICATE

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790623

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4I118

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: 20 decanted: (Y/N) N Date Extracted:02/20/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 02/23/99

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	417	U	U
91-58-7	2-chloronaphthalene	417	U	
208-96-8	acenaphthylene	417	U	
83-32-9	acenaphthene	417	U	
86-73-7	fluorene	417	U	
85-01-8	phenanthrene	417	U	
120-12-7	anthracene	417	U	
206-44-0	fluoranthene	417	U	
129-00-0	pyrene	417	U	
56-55-3	benzo(a)anthracene	417	U	
218-01-9	chrysene	417	U	
205-99-2	benzo(b)fluoranthene	417	U	
207-08-9	benzo(k)fluoranthene	417	U	
50-32-8	benzo(a)pyrene	417	U	
193-39-5	indeno(1,2,3-cd)pyrene	417	U	
53-70-3	dibenz(a,h)anthracene	417	U	
191-24-2	benzo(g,h,i)perylene	417	U	

DUPLICATE

FORM 1 Science Applications 18-FEB-1999 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790623

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A065

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: 20 decanted: (Y/N) N Date Extracted: 02/24/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/04/99

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	0.57	JB	U FD1, FD6

FORM I SV

DUPLICATE

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790623

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB01S

Matrix: (soil/water) SOIL Lab Sample ID: 9902752-11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X1018

Level: (low/med) LOW Date Received: 02/18/99

% Moisture: not dec. 20 Date Analyzed: 02/22/99

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_____	125	U	U

FORM I VOA

DUPLICATE

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

cc: SAIC00299

Report Date: March 12, 1999

Sample ID	: 790623
Lab ID	: 9902752-11
Matrix	: Soil
Date Collected	: 02/17/99
Date Received	: 02/18/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry												
TOTAL ORGANIC CARBON (TOC)		18900	=	111	257	mg/kg	1.0	JHC	02/27/99	1530	143154	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

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.

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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

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB01S

Method Type: Total Metals

DUPLICATE

Sample ID: 9902752-11		Client ID: 790623	
Contract: SAIC00299	Lab Code: GEL	Case No.:	SAS No.:
Matrix: SOIL	Date Received: 2/18/99	Level: LOW	
% Solids: 80.00			

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	5.3	mg/kg	=		P	0.83	TJA61 Trace ICPAES	990303-1

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790711

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-09

Sample wt/vol: 5.7 (g/mL) G Lab File ID: 5Y119

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 03/01/99

GC Column: DB624 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	3.4	
108-88-3	toluene	2.2	U
100-41-4	ethylbenzene	2.2	U
1330-20-7	xylenes (total)	3.3	U

FORM I VOA OLM03.0

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790711

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J216

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted: 02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/02/99

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) UG/KG	Q
91-20-3	naphthalene	412	U
91-58-7	2-chloronaphthalene	412	U
208-96-8	acenaphthylene	412	U
83-32-9	acenaphthene	412	U
86-73-7	fluorene	412	U
85-01-8	phenanthrene	412	U
120-12-7	anthracene	412	U
206-44-0	fluoranthene	412	U
129-00-0	pyrene	412	U
56-55-3	benzo(a)anthracene	412	U
218-01-9	chrysene	412	U
205-99-2	benzo(b)fluoranthene	412	U
207-08-9	benzo(k)fluoranthene	412	U
50-32-8	benzo(a)pyrene	412	U
193-39-5	indeno(1,2,3-cd)pyrene	412	U
53-70-3	dibenz(a,h)anthracene	412	U
191-24-2	benzo(g,h,i)perylene	412	U

U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790711

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A0102

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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	0.25	JB	U F01, F06

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790711

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-09

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X4015

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 02/25/99

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_____	123	U	U

FORM I VOA

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790721

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-20

Sample wt/vol: 5.7 (g/mL) G Lab File ID: 5Y215

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 18 Date Analyzed: 03/02/99

GC Column: DB624 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)	3.2	U

U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790721

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-20

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J305

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 18 decanted: (Y/N) N Date Extracted:02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/03/99

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	406	U
91-58-7	2-chloronaphthalene	406	U
208-96-8	acenaphthylene	406	U
83-32-9	acenaphthene	406	U
86-73-7	fluorene	406	U
85-01-8	phenanthrene	406	U
120-12-7	anthracene	406	U
206-44-0	fluoranthene	406	U
129-00-0	pyrene	406	U
56-55-3	benzo(a)anthracene	406	U
218-01-9	chrysene	406	U
205-99-2	benzo(b)fluoranthene	406	U
207-08-9	benzo(k)fluoranthene	406	U
50-32-8	benzo(a)pyrene	406	U
193-39-5	indeno(1,2,3-cd)pyrene	406	U
53-70-3	dibenz(a,h)anthracene	406	U
191-24-2	benzo(g,h,i)perylene	406	U

U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790721

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-20

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3C2009

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 18 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/16/99

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	0.21	J B	USF01, F06, GP2

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790721

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-20

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X507

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 18 Date Analyzed: 02/26/99

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	122	U	U

FORM I VOA

317

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

cc: SAIC00299

Report Date: March 11, 1999

Sample ID	: 790721
Lab ID	: 9902807-20
Matrix	: Soil
Date Collected	: 02/18/99
Date Received	: 02/19/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry												
TOTAL ORGANIC CARBON (TOC)		19000	=	259	600	mg/kg	1.0	LS	03/08/99	1820	143839	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

Notes:
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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.

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

399

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB04S

Method Type: Total Metals

Sample ID: 9902807-20

Client ID: 790721

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: SOIL Date Received: 2/19/99 Level: LOW

% Solids: 82.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	7.7	mg/kg	=		P	0.81	TJA61 Trace ICPAES	990225-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790811

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-08

Sample wt/vol: 5.8 (g/mL) G Lab File ID: 5Y118

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 15 Date Analyzed: 03/01/99

GC Column: DB624 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	2.0	U
108-88-3	toluene	2.0	U
100-41-4	ethylbenzene	2.0	U
1330-20-7	xylenes (total)	3.0	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790811

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J520

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 15 decanted: (Y/N) N Date Extracted:03/04/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/06/99

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	392	U
91-58-7	2-chloronaphthalene	392	U
208-96-8	acenaphthylene	392	U
83-32-9	acenaphthene	392	U
86-73-7	fluorene	392	U
85-01-8	phenanthrene	392	U
120-12-7	anthracene	392	U
206-44-0	fluoranthene	24.3	J
129-00-0	pyrene	49.5	J
56-55-3	benzo(a)anthracene	36.2	J
218-01-9	chrysene	49.5	J
205-99-2	benzo(b)fluoranthene	52.9	J
207-08-9	benzo(k)fluoranthene	42.4	J
50-32-8	benzo(a)pyrene	49.8	J
193-39-5	indeno(1,2,3-cd)pyrene	145	J
53-70-3	dibenz(a,h)anthracene	392	U
191-24-2	benzo(g,h,i)perylene	36.3	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790811

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A0101

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 15 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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	0.22	JB	U F01, F06

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790811

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X4014

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 15 Date Analyzed: 02/25/99

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_____	118	U	U

FORM I VOA

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790821

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-22

Sample wt/vol: 5.8 (g/mL) G Lab File ID: 5Y217

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 03/02/99

GC Column: DB624 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	U
108-88-3	toluene	2.1	U	U
100-41-4	ethylbenzene	0.18	J	J
1330-20-7	xylenes (total)	3.2 ~~1.4~~	JB	U FD1, FD6

MMP
4/12/99

FORM I VOA OLM03.0

25

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790821

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-22

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7I412

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted: 02/24/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 02/25/99

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	412	U
91-58-7	2-chloronaphthalene	412	U
208-96-8	acenaphthylene	20.9	J
83-32-9	acenaphthene	412	U
86-73-7	fluorene	412	U
85-01-8	phenanthrene	412	U
120-12-7	anthracene	412	U
206-44-0	fluoranthene	49.6	J
129-00-0	pyrene	87.4	J
56-55-3	benzo(a)anthracene	59.0	J
218-01-9	chrysene	71.6	J
205-99-2	benzo(b)fluoranthene	64.4	J
207-08-9	benzo(k)fluoranthene	412	U
50-32-8	benzo(a)pyrene	62.2	J
193-39-5	indeno(1,2,3-cd)pyrene	153	J
53-70-3	dibenz(a,h)anthracene	412	U
191-24-2	benzo(g,h,i)perylene	39.1	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790821

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-22

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A018

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted:03/01/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/03/99

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_____	0.40	JB	U F21, F26

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790821

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-22

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X509

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 02/26/99

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	285	

=

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: CAP-Part A and B UST Sites

cc: SA1C00299

Report Date: March 11, 1999

Sample ID	: 790821
Lab ID	: 9902807-22
Matrix	: Soil
Date Collected	: 02/18/99
Date Received	: 02/19/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
TOTAL ORGANIC CARBON (TOC)		11400	43.1	100	mg/kg	1.0	LS	03/08/99	1905	143839	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

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.

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

210

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB05S

Method Type: Total Metals

Sample ID: 9902807-22

Client ID: 790821

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: SOIL Date Received: 2/19/99 Level: LOW

% Solids: 81.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	6.6	mg/kg	=		P	0.79	TJA61 Trace ICPAES	990225-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790911

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-11

Sample wt/vol: 5.2 (g/mL) G Lab File ID: 5Y206

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 03/02/99

GC Column: DB624 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	2.4	U	U
108-88-3	toluene	2.4	U	
100-41-4	ethylbenzene	2.4	U	
1330-20-7	xylenes (total)	3.6 ~~0.84~~	JB	U FD1, FD6

MB 4/12/99

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790911

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J218

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted:02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/02/99

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) UG/KG	Q
91-20-3	naphthalene	412	U
91-58-7	2-chloronaphthalene	412	U
208-96-8	acenaphthylene	412	U
83-32-9	acenaphthene	412	U
86-73-7	fluorene	412	U
85-01-8	phenanthrene	412	U
120-12-7	anthracene	412	U
206-44-0	fluoranthene	412	U
129-00-0	pyrene	412	U
56-55-3	benzo(a)anthracene	412	U
218-01-9	chrysene	412	U
205-99-2	benzo(b)fluoranthene	412	U
207-08-9	benzo(k)fluoranthene	412	U
50-32-8	benzo(a)pyrene	412	U
193-39-5	indeno(1,2,3-cd)pyrene	412	U
53-70-3	dibenz(a,h)anthracene	412	U
191-24-2	benzo(g,h,i)perylene	412	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790911

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A0104

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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	0.32	JB	U F01, F06

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790911

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X4016

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 02/25/99

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_____	123	U	U

FORM I VOA

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790921

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-12

Sample wt/vol: 5.9 (g/mL) G Lab File ID: 5Y207

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 18 Date Analyzed: 03/02/99

GC Column: DB624 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	U
108-88-3	toluene	2.1	U	↓
100-41-4	ethylbenzene	2.1	U	
1330-20-7	xylenes (total)	3.2 ~~0.85~~	JB	U FD1, FD6

mlp
4/12/99

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790921

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J219

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 18 decanted: (Y/N) N Date Extracted:02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/02/99

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) UG/KG	Q
91-20-3	naphthalene	406	U
91-58-7	2-chloronaphthalene	406	U
208-96-8	acenaphthylene	406	U
83-32-9	acenaphthene	406	U
86-73-7	fluorene	406	U
85-01-8	phenanthrene	406	U
120-12-7	anthracene	406	U
206-44-0	fluoranthene	406	U
129-00-0	pyrene	406	U
56-55-3	benzo(a)anthracene	406	U
218-01-9	chrysene	406	U
205-99-2	benzo(b)fluoranthene	406	U
207-08-9	benzo(k)fluoranthene	406	U
50-32-8	benzo(a)pyrene	406	U
193-39-5	indeno(1,2,3-cd)pyrene	406	U
53-70-3	dibenz(a,h)anthracene	406	U
191-24-2	benzo(g,h,i)perylene	406	U

SUPERSEDED

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

790921

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A0105

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 18 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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	0.47	JB	U FD1, FD6

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790921

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X4017

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 18 Date Analyzed: 02/25/99

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_____	122	U	U

FORM I VOA

320

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

cc: SAIC00299 Report Date: March 11, 1999

Sample ID	: 790921
Lab ID	: 9902807-12
Matrix	: Soil
Date Collected	: 02/18/99
Date Received	: 02/19/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
TOTAL ORGANIC CARBON (TOC)		6490	43.1	100	mg/kg	1.0	LS	03/08/99	1448	143839	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

Notes:
The qualifiers in this report are defined as follows:
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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.

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

391

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB04S

Method Type: Total Metals

Sample ID: 9902807-12

Client ID: 790921

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: SOIL Date Received: 2/19/99 Level: LOW

% Solids: 82.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	8.7	mg/kg	=		P	0.85	TJA61 Trace ICPAES	990225-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791011

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-06

Sample wt/vol: 5.9 (g/mL) G Lab File ID: 5Y116

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 03/01/99

GC Column: DB624 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

U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791011

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J213

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted:02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/02/99

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) UG/KG	Q
91-20-3	naphthalene	412	U
91-58-7	2-chloronaphthalene	412	U
208-96-8	acenaphthylene	412	U
83-32-9	acenaphthene	412	U
86-73-7	fluorene	412	U
85-01-8	phenanthrene	412	U
120-12-7	anthracene	412	U
206-44-0	fluoranthene	412	U
129-00-0	pyrene	412	U
56-55-3	benzo(a)anthracene	412	U
218-01-9	chrysene	412	U
205-99-2	benzo(b)fluoranthene	412	U
207-08-9	benzo(k)fluoranthene	412	U
50-32-8	benzo(a)pyrene	412	U
193-39-5	indeno(1,2,3-cd)pyrene	412	U
53-70-3	dibenz(a,h)anthracene	412	U
191-24-2	benzo(g,h,i)perylene	412	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

791011

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A099

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 19 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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	0.49	JB	U FD1, FD6

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791011

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X505

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 19 Date Analyzed: 02/26/99

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	123	U	U

FORM I VOA

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791021

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-21

Sample wt/vol: 6.0 (g/mL) G Lab File ID: 5Y216

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 7 Date Analyzed: 03/02/99

GC Column: DB624 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	1.8	U
108-88-3	toluene	1.8	U
100-41-4	ethylbenzene	1.8	U
1330-20-7	xylenes (total)	2.7	U

U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791021

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-21

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7I411

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 7 decanted: (Y/N) N Date Extracted:02/24/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 02/25/99

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

U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

791021

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-21

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A017

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 7 decanted: (Y/N) N Date Extracted:03/01/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/03/99

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	0.87	B	U F01, F07

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791021

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB05S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-21

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X508

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 7 Date Analyzed: 02/26/99

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

FORM I VOA

159

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

cc: SAIC00299 Report Date: March 11, 1999

Sample ID	: 791021
Lab ID	: 9902807-21
Matrix	: Soil
Date Collected	: 02/18/99
Date Received	: 02/19/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
TOTAL ORGANIC CARBON (TOC)		2380 =	43.1	100	mg/kg	1.0	LS	03/08/99	1844	143839	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

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.

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

DATA VALIDATION COPY

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Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB05S

Method Type: Total Metals

Sample ID: 9902807-21

Client ID: 791021

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: SOIL Date Received: 2/19/99 Level: LOW

% Solids: 93.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	2.1	mg/kg	=		P	0.72	TJA61 Trace ICPAES	990225-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

175

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791111

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-07

Sample wt/vol: 5.8 (g/mL) G Lab File ID: 5Y117

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 18 Date Analyzed: 03/01/99

GC Column: DB624 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)	3.2	U

U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791111

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J214

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 18 decanted: (Y/N) N Date Extracted:02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/02/99

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) UG/KG	Q
91-20-3	naphthalene	406	U
91-58-7	2-chloronaphthalene	406	U
208-96-8	acenaphthylene	406	U
83-32-9	acenaphthene	406	U
86-73-7	fluorene	406	U
85-01-8	phenanthrene	406	U
120-12-7	anthracene	406	U
206-44-0	fluoranthene	406	U
129-00-0	pyrene	406	U
56-55-3	benzo(a)anthracene	406	U
218-01-9	chrysene	406	U
205-99-2	benzo(b)fluoranthene	406	U
207-08-9	benzo(k)fluoranthene	406	U
50-32-8	benzo(a)pyrene	406	U
193-39-5	indeno(1,2,3-cd)pyrene	406	U
53-70-3	dibenz(a,h)anthracene	406	U
191-24-2	benzo(g,h,i)perylene	406	U

U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

791111

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A0100

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 18 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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_____	0.18	JB	U FD1, FD6

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791111

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X4011

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 18 Date Analyzed: 02/25/99

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	122	U	U

FORM I VOA

322

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791121

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-14

Sample wt/vol: 5.2 (g/mL) G Lab File ID: 5Y210

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 25 Date Analyzed: 03/02/99

GC Column: DB624 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	2.6	U
108-88-3	toluene	2.6	U
100-41-4	ethylbenzene	2.6	U
1330-20-7	xylenes (total)	3.8	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791121

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-14

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 7J221

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 25 decanted: (Y/N) N Date Extracted:02/22/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/02/99

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) UG/KG	Q
91-20-3	naphthalene	444	U
91-58-7	2-chloronaphthalene	444	U
208-96-8	acenaphthylene	444	U
83-32-9	acenaphthene	444	U
86-73-7	fluorene	444	U
85-01-8	phenanthrene	444	U
120-12-7	anthracene	444	U
206-44-0	fluoranthene	444	U
129-00-0	pyrene	444	U
56-55-3	benzo(a)anthracene	444	U
218-01-9	chrysene	444	U
205-99-2	benzo(b)fluoranthene	444	U
207-08-9	benzo(k)fluoranthene	444	U
50-32-8	benzo(a)pyrene	444	U
193-39-5	indeno(1,2,3-cd)pyrene	444	U
53-70-3	dibenz(a,h)anthracene	444	U
191-24-2	benzo(g,h,i)perylene	444	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

791121

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-14

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 3A3A0107

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: 25 decanted: (Y/N) N Date Extracted:02/25/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/05/99

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	0.38	JB	U F01, F06

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791121

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB04S

Matrix: (soil/water) SOIL Lab Sample ID: 9902807-14

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 1X506

Level: (low/med) LOW Date Received: 02/19/99

% Moisture: not dec. 25 Date Analyzed: 02/26/99

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_____	133	U	U

FORM I VOA

323

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

cc: SAIC00299 Report Date: March 11, 1999

Sample ID	: 791121
Lab ID	: 9902807-14
Matrix	: Soil
Date Collected	: 02/18/99
Date Received	: 02/19/99
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry												
TOTAL ORGANIC CARBON (TOC)		16700	=	299	693	mg/kg	1.0	LS	03/08/99	1623	143839	1

M = Method	Method-Description
M 1	EPA 415.1 Modified

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.

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

393

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB04S

Method Type: Total Metals

Sample ID: 9902807-14

Client ID: 791121

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: SOIL Date Received: 2/19/99 Level: LOW

% Solids: 75.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-92-1	Lead	10.0	mg/kg	=		P	0.86	TJA61 Trace ICPAES	990225-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

An Employee-Owned Company
Science Applications International Corporation
800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600

CHAIN OF CUSTODY RECORD

COC NO.: 25483.

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature) Laura Lumley (Printed Name) Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
421221	2/17/99	1445	Soil									3		990[illegible]2-01
761311	2/17/99	1715										3		-02
790611	2/17/99	1101										3		-03
761211	2/17/99	1819										3		-04
762411	2/17/99	1445										3		-05
761911	2/17/99	1130										3		-06
761913	2/17/99	1130										3		-07
421223	2/17/99	1515										3		-08
762421	2/17/99	1515										3		-09
761221	2/17/99	1821										3		-10
790623	2/17/99	1058										3		-11
761321	2/17/99	1725										3		-12
790621	2/17/99	1059										3		-13

REQUESTED PARAMETERS

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Laura Lumley	2/16/99 1145	[signature]	2/18/99 1730
COMPANY NAME: SAIC		COMPANY NAME: GEL	
RECEIVED BY: [signature]	Date/Time 2/18/99 1145	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	
RELINQUISHED BY: [signature]	Date/Time 2/18/99 1730	RECEIVED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS:

Cooler ID: # 6-75

Cooler Temperature: 4°C

FEDEX NUMBER:

V-77

SAIC An Employee-Owned Company
Science Applications International Corporation
800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600

9902807 % 1 of 2

CHAIN OF CUSTODY RECORD

COC NO.: D03505

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature): Laura Lumley (Printed Name): Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

REQUESTED PARAMETERS

	Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
01	761111	2/18/99	1647	so; l	1		1						3		
02	762011	2/18/99	1630		1		1						3		
03	762311	2/18/99	950		1		1						3		
04	761511	2/18/99	1120		1		1						3		
05	761811	2/19/99	1445		1		1						3		
06	791011	2/18/99	1325		1		1						3		
07	791111	2/18/99	1436		1		1						3		
08	790811	2/18/99	1023		1		1						3		
09	790711	2/18/99	921		1		1						3		
10	761411	2/18/99	1415		1		1						3		
11	790911	2/18/99	1159		1		1						3		
12	790921	2/18/99	1145		1		1		1				3		
13	762021	2/18/99	1625		1		1		1				3		

RELINQUISHED BY: Laura Lumley	Date/Time 2/19/99 1150	RECEIVED BY: for DBoren Francis sign.	Date/Time 2/19/99 1715	TOTAL NUMBER OF CONTAINERS:
COMPANY NAME: SAIC		COMPANY NAME: Tel		Cooler ID: # 5484 4°C
RECEIVED BY:	Date/Time 2/19/99 1150	RELINQUISHED BY:	Date/Time	Cooler Temperature:
COMPANY NAME: Tel		COMPANY NAME:		FEDEX NUMBER:
RELINQUISHED BY:	Date/Time 2/19/99 1715	RECEIVED BY:	Date/Time	
COMPANY NAME: Tel		COMPANY NAME:		

V-78

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Science Applications International Corporation
800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600

2 of 2

CHAIN OF CUSTODY RECORD

COC NO.: D03505

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature): Laura Lumley (Printed Name): Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

REQUESTED PARAMETERS

	Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
14	791121	2/18/99	1442	Soil	—	—	—	—	—				3		
15	761421	2/18/99	1455		—	—	—	—	—				3		
16	761121	2/18/99	1637		—	—	—	—	—				3		
17	761421	2/18/99	1405		—	—	—	—	—				3		
18	762321	2/18/99	925		—	—	—	—	—				3		
19	761521	2/18/99	1115		—	—	—	—	—				3		
20	790721	2/18/99	910		—	—	—	—	—				3		
21	791021	2/18/99	1325		—	—	—	—	—				3		
22	790821	2/18/99	1031		—	—	—	—	—				3		

365 #2 ↓ 365 #1 ↓

RELINQUISHED BY: Laura Lumley	Date/Time 2/19/99 1150	RECEIVED BY: Francesca Sin for Dover	Date/Time 2/19/99 1715
COMPANY NAME: SAIC		COMPANY NAME: GEL	
RECEIVED BY:	Date/Time 2/19/99 1150	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	
RELINQUISHED BY:	Date/Time 2/19/99 1715	RECEIVED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 66

Cooler ID: # 5464 4°C

Cooler Temperature:

FEDEX NUMBER:

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APPENDIX VI

ALTERNATE CONCENTRATION LIMITS (ACLs) AND ALTERNATE THRESHOLD LEVELS (ATLS) CALCULATIONS

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1.0 ALTERNATE CONCENTRATION LIMITS

Benzene, toluene, ethylbenzene, and total xylenes, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene were selected as COPCs for groundwater at the site. The modeling results for benzene estimated a DAF of 313 for the drainage ditch. The compound-specific regulatory levels or risk-based screening values were used in conjunction with the DAF to develop the constituent-specific ACLs presented in Table VI-A. The DAF for Mill Creek was infinity indicating that the contamination will never reach this location; thus, no ACLs were developed for this location. As indicated in Table VI-A, the maximum observed concentration of each constituent is presented below for comparison with the calculated ACL.

Table VI-A. Alternate Concentration Limits for Contaminants in Groundwater

Contaminant	Regulatory Level (µg/L)	Drainage Ditch		Maximum Observed CAP-Part B Concentration	Maximum Observed CAP-Part A Concentration
		DAF[1]	ACL[2] (µg/L)		
Benzene	71.28 [a]	313	22,310	16.8	940
Toluene	200,000 [a]	313	62,600,000	5.9	15,600
Ethylbenzene	28,718 [a]	313	8,988,000	1.1	3,980
Xylenes	12,000 [b]	313	3,756,000	6.8	23,800
Benzo(b)fluoranthene	0.092 [b]	313	28.8	7	3.1
Benzo(k)fluoranthene	0.0311 [b]	313	9.7	1.9	ND
Indeno(1,2,3-cd)pyrene	0.0311 [b]	313	9.7	5.9	ND
Naphthalene	6.5 [b]	313	2,034	ND	616

[1] DAF = Maximum Observed Concentration ÷ Predicted Concentration at the Receptor
= 940 ÷ 2.99 ≈ 313 at the drainage ditch

[2] ACL = Regulatory Level × DAF

[a] In-Stream Water Quality Standard

[b] Risk-based screening criteria

ND Not detected

In the event that the storm water drain, located approximately 1.5 feet above the water table, is considered a potential receptor, then the DAF for benzene would be 8. Thus, the ACLs with respect to the storm water drain would be lower. Of primary interest would be the ACL for benzene, which would be 570 µg/L (i.e., 8 × 71.28 µg/L). The maximum observed benzene concentration during the CAP-Part B investigation is less than the ACL and the IWQS.

2.0 ALTERNATE THRESHOLD LEVELS

Benzo(a)pyrene was selected as a COPC for soil at the site based on one soil sample collected during the CAP-Part A investigation that exceeded the risk-based screening criteria for an industrial scenario. However, the concentration in the sample was below the leaching to groundwater screening value, and there is no GUST soil threshold level for benzo(a)pyrene. Thus, an ATL was not calculated for this compound.

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APPENDIX VII

MONITORING WELL DETAILS

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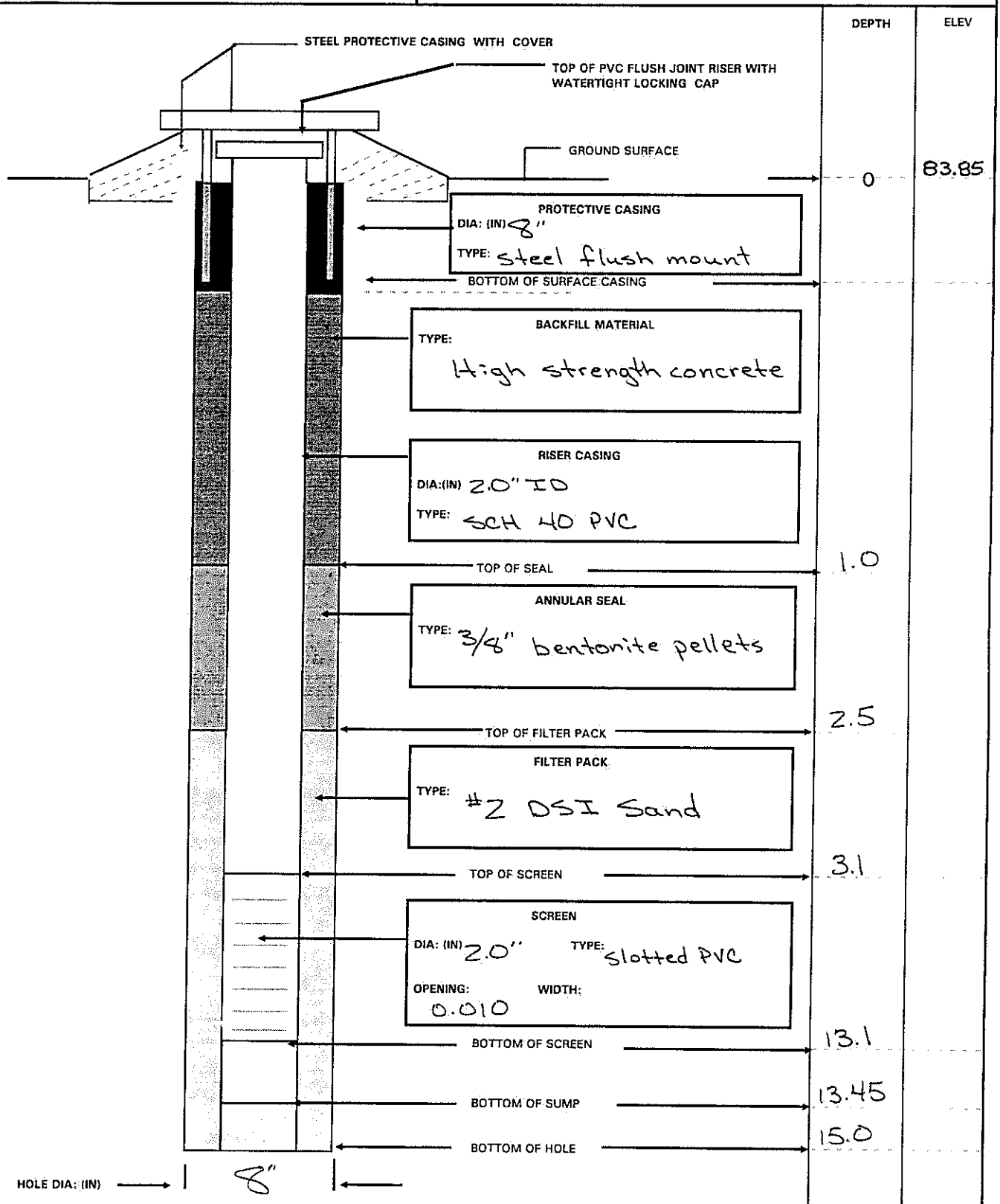
MONITORING WELL

PROJECT: Ft. Stewart USTs

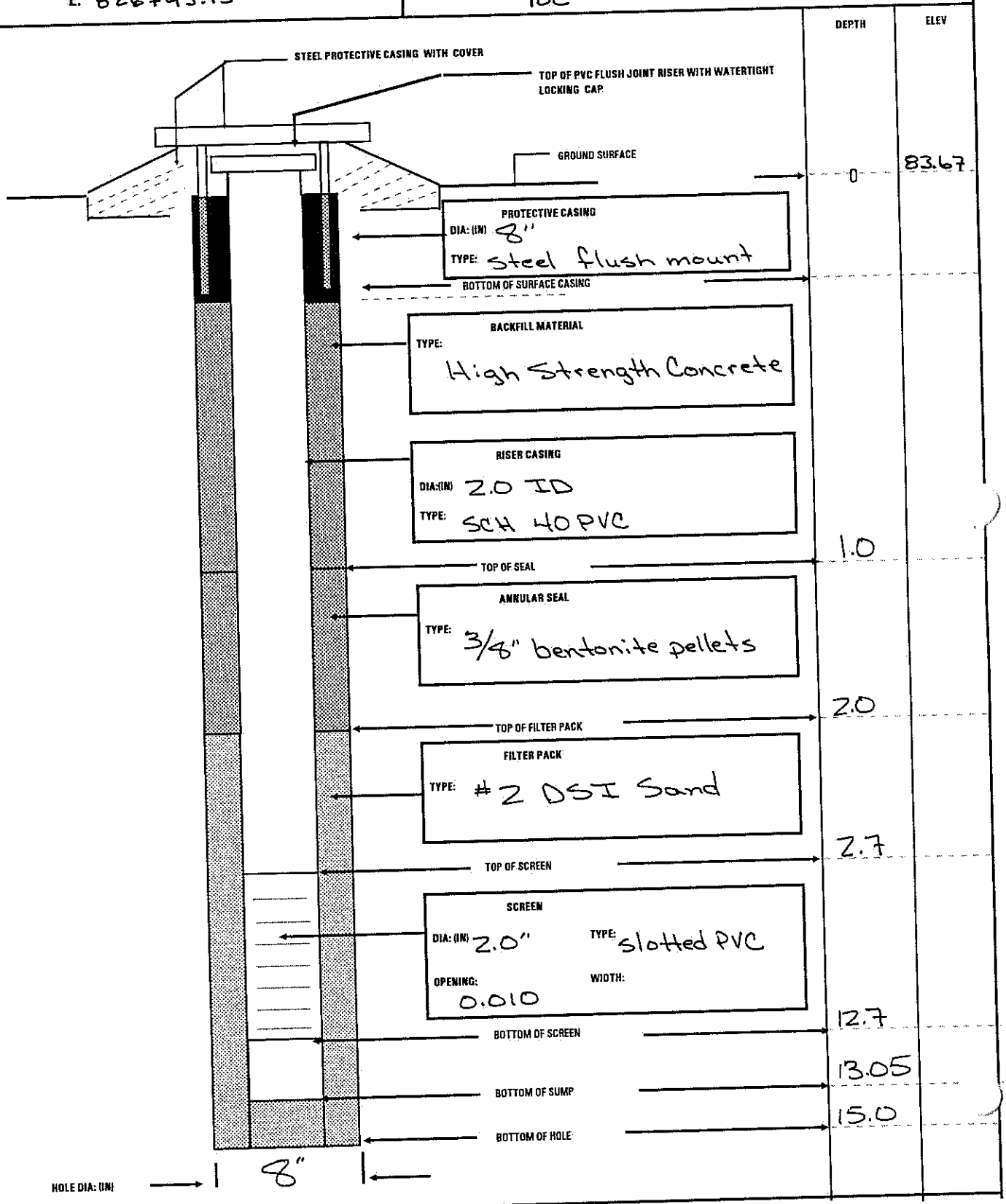
WELL NUMBER: 79-06	BEGIN: 2/17/99	END: 2/17/99
COORDINATES: N: 677468.15 E: 826847.40	REFERENCE POINT: TOC	ELEVATION: 83.51



MONITORING WELL

PROJECT: Ft. Stewart USTs

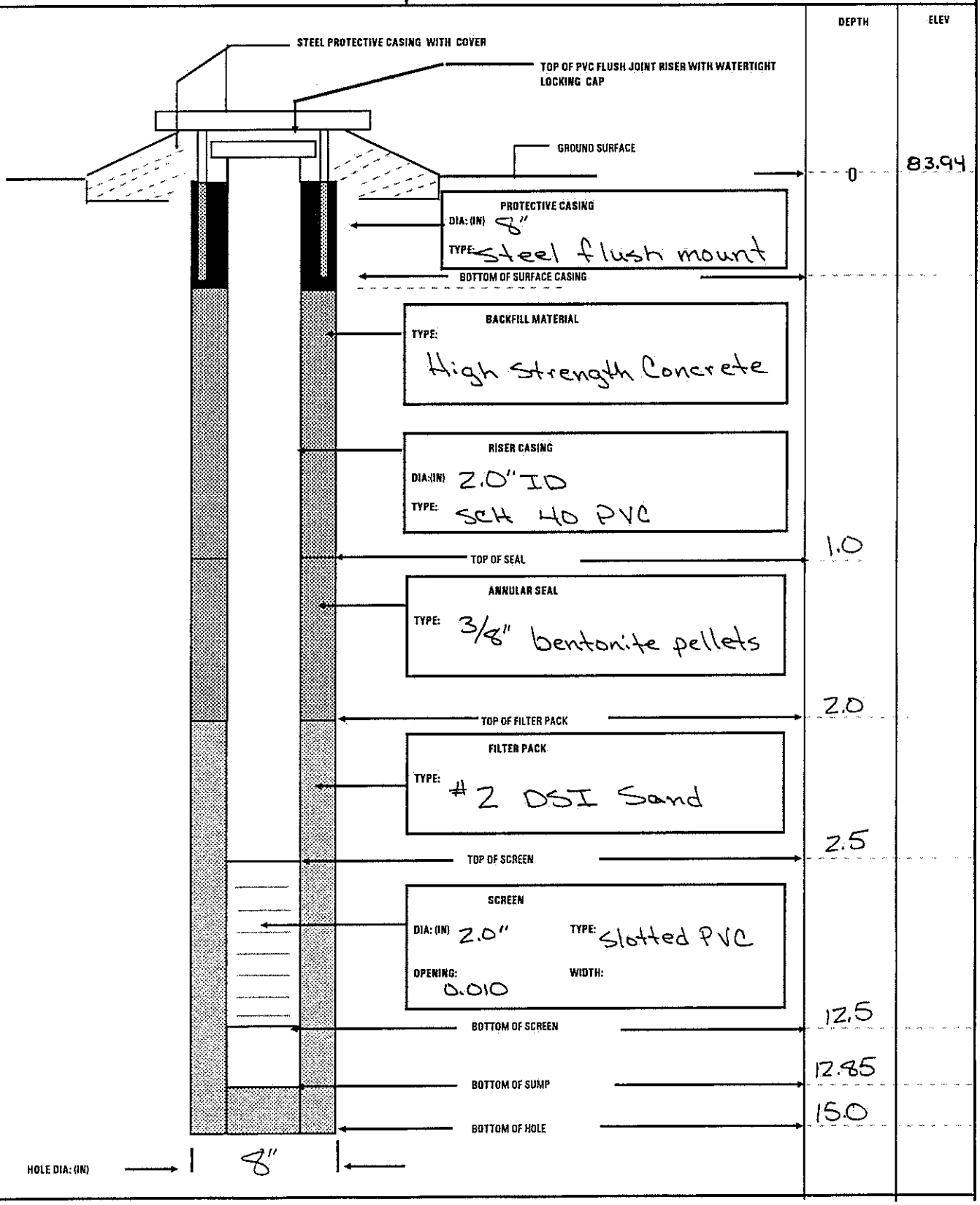
WELL NUMBER: 79.07	**BEGIN:** 2/18/99	**END:** 2/18/99
COORDINATES: N: 677428.09 E: 826793.13	**REFERENCE POINT:** TOC	**ELEVATION:** 83.37



MONITORING WELL

PROJECT: Ft. Stewart USTs

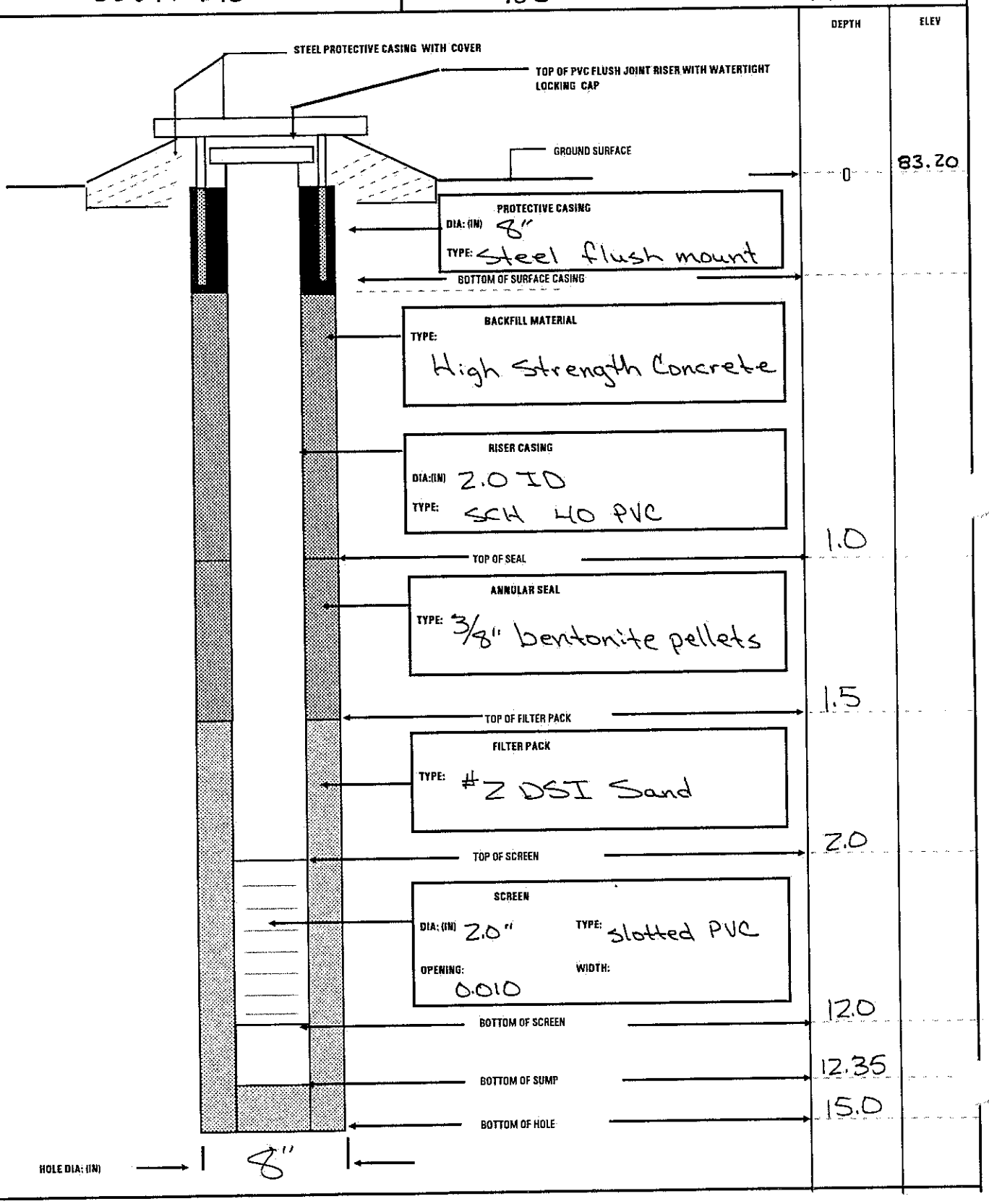
WELL NUMBER: 79-08	BEGIN: 2/18/99	END: 2/18/99
COORDINATES: N: 677469.45 E: 826775.92	REFERENCE POINT: TOC	ELEVATION: 83.62



MONITORING WELL

PROJECT: Ft. Stewart USTs

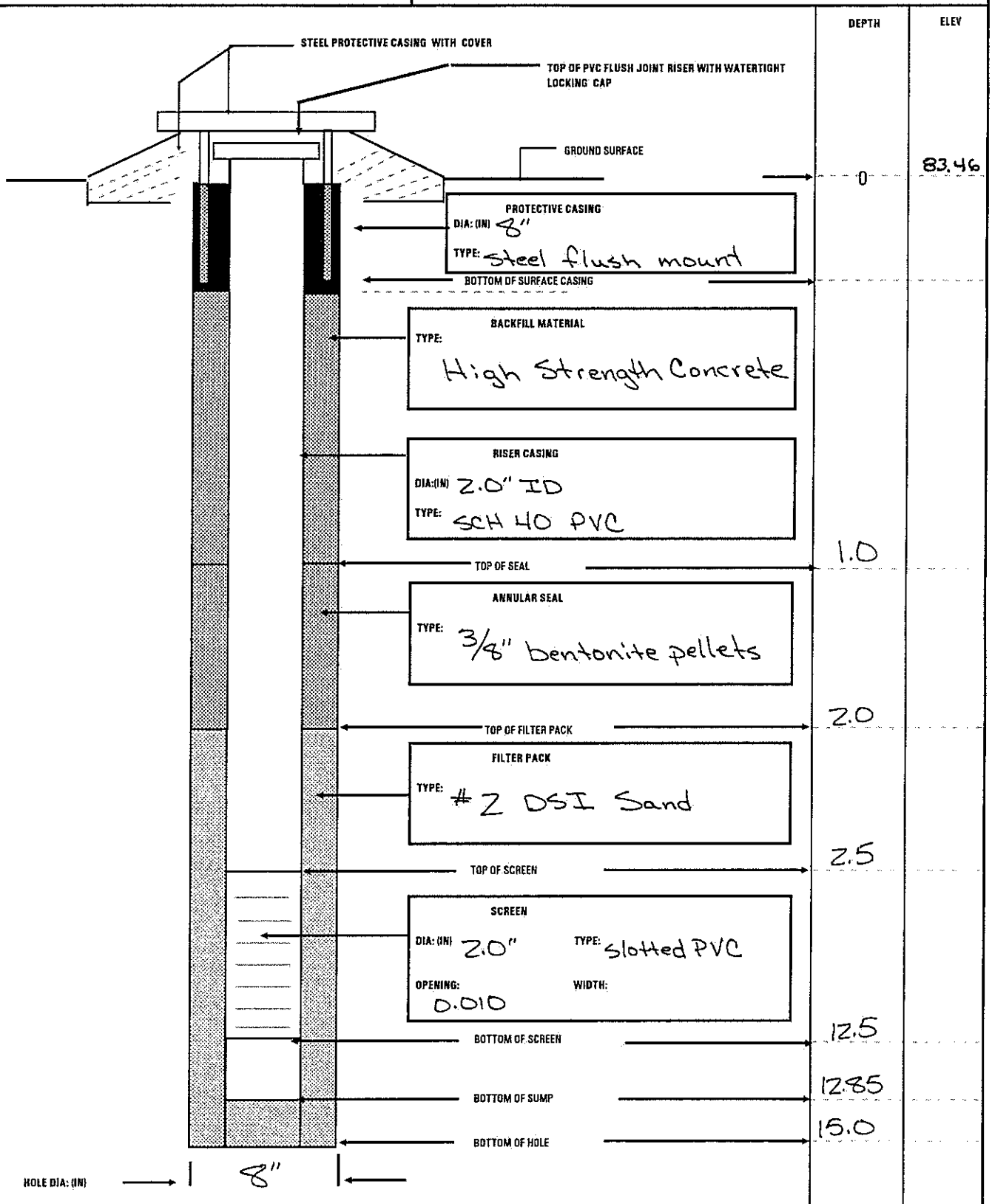
WELL NUMBER: 79-09	**BEGIN:** 2/18/99	**END:** 2/18/99
COORDINATES: N: 677486.56 E: 826716.46	**REFERENCE POINT:** TOC	**ELEVATION:** 82.79



MONITORING WELL

PROJECT: Ft. Stewart USTs

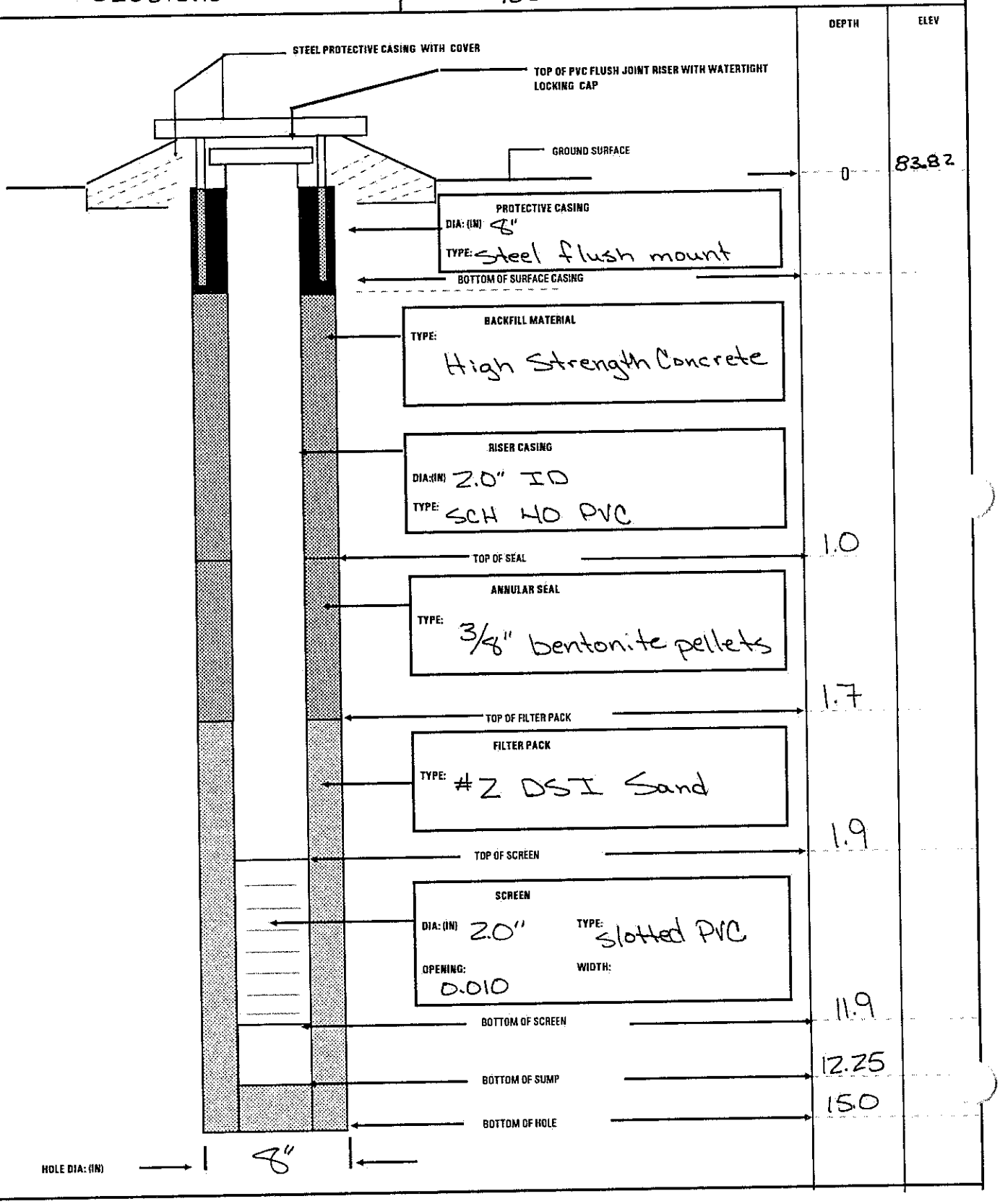
WELL NUMBER: 79-10	**BEGIN:** 2/18/99	**END:** 2/18/99
COORDINATES: N: 677536.73 E: 826740.32	**REFERENCE POINT:** TOC	**ELEVATION:** 83.18



MONITORING WELL

PROJECT: Ft. Stewart USTs

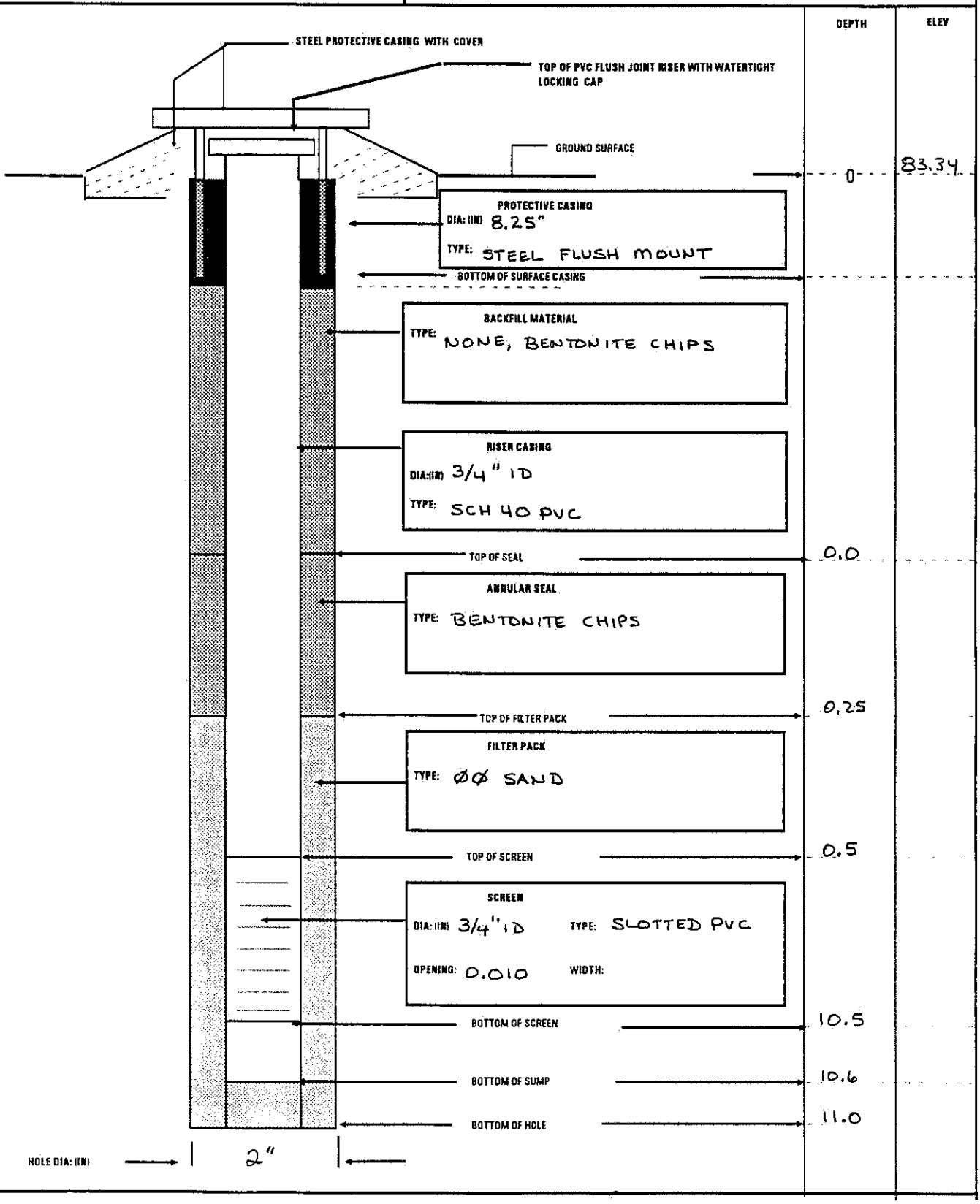
WELL NUMBER: 79-11	**BEGIN:** 2/18/99	**END:** 2/18/99
COORDINATES: N: 677516.61 E: 826812.10	**REFERENCE POINT:** TOC	**ELEVATION:** 83.46



MONITORING WELL

PROJECT: Ft. Stewart USTs

WELL NUMBER: 79-12	**BEGIN:** 9/22/99	**END:** 9/22/99
COORDINATES: N: 677493.98 E: 826635.68	**REFERENCE POINT:** TOC	**ELEVATION:** 83.13



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APPENDIX VIII

GROUNDWATER LABORATORY RESULTS

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Table VIII-A. Summary of CAP-Part A Groundwater Analytical Results

Station:	Federal	In Stream	79-01	79-02	79-03	79-04
Sample ID:		Water	790112	790212	790312	790412
Screened Interval (ft BGS)	SDWA	Quality	0.0 – 8.0	0.0 – 8.0	0.0 – 10.0	0.0 – 8.0
Collection Date:	MCLs[1]	Standards[2]	12-May-98	12-May-98	12-May-98	12-May-98
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
VOLATILE ORGANIC COMPOUNDS						
Benzene	5	71.28	940 =	188 =	5.7 =	7.6 =
Toluene	1000	200,000	15600 =	196 =	39.5 =	37.9 =
Ethylbenzene	700	28,718	3980 =	197 =	10.3 =	8.1 =
Xylenes, Total	10000	NRC	23800 J	1140 =	49.2 =	27.7 =
POLYNUCLEAR AROMATIC HYDROCARBONS						
2-Chloronaphthalene	NRC	NRC	20 U	20 U	20 U	20 U
Acenaphthene	NRC	NRC	20 U	20 U	20 U	20 U
Acenaphthylene	NRC	NRC	20 U	20 U	20 U	20 U
Anthracene	NRC	110,000	20 U	20 U	20 U	20 U
Benzo(a)anthracene	NRC	0.0311	20 U	20 U	20 U	20 U
Benzo(a)pyrene	0.2	0.0311	20 U	20 U	20 U	20 U
Benzo(b)fluoranthene	NRC	NRC	20 U	20 U	20 U	3.1 J
Benzo(g,h,i)perylene	NRC	NRC	20 U	20 U	20 U	20 U
Benzo(k)fluoranthene	NRC	0.0311	20 U	20 U	20 U	20 U
Chrysene	NRC	0.0311	20 U	20 U	20 U	20 U
Dibenzo(a,h)anthracene	NRC	0.0311	20 U	20 U	20 U	20 U
Fluoranthene	NRC	370	1 J	20 U	20 U	1 J
Fluorene	NRC	14,000	20 U	20 U	20 U	20 U
Indeno(1,2,3-cd)pyrene	NRC	0.0311	20 U	20 U	20 U	20 U
Naphthalene	NRC	NRC	616 =	46 =	20 U	20 U
Phenanthrene	NRC	NRC	20 U	20 U	20 U	20 U
Pyrene	NRC	11,000	1.9 J	20 U	20 U	2.2 J

NOTES:

CAP-Part A sampling performed in May 1998 was conducted prior to the new CAP-Part A guidance that was published in May 1998. Thus, the new SW-846 analytical methods were not used during the CAP-Part A sampling event.

1 U.S. Environmental Protection Agency maximum contaminant level

2 GA EPD water quality standards (Chapter 391-03-6.03)

Laboratory Qualifiers

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

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

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

= Indicates the compound was detected at the concentration reported.

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Analytical data sheets associated with the CAP-Part A investigation were provided in the CAP-Part A Report, dated December 1998.

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Table VIII-B. Summary of CAP-Part B Groundwater Analytical Results

Station:		In Stream	79-06	79-07	79-08	79-09	79-10	79-11	79-12
Sample ID:	Federal	Water	790612	790712	790812	790912	791012	791112	791212
Screened Interval (ft BGS)	SDWA	Quality	3.1 – 13.1	2.7 – 12.7	2.5 – 12.5	2.0 – 12.0	2.5 – 12.5	1.9 – 11.9	0.5 – 10.0
Collection Date:	MCLs[1]	Standards[2]	3/9/99	3/9/99	3/10/99	3/9/99	3/10/99	3/10/99	9/22/99
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
VOLATILE ORGANIC COMPOUNDS									
Benzene	5	71.28	0.51 J	1.3 J	1.8 J	16.8 =	2 U	2 U	2 U
Toluene	1000	200000	3.3 =	3.3 =	5.9 =	1.5 J	2 U	2 U	2 U
Ethylbenzene	700	28718	1.1 J	2 U	1.1 J	2 U	2 U	2 U	2 U
Xylenes, Total	10000	NRC	6.8 =	1.1 J	6.5 =	2.3 J	3 U	3 U	6 U
POLYNUCLEAR AROMATIC HYDROCARBONS									
2-Chloronaphthalene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Acenaphthene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Acenaphthylene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Anthracene	NRC	110000	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Benzo(a)anthracene	NRC	0.0311	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Benzo(a)pyrene	0.2	0.0311	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Benzo(b)fluoranthene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	7 J
Benzo(g,h,i)perylene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	0.75 J
Benzo(k)fluoranthene	NRC	0.0311	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	1.9 J
Chrysene	NRC	0.0311	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Dibenzo(a,h)anthracene	NRC	0.0311	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Fluoranthene	NRC	370	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Fluorene	NRC	14000	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Indeno(1,2,3-cd)pyrene	NRC	0.0311	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	5.9 J
Naphthalene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Phenanthrene	NRC	NRC	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U
Pyrene	NRC	11000	10.3 UJ	10.9 UJ	11.1 UJ	10.2 UJ	10 UJ	11.1 UJ	10 U

NOTES:

CAP-Part B field work performed in 1999 was conducted in accordance with the CAP-Part A guidance published in May 1998; thus, the new SW-846 analytical methods were used during the CAP-Part B investigation conducted in 1999.

Analytical data for QA/QC sample 790714 (duplicate) are contained within this appendix, but are not summarized in this table.

1 U.S. Environmental Protection Agency maximum contaminant level

2 GA EPD water quality standards (Chapter 391-03-6.03)

Laboratory Qualifiers

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

UJ Indicates the compound was not detected above an approximated sample quantitation limit.

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

= Indicates the compound was detected at the concentration reported.

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790612

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB13W

Matrix: (soil/water) WATER Lab Sample ID: 9903450-05

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1B108

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/22/99

GC Column: DB-624 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/L	Q	
71-43-2	benzene	0.51	J	J = J =
108-88-3	toluene	3.3		
100-41-4	ethylbenzene	1.1	J	
75-71-8	xylenes (total)	6.8		

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790612RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB11W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-14

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 7M319

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.3	U
91-58-7	2-chloronaphthalene	10.3	U
208-96-8	acenaphthylene	10.3	U
83-32-9	acenaphthene	10.3	U
86-73-7	fluorene	10.3	U
85-01-8	phenanthrene	10.3	U
120-12-7	anthracene	10.3	U
206-44-0	fluoranthene	10.3	U
129-00-0	pyrene	10.3	U
56-55-3	benzo(a)anthracene	10.3	U
218-01-9	chrysene	10.3	U
205-99-2	benzo(b)fluoranthene	10.3	U
207-08-9	benzo(k)fluoranthene	10.3	U
50-32-8	benzo(a)pyrene	10.3	U
193-39-5	indeno(1,2,3-cd)pyrene	10.3	U
53-70-3	dibenz(a,h)anthracene	10.3	U
191-24-2	benzo(g,h,i)perylene	10.3	U

USADI

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97

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB13W

Method Type: Total Metals

Sample ID: 9903450-05

Client ID: 790612

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	274	µg/L	=		P	4.6	TJA61 Trace ICPAES	990325-2

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790712

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB13W

Matrix: (soil/water) WATER Lab Sample ID: 9903450-08

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1A609

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/20/99

GC Column: DB-624 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/L	Q	
71-43-2	benzene	1.3	J	J = C J
108-88-3	toluene	3.3		
100-41-4	ethylbenzene	2.0	U	
75-71-8	xylenes (total)	1.1	J	

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790712RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB11W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-12

Sample wt/vol: 920.0 (g/mL) ML Lab File ID: 7M317

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.9	U
91-58-7	2-chloronaphthalene	10.9	U
208-96-8	acenaphthylene	10.9	U
83-32-9	acenaphthene	10.9	U
86-73-7	fluorene	10.9	U
85-01-8	phenanthrene	10.9	U
120-12-7	anthracene	10.9	U
206-44-0	fluoranthene	10.9	U
129-00-0	pyrene	10.9	U
56-55-3	benzo(a)anthracene	10.9	U
218-01-9	chrysene	10.9	U
205-99-2	benzo(b)fluoranthene	10.9	U
207-08-9	benzo(k)fluoranthene	10.9	U
50-32-8	benzo(a)pyrene	10.9	U
193-39-5	indeno(1,2,3-cd)pyrene	10.9	U
53-70-3	dibenz(a,h)anthracene	10.9	U
191-24-2	benzo(g,h,i)perylene	10.9	U

USADI

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB13W

Method Type: Total Metals

Sample ID: 9903450-08

Client ID: 790712

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	8530	µg/L	=		P	46.0	TJA61 Trace ICPAES	990325-2

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

DUPLICATE
EPA SAMPLE NO.

790714

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB13W

Matrix: (soil/water) WATER Lab Sample ID: 9903450-13

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1A614

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/20/99

GC Column: DB-624 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/L	Q	
71-43-2	benzene	1.4	J	J
108-88-3	toluene	4.7		=
100-41-4	ethylbenzene	0.82	J	J
75-71-8	xylenes (total)	5.8		=

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

DUPLICATE

EPA SAMPLE NO.

790714RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB11W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-13

Sample wt/vol: 930.0 (g/mL) ML Lab File ID: 7M318

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USR

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.8	U
91-58-7	2-chloronaphthalene	10.8	U
208-96-8	acenaphthylene	10.8	U
83-32-9	acenaphthene	10.8	U
86-73-7	fluorene	10.8	U
85-01-8	phenanthrene	10.8	U
120-12-7	anthracene	10.8	U
206-44-0	fluoranthene	10.8	U
129-00-0	pyrene	10.8	U
56-55-3	benzo(a)anthracene	10.8	U
218-01-9	chrysene	10.8	U
205-99-2	benzo(b)fluoranthene	10.8	U
207-08-9	benzo(k)fluoranthene	10.8	U
50-32-8	benzo(a)pyrene	10.8	U
193-39-5	indeno(1,2,3-cd)pyrene	10.8	U
53-70-3	dibenz(a,h)anthracene	10.8	U
191-24-2	benzo(g,h,i)perylene	10.8	U

USADI

DUPLICATE

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB13W

Method Type: Total Metals

Sample ID: 9903450-13

Client ID: 790714

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	8550	µg/L	=		P	46.0	TJA61 Trace ICPAES	990325-2

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790812

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB14W

Matrix: (soil/water) WATER Lab Sample ID: 9903461-04

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1A312

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/17/99

GC Column: DB-624 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/L	Q	
71-43-2	benzene	1.8	J	
108-88-3	toluene	5.9		
100-41-4	ethylbenzene	1.1	J	
75-71-8	xylenes (total)	6.5		

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790812RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB11W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-18

Sample wt/vol: 900.0 (g/mL) ML Lab File ID: 7M323

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

US2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	11.1	U
91-58-7	2-chloronaphthalene	11.1	U
208-96-8	acenaphthylene	11.1	U
83-32-9	acenaphthene	11.1	U
86-73-7	fluorene	11.1	U
85-01-8	phenanthrene	11.1	U
120-12-7	anthracene	11.1	U
206-44-0	fluoranthene	11.1	U
129-00-0	pyrene	11.1	U
56-55-3	benzo(a)anthracene	11.1	U
218-01-9	chrysene	11.1	U
205-99-2	benzo(b)fluoranthene	11.1	U
207-08-9	benzo(k)fluoranthene	11.1	U
50-32-8	benzo(a)pyrene	11.1	U
193-39-5	indeno(1,2,3-cd)pyrene	11.1	U
53-70-3	dibenz(a,h)anthracene	11.1	U
191-24-2	benzo(g,h,i)perylene	11.1	U

US ADI

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB12W

Method Type: Total Metals

Sample ID: 9903449-14

Client ID: 790812

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	3400	µg/L	=		P	4.6	TJA61 Trace ICPAES	990328-2

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790912

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB13W

Matrix: (soil/water) WATER Lab Sample ID: 9903450-14

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1A615

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/20/99

GC Column: DB-624 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/L	Q
71-43-2	benzene	16.8	
108-88-3	toluene	1.5	J
100-41-4	ethylbenzene	2.0	U
75-71-8	xylenes (total)	2.3	J

FORM I VOA OLM03.0

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

790912RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB1LW

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-11

Sample wt/vol: 980.0 (g/mL) ML Lab File ID: 7M316

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.2	U
91-58-7	2-chloronaphthalene	10.2	U
208-96-8	acenaphthylene	10.2	U
83-32-9	acenaphthene	10.2	U
86-73-7	fluorene	10.2	U
85-01-8	phenanthrene	10.2	U
120-12-7	anthracene	10.2	U
206-44-0	fluoranthene	10.2	U
129-00-0	pyrene	10.2	U
56-55-3	benzo(a)anthracene	10.2	U
218-01-9	chrysene	10.2	U
205-99-2	benzo(b)fluoranthene	10.2	U
207-08-9	benzo(k)fluoranthene	10.2	U
50-32-8	benzo(a)pyrene	10.2	U
193-39-5	indeno(1,2,3-cd)pyrene	10.2	U
53-70-3	dibenz(a,h)anthracene	10.2	U
191-24-2	benzo(g,h,i)perylene	10.2	U

USL ADI

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB13W

Method Type: Total Metals

Sample ID: 9903450-14

Client ID: 790912

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	744	µg/L			P	4.6	TJA61 Trace ICPAES	990325-2

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791012

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB14W

Matrix: (soil/water) WATER Lab Sample ID: 9903461-05

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1A313

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/17/99

GC Column: DB-624 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/L	Q
71-43-2	benzene	2.0	U
108-88-3	toluene	2.0	U
100-41-4	ethylbenzene	2.0	U
75-71-8	xylenes (total)	3.0	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791012RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB11W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-19

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 7M324

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

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/L	Q
91-20-3	naphthalene	10.0	U
91-58-7	2-chloronaphthalene	10.0	U
208-96-8	acenaphthylene	10.0	U
83-32-9	acenaphthene	10.0	U
86-73-7	fluorene	10.0	U
85-01-8	phenanthrene	10.0	U
120-12-7	anthracene	10.0	U
206-44-0	fluoranthene	10.0	U
129-00-0	pyrene	10.0	U
56-55-3	benzo(a)anthracene	10.0	U
218-01-9	chrysene	10.0	U
205-99-2	benzo(b)fluoranthene	10.0	U
207-08-9	benzo(k)fluoranthene	10.0	U
50-32-8	benzo(a)pyrene	10.0	U
193-39-5	indeno(1,2,3-cd)pyrene	10.0	U
53-70-3	dibenz(a,h)anthracene	10.0	U
191-24-2	benzo(g,h,i)perylene	10.0	U

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB12W

Method Type: Total Metals

Sample ID: 9903449-15

Client ID: 791012

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	1150	µg/L	=		P	4.6	TJA61 Trace ICPAES	990316-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791112

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB14W

Matrix: (soil/water) WATER Lab Sample ID: 9903461-06

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1A314

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: not dec. _____ Date Analyzed: 03/17/99

GC Column: DB-624 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/L	Q
71-43-2	benzene	2.0	U
108-88-3	toluene	2.0	U
100-41-4	ethylbenzene	2.0	U
75-71-8	xylenes (total)	3.0	U

U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791112RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSB11W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9903448-16

Sample wt/vol: 900.0 (g/mL) ML Lab File ID: 7M321

Level: (low/med) LOW Date Received: 03/11/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:03/19/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 03/24/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	11.1	U
91-58-7	2-chloronaphthalene	11.1	U
208-96-8	acenaphthylene	11.1	U
83-32-9	acenaphthene	11.1	U
86-73-7	fluorene	11.1	U
85-01-8	phenanthrene	11.1	U
120-12-7	anthracene	11.1	U
206-44-0	fluoranthene	11.1	U
129-00-0	pyrene	11.1	U
56-55-3	benzo(a)anthracene	11.1	U
218-01-9	chrysene	11.1	U
205-99-2	benzo(b)fluoranthene	11.1	U
207-08-9	benzo(k)fluoranthene	11.1	U
50-32-8	benzo(a)pyrene	11.1	U
193-39-5	indeno(1,2,3-cd)pyrene	11.1	U
53-70-3	dibenz(a,h)anthracene	11.1	U
191-24-2	benzo(g,h,i)perylene	11.1	U

USAOI

Form 1: Inorganic Analyses Data Sheet

SDG No.: FSB12W

Method Type: Total Metals

Sample ID: 9903449-16

Client ID: 791112

Contract: SAIC00299 Lab Code: GEL Case No.: SAS No.:

Matrix: WATER Date Received: 3/11/99 Level: LOW

% Solids: 0.00

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7439-89-6	Iron	743	µg/L	=		P	4.6	TJA61 Trace ICPAES	990316-1

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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CHAIN OF CUSTODY RECORD

COC NO.: D03515

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature) Laura Lumley (Printed Name) Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

REQUESTED PARAMETERS

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
761114	3/9/99	9248	water		2							2		9903448-07 3493 .1
762512	3/9/99	1450			2							2		-08 .1
761212	3/9/99	1143			2							2		-09 .1
761112	3/9/99	9248			2							2		-10 .1
790912	3/9/99	1710			2							2		-11 .1
790712	3/9/99	1715			2							2		-12 .1

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time	TOTAL NUMBER OF CONTAINERS: 12	Cooler Temperature: 4°C
Laura Lumley	3/11/99	Francis	3/11/99	Cooler ID: #140	FEDEX NUMBER:
COMPANY NAME: SAIC	1030	COMPANY NAME: GEL	1520		
RECEIVED BY:	Date/Time	RELINQUISHED BY:	Date/Time		
COMPANY NAME: GEL	3/11/99 1030	COMPANY NAME:			
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time		
COMPANY NAME: GEL	3/11/99 1520	COMPANY NAME:			

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CHAIN OF CUSTODY RECORD

COC NO.: D03519

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature) Laura Lumley (Printed Name) Laura Lumley

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
790714	3/9/99	1715	water		N							2		9903448-13
790612	3/9/99	1715			N							2		-14
931112	3/10/99	1135			N							2		-15
791112	3/10/99	1225			N							2		-16
930812	3/10/99	950			N							2		-17
790812	3/10/99	1054			N							2		-18

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Laura Lumley	3/11/99 1030	D. Franco	3/11/99 1520
COMPANY NAME: SAIC		COMPANY NAME: Del	
RECEIVED BY:	Date/Time	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL	3/11/99 1030	COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME: GEL	3/11/99 1520	COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 12

Cooler ID: # 637

Cooler Temperature: 4°C

FEDEX NUMBER:

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CHAIN OF CUSTODY RECORD

COC NO.: D03520

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature): Laura Lumley (Printed Name): Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
791012	3/10/99	926	water		N							2		9903448-19 3893
141312	3/10/99	915			N							2		-20
421112	3/10/99	1410			N							2		9903449-01 3893
421212	3/10/99	1245			N							2		-02
141412	3/10/99	1020			N							2		-03
2160622	3/10/99	1725	↓		N							2		-04

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Laura Lumley	3/11/99 1030	Brandon	3/11/99 1520
COMPANY NAME: SAIC		COMPANY NAME: Gel	
RECEIVED BY: Patt Hourihan	3/11/99 1070	RELINQUISHED BY:	Date/Time
COMPANY NAME: Gel		COMPANY NAME:	
RELINQUISHED BY: Patt Hourihan	3/11/99 1520	RECEIVED BY:	Date/Time
COMPANY NAME: Gel		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 12

Cooler ID: #724, 5°C

Cooler Temperature:

FEDEX NUMBER:

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CHAIN OF CUSTODY RECORD

COC NO.: D0352Z

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1693-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature): Laura Lumley (Printed Name): Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
931012	3/10/99	1530	water									2		9903449-10 (3593 12)
762512	3/9/99	1037		2								3		9903450-01 (3593 11)
762712	3/9/99	910		2								3		-02
762012	3/9/99	1130		2								3		03
762112	3/9/99	1415		2								3		04
790612	3/9/99	1715		2								3		05
761912	3/9/99	1210		2								3		06
761112	3/9/99	926		2								3		07
790712	3/9/99	1715		2								3		08
761114	3/9/99	926		2								3		09
761212	3/9/99	1143		2								3		10
761812	3/9/99	1450		2								3		-11
762612	3/9/99	1405	↓	2								3		-12

RELINQUISHED BY: Laura Lumley	Date/Time 3/11/99 1030	RECEIVED BY: D Haven	Date/Time 3/11/99 1520	TOTAL NUMBER OF CONTAINERS:	Cooler Temperature: 4°C
COMPANY NAME: SAIC		COMPANY NAME: GEL		Cooler ID: #184	FEDEX NUMBER:
RECEIVED BY: [illegible]	Date/Time 3/11/99 1030	RELINQUISHED BY:	Date/Time		
COMPANY NAME: GEL		COMPANY NAME:			
RELINQUISHED BY: [illegible]	Date/Time 3/11/99 1520	RECEIVED BY:	Date/Time		
COMPANY NAME: GEL		COMPANY NAME:			

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2 of 3

CHAIN OF CUSTODY RECORD

COC NO.: 003522

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature): Laura Lumley (Printed Name): Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
790714	3/9/99	1715	water	2								3		9903450-13 (3873 #1)
790912	3/9/99	1710		2								3		-14
260622	3/10/99	1725		2								3		-15
260722	3/10/99	1710		2								3		-16
260822	3/10/99	1435		2								3		-17
260922	3/10/99	1204		2								3		-18
141312	3/10/99	915		2								3		-19
141412	3/10/99	1020										1		9903449-11 (3873 #3)
421112	3/10/99	1410										1		-12
421212	3/10/99	1245										1		-13
790812	3/10/99	1054										1		-14
791012	3/10/99	926										1		-15
791112	3/10/99	1225										1		-16

RELINQUISHED BY: Laura Lumley	Date/Time 3/11/99 1030	RECEIVED BY: Fraser	Date/Time 3/11/99 1520	TOTAL NUMBER OF CONTAINERS:	Cooler Temperature: 4°C
COMPANY NAME: SAIC		COMPANY NAME: Gel		Cooler ID: #1456	FEDEX NUMBER:
RECEIVED BY:	Date/Time 3/11/99 1030	RELINQUISHED BY:	Date/Time		
COMPANY NAME:		COMPANY NAME:			
RELINQUISHED BY:	Date/Time 3/11/99 1520	RECEIVED BY:	Date/Time		
COMPANY NAME:		COMPANY NAME:			

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CHAIN OF CUSTODY RECORD

COC NO.: D03523

PROJECT NAME: CAP-Part B UST Investigations

PROJECT NUMBER: 01-0331-04-1593-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature) Laura Lumley (Printed Name) Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

REQUESTED PARAMETERS

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO	PAH, DRO, Lead, TOC	PAH, TPH	PAH, TPH, Lead, TOC	Dissolved Iron	Oil & Grease	Total Phenols	624 VOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
D03504	3/11/99	1100	water								2	1	2		7		9903460-01
14/412	3/10/99	1020		2											2		9903461-01
42112	3/10/99	1410		2											2		-02
42122	3/10/99	1245		2											2		-03
79082	3/10/99	1045		2											2		-04
79102	3/10/99	926		2											2		-05
79112	3/10/99	1225		2											2		-06
93082	3/10/99	950		2											2		-07
93092	3/10/99	1715		2											2		-08
93102	3/10/99	1530		2											2		-09
93104	3/10/99	1530		2											2		-10
93112	3/10/99	1135		2											2		-11
JB0011	3/10/99	745		2											2		-12

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Laura Lumley	3/11/99	Franco	3/11/99
COMPANY NAME: SAIC	1140	COMPANY NAME: GEL	1520
RECEIVED BY:	Date/Time	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL	3/11/99 1140	COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME: GEL	3/11/99 1520	COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 31

Cooler ID: # 221

Cooler Temperature: 4°C

FEDEX NUMBER:

7 DAY TURN

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791212

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSBA01W

Matrix: (soil/water) WATER Lab Sample ID: 9909681-03

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8C608

Level: (low/med) LOW Date Received: 09/23/99

% Moisture: not dec. _____ Date Analyzed: 10/02/99

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	benzene	2.0	U
108-88-3	toluene	2.0	U
100-41-4	ethylbenzene	2.0	U
1330-20-7	xylenes (total)	6.0	U

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

791212

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FSBA01W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9909681-03

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 7M610

Level: (low/med) LOW Date Received: 09/23/99

% Moisture: _____ decanted: (Y/N)___ Date Extracted:09/24/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 09/25/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.0	U
91-58-7	2-chloronaphthalene	10.0	U
208-96-8	acenaphthylene	10.0	U
83-32-9	acenaphthene	10.0	U
86-73-7	fluorene	10.0	U
85-01-8	phenanthrene	10.0	U
120-12-7	anthracene	10.0	U
206-44-0	fluoranthene	10.0	U
129-00-0	pyrene	10.0	U
56-55-3	benzo(a)anthracene	10.0	U
218-01-9	chrysene	10.0	U
205-99-2	benzo(b)fluoranthene	7.0	J
207-08-9	benzo(k)fluoranthene	1.9	J
50-32-8	benzo(a)pyrene	10.0	U
193-39-5	indeno(1,2,3-cd)pyrene	5.9	J
53-70-3	dibenz(a,h)anthracene	10.0	U
191-24-2	benzo(g,h,i)perylene	0.75	J

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DATA VALIDATION COPY

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CHAIN OF CUSTODY RECORD

COC NO.: D0352K

PROJECT NAME: D. O. 35, CAP B

PROJECT NUMBER: 01-0331-04-1593-210

PROJECT MANAGER: Patty Stoll

Sampler (Signature): Laura Lumley (Printed Name): Laura Lumley

Sample ID.	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	PAH, DRO, Lead	BTEX, GRO	PAH, DRO	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
931712	9/22/99	1730	water	2	2					4		9909681-01
931716	9/22/99	1735	↓	2	2					4		-02
791212	9/22/99	1545		2	2					4		-03
TBB022	9/22/99	1435	↓	2						2		-04
931711	9/22/99	1712	Soil	1		1	1			3		9909682-01

REQUESTED PARAMETERS

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Road, Charleston, SC 29407

PHONE NO: (843) 556-8171

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Laura Lumley	9/23/99 1200	DiFrancis	9/23/99 1555
COMPANY NAME: SAIC		COMPANY NAME: GEL	
RECEIVED BY:	Date/Time	RELINQUISHED BY:	Date/Time
COMPANY NAME:	9/23/99 1260	COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:	9/23/99 1555	COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 17

Cooler ID: # 374

Cooler Temperature: 4°C

FEDEX NUMBER:

APPENDIX IX

CONTAMINATED SOIL DISPOSAL

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No soil was removed from the site during tank removal activities in 1995.

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APPENDIX X

SITE RANKING FORM

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The site ranking score has been revised to reflect current site conditions using the most recent data available. The revised site ranking score is 500 as opposed to the score of 2500 that was reported in the CAP-Part A Report dated December 1998. The revised Site Ranking Form is included in this appendix.

The site ranking score presented in the CAP-Part B Report is based on the highest soil contamination observed during the CAP-Part A and CAP-Part B investigations and the most current groundwater contamination observed during the CAP-Part B investigation. During the CAP-Part A investigation, the highest area of groundwater contamination was located around borings 79-01 and 79-02 (Figure 6). Based on this information, well 79-08 was located within the 500 µg/L benzene contour and 10 feet from boring 79-01. Thus, the analytical data from 79-08 indicates that a significant amount of biodegradation occurred at the site between the CAP-Part A (May 1998) and CAP-Part B (March 1999) investigations. Therefore, the CAP-Part B data was used in the Site Ranking Form.

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SITE RANKING FORM

Facility Name: USTs 48 & 49, Building 1175 **Ranked by:** S. Stoller

County: Liberty **Facility ID #:** 9-089054 **Date Ranked:** 10/27/99

SOIL CONTAMINATION (CAP-Part A&B data)

A. Total PAHs –
Maximum Concentration found on the site
(Assume <0.660 mg/kg if only gasoline was stored on site)

- ☐ ≤0.660 mg/kg = 0
- ☐ >0.66 - 1 mg/kg = 10
- ☒ >1 - 10 mg/kg = 25
- ☐ >10 mg/kg = 50

CAP-Part A sample 790411

B. Total Benzene -
Maximum Concentration found on the site

- ☒ ≤0.005 mg/kg = 0
- ☐ >0.005 - .05 mg/kg = 1
- ☐ >0.05 - 1 mg/kg = 10
- ☐ >1 - 10 mg/kg = 25
- ☐ >10 - 50 mg/kg = 40
- ☐ >50 mg/kg = 50

CAP-Part B sample 790711

C. Depth to Groundwater
(bls = below land surface)

- ☐ >50' bls = 1
- ☐ >25' - 50' bls = 2
- ☐ >10' - 25' bls = 5
- ☒ ≤10' bls = 10

Fill in the blanks: **(A. 25) + (B. 0) = (25) x (C. 10) = (D. 250)**

GROUNDWATER CONTAMINATION (CAP-Part B Data)

E. Free Product (Nonaqueous-phase liquid hydrocarbons; See Guidelines For definition of "sheen").

- ☒ No free product = 0
- ☐ Sheen - 1/8" = 250
- ☐ >1/8" - 6" = 500
- ☐ >6" - 1ft. = 1,000
- ☐ For every additional inch, add another 100 points = 1,000 +

F. Dissolved Benzene -
Maximum Concentration at the site
(One well must be located at the source of the release.)

- ☐ ≤5 µg/L = 0
- ☒ >5 - 100 µg/L = 5
- ☐ >100 - 1,000 µg/L = 50
- ☐ >1,000 - 10,000 µg/L = 100
- ☐ >10,000 µg/L = 250

CAP-Part B well 79-09

Fill in the blanks: **(E. 0) + (F. 5) = (G. 5)**

POTENTIAL RECEPTORS (MUST BE FIELD-VERIFIED)

Distance from nearest contaminant plume boundary to the nearest downgradient and hydraulically connected Point of Withdrawal for water supply. **If the point of withdrawal is not hydraulically connected, evidence as outlined in the CAP-A guidance document MUST be presented to substantiate this claim.**

H. Public Water Supply

☐	Impacted	= 2000
☐	≤500'	= 500
☐	>500' - ¼ mi	= 25
☐	¼ mi - 1 mi	= 10
☐	>1 mi - 2 mi	= 2
☒ *	> 2 mi	= 0

For lower susceptibility areas only:

☐	>1 mi	= 0

I. Non-Public Water Supply

☐	Impacted	= 1000
☐	≤100'	= 500
☐	>100' - 500'	= 25
☐	>500' - ¼ mi	= 5
☐	>¼ - ½ mi	= 2
☒	>½ mi	= 0

For lower susceptibility areas only:

☐	>¼ mi	= 0

Note: If site is in lower susceptibility area, do not use the shaded areas.

* For justification that withdrawal point is not hydraulically connected, see page X-5.

J. Distance from nearest Contaminant Plume boundary to downgradient Surface Waters **OR UTILITY TRENCHES & VAULTS** (a utility trench may be omitted from ranking if its invert elevation is more than 5 feet above the water table)

☐	Impacted	= 500
☒	≤500'	= 50
☐	>500' - 1,000'	= 5
☐	>1,000'	= 1

K. Distance from any Free Product to basements and crawl spaces

☐	Impacted	= 500
☐	<500'	= 50
☐	>500' - 1,000'	= 5
☒	>1,000' or no free product.	= 0

Fill in the blanks: (H. 0) + (I. 0) + (J. 50) + (K. 0) = L. 50

(G. 5) x (L. 50) = M. 250

(M. 250) + (D. 250) = N. 500

P. **SUSCEPTIBILITY AREA MULTIPLIER**

☐ If site is located in a Low Ground-Water Pollution Susceptibility Area = 0.5

☒ All other sites = 1

Q. **EXPLOSION HAZARD**

Have any explosive petroleum vapors, possibly originating from this release, been detected in any subsurface structure (e.g., utility trenches, basements, vaults, crawl spaces, etc.)?

☐ Yes = 200,000

☒ No = 0

Fill in the blanks: (N. 500) x (P. 1) = (500) + (Q. 0)

= 500 (based on CAP A&B soil data and CAP B groundwater data)
ENVIRONMENTAL SENSITIVITY SCORE

OTHER GEOLOGIC AND HYDROLOGIC DATA

The following information is presented to provide supplemental information to Item H of the Site Ranking Form and provides detailed information relating to the geologic and hydrogeologic conditions at Fort Stewart which supports Fort Stewart's determination that the water withdrawal point(s) located at Fort Stewart is (are) not hydraulically connected to the surficial aquifer.

1.0 REGIONAL AND LOCAL GEOLOGY

Fort Stewart is located within the coastal plain physiographic province. This province is typified by nine southeastward dipping strata that increase in thickness from 0 feet at the fall line located approximately 150 miles inland from the Atlantic coast, to approximately 4,200 feet at the coast. State geologic records describe a probable petroleum exploration well (the No. 1 Jelks-Rogers) located in the region as encountering crystalline basement rocks at a depth of 4,254 feet BGS. This well provides the most complete record for Cretaceous, Tertiary, and Quaternary sedimentary strata in the region.

The Cretaceous section was found to be approximately 1,970 feet thick and dominated by clastics. The Tertiary section was found to be approximately 2,170 feet thick and dominated by limestone with a 175-foot-thick cap of dark green phosphatic clay. This clay is regionally extensive and is known as the Hawthorn Group. The interval from approximately 110 feet to the surface is Quaternary in age and composed primarily of sand with interbeds of clay or silt. This section is undifferentiated into separate formations (Herrick and Vochis 1963).

State geologic records contain information regarding a well drilled in October 1942, 1.8 miles north of Flemington at Liberty Field of Camp Stewart (now known as Fort Stewart). This well is believed to be an artesian well located approximately one-quarter mile north of the runway at Wright Army Airfield within the Fort Stewart Military Reservation. The log for this well describes a 410-foot section, the lowermost 110 feet of which consisted predominantly of limestone sediments, above which 245 feet of dark green phosphatic clay typical of the Hawthorn Group was encountered. The uppermost portion of the section was found to be Quaternary-age interbedded sands and clays. The top 15 feet of these sediments were described as sandy clay (Herrick and Vochis 1963).

The surface soil located throughout the Fort Stewart garrison area consists of Stilson loamy sand. The surface layer of this soil is typically dark grayish brown loamy sand measuring approximately 6 inches in depth. The surface layer is underlain by material consisting of pale yellow loamy sand and extends to a depth of approximately 29 inches. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more (Herrick and Vochis 1963).

2.0 REGIONAL AND LOCAL HYDROGEOLOGY

The hydrogeology in the vicinity of Fort Stewart is dominated by two aquifers referred to as the Principal Artesian and the surficial aquifers. The Principal Artesian aquifer is the lowermost hydrologic unit and is regionally extensive from South Carolina through Georgia, Alabama, and most of Florida. Known elsewhere as the Floridan, this aquifer is composed primarily of Tertiary-age limestone, including the Bug Island Formation, the Ocala Group, and the Suwannee Limestone. These formations are approximately 800 feet thick, and groundwater from this aquifer is used primarily for drinking water (Arora 1984).

The uppermost hydrologic unit is the surficial aquifer, which consists of widely varying amounts of sand and clay ranging from 55 to 150 feet in thickness. This aquifer is primarily used for domestic lawn and agricultural irrigation. The top of the water table ranges from approximately 2 to 10 feet BGS (Geraghty and Miller 1993). The base of the aquifer corresponds to the top of the underlying dense clay of the Hawthorn Group. The

Hawthorn Group was not encountered during drilling at this site but is believed to be located at 40 to 50 feet BGS; thus, the effective aquifer thickness would be approximately 35 to 45 feet. Soil surveys for Liberty and Long Counties describe the occurrence of a perched water table within the Stilson loamy sands present within Fort Stewart (Looper 1980).

The confining layer for the Principal Artesian aquifer is the phosphatic clay of the Hawthorn Group and ranges in thickness from 15 to 90 feet. The vertical hydraulic conductivity of this confining unit is on the order of 10^{-8} cm/sec. There are minor occurrences of aquifer material within the Hawthorn Group; however, they have limited utilization (Miller 1990). The Hawthorn Group has been divided into three formations: Coosawhatchie Formation, Markshead Formation, and the Parachula Formation, which are listed from youngest to oldest.

The Coosawhatchie Formation is composed predominantly of clay but also has sandy clay, argillaceous sand, and phosphorite units. The formation is approximately 170 feet thick in the Savannah, Georgia, area. This unit disconformably overlies the Markshead Formation and is distinguished from the underlying unit by dark phosphatic clays or phosphorite in the lower part and fine-grained sand in the upper part.

The Markshead Formation is approximately 70 feet thick in the Savannah, Georgia, area and consists of light-colored phosphatic, slightly dolomitic, argillacerous sand to fine-grained sandy clay with scattered beds of dolostone, limestone, and siliceous, and dolomitic and less calcareous.

The Parachula Formation consists of sand, clay, limestone, and dolomite, and is approximately 10 feet thick in the Savannah, Georgia, area. The Parachula Formation generally overlies the Suwannee Limestone in Georgia.

Groundwater encountered at all the 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 Principal (Floridan) Aquifer, and that the Hawthorn confining unit separates the Principal Aquifer from the surficial aquifer, it is concluded that there is no hydraulic interconnection between the surficial aquifer (and associated groundwater plumes, if applicable) located beneath former UST sites and identified water supply withdrawal points at Fort Stewart.

APPENDIX XI

PUBLIC NOTIFICATION

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STATE OF GEORGIA
CHATHAM COUNTY

Affidavit of Publication
___Savannah Morning News
___Savannah Evening Press

Personnally appeared before me, Lynnette Tuck, to me known, who being sworn, deposes and says:

That he is the Class. Inside Sales Mgr. of Southeastern Newspapers Corporation, a Georgia corporation, doing business in Chatham County, Georgia, under the trade name of Savannah Morning News/Savannah Evening Press, a daily newspaper published in said county;

That he is authorized to make affidavits of publication on behalf of said published corporation;

That said newspaper is of general circulation in said county and in the area adjacent thereto;

That he has reviewed the regular editions of the Savannah Morning News/Savannah Evening Press, published on 11-21, 1999, 11-28, 1999, _____, 1999, _____, 1999, and finds that the following Advertisement, to-wit:

*** PUBLIC NOTICE ***
Notification of Corrective Action Plan, Underground Storage Tank Releases, Fort Stewart, Georgia
The Georgia EPD (GEPD) has required Fort Stewart Directorate of Public Works to prepare Corrective Action Plans Part-B to investigate and/or clear up contamination at the underground storage tank sites listed at the end of this notification. These plans will be submitted to the GEPD on or before March 15, 1999. If you want to examine a copy of one or more of the plans, please contact: Commander, 3rd Infantry Division (Mechanized) and Fort Stewart, attn: DPW ENRD ENV.Br. (T. Rutland), 1557 Frank Cochran, Fort Stewart, Ga. 31314-4928.
A copy will be mailed at a nominal fee.
Comments to the plan will be accepted until March 31, 2000, and should be directed to GEPD at 404-362-2687. Following is the mailing address:
GEPD UST/MP, 4244 International Parkway, Suite 104, Atlanta, Ga. 30354
Fort Stewart - Part B Underground Storage Tank Sites
UST; Facility ID#
Building
48 and 49, 9-089054, 1175
255 and 256, 9-089087, 16012
257-260, 9-089037, 430
261, 9-089118, 430

appeared in each of said editions.

Lynnette Tuck
(Deponent)

Sworn to and subscribed before me this 29 day of Nov, 1999.

Lillie D. Lang
Notary Public, Chatham County, Georgia

LILLIE D. LANG
Notary Public, Chatham County, Ga.
My Commission Expires Apr. 8, 2001

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ATTACHMENT A

HYDROGEOLOGIC DATA

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ATTACHMENT A.1

Soil Geotechnical Data

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SUMMARY TABLE OF RESULTS FOR CAP Part B UST INVESTIGATIONS, FORT STEWART

SAMPLE NO.	MOISTURE CONTENT (%)	ATTERBERG LIMITS FINES CLASSIFICATION LL	PL	PI		SIEVE ANALYSIS (% PASSING) 3"	2"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#60	#140	#200
141331	19.4	NONPLASTIC				100	100	100	100	100	100	100	98	67.5	24.8	5.5	5.4
141431	16.4	NONPLASTIC				100	100	100	100	100	100	99.9	90.6	63.9	40.3	5.2	4.9
421131	11.6	NONPLASTIC				100	100	100	100	100	99.7	99.2	97.1	81.7	57.8	14.5	12.7
421231	22.3	NONPLASTIC				100	100	100	100	100	100	100	99.9	93.5	69.6	3.0	2.0
761131	27.5	NONPLASTIC				100	100	100	100	100	100	99.77	93.6	75.0	71.4	5.0	2.4
761231	24.1	NONPLASTIC				100	100	100	100	100	100	99.97	95.4	68.6	64.5	3.7	2.3
761331	14.5	NONPLASTIC				100	100	100	100	100	100	100	99.8	87.1	70.8	4.5	3.6
761431	29.8	NONPLASTIC				100	100	100	100	100	100	100	99.2	91.2	80.0	5.2	4.1
761531	33.2	NONPLASTIC				100	100	100	100	100	100	100	99.4	89.9	75.6	4.9	3.9
761631	31.1	NONPLASTIC				100	100	100	100	100	100	99.95	96.2	73.1	61.4	4.8	4.1
761731	40.1	NONPLASTIC				100	100	100	100	100	100	100	99.8	93.9	84.6	10.0	8.0
761831	31.5	NONPLASTIC				100	100	100	100	100	100	100	99.8	91.6	81.3	5.8	4.6
761931	25.4	NONPLASTIC				100	100	100	100	100	100	100	99.3	79.7	70.3	1.9	0.6
762031	26.9	NONPLASTIC				100	100	100	100	100	100	100	99.6	83.0	65.1	6.9	6.0
762331	24.1	NONPLASTIC				100	100	100	100	100	100	99.7	97.5	72.6	57.9	5.6	4.9
762431	24.0	NONPLASTIC				100	100	100	100	100	100	100	99.6	80.7	61.9	3.9	2.2
762531	23.5	NONPLASTIC				100	100	100	100	100	100	99.9	96.1	75.4	64.0	4.0	3.1
762631	25.1	NONPLASTIC				100	100	100	100	100	100	100	100	98.4	87.7	9.0	7.6
762731	16.2	NONPLASTIC				100	100	100	100	100	100	99.8	99.6	93.6	81.5	9.0	8.2
762831	25.6	NONPLASTIC				100	100	100	100	100	100	100	99.8	95.6	87.4	5.6	4.8
→ 790631	16.9	NONPLASTIC				100	100	100	100	100	99.34	90.3	53.6	42.5	40.2	4.0	3.0
→ 790731	18.5	NONPLASTIC				100	100	100	100	100	99.67	92.8	60.9	54.7	48.5	3.5	2.9
→ 790831	21.8	NONPLASTIC				100	100	100	100	100	99.08	93.5	81.8	58.2	4.2	2.0	1.9
→ 790931	20.2	NONPLASTIC				100	100	100	100	99.43	93.9	54.4	43.7	33.0	2.3	1.8	1.3
→ 791031	18.8	NONPLASTIC				100	100	100	100	100	96.66	77.5	41.3	28.4	18.9	2.4	2.1
→ 791131	18.6	NONPLASTIC				100	100	100	100	100	100	95.5	78.1	72.6	63.8	1.9	1.2
930831	23.2	NONPLASTIC				100	100	100	100	100	100	100	99.5	90.7	72.4	12.0	7.1
930931	25.1	31.5	21.2	10.3	CL	100	100	100	100	100	100	100	100	99.7	99.0	22.8	16.5
931031	30.5	21.2	17.5	3.67	ML	100	100	100	100	100	100	100	100	99.1	95.4	14.8	9.9
931131	18.0	32.0	18.9	13.1	CL	100	100	100	100	100	100	100	99.8	98.2	93.3	26.5	22.5

GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project: Fort Stewart	Job No.:99028
Project Location: CAP Part B UST INVESTIGATIONS	Sample No.: 790631
Sample Description: Dark Gray Sand With High Organics	Sample Depth:
	Boring No.:
Tested By: CA/BV	Date of Testing: 3/5/99

Mcws	Mcds	Mc : A13	Mw	Ms	w%	Mws	Ms
15.81	15.74	10.90	0.07	4.84	1.4	200.65	197.79

Sieve No.	Diam. (mm)	Wt. retained	% retained	E % retained	% passing
3	76.2	0	0.00	0.00	100.00
2	50.8	0	0.00	0.00	100.00
1 1/2	25.4	0	0.00	0.00	100.00
3/4	19.05	0	0.00	0.00	100.00
3/8	9.51	0	0.00	0.00	100.00
4	4.76	1.3	0.66	0.66	99.34
10	2.00	17.84	9.02	9.68	90.32
20	0.841	72.6	36.71	46.38	53.62
40	0.42	21.98	11.11	57.50	42.50
60	0.25	4.66	2.36	59.85	40.15
140	0.106	71.51	36.15	96.01	3.99
200	0.074	1.89	0.96	96.96	3.04
pan	---	0.28	0.14	97.10	2.90
total		192.06			

GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project: Fort Stewart	Job No.: 99028
Project Location: CAP Part B UST INVESTIGATIONS	Sample No.: 790731
Sample Description:Light Brown Well-graded Sand	Sample Depth:
	Boring No.:
Tested By:FB/CA	Date of Testing: 3/16/99

Mcws	Mcds	Mc : A18	Mw	Ms	w%	Mws	Ms
31.72	31.61	11.50	0.11	20.11	0.5	200.60	199.51

Sieve No.	Diam. (mm)	Wt. retained	% retained	E % retained	% passing
3	76.2	0	0.00	0.00	100.00
2	50.8	0	0.00	0.00	100.00
1 1/2	25.4	0	0.00	0.00	100.00
3/4	19.05	0	0.00	0.00	100.00
3/8	9.51	0	0.00	0.00	100.00
4	4.76	0.65	0.33	0.33	99.67
10	2.00	13.72	6.88	7.20	92.80
20	0.841	63.68	31.92	39.12	60.88
40	0.42	12.28	6.16	45.28	54.72
60	0.25	12.34	6.19	51.46	48.54
140	0.106	89.82	45.02	96.48	3.52
200	0.074	1.22	0.61	97.09	2.91
pan	---	0.17	0.09	97.18	2.82
total		193.88			

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GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project: Fort Stewart	Job No.:99028
Project Location: CAP Part B UST INVESTIGATIONS	Sample No.: 790831
Sample Description: Light Gray Sand	Sample Depth:
	Boring No.:
Tested By: CA/BV	Date of Testing: 3/17/99

Mcws	Mcds	Mc : A6	Mw	Ms	w%	Mws	Ms
38.04	37.93	15.43	0.11	22.50	0.5	200.53	199.55

Sieve No.	Diam. (mm)	Wt. retained	% retained	E % retained	% passing
3	76.2	0	0.00	0.00	100.00
2	50.8	0	0.00	0.00	100.00
1 1/2	25.4	0	0.00	0.00	100.00
3/4	19.05	0	0.00	0.00	100.00
3/8	9.51	0	0.00	0.00	100.00
4	4.76	1.84	0.92	0.92	99.08
10	2.00	11.09	5.56	6.48	93.52
20	0.841	23.4	11.73	18.21	81.79
40	0.42	47.14	23.62	41.83	58.17
60	0.25	107.78	54.01	95.84	4.16
140	0.106	4.26	2.13	97.97	2.03
200	0.074	0.3	0.15	98.12	1.88
pan	---	0	0.00	98.12	1.88
total		195.81			

GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project: Fort Stewart	Job No.:99028
Project Location: CAP Part B UST INVESTIGATIONS	Sample No.: 790931
Sample Description:Light Brown Sand	Sample Depth:
	Boring No.:
Tested By: CA/BV	Date of Testing: 3/17/99

Mcws	Mcds	Mc : A4	Mw	Ms	w%	Mws	Ms
39.64	39.44	15.41	0.20	24.03	0.8	200.51	198.85

Sieve No.	Diam. (mm)	Wt. retained	% retained	E % retained	% passing
3	76.2	0	0.00	0.00	100.00
2	50.8	0	0.00	0.00	100.00
1 1/2	25.4	0	0.00	0.00	100.00
3/4	19.05	0	0.00	0.00	100.00
3/8	9.51	1.14	0.57	0.57	99.43
4	4.76	10.99	5.53	6.10	93.90
10	2.00	78.52	39.49	45.59	54.41
20	0.841	21.37	10.75	56.33	43.67
40	0.42	21.32	10.72	67.05	32.95
60	0.25	60.93	30.64	97.69	2.31
140	0.106	0.97	0.49	98.18	1.82
200	0.074	0.98	0.49	98.67	1.33
pan	---	0.37	0.19	98.86	1.14
total		195.45			

GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project: Fort Stewart	Job No.: 99028
Project Location: CAP Part B UST INVESTIGATIONS	Sample No.: 791031
Sample Description:Light Brown Gravelly Sand	Sample Depth:
	Boring No.:
Tested By:FB/CA	Date of Testing: 3/16/99

Mcws	Mcds	Mc : A20	Mw	Ms	w%	Mws	Ms
33.12	33.04	15.58	0.08	17.46	0.5	200.94	200.02

Sieve No.	Diam. (mm)	Wt. retained	% retained	E % retained	% passing
3	76.2	0	0.00	0.00	100.00
2	50.8	0	0.00	0.00	100.00
1 1/2	25.4	0	0.00	0.00	100.00
3/4	19.05	0	0.00	0.00	100.00
3/8	9.51	0	0.00	0.00	100.00
4	4.76	6.68	3.34	3.34	96.66
10	2.00	38.41	19.20	22.54	77.46
20	0.841	72.24	36.12	58.66	41.34
40	0.42	25.95	12.97	71.63	28.37
60	0.25	18.88	9.44	81.07	18.93
140	0.106	33.02	16.51	97.58	2.42
200	0.074	0.7	0.35	97.93	2.07
pan	---	0.31	0.15	98.08	1.92
total		196.19			

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GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project: Fort Stewart	Job No.:99028
Project Location: CAP Part B UST INVESTIGATIONS	Sample No.: 791131
Sample Description:Yellowish Orange Gravelly Sand	Sample Depth:
	Boring No.:
Tested By: CA/BV	Date of Testing: 3/17/99

Mcws	Mcds	Mc : A41	Mw	Ms	w%	Mws	Ms
40.69	40.43	15.35	0.26	25.08	1.0	200.26	198.21

Sieve No.	Diam. (mm)	Wt. retained	% retained	E % retained	% passing
3	76.2	0	0.00	0.00	100.00
2	50.8	0	0.00	0.00	100.00
1 1/2	25.4	0	0.00	0.00	100.00
3/4	19.05	0	0.00	0.00	100.00
3/8	9.51	0	0.00	0.00	100.00
4	4.76	0	0.00	0.00	100.00
10	2.00	8.92	4.50	4.50	95.50
20	0.841	34.55	17.43	21.93	78.07
40	0.42	10.93	5.51	27.45	72.55
60	0.25	17.4	8.78	36.23	63.77
140	0.106	122.62	61.87	98.09	1.91
200	0.074	1.36	0.69	98.78	1.22
pan	---	0.37	0.19	98.96	1.04
total		196.15			

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ATTACHMENT A.2

Slug Test Data

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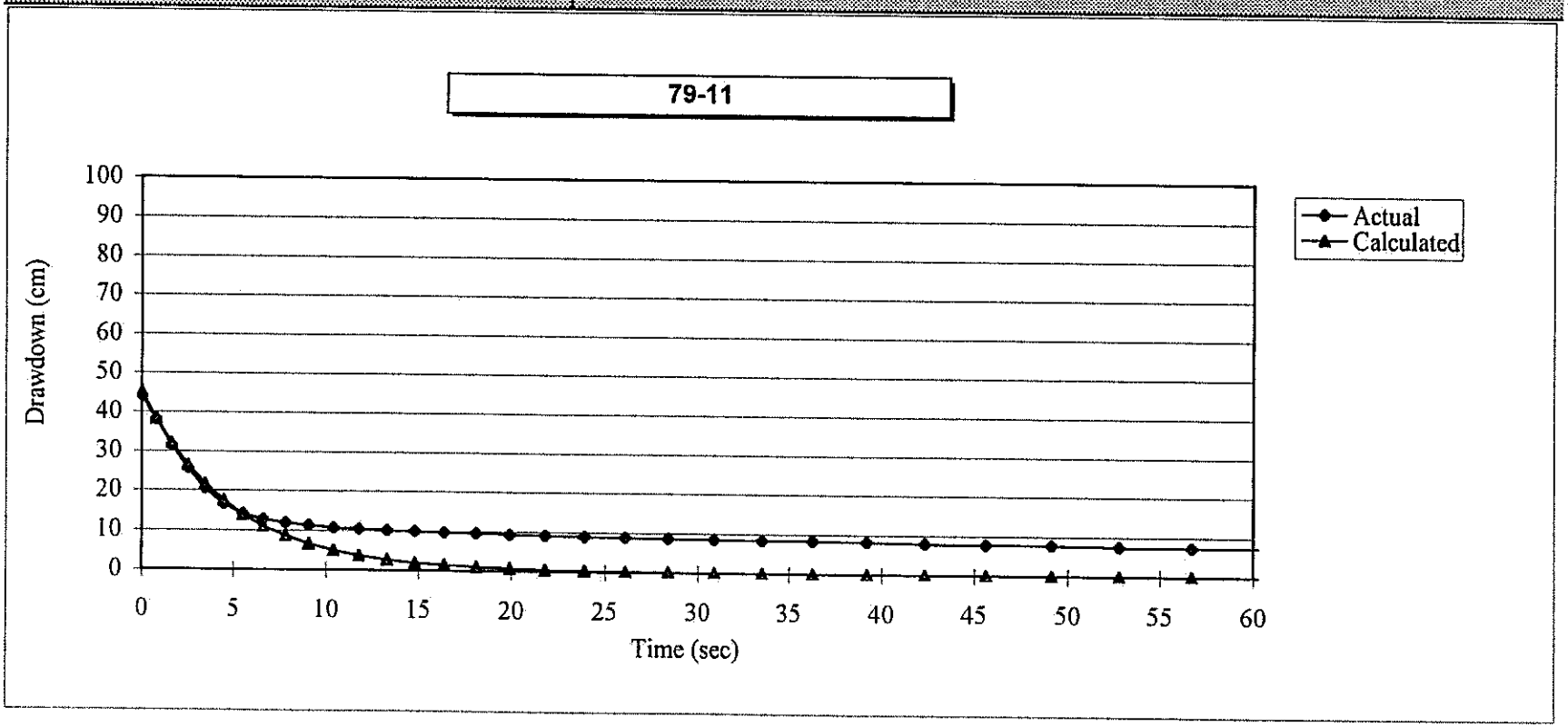
Slug Test Hydraulic Conductivity (K) Calculation

Well ID	79-11		Test Date	12/17/1997			
Test Type	**Rising Head**		Evaluation Method	Bouwer & Rice			
Borehole Parameters			**Calculation Parameters**				
Pretest water level	4.19	ft bgs	Radius of casing (rc^2)	6.45	cm	ln R/rw	2.02
Casing inside diameter	2.00	in	Radius of borehole (rw)	11.43	cm		
Borehole diameter	9.00	in	Effective radius of investigation (Re)	304.80	cm		
Saturated thickness (H)	35.81	ft	Length of screen (Le)	304.80	cm		
Screen length (Le)	10.00	ft	Distance from static water level (Yo)	45.00	cm		
Saturated penetration (Lw)	10.81	ft	**Hydraulic conductivity (K)**	**4.50E-03**	**cm/sec**		



79-11 Rising Head Slug Test Hydraulic Conductivity Worksheet

Elapsed Time (min)	y=ft	Time(sec)	tadjust=0 (sec)	Yt (cm)	(2*Le*K*t)/(rc^2*ln(Re/rw))	Ycalc (cm)
0.000	1.449	0.00	0.00	44.1655	0.0000	4.50E+01
0.013	1.250	0.79	0.79	38.1000	0.1657	3.81E+01
0.027	1.036	1.63	1.63	31.5773	0.3428	3.19E+01
0.042	0.842	2.52	2.52	25.6642	0.5313	2.65E+01
0.058	0.674	3.46	3.46	20.5435	0.7286	2.17E+01
0.074	0.547	4.46	4.46	16.6726	0.9399	1.76E+01
0.092	0.466	5.52	5.52	14.2037	1.1638	1.41E+01
0.111	0.420	6.64	6.64	12.8016	1.3991	1.11E+01
0.131	0.390	7.83	7.83	11.8872	1.6508	8.63E+00
0.152	0.371	9.09	9.09	11.3081	1.9165	6.62E+00
0.174	0.353	10.42	10.42	10.7594	2.1961	5.01E+00
0.197	0.344	11.83	11.83	10.4851	2.4933	3.72E+00
0.222	0.334	13.32	13.32	10.1803	2.8083	2.71E+00
0.247	0.328	14.82	14.82	9.9974	3.1246	1.98E+00
0.274	0.318	16.42	16.42	9.6926	3.4611	1.41E+00
0.302	0.314	18.12	18.12	9.5707	3.8203	9.86E-01
0.332	0.307	19.92	19.92	9.3574	4.1998	6.75E-01
0.364	0.302	21.82	21.82	9.2050	4.5996	4.53E-01
0.399	0.295	23.92	23.92	8.9916	5.0423	2.91E-01
0.435	0.291	26.12	26.12	8.8697	5.5066	1.83E-01
0.474	0.286	28.42	28.42	8.7173	5.9911	1.13E-01
0.515	0.281	30.92	30.92	8.5649	6.5186	6.64E-02
0.559	0.277	33.52	33.52	8.4430	7.0664	3.84E-02
0.605	0.274	36.32	36.32	8.3515	7.6571	2.13E-02
0.654	0.270	39.22	39.22	8.2296	8.2681	1.15E-02
0.705	0.263	42.32	42.32	8.0162	8.9221	6.00E-03
0.760	0.258	45.62	45.62	7.8638	9.6179	2.99E-03
0.819	0.256	49.12	49.12	7.8029	10.3554	1.43E-03
0.880	0.249	52.82	52.82	7.5895	11.1359	6.56E-04
0.945	0.242	56.72	56.72	7.3762	11.9581	2.88E-04
1.015	0.240	60.92	60.92	7.3152	12.8437	1.19E-04

79-11 Rising Head Slug Test Hydraulic Conductivity Worksheet

Elapsed Time (min)	y=ft	Time(sec)	tadjust=0 (sec)	Yt (cm)	(2*Le*K*t)/(rc^2*ln(Re/rw))	Ycalc (cm)
1.089	0.233	65.32	65.32	7.1018	13.7709	4.71E-05
1.167	0.231	70.02	70.02	7.0409	14.7627	1.75E-05
1.250	0.224	75.02	75.02	6.8275	15.8164	6.08E-06
1.339	0.221	80.32	80.32	6.7361	16.9334	1.99E-06
1.432	0.212	85.92	85.92	6.4618	18.1150	6.11E-07
1.530	0.210	91.82	91.82	6.4008	19.3585	1.76E-07
1.635	0.208	98.12	98.12	6.3398	20.6867	4.67E-08
1.745	0.203	104.72	104.72	6.1874	22.0782	1.16E-08
1.862	0.201	111.72	111.72	6.1265	23.5545	2.65E-09
1.987	0.196	119.22	119.22	5.9741	25.1358	5.46E-10
2.119	0.194	127.12	127.12	5.9131	26.8005	1.03E-10
2.259	0.189	135.52	135.52	5.7607	28.5715	1.76E-11
2.407	0.182	144.42	144.42	5.5474	30.4488	2.69E-12
2.564	0.180	153.82	153.82	5.4864	32.4298	3.71E-13
2.730	0.175	163.82	163.82	5.3340	34.5386	4.50E-14
2.907	0.171	174.42	174.42	5.2121	36.7739	4.81E-15
3.094	0.166	185.62	185.62	5.0597	39.1344	4.54E-16
3.292	0.164	197.52	197.52	4.9987	41.6442	3.69E-17
3.502	0.157	210.12	210.12	4.7854	44.3007	2.59E-18
3.724	0.152	223.42	223.42	4.6330	47.1040	1.57E-19
3.959	0.148	237.52	237.52	4.5110	50.0767	8.04E-21
4.207	0.143	252.42	252.42	4.3586	53.2190	3.47E-22
4.470	0.138	268.22	268.22	4.2062	56.5498	1.24E-23
4.750	0.134	285.02	285.02	4.0843	60.0918	3.59E-25
5.047	0.134	302.82	302.82	4.0843	63.8451	8.43E-27

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ATTACHMENT B

FATE AND TRANSPORT MODELING RESULTS

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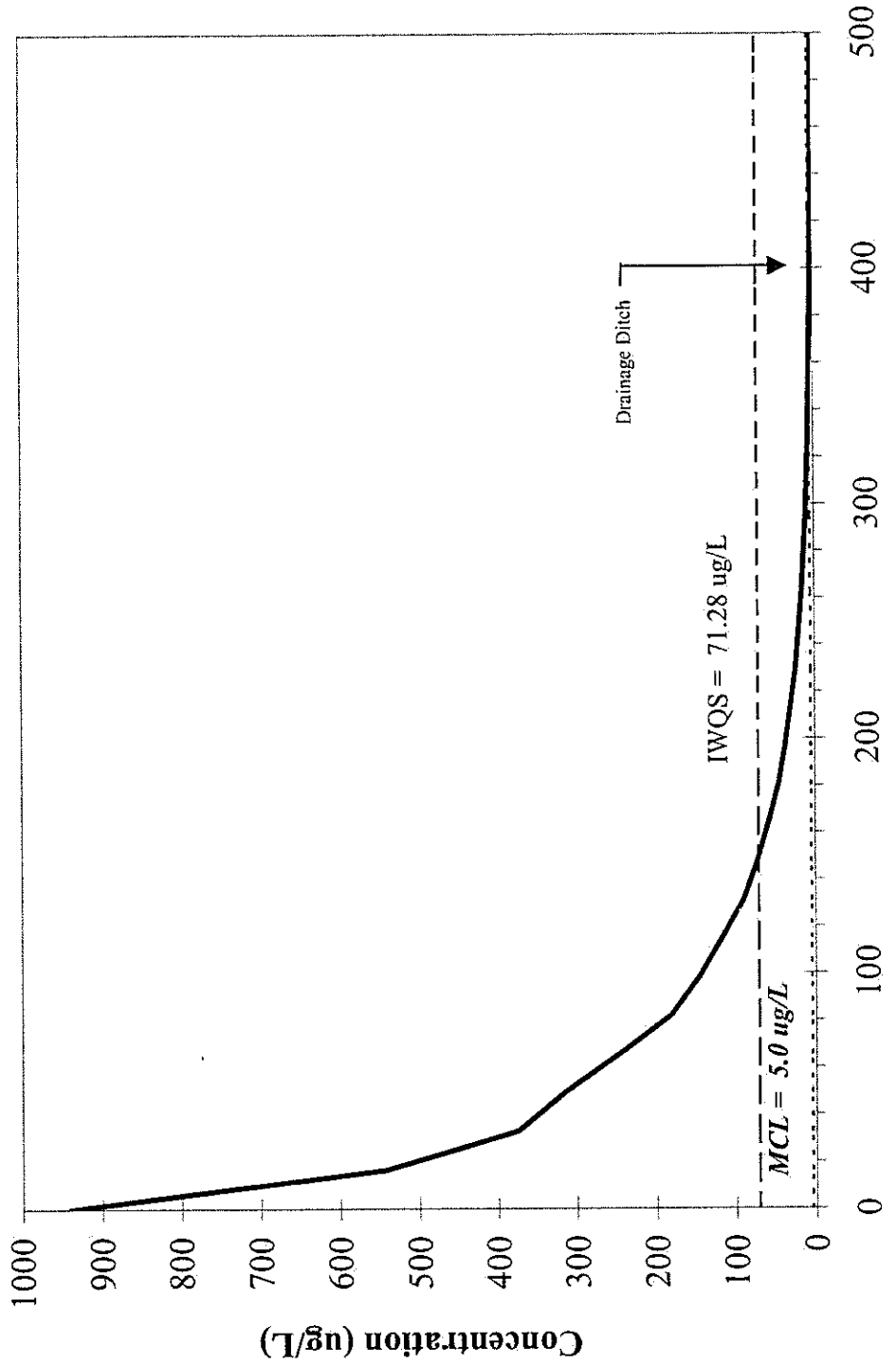
Table B.1. Natural Attenuation Modeling Results (Concentration vs. Distance) for the USTs 48 & 49 Site

Distance from the source (ft)	Distance from the source (m)	Predicted Maximum Concentration in Groundwater (µg/L)	Distance from the source (ft)	Distance from the source (m)	Predicted Maximum Concentration in Groundwater (µg/L)
0.0	0.0	940	196.9	60.0	37.5
16.4	5.0	544	229.7	70.0	23.9
32.8	10.0	375	262.5	80.0	15.8
49.2	15.0	316	295.3	90.0	10.4
65.6	20.0	247	328.1	100.0	6.82
82.0	25.0	182	393.7	120.0	2.99
98.4	30.0	146	426.5	130.0	1.99
115.0	35.1	117	492.1	150.0	0.88
131.2	40.0	90.1	524.9	160.0	0.59
147.6	45.0	72.8	1600.0	487.7	0
164.0	50.0	58.5	3000.0	914.4	0
180.4	55.0	45.9			

Table B.2 Natural Attenuation Modeling Results (Concentration vs. Time) for the USTs 48 & 49 Site

Time (year)	Predicted Maximum Concentration in Groundwater (µg/L)	Time (year)	Predicted Maximum Concentration in Groundwater (µg/L)
0.0	940	10.0	2.92
1.0	410	11.0	1.78
2.0	209	12.0	1.09
3.0	114	13.0	0.671
4.0	64.9	14.0	0.413
5.0	37.7	15.0	0.255
6.0	22.2	16.0	0.158
7.0	13.2	17.0	0.0977
8.0	7.96	18.0	0.0606
9.0	4.81		

Figure B.1. AT123D modeled maximum concentration of benzene in the groundwater versus downgradient distance from the source (USTs 48 & 49)



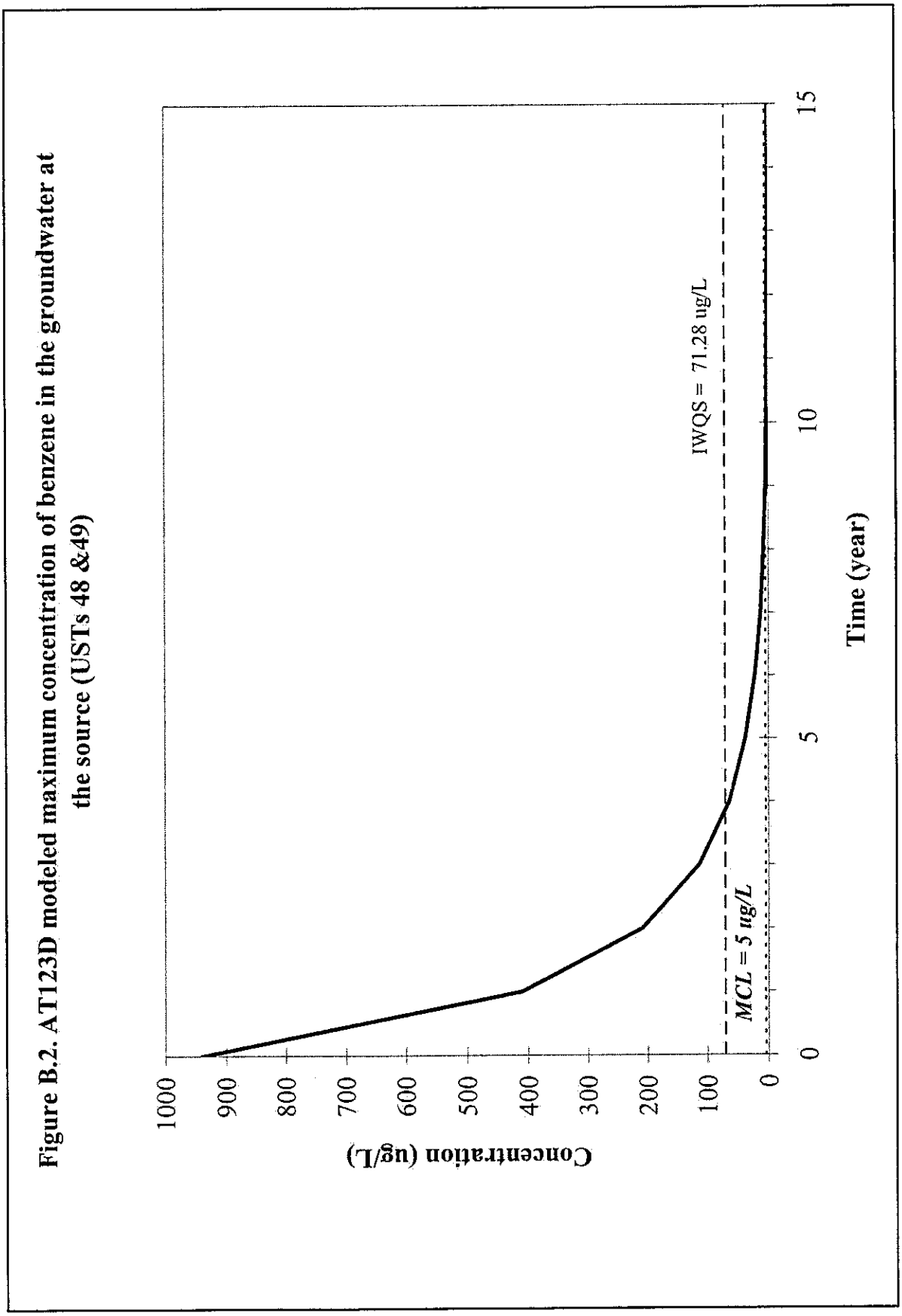


Figure B.2. AT123D modeled maximum concentration of benzene in the groundwater at the source (USTs 48 &49)

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Ft Stewart USTs 48&49: Benzene

NO. OF POINTS IN X-DIRECTION	13
NO. OF POINTS IN Y-DIRECTION	3
NO. OF POINTS IN Z-DIRECTION	1
NO. OF ROOTS: NO. OF SERIES TERMS	400
NO. OF BEGINNING TIME STEP	121
NO. OF ENDING TIME STEP	340
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION	12
INSTANTANEOUS SOURCE CONTROL = 0 FOR INSTANT SOURCE	1
SOURCE CONDITION CONTROL = 0 FOR STEADY SOURCE	0
INTERMITTENT OUTPUT CONTROL = 0 NO SUCH OUTPUT	1
CASE CONTROL =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD	2

AQUIFER DEPTH, = 0.0 FOR INFINITE DEEP (METERS)	0.1070E+02
AQUIFER WIDTH, = 0.0 FOR INFINITE WIDE (METERS)	0.0000E+00
BEGIN POINT OF X-SOURCE LOCATION (METERS)	-0.1160E+02
END POINT OF X-SOURCE LOCATION (METERS)	0.0000E+00
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	-0.3350E+01
END POINT OF Y-SOURCE LOCATION (METERS)	0.3350E+01
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.0000E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.2000E+01

POROSITY	0.2000E+00
HYDRAULIC CONDUCTIVITY (METER/HOUR)	0.1620E+00
HYDRAULIC GRADIENT	0.6300E-02
LONGITUDINAL DISPERSIVITY (METER)	0.1500E+02
LATERAL DISPERSIVITY (METER)	0.5000E+01
VERTICAL DISPERSIVITY (METER)	0.1500E+01
DISTRIBUTION COEFFICIENT, KD (M**3/KG)	0.8100E-03
HEAT EXCHANGE COEFFICIENT (KCAL/HR-M**2-DEGREE C)	0.0000E+00

MOLECULAR DIFFUSION MULTIPLY BY POROSITY (M**2/HR)	0.3530E-05
DECAY CONSTANT (PER HOUR)	0.4015E-04
BULK DENSITY OF THE SOIL (KG/M**3)	0.1620E+04
ACCURACY TOLERANCE FOR REACHING STEADY STATE	0.1000E-02
DENSITY OF WATER (KG/M**3)	0.1000E+04
TIME INTERVAL SIZE FOR THE DESIRED SOLUTION (HR)	0.7300E+03
DISCHARGE TIME (HR)	0.8760E+05
WASTE RELEASE RATE (KCAL/HR), (KG/HR), OR (CI/HR)	0.1639E-03

RETARDATION FACTOR	0.7561E+01
RETARDED DARCY VELOCITY (M/HR)	0.6749E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/HR)	0.1013E-01
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/HR)	0.3377E-02
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/HR)	0.1015E-02

LIST OF Z-EIGENVALUES

0.2936E+00	0.5872E+00	0.8808E+00	0.1174E+01	0.1468E+01	0.1762E+01	0.2055E+01	0.2349E+01	0.2642E+01	0.2936E+01
0.3230E+01	0.3523E+01	0.3817E+01	0.4110E+01	0.4404E+01	0.4698E+01	0.4991E+01	0.5285E+01	0.5579E+01	0.5872E+01
0.6166E+01	0.6459E+01	0.6753E+01	0.7047E+01	0.7340E+01	0.7634E+01	0.7927E+01	0.8221E+01	0.8515E+01	0.8808E+01
0.9102E+01	0.9395E+01	0.9689E+01	0.9983E+01	0.1028E+02	0.1057E+02	0.1086E+02	0.1116E+02	0.1145E+02	0.1174E+02
0.1204E+02	0.1233E+02	0.1263E+02	0.1292E+02	0.1321E+02	0.1351E+02	0.1380E+02	0.1409E+02	0.1439E+02	0.1468E+02
0.1497E+02	0.1527E+02	0.1556E+02	0.1585E+02	0.1615E+02	0.1644E+02	0.1674E+02	0.1703E+02	0.1732E+02	0.1762E+02
0.1791E+02	0.1820E+02	0.1850E+02	0.1879E+02	0.1908E+02	0.1938E+02	0.1967E+02	0.1997E+02	0.2026E+02	0.2055E+02
0.2085E+02	0.2114E+02	0.2143E+02	0.2173E+02	0.2202E+02	0.2231E+02	0.2261E+02	0.2290E+02	0.2319E+02	0.2349E+02
0.2378E+02	0.2408E+02	0.2437E+02	0.2466E+02	0.2496E+02	0.2525E+02	0.2554E+02	0.2584E+02	0.2613E+02	0.2642E+02
0.2672E+02	0.2701E+02	0.2731E+02	0.2760E+02	0.2789E+02	0.2819E+02	0.2848E+02	0.2877E+02	0.2907E+02	0.2936E+02
0.2965E+02	0.2995E+02	0.3024E+02	0.3054E+02	0.3083E+02	0.3112E+02	0.3142E+02	0.3171E+02	0.3200E+02	0.3230E+02
0.3259E+02	0.3288E+02	0.3318E+02	0.3347E+02	0.3376E+02	0.3406E+02	0.3435E+02	0.3465E+02	0.3494E+02	0.3523E+02
0.3553E+02	0.3582E+02	0.3611E+02	0.3641E+02	0.3670E+02	0.3699E+02	0.3729E+02	0.3758E+02	0.3788E+02	0.3817E+02
0.3846E+02	0.3876E+02	0.3905E+02	0.3934E+02	0.3964E+02	0.3993E+02	0.4022E+02	0.4052E+02	0.4081E+02	0.4110E+02
0.4140E+02	0.4169E+02	0.4199E+02	0.4228E+02	0.4257E+02	0.4287E+02	0.4316E+02	0.4345E+02	0.4375E+02	0.4404E+02
0.4433E+02	0.4463E+02	0.4492E+02	0.4522E+02	0.4551E+02	0.4580E+02	0.4610E+02	0.4639E+02	0.4668E+02	0.4698E+02
0.4727E+02	0.4756E+02	0.4786E+02	0.4815E+02	0.4845E+02	0.4874E+02	0.4903E+02	0.4933E+02	0.4962E+02	0.4991E+02
0.5021E+02	0.5050E+02	0.5079E+02	0.5109E+02	0.5138E+02	0.5167E+02	0.5197E+02	0.5226E+02	0.5256E+02	0.5285E+02
0.5314E+02	0.5344E+02	0.5373E+02	0.5402E+02	0.5432E+02	0.5461E+02	0.5490E+02	0.5520E+02	0.5549E+02	0.5579E+02
0.5608E+02	0.5637E+02	0.5667E+02	0.5696E+02	0.5725E+02	0.5755E+02	0.5784E+02	0.5813E+02	0.5843E+02	0.5872E+02
0.5901E+02	0.5931E+02	0.5960E+02	0.5990E+02	0.6019E+02	0.6048E+02	0.6078E+02	0.6107E+02	0.6136E+02	0.6166E+02
0.6195E+02	0.6224E+02	0.6254E+02	0.6283E+02	0.6313E+02	0.6342E+02	0.6371E+02	0.6401E+02	0.6430E+02	0.6459E+02
0.6489E+02	0.6518E+02	0.6547E+02	0.6577E+02	0.6606E+02	0.6636E+02	0.6665E+02	0.6694E+02	0.6724E+02	0.6753E+02
0.6782E+02	0.6812E+02	0.6841E+02	0.6870E+02	0.6900E+02	0.6929E+02	0.6958E+02	0.6988E+02	0.7017E+02	0.7047E+02
0.7076E+02	0.7105E+02	0.7135E+02	0.7164E+02	0.7193E+02	0.7223E+02	0.7252E+02	0.7281E+02	0.7311E+02	0.7340E+02
0.7370E+02	0.7399E+02	0.7428E+02	0.7458E+02	0.7487E+02	0.7516E+02	0.7546E+02	0.7575E+02	0.7604E+02	0.7634E+02
0.7663E+02	0.7692E+02	0.7722E+02	0.7751E+02	0.7781E+02	0.7810E+02	0.7839E+02	0.7869E+02	0.7898E+02	0.7927E+02
0.7957E+02	0.7986E+02	0.8015E+02	0.8045E+02	0.8074E+02	0.8104E+02	0.8133E+02	0.8162E+02	0.8192E+02	0.8221E+02
0.8250E+02	0.8280E+02	0.8309E+02	0.8338E+02	0.8368E+02	0.8397E+02	0.8427E+02	0.8456E+02	0.8485E+02	0.8515E+02
0.8544E+02	0.8573E+02	0.8603E+02	0.8632E+02	0.8661E+02	0.8691E+02	0.8720E+02	0.8749E+02	0.8779E+02	0.8808E+02
0.8838E+02	0.8867E+02	0.8896E+02	0.8926E+02	0.8955E+02	0.8984E+02	0.9014E+02	0.9043E+02	0.9072E+02	0.9102E+02
0.9131E+02	0.9161E+02	0.9190E+02	0.9219E+02	0.9249E+02	0.9278E+02	0.9307E+02	0.9337E+02	0.9366E+02	0.9395E+02
0.9425E+02	0.9454E+02	0.9484E+02	0.9513E+02	0.9542E+02	0.9572E+02	0.9601E+02	0.9630E+02	0.9660E+02	0.9689E+02
0.9718E+02	0.9748E+02	0.9777E+02	0.9806E+02	0.9836E+02	0.9865E+02	0.9895E+02	0.9924E+02	0.9953E+02	0.9983E+02
0.1001E+03	0.1004E+03	0.1007E+03	0.1010E+03	0.1013E+03	0.1016E+03	0.1019E+03	0.1022E+03	0.1025E+03	0.1028E+03
0.1031E+03	0.1033E+03	0.1036E+03	0.1039E+03	0.1042E+03	0.1045E+03	0.1048E+03	0.1051E+03	0.1054E+03	0.1057E+03
0.1060E+03	0.1063E+03	0.1066E+03	0.1069E+03	0.1072E+03	0.1075E+03	0.1078E+03	0.1080E+03	0.1083E+03	0.1086E+03
0.1089E+03	0.1092E+03	0.1095E+03	0.1098E+03	0.1101E+03	0.1104E+03	0.1107E+03	0.1110E+03	0.1113E+03	0.1116E+03
0.1119E+03	0.1122E+03	0.1125E+03	0.1127E+03	0.1130E+03	0.1133E+03	0.1136E+03	0.1139E+03	0.1142E+03	0.1145E+03
0.1148E+03	0.1151E+03	0.1154E+03	0.1157E+03	0.1160E+03	0.1163E+03	0.1166E+03	0.1169E+03	0.1171E+03	0.1174E+03

LIST OF Z-COEFFICIENTS

0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00
0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00	0.1869E+00

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  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00
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  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00  0.1869E+00
LIST OF ZS-SERIES
  0.1887E+01  0.1571E+01  0.1115E+01  0.6065E+00  0.1390E+00 -0.2114E+00 -0.4011E+00 -0.4257E+00 -0.3181E+00 -0.1361E+00
  0.5426E-01  0.1962E+00  0.2557E+00  0.2271E+00  0.1313E+00  0.6249E-02 -0.1061E+00 -0.1723E+00 -0.1769E+00 -0.1248E+00
 -0.3775E-01  0.5342E-01  0.1195E+00  0.1418E+00  0.1166E+00  0.5585E-01 -0.1845E-01 -0.8148E-01 -0.1138E+00 -0.1071E+00
 -0.6613E-01 -0.6246E-02  0.5204E-01  0.8998E-01  0.9646E-01  0.7117E-01  0.2404E-01 -0.2845E-01 -0.6896E-01 -0.8492E-01
 -0.7234E-01 -0.3671E-01  0.9281E-02  0.5014E-01  0.7276E-01  0.7055E-01  0.4530E-01  0.6242E-02 -0.3327E-01 -0.6028E-01
 -0.6643E-01 -0.5052E-01 -0.1860E-01  0.1825E-01  0.4776E-01  0.6050E-01  0.5288E-01  0.2811E-01 -0.5079E-02 -0.3549E-01
 -0.5320E-01 -0.5281E-01 -0.3502E-01 -0.6235E-02  0.2372E-01  0.4494E-01  0.5070E-01  0.3955E-01  0.1567E-01 -0.1271E-01
 -0.3609E-01 -0.4689E-01 -0.4191E-01 -0.2321E-01  0.2665E-02  0.2698E-01  0.4174E-01  0.4231E-01  0.2888E-01  0.6227E-02
 -0.1793E-01 -0.3556E-01 -0.4100E-01 -0.3273E-01 -0.1383E-01  0.9217E-02  0.2868E-01  0.3820E-01  0.3485E-01  0.2003E-01
 -0.1099E-02 -0.2141E-01 -0.3418E-01 -0.3536E-01 -0.2479E-01 -0.6218E-02  0.1403E-01  0.2921E-01  0.3440E-01  0.2807E-01
  0.1256E-01 -0.6815E-02 -0.2355E-01 -0.3215E-01 -0.2992E-01 -0.1780E-01  0.2074E-06  0.1747E-01  0.2882E-01  0.3040E-01
  0.2186E-01  0.6206E-02 -0.1123E-01 -0.2463E-01 -0.2961E-01 -0.2468E-01 -0.1163E-01  0.5059E-02  0.1979E-01  0.2770E-01
  0.2627E-01  0.1614E-01  0.8126E-03 -0.1454E-01 -0.2482E-01 -0.2668E-01 -0.1965E-01 -0.6193E-02  0.9111E-02  0.2115E-01
  0.2597E-01  0.2209E-01  0.1092E-01 -0.3718E-02 -0.1690E-01 -0.2427E-01 -0.2346E-01 -0.1486E-01 -0.1438E-02  0.1227E-01
  0.2170E-01  0.2378E-01  0.1792E-01  0.6177E-02 -0.7455E-02 -0.1842E-01 -0.2311E-01 -0.2004E-01 -0.1035E-01  0.2661E-02
  0.1461E-01  0.2154E-01  0.2121E-01  0.1383E-01  0.1933E-02 -0.1045E-01 -0.1920E-01 -0.2144E-01 -0.1652E-01 -0.6160E-02
  0.6123E-02  0.1622E-01  0.2078E-01  0.1838E-01  0.9880E-02 -0.1805E-02 -0.1275E-01 -0.1932E-01 -0.1937E-01 -0.1298E-01
 -0.2334E-02  0.8964E-02  0.1715E-01  0.1952E-01  0.1537E-01  0.6142E-02 -0.5026E-02 -0.1439E-01 -0.1886E-01 -0.1700E-01
 -0.9488E-02  0.1099E-02  0.1120E-01  0.1747E-01  0.1784E-01  0.1227E-01  0.2664E-02 -0.7723E-02 -0.1543E-01 -0.1791E-01
 -0.1440E-01 -0.6121E-02  0.4107E-02  0.1286E-01  0.1724E-01  0.1583E-01  0.9152E-02 -0.5052E-03 -0.9897E-02 -0.1590E-01
 -0.1654E-01 -0.1166E-01 -0.2940E-02  0.6671E-02  0.1396E-01  0.1653E-01  0.1356E-01  0.6099E-02 -0.3326E-02 -0.1155E-01
 -0.1585E-01 -0.1482E-01 -0.8859E-02  0.2074E-06  0.8777E-02  0.1455E-01  0.1541E-01  0.1113E-01  0.3174E-02 -0.5767E-02
 -0.1270E-01 -0.1534E-01 -0.1284E-01 -0.6075E-02  0.2653E-02  0.1042E-01  0.1464E-01  0.1394E-01  0.8600E-02  0.4344E-03
 -0.7805E-02 -0.1337E-01 -0.1443E-01 -0.1066E-01 -0.3373E-02  0.4981E-02  0.1160E-01  0.1430E-01  0.1220E-01  0.6050E-02
 -0.2068E-02 -0.9428E-02 -0.1358E-01 -0.1317E-01 -0.8368E-02 -0.8123E-03  0.6953E-02  0.1234E-01  0.1356E-01  0.1025E-01
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0.3544E-02	-0.4290E-02	-0.1063E-01	-0.1337E-01	-0.1163E-01	-0.6022E-02	0.1553E-02	0.8552E-02	0.1264E-01	0.1248E-01
0.8157E-02	0.1143E-02	-0.6199E-02	-0.1142E-01	-0.1278E-01	-0.9875E-02	-0.3692E-02	0.3678E-02	0.9765E-02	0.1255E-01
0.1112E-01	0.5994E-02	-0.1098E-02	-0.7771E-02	-0.1180E-01	-0.1186E-01	-0.7965E-02	-0.1435E-02	0.5526E-02	0.1059E-01
0.1209E-01	0.9537E-02	0.3820E-02	-0.3132E-02	-0.8990E-02	-0.1181E-01	-0.1066E-01	-0.5963E-02	0.6919E-03	0.7070E-02
0.1104E-01	0.1130E-01	0.7786E-02	0.1694E-02	-0.4922E-02	-0.9851E-02	-0.1146E-01	-0.9227E-02	-0.3931E-02	0.2642E-02
0.8290E-02	0.1113E-01	0.1024E-01	0.5931E-02	-0.3280E-03	-0.6436E-02	-0.1036E-01	-0.1079E-01	-0.7620E-02	-0.1925E-02
0.4376E-02	0.9176E-02	0.1088E-01	0.8941E-02	0.4027E-02	-0.2200E-02	-0.7653E-02	-0.1052E-01	-0.9849E-02	-0.5897E-02
0.1670E-06	0.5861E-02	0.9727E-02	0.1032E-01	0.7464E-02	0.2132E-02	-0.3880E-02	-0.8559E-02	-0.1035E-01	-0.8675E-02
-0.4111E-02	0.1798E-02	0.7071E-02	0.9951E-02	0.9490E-02	0.5861E-02	0.2964E-03	-0.5334E-02	-0.9150E-02	-0.9887E-02
-0.7317E-02	-0.2317E-02	0.3427E-02	0.7993E-02	0.9863E-02	0.8427E-02	0.4184E-02	-0.1432E-02	-0.6537E-02	-0.9430E-02
-0.9156E-02	-0.5824E-02	-0.5660E-03	0.4851E-02	0.8618E-02	0.9484E-02	0.7177E-02	0.2485E-02	-0.3011E-02	-0.7471E-02
-0.9409E-02	-0.8194E-02	-0.4247E-02	0.1097E-02	0.6045E-02	0.8946E-02	0.8843E-02	0.5786E-02	0.8117E-03	-0.4406E-02
-0.8124E-02	-0.9107E-02	-0.7042E-02	-0.2635E-02	0.2629E-02	0.6986E-02	0.8987E-02	0.7973E-02	0.4301E-02	-0.7887E-03
-0.5589E-02	-0.8496E-02	-0.8549E-02	-0.5745E-02	-0.1036E-02	0.3995E-02	0.7665E-02	0.8754E-02	0.6913E-02	0.2772E-02
-0.2275E-02	-0.6536E-02	-0.8591E-02	-0.7765E-02	-0.4348E-02	0.5050E-03	0.5164E-02	0.8074E-02	0.8272E-02	0.5703E-02

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.0000E+00 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0.	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

CONTINUE

	X		
Y	80.	100.	150.
3.	0.000E+00	0.000E+00	0.000E+00
2.	0.000E+00	0.000E+00	0.000E+00
0.	0.000E+00	0.000E+00	0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.8760E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.745E+00	0.463E+00	0.286E+00	0.189E+00	0.150E+00	0.130E+00	0.670E-01	0.372E-01	0.215E-01	0.764E-02
2.	0.847E+00	0.506E+00	0.302E+00	0.196E+00	0.155E+00	0.134E+00	0.683E-01	0.377E-01	0.218E-01	0.770E-02
0.	0.940E+00	0.544E+00	0.316E+00	0.203E+00	0.159E+00	0.137E+00	0.694E-01	0.382E-01	0.220E-01	0.775E-02

CONTINUE

	X		
Y	80.	100.	150.
3.	0.457E-02	0.157E-02	0.682E-04
2.	0.460E-02	0.158E-02	0.685E-04
0.	0.463E-02	0.159E-02	0.688E-04

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.9636E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.328E+00	0.331E+00	0.306E+00	0.261E+00	0.229E+00	0.208E+00	0.114E+00	0.571E-01	0.295E-01	0.937E-02
2.	0.371E+00	0.372E+00	0.342E+00	0.290E+00	0.253E+00	0.229E+00	0.122E+00	0.595E-01	0.303E-01	0.948E-02
0.	0.410E+00	0.410E+00	0.375E+00	0.316E+00	0.275E+00	0.247E+00	0.129E+00	0.616E-01	0.309E-01	0.957E-02

CONTINUE

Y	X = 80.	100.	150.
3.	0.553E-02	0.194E-02	0.105E-03
2.	0.558E-02	0.195E-02	0.106E-03
0.	0.562E-02	0.197E-02	0.106E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1051E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.168E+00	0.181E+00	0.185E+00	0.179E+00	0.172E+00	0.166E+00	0.123E+00	0.778E-01	0.441E-01	0.128E-01
2.	0.190E+00	0.204E+00	0.207E+00	0.201E+00	0.192E+00	0.184E+00	0.135E+00	0.843E-01	0.469E-01	0.131E-01
0.	0.209E+00	0.224E+00	0.228E+00	0.220E+00	0.210E+00	0.201E+00	0.146E+00	0.901E-01	0.494E-01	0.134E-01

CONTINUE

Y	X = 80.	100.	150.
3.	0.709E-02	0.238E-02	0.148E-03
2.	0.721E-02	0.240E-02	0.149E-03
0.	0.731E-02	0.242E-02	0.150E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1139E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.925E-01	0.102E+00	0.109E+00	0.111E+00	0.111E+00	0.110E+00	0.965E-01	0.739E-01	0.502E-01	0.177E-01
2.	0.104E+00	0.115E+00	0.122E+00	0.125E+00	0.124E+00	0.123E+00	0.107E+00	0.813E-01	0.546E-01	0.187E-01
0.	0.114E+00	0.126E+00	0.134E+00	0.137E+00	0.136E+00	0.135E+00	0.117E+00	0.880E-01	0.585E-01	0.196E-01

CONTINUE

Y	X = 80.	100.	150.
3.	0.982E-02	0.305E-02	0.196E-03
2.	0.102E-01	0.311E-02	0.197E-03
0.	0.106E-01	0.316E-02	0.198E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1226E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.526E-01	0.590E-01	0.643E-01	0.679E-01	0.693E-01	0.698E-01	0.674E-01	0.583E-01	0.453E-01	0.207E-01
2.	0.591E-01	0.662E-01	0.721E-01	0.761E-01	0.775E-01	0.780E-01	0.751E-01	0.646E-01	0.499E-01	0.224E-01
0.	0.649E-01	0.728E-01	0.791E-01	0.835E-01	0.850E-01	0.855E-01	0.820E-01	0.702E-01	0.539E-01	0.238E-01

CONTINUE

	X		
Y	80.	100.	150.
3.	0.126E-01	0.410E-02	0.250E-03
2.	0.134E-01	0.425E-02	0.252E-03
0.	0.141E-01	0.439E-02	0.254E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1314E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.306E-01	0.346E-01	0.383E-01	0.413E-01	0.427E-01	0.434E-01	0.448E-01	0.420E-01	0.360E-01	0.204E-01
2.	0.343E-01	0.389E-01	0.429E-01	0.462E-01	0.478E-01	0.486E-01	0.500E-01	0.467E-01	0.398E-01	0.223E-01
0.	0.377E-01	0.427E-01	0.471E-01	0.507E-01	0.524E-01	0.533E-01	0.546E-01	0.509E-01	0.432E-01	0.239E-01

CONTINUE

	X		
Y	80.	100.	150.
3.	0.137E-01	0.519E-02	0.319E-03
2.	0.148E-01	0.549E-02	0.323E-03
0.	0.158E-01	0.576E-02	0.326E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1402E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.181E-01	0.206E-01	0.230E-01	0.251E-01	0.262E-01	0.269E-01	0.290E-01	0.288E-01	0.265E-01	0.177E-01
2.	0.202E-01	0.231E-01	0.257E-01	0.281E-01	0.293E-01	0.301E-01	0.324E-01	0.321E-01	0.294E-01	0.195E-01
0.	0.222E-01	0.253E-01	0.282E-01	0.308E-01	0.322E-01	0.330E-01	0.354E-01	0.350E-01	0.320E-01	0.211E-01

CONTINUE

	X		
Y	80.	100.	150.
3.	0.130E-01	0.584E-02	0.412E-03
2.	0.142E-01	0.628E-02	0.422E-03
0.	0.153E-01	0.667E-02	0.431E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1489E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.108E-01	0.123E-01	0.139E-01	0.153E-01	0.161E-01	0.166E-01	0.185E-01	0.192E-01	0.186E-01	0.142E-01
2.	0.121E-01	0.138E-01	0.155E-01	0.171E-01	0.180E-01	0.186E-01	0.207E-01	0.214E-01	0.207E-01	0.157E-01
0.	0.132E-01	0.152E-01	0.170E-01	0.188E-01	0.198E-01	0.204E-01	0.226E-01	0.234E-01	0.226E-01	0.170E-01

CONTINUE

Y	X = 80.	100.	150.
3.	0.112E-01	0.588E-02	0.528E-03
2.	0.123E-01	0.638E-02	0.548E-03
0.	0.133E-01	0.682E-02	0.566E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1577E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.647E-02	0.744E-02	0.841E-02	0.936E-02	0.990E-02	0.103E-01	0.117E-01	0.126E-01	0.127E-01	0.107E-01
2.	0.725E-02	0.833E-02	0.942E-02	0.105E-01	0.111E-01	0.115E-01	0.131E-01	0.140E-01	0.141E-01	0.119E-01
0.	0.796E-02	0.914E-02	0.103E-01	0.115E-01	0.121E-01	0.126E-01	0.143E-01	0.154E-01	0.154E-01	0.129E-01

CONTINUE

Y	X = 80.	100.	150.
3.	0.903E-02	0.538E-02	0.643E-03
2.	0.996E-02	0.588E-02	0.677E-03
0.	0.108E-01	0.633E-02	0.708E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.392E-02	0.451E-02	0.513E-02	0.574E-02	0.610E-02	0.633E-02	0.739E-02	0.815E-02	0.850E-02	0.781E-02
2.	0.439E-02	0.505E-02	0.574E-02	0.642E-02	0.683E-02	0.709E-02	0.826E-02	0.910E-02	0.947E-02	0.867E-02
0.	0.481E-02	0.554E-02	0.629E-02	0.704E-02	0.748E-02	0.777E-02	0.905E-02	0.996E-02	0.103E-01	0.943E-02

CONTINUE

Y	X = 80.	100.	150.
3.	0.690E-02	0.459E-02	0.730E-03
2.	0.763E-02	0.504E-02	0.778E-03
0.	0.829E-02	0.545E-02	0.820E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1752E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.238E-02	0.275E-02	0.313E-02	0.353E-02	0.376E-02	0.392E-02	0.465E-02	0.524E-02	0.561E-02	0.552E-02
2.	0.267E-02	0.308E-02	0.351E-02	0.395E-02	0.421E-02	0.438E-02	0.520E-02	0.585E-02	0.626E-02	0.613E-02
0.	0.292E-02	0.337E-02	0.385E-02	0.433E-02	0.461E-02	0.480E-02	0.569E-02	0.640E-02	0.684E-02	0.668E-02

CONTINUE

	X		
Y	80.	100.	150.
3.	0.508E-02	0.371E-02	0.768E-03
2.	0.563E-02	0.409E-02	0.826E-03
0.	0.612E-02	0.443E-02	0.878E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1840E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.145E-02	0.168E-02	0.192E-02	0.217E-02	0.233E-02	0.243E-02	0.292E-02	0.335E-02	0.367E-02	0.382E-02
2.	0.163E-02	0.188E-02	0.215E-02	0.243E-02	0.260E-02	0.271E-02	0.326E-02	0.374E-02	0.409E-02	0.425E-02
0.	0.178E-02	0.206E-02	0.236E-02	0.266E-02	0.285E-02	0.297E-02	0.357E-02	0.410E-02	0.447E-02	0.464E-02

CONTINUE

	X		
Y	80.	100.	150.
3.	0.364E-02	0.288E-02	0.756E-03
2.	0.404E-02	0.318E-02	0.818E-03
0.	0.440E-02	0.345E-02	0.874E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1927E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

	X									
Y	0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.890E-03	0.103E-02	0.118E-02	0.134E-02	0.144E-02	0.150E-02	0.183E-02	0.213E-02	0.238E-02	0.260E-02
2.	0.996E-03	0.115E-02	0.132E-02	0.150E-02	0.161E-02	0.168E-02	0.205E-02	0.238E-02	0.266E-02	0.290E-02
0.	0.109E-02	0.127E-02	0.145E-02	0.164E-02	0.176E-02	0.184E-02	0.224E-02	0.261E-02	0.291E-02	0.316E-02

CONTINUE

	X		
Y	80.	100.	150.
3.	0.255E-02	0.216E-02	0.701E-03
2.	0.284E-02	0.239E-02	0.762E-03
0.	0.309E-02	0.260E-02	0.818E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2015E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.547E-03	0.635E-03	0.729E-03	0.830E-03	0.892E-03	0.934E-03	0.115E-02	0.136E-02	0.154E-02	0.175E-02
2.	0.612E-03	0.710E-03	0.816E-03	0.928E-03	0.998E-03	0.104E-02	0.128E-02	0.151E-02	0.172E-02	0.195E-02
0.	0.671E-03	0.779E-03	0.894E-03	0.102E-02	0.109E-02	0.114E-02	0.141E-02	0.166E-02	0.188E-02	0.213E-02

CONTINUE

Y	X 80.	100.	150.
3.	0.176E-02	0.158E-02	0.618E-03
2.	0.196E-02	0.175E-02	0.675E-03
0.	0.214E-02	0.191E-02	0.726E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2102E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.337E-03	0.392E-03	0.451E-03	0.514E-03	0.553E-03	0.580E-03	0.720E-03	0.859E-03	0.988E-03	0.117E-02
2.	0.377E-03	0.438E-03	0.504E-03	0.575E-03	0.619E-03	0.649E-03	0.805E-03	0.960E-03	0.110E-02	0.130E-02
0.	0.413E-03	0.480E-03	0.553E-03	0.630E-03	0.678E-03	0.711E-03	0.881E-03	0.105E-02	0.121E-02	0.142E-02

CONTINUE

Y	X 80.	100.	150.
3.	0.120E-02	0.113E-02	0.522E-03
2.	0.133E-02	0.126E-02	0.573E-03
0.	0.146E-02	0.137E-02	0.618E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2190E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.208E-03	0.242E-03	0.279E-03	0.319E-03	0.344E-03	0.361E-03	0.451E-03	0.544E-03	0.633E-03	0.772E-03
2.	0.233E-03	0.271E-03	0.312E-03	0.357E-03	0.385E-03	0.404E-03	0.504E-03	0.608E-03	0.707E-03	0.860E-03
0.	0.255E-03	0.297E-03	0.342E-03	0.391E-03	0.421E-03	0.442E-03	0.552E-03	0.665E-03	0.774E-03	0.940E-03

CONTINUE

Y	X 80.	100.	150.
3.	0.808E-03	0.799E-03	0.426E-03
2.	0.900E-03	0.887E-03	0.469E-03
0.	0.983E-03	0.966E-03	0.507E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2278E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.129E-03	0.150E-03	0.173E-03	0.198E-03	0.214E-03	0.225E-03	0.283E-03	0.344E-03	0.405E-03	0.507E-03
2.	0.144E-03	0.168E-03	0.193E-03	0.222E-03	0.239E-03	0.252E-03	0.316E-03	0.384E-03	0.452E-03	0.566E-03
0.	0.158E-03	0.184E-03	0.212E-03	0.243E-03	0.262E-03	0.276E-03	0.346E-03	0.421E-03	0.495E-03	0.618E-03

CONTINUE

Y	X = 80.	100.	150.
3.	0.540E-03	0.556E-03	0.338E-03
2.	0.602E-03	0.617E-03	0.372E-03
0.	0.657E-03	0.673E-03	0.403E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2365E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.797E-04	0.929E-04	0.107E-03	0.123E-03	0.133E-03	0.140E-03	0.177E-03	0.217E-03	0.258E-03	0.332E-03
2.	0.892E-04	0.104E-03	0.120E-03	0.138E-03	0.149E-03	0.157E-03	0.198E-03	0.243E-03	0.288E-03	0.370E-03
0.	0.977E-04	0.114E-03	0.132E-03	0.151E-03	0.163E-03	0.172E-03	0.217E-03	0.266E-03	0.316E-03	0.404E-03

CONTINUE

Y	X = 80.	100.	150.
3.	0.359E-03	0.382E-03	0.261E-03
2.	0.400E-03	0.425E-03	0.288E-03
0.	0.437E-03	0.463E-03	0.313E-03

STEADY STATE SOLUTION HAS NOT BEEN REACHED BEFORE FINAL SIMULATING TIME

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2453E+06 HRS
(ADSORBED CHEMICAL CONC. = 0.8100E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	5.	10.	15.	18.	20.	30.	40.	50.	70.
3.	0.495E-04	0.577E-04	0.668E-04	0.767E-04	0.831E-04	0.875E-04	0.111E-03	0.137E-03	0.164E-03	0.216E-03
2.	0.553E-04	0.645E-04	0.747E-04	0.858E-04	0.929E-04	0.978E-04	0.124E-03	0.153E-03	0.184E-03	0.241E-03
0.	0.606E-04	0.707E-04	0.818E-04	0.940E-04	0.102E-03	0.107E-03	0.136E-03	0.168E-03	0.201E-03	0.263E-03

CONTINUE

Y	X = 80.	100.	150.
3.	0.237E-03	0.260E-03	0.198E-03
2.	0.264E-03	0.290E-03	0.219E-03
0.	0.288E-03	0.316E-03	0.237E-03