FINAL

FORSCOM

FIRST ANNUAL MONITORING ONLY REPORT

3d Inf Div (Mech)

Underground Storage Tanks 5 & 6
Facility ID #9-089066
Building 1824
Fort Stewart, Georgia

Prepared for

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract No. DACA21-95-D-0022
Delivery Order 0055

December 2001

SAIC®

FINAL

FIRST ANNUAL MONITORING ONLY REPORT
FOR
UNDERGROUND STORAGE TANKS 5 & 6
FACILITY ID #9-089066
BUILDING 1824
FORT STEWART, GEORGIA

Prepared for

U.S. Army Corps of Engineers – Savannah District
and
Fort Stewart Directorate of Public Works
Under Contract Number DACA21-95-D-0022
Delivery Order 0055

Prepared by

Science Applications International Corporation
800 Oak Ridge Turnpike
Oak Ridge, Tennessee 37830

December 2001

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List of Abbreviations and Acronyms

ACL	alternate concentration limit
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
GA EPD	Georgia Environmental Protection Division
IWQS	In-Stream Water Quality Standard
UST	underground storage tank

MONITORING ONLY REPORT

Submittal Date: December 2001 Monitoring Report Number: 1st Annual

For Period Covering: January 2001 to December 2001

Facility Name: USTs 5 & 6, Building 1824 Street Address: W. 18th Street & McFarland Ave.

Facility ID: 9-089066 City: Fort Stewart County: Liberty Zip Code: 31314

Latitude: 31° 52′ 38″ Longitude: 81° 37′ 58″

Submitted by UST Owner/Operator:		Prepared by Consultant/Contractor:	
Name:	Thomas C. Fry/Environmental Branch	Name:	Patricia A. Stoll
Company:	U.S. Army/HQ 3d, Inf. Div. (Mech)	Company:	SAIC
Address:	Directorate of Public Works, Bldg. 1137	Address:	P.O. Box 2501
	1550 Frank Cochran Drive		
City:	Fort Stewart State: GA	City:	Oak Ridge State: TN
Zip Code:	31314-4927	Zip Code:	37831

I. REGISTERED PROFESSIONAL ENGINEER OR PROFESSIONAL GEOLOGIST CERTIFICATION

I hereby certify that I have directed and supervised the fieldwork and preparation of this plan, in accordance with State Rules and Regulations. As a registered professional geologist and/or professional engineer, I certify that I am a qualified groundwater professional, as defined by the Georgia State Board of Professional Geologists. All of the information and laboratory data in this plan and in all of the attachments are true, accurate, complete, and in accordance with applicable State Rules and Regulations.

Name: Patricia A. Stoll
Signature:
Date:

Georgia Stamp or Seal

II. PROJECT SUMMARY

(Appendix I, Figure 1: Site Location Map)

Provide a brief description or explanation of the site and a brief chronology of environmental events leading up to this report.

Underground Storage Tanks (USTs) 5 & 6, Facility ID #9-089066 were located near Building 1824 at Fort Stewart, Georgia. UST 5 had a capacity of 6,000 gallons and was used for storing gasoline, and UST 6 had a capacity of 25,000 gallons and was used for storing diesel fuel. The tanks were excavated and removed on August 6, 1996, and the ancillary piping was closed in place. Science Applications International Corporation performed a Corrective Action Plan (CAP)–Part A investigation in 1998. Results of the 1998 investigation were documented in the *CAP–Part A Report, Underground Storage Tanks 5 & 6, Facility ID #9-089066, Building 1842, Fort Stewart, Georgia*, which was submitted to the Georgia Environmental Protection Division (GA EPD) in June 1999 (SAIC 1999).

The GA EPD Underground Storage Tank Management Program (USTMP) conducted a technical review of the CAP–Part A Report (SAIC 1999), and in correspondence dated January 19, 2000 (Logan 2000), GA EPD approved the recommendation for additional investigation. The CAP–Part B investigation was performed in 2000, and the results were documented in the *CAP–Part B Report, Underground Storage Tanks 5 & 6, Facility ID #9-089066, Building 1842, Fort Stewart, Georgia*, which was submitted to GA EPD in November 2000 (SAIC 2000). The CAP–Part B Report recommended semiannual sampling of wells 71-10, 71-11, and 71-12 for benzene, toluene, ethylbenzene, and xylenes (BTEX) for a period of 1 year to ensure that the benzene concentrations remain below the alternate concentration limit (ACL) of 1,782 µg/L. The CAP–Part B Report was approved by GA EPD in correspondence dated February 9, 2001 (Logan 2001).

The fate and transport modeling performed as part of the CAP–Part B Report (SAIC 2000) reflected a continuous source of contamination. The fate and transport modeling results were revised using the results from the semiannual monitoring events to calibrate the model. The revised fate and transport modeling results are provided in Attachment A.

The purpose of the semiannual monitoring, summarized in this report, is to confirm the results of the fate and transport modeling and that natural attenuation is taking place at the site. The benzene concentrations during the January 2001 and June 2001 sampling events have remained below the ACL; therefore, a no-further-action-required (NFAR) status is being recommended for the site.

III. ACTIVITIES AND ASSESSMENT OF EXISTING CONDITIONS

A. Potentiometric Data:

(Appendix I, Figure 2: Potentiometric Surface Map)
(Appendix II, Table 1: Groundwater Elevations)

Discuss groundwater flow at this site and implications for this project.

During the first semiannual sampling event in January 2001, groundwater elevations were measured in all of the monitoring wells to determine the groundwater flow direction. In January 2001, the groundwater flow direction was toward the west-northwest, and the groundwater gradient was approximately 0.0179 foot/foot.

During the second semiannual sampling event in June 2001, groundwater elevations were measured in all of the monitoring wells to determine the groundwater flow direction. In June 2001, the groundwater flow direction was toward the west and the groundwater gradient was approximately 0.026 foot/foot.

B. **Analytical Data:**

(Appendix I, Figure 3: Groundwater Quality Map)
(Appendix II, Table 2: Groundwater Analytical Results)
(Appendix III: Validated Laboratory Analytical Results)
(Attachment C: Certificates of Analysis)

Discuss groundwater analysis results, trend of contaminant concentrations, and implications for this project.

During the first semiannual sampling event in January 2001, monitoring wells 71-10, 71-11, and 71-12 were sampled for BTEX using U.S. Environmental Protection Agency (EPA) Method 8021B/8260B. BTEX compounds were present in wells 71-11 and 71-12. In well 71-11, benzene was detected at 267 μg/L, the toluene detection limit was 10 μg/L, the ethylbenzene detection limit was 10 μg/L, and total xylenes were detected at 6.2J μg/L. In well 71-12, benzene was detected at 31.2 μg/L. The benzene concentration in well 71-11 exceeded the In-stream Water Quality Standard (IWQS) of 71.28 μg/L, but was below the GA EPD-approved ACL of 1,782 μg/L. Figure 4 shows the variations in benzene concentrations in groundwater for all the wells.

During the second semiannual sampling event in June 2001, monitoring wells 71-10, 71-11, and 71-12 were sampled for BTEX using EPA Method 8021B/8260B. BTEX compounds were present in wells 71-11 and 71-12. In well 71-11, benzene was detected at 125 μg/L, toluene was detected at 2.3 μg/L, ethylbenzene was detected at 2.3 μg/L, and total xylenes were detected at 4J μg/L. In well 71-12, benzene was detected at 19.4 μg/L and toluene was detected at 0.22J μg/L. The benzene concentration in well 71-11 exceeded the IWQS of 71.28 μg/L, but was below the GA EPD-approved ACL of 1,782 μg/L. Figure 4 shows the variations in benzene concentrations in groundwater for all the wells.

As recommended in the CAP–Part B Report (SAIC 2000) and approved by GA EPD, polynuclear aromatic hydrocarbon analysis was not performed as part of the Monitoring Only Plan for the site.

IV. **SITE RANKING** (Note: re-rank site after each monitoring event.)

(Appendix IV: Site Ranking Form)

Environmental Site Sensitivity Score: *(April 1999 version of the Site Ranking Form was used.)*	2,750 (CAP–Part B Report) 2,750 (Jan. 2001 – First Semiannual Monitoring Event) 2,750 (June 2001 – Second Semiannual Monitoring Event)

V. CONCLUSIONS/RECOMMENDATIONS

Provide justification of no-further-action-required recommendation or briefly discuss future monitoring plans for this site.

Fort Stewart respectfully requests that GA EPD USTMP assign Facility ID #9-089066 an NFAR status for the following reasons:

- The Monitoring Only Plan was conducted in accordance with Section III.D of the CAP–Part B Report (SAIC 2000) and was submitted to GA EPD USTMP in November 2000 and approved by GA EPD USTMP in correspondence dated February 9, 2001 (Logan 2001).
- The revised fate and transport model, which uses a continuous source of contamination and is summarized in Attachment A, indicates that benzene will never reach the nearest potential preferential pathway (i.e., an industrial wastewater line) at a concentration above the IWQS of 71.28 µg/L.
- The benzene concentrations in all wells were below the GA EPD-approved ACL of 1,782 µg/L during the semiannual monitoring events in January and June 2001.
- The closest surface water bodies are a drainage ditch and Mill Creek located at 800 feet and 1,600 feet, respectively, downgradient from the site.
- Natural attenuation has continued to take place at the site, as shown by the lower benzene concentrations observed during the semiannual monitoring events and those observed during the CAP–Part A and CAP–Part B investigations.

The monitoring only program at this site will be discontinued.

VI. REIMBURSEMENT

Attached ______ N/A __X__

(Appendix V: Reimbursement Application)

Fort Stewart is a federally owned facility and has funded the investigation for the former USTs 5 & 6 site, Building 1824, Facility ID #9-089066 using U.S. Department of Defense Environmental Restoration Account Funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

APPENDIX I

REPORT FIGURES

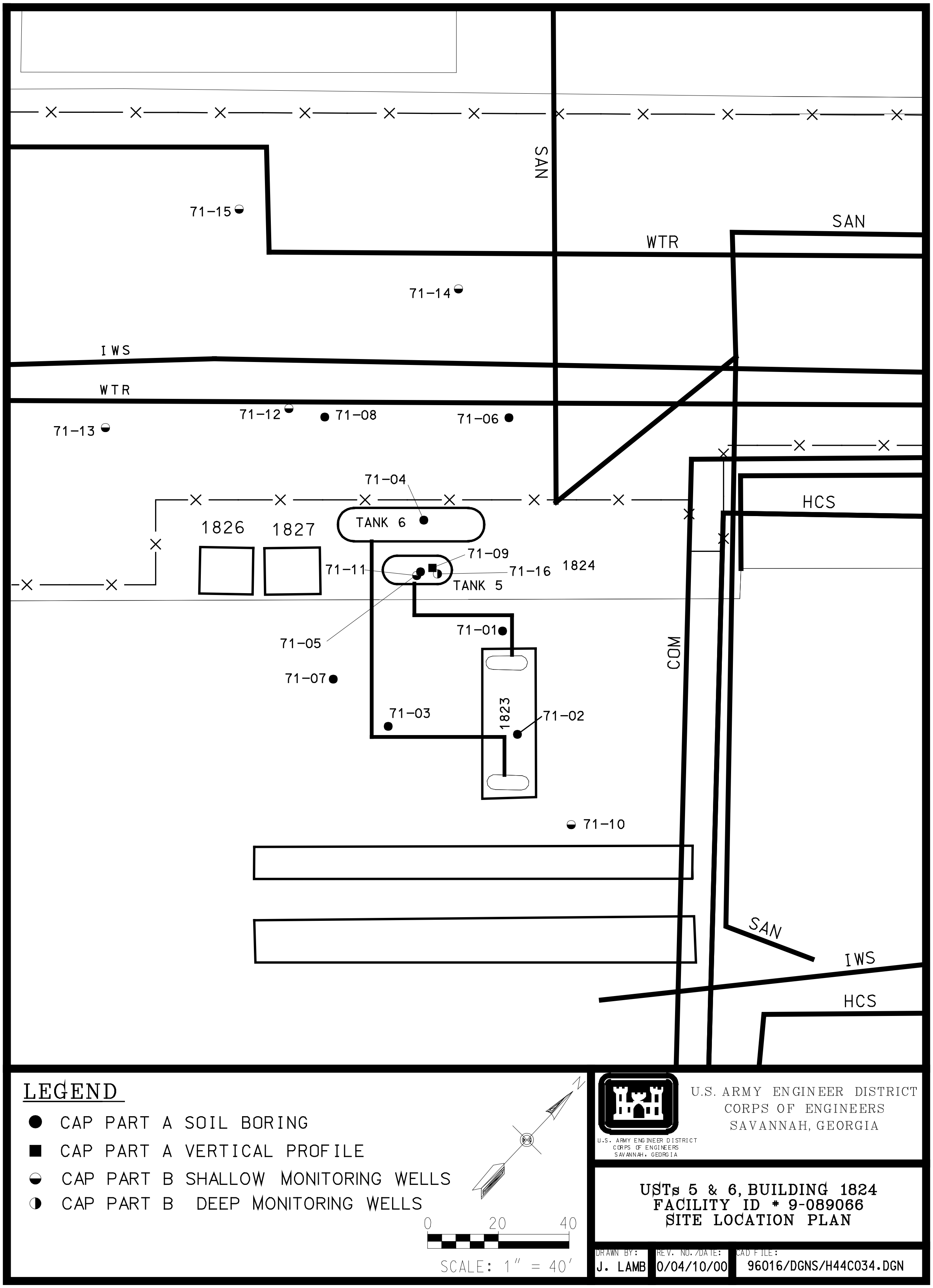

Figure 1. Location Map of USTs 5 & 6 at Fort Stewart, Liberty County, Georgia

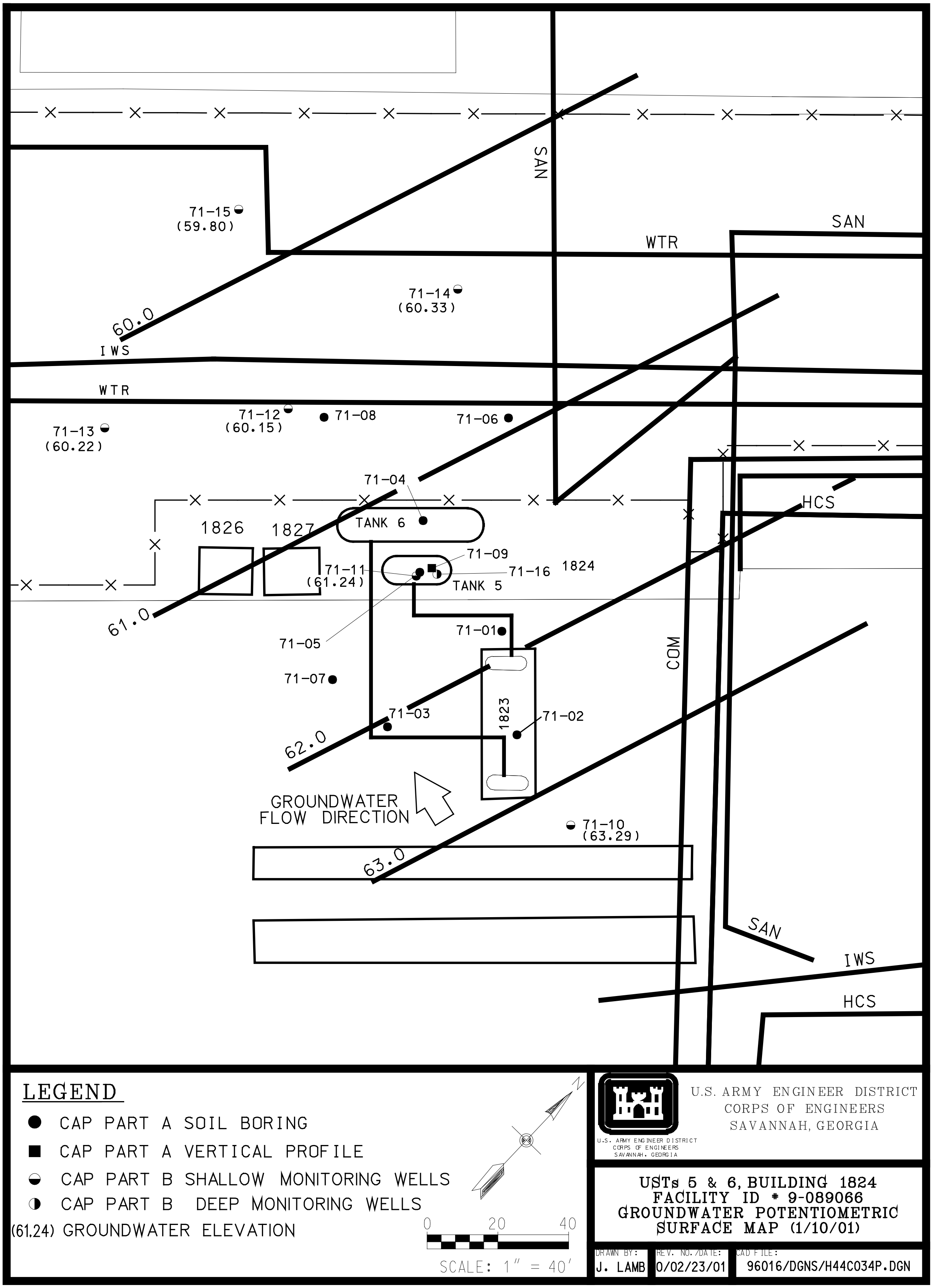

Figure 2a. Potentiometric Surface Map of the USTs 5 & 6 Site (January 2001)

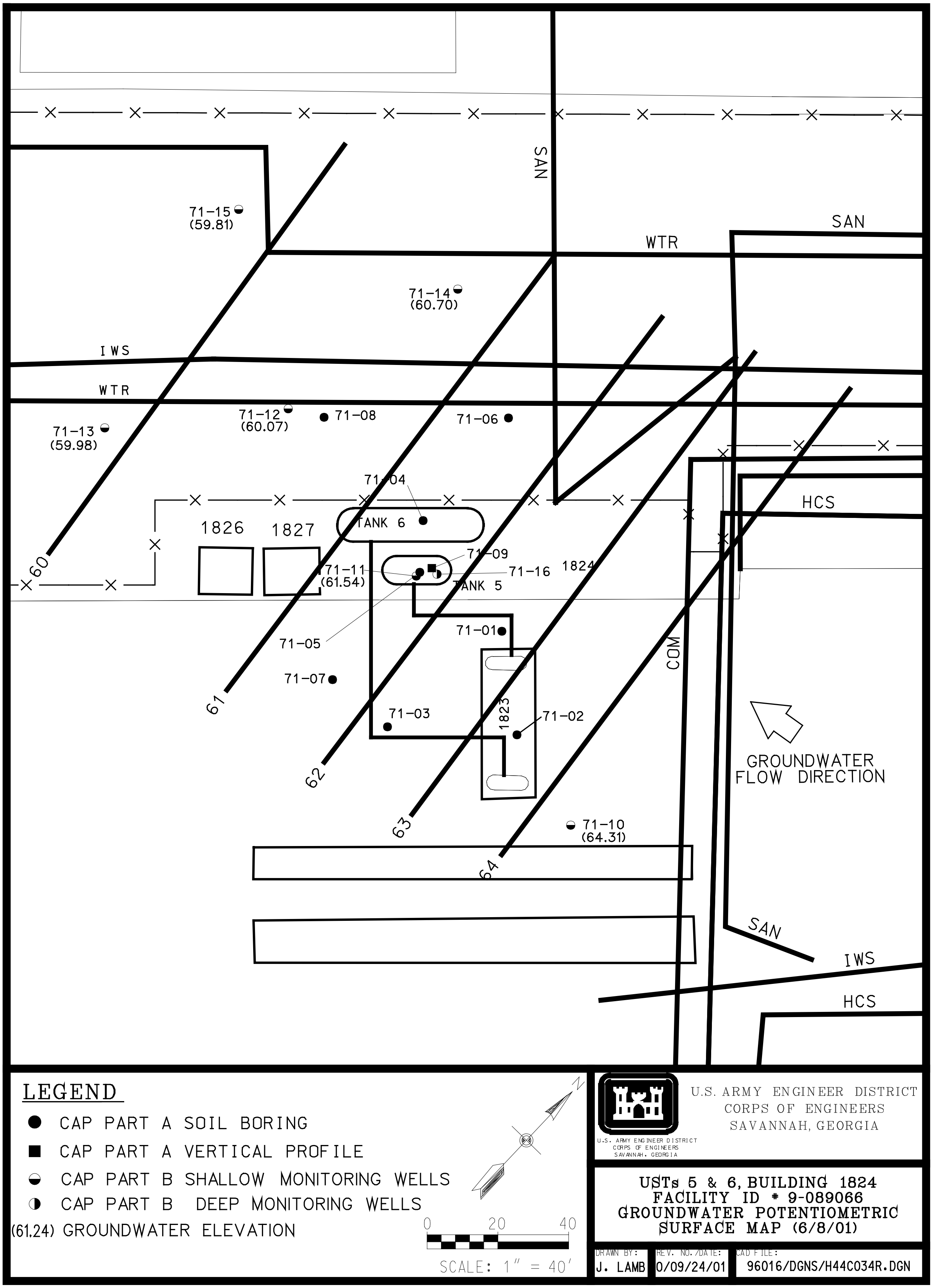

Figure 2b. Potentiometric Surface Map of the USTs 5 & 6 Site (June 2001)

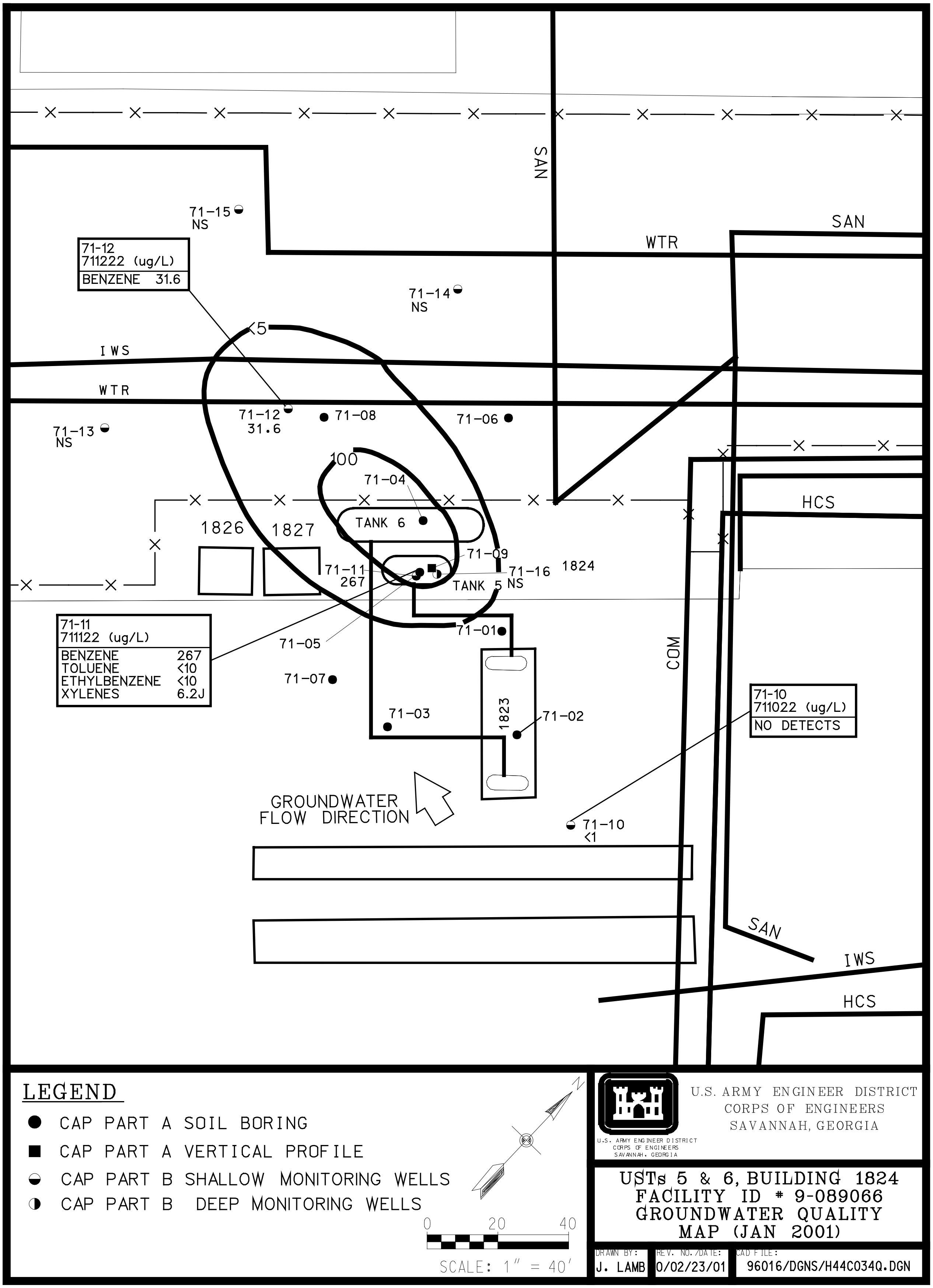

Figure 3a. Groundwater Quality Map for the USTs 5 & 6 Site (January 2001)

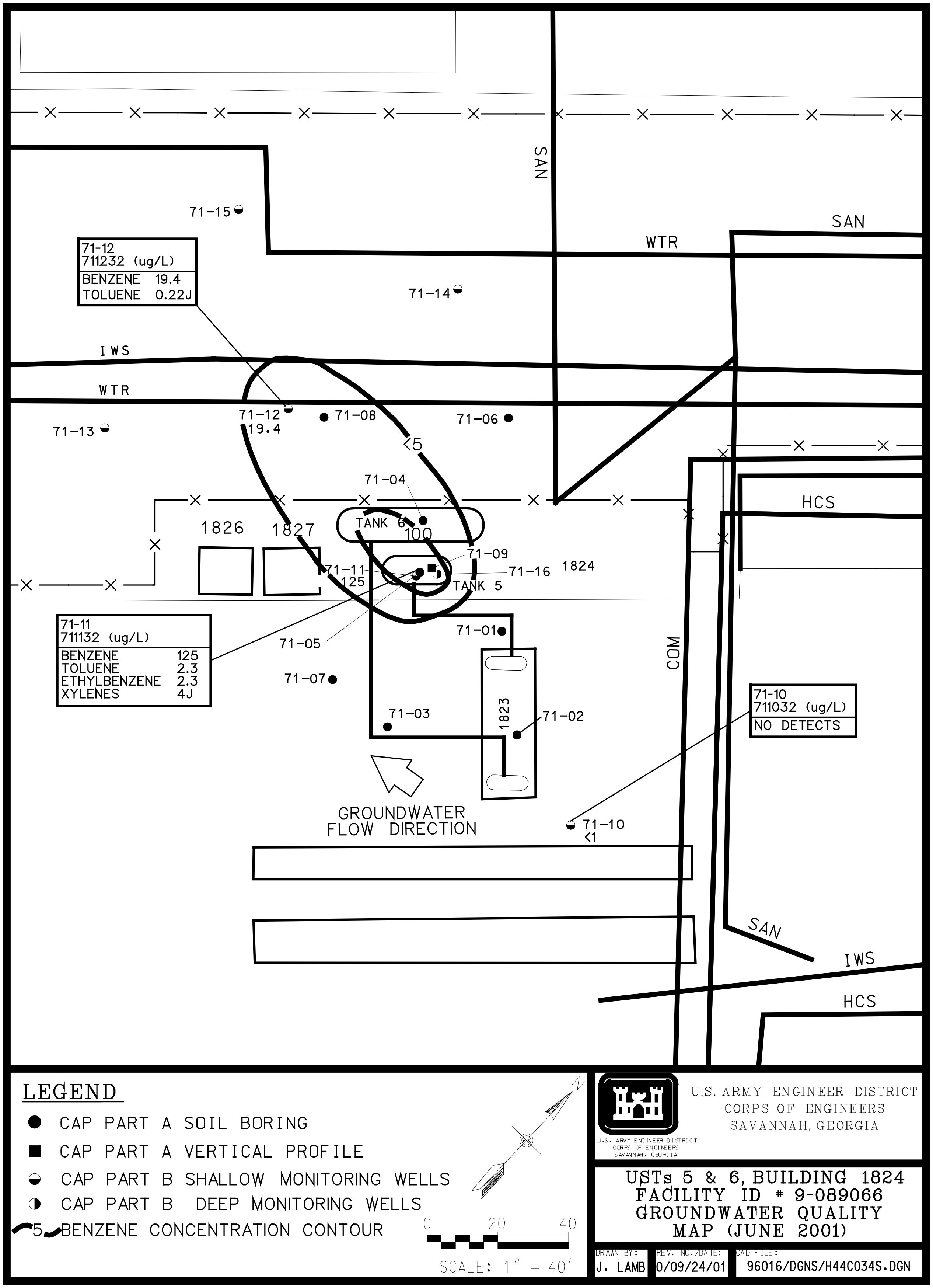

Figure 3b. Groundwater Quality Map for the USTS 5 & 6 Site (June 2001)

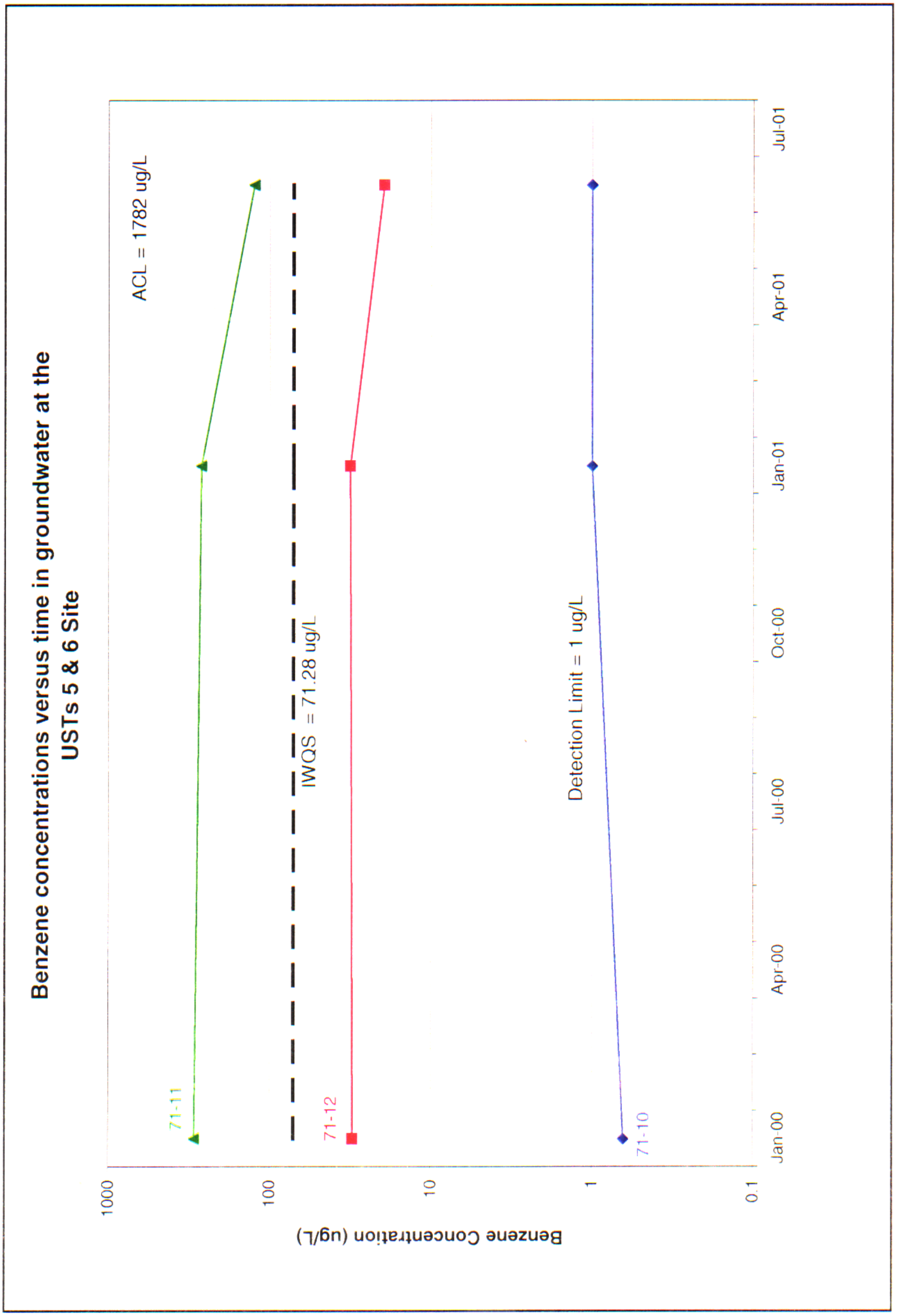

Figure 4. Trend of Benzene Concentrations at the USTs 5 & 6 Site

APPENDIX II

REPORT TABLES

Table 1. Groundwater Elevations

Well Number	Date Measured	Ground Surface Elevation (feet AMSL)	Top of Casing Elevation (feet AMSL)	Depth of Screened Interval (feet BGS)	Depth of Free Product (feet BTOC)	Water Depth (feet BTOC)	Product Thickness (feet)	Groundwater Elevation (feet AMSL)
CAP–Part A Investigation – 1998								
71-01	5/10/98	69.37	69.06[a]	4.0 – 14.0	—	5.26	0	63.80
71-02	5/10/98	69.34	69.26[a]	1.2 – 16.2	—	5.61	0	63.65
71-03	5/10/98	69.23	68.89[a]	2.5 – 12.5	—	5.63	0	63.26
71-04	5/10/98	69.06	71.75[a]	2.0 – 12.0	—	7.23	0	64.52
71-05	5/10/98	69.30	72.15[a]	2.0 – 12.0	—	7.52	0	64.63
71-06	11/19/98	67.67	68.98[a]	0.0 – 13.5	—	7.18	0	61.80
71-07	11/19/98	69.17	70.92[a]	0.0 – 13.0	—	6.34	0	64.58
71-08	11/19/98	67.64	67.93[a]	0.0 – 14.5	—	6.93	0	61.00
CAP–Part B Investigation – 2000								
71-10	2/21/00	69.27	69.07	4.8 – 14.8	—	6.61	0	62.46
71-11	2/21/00	69.33	69.14	4.8 – 14.8	—	7.52	0	61.62
71-12	2/21/00	67.25	67.05	4.8 – 14.8	—	6.32	0	60.73
71-13	2/21/00	67.45	67.28	4.8 – 14.8	—	6.91	0	60.37
71-14	2/21/00	66.97	66.66	4.8 – 14.8	—	5.87	0	60.79
71-15	2/21/00	66.96	66.75	4.8 – 14.8	—	6.93	0	59.82
71-16	2/21/00	69.38	69.08	24.8 – 34.8	—	8.67	0	60.41
First Semiannual Monitoring Event – January 2001								
71-10	1/10/01	69.27	69.07	4.8 – 14.8	—	5.78	0	63.29
71-11	1/10/01	69.33	69.14	4.8 – 14.8	—	7.90	0	61.24
71-12	1/10/01	67.25	67.05	4.8 – 14.8	—	6.90	0	60.15
71-13	1/10/01	67.45	67.28	4.8 – 14.8	—	7.06	0	60.22
71-14	1/10/01	66.97	66.66	4.8 – 14.8	—	6.33	0	60.33
71-15	1/10/01	66.96	66.75	4.8 – 14.8	—	6.95	0	59.80
71-16	1/10/01	69.38	69.08	24.8 – 34.8	—	9.10	0	59.98
Second Semiannual Monitoring Event – June 2001								
71-10	6/8/01	69.27	69.07	4.8 – 14.8	—	4.76	0	64.31
71-11	6/8/01	69.33	69.14	4.8 – 14.8	—	7.60	0	61.54
71-12	6/8/01	67.25	67.05	4.8 – 14.8	—	6.98	0	60.07
71-13	6/8/01	67.45	67.28	4.8 – 14.8	—	7.30	0	59.98
71-14	6/8/01	66.97	66.66	4.8 – 14.8	—	5.96	0	60.70
71-15	6/8/01	66.96	66.75	4.8 – 14.8	—	6.94	0	59.81
71-16	6/8/01	69.38	69.08	24.8 – 34.8	—	9.34	0	59.74

NOTES:

[a] Top of casing is for temporary piezometers that were field surveyed and based on ground surface elevation for 71-01 and 71-06.

AMSL	Above mean sea level
BGS	Below ground surface
BTOC	Below top of casing
CAP	Corrective Action Plan

Table 2. Groundwater Analytical Results

Sample Location	Sample ID	Screened Interval (feet BGS)	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)
CAP–Part A Investigation – 1998								
71-01	710112	4.0 – 14.0	5/11/98	1.1 J	2 U	2 U	6 U	1.1
71-02	710212	1.2 – 16.2	5/11/98	2 U	2 U	2 U	6 U	ND
71-03	710312	2.5 – 12.5	5/11/98	2 U	2 U	2 U	6 U	ND
71-04	710412	2.0 – 12.0	5/11/98	**140 J**	84 J	9.8 UJ	530 J	754
71-05	710512	2.0 – 12.0	5/11/98	***2,730*** **=**	205 =	253 =	610 J	3,798
71-06	710612	0.0 – 13.5	11/16/98	2 U	2 U	2 U	3 U	ND
71-07	710712	0.0 – 13.0	11/16/98	2 U	2 U	2 U	3 U	ND
71-08	710812	0.0 – 14.5	11/16/98	**123 =**	2 U	0.78 J	3 U	123.78
71-09	710912	11.0 – 15.0	11/14/98	**150 =**	2.6 =	10.5 =	21.9 =	185
71-09	710922	16.0 – 20.0	11/14/98	51.7 =	2 U	2.2 =	1.1 J	55
71-09	710932	21.0 – 25.0	11/14/98	1.2 J	2 U	2 U	3 U	1.2
71-09	710942	26.0 – 30.0	11/14/98	1.4 J	2 U	0.64 J	0.9 J	2.94
71-09	710952	31.0 – 35.0	11/14/98	2.1 =	2 U	0.81 J	0.99 J	3.9
71-09	710962	35.0 – 35.5	11/14/98	5.7 =	2 U	2 U	0.56 J	6.26
CAP–Part B Investigation – 2000								
71-10	711012	4.8 – 14.8	1/13/00	0.64 J	0.57 J	0.64 J	2.8 J	4.65
71-11	711112	4.8 – 14.8	1/13/00	**294 =**	7.9 =	30.9 =	41.4 =	374.2
71-12	711212	4.8 – 14.8	1/13/00	30.5 =	1 U	0.26 J	3 U	30.76
71-13	711312	4.8 – 14.8	1/13/00	1.9 =	1.8 =	0.39 J	1.7 J	5.79
71-14	711412	4.8 – 14.8	1/13/00	1.6 =	1 U	0.32 J	3 U	1.92
71-15	711512	4.8 – 14.8	1/13/00	1 U	1 U	1 U	3 U	ND
71-16	711612	24.8 – 34.8	1/13/00	0.35 J	1 U	0.1 J	3 U	0.45
First Semiannual Monitoring Event – January 2001								
71-10	711022	4.8 – 14.8	1/09/01	1 U	1 U	1 U	3 U	ND
71-11	711122	4.8 – 14.8	1/09/01	**267 =**	10 U	10 U	6.2 J	273.2
71-12	711222	4.8 – 14.8	1/09/01	31.6 =	1 U	1 U	3 U	31.6
Second Semiannual Monitoring Event – June 2001								
71-10	711032	4.8 – 14.8	6/8/01	1 U	1 U	1 U	3 U	ND
71-11	711132	4.8 – 14.8	6/8/01	**125 =**	2.3 =	2.3 =	4 J	133.6
71-12	711232	4.8 – 14.8	6/8/01	19.4 =	0.22 J	1 U	3 U	19.62
In-stream Water Quality Standards (GA EPD Chapter 391-3-6)				71.28	200,000	28,718	NRC	NRC
Alternate Concentration Limits				1,782	—	—	—	—

NOTES:

Bold values exceed In-stream Water Quality Standards.

Italic values exceed alternate concentration limits.

BGS	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
GA EPD	Georgia Environmental Protection Division
ND	Not detected
NRC	No regulatory criteria

Laboratory Qualifiers

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

APPENDIX III

VALIDATED LABORATORY ANALYTICAL RESULTS

ANALYTICAL LABORATORY INFORMATION
AND
DATA VALIDATION CODES

The analytical laboratory was General Engineering Laboratories (GEL). The analytical data sheets provided in this appendix are copies of those provided by GEL with the Science Applications International Corporation validation codes. Representatives from the Georgia Environmental Protection Division (GA EPD) Underground Storage Tank Management Program (USTMP) and Fort Stewart agreed upon the format of the analytical data sheets and the information they contain during a meeting held on January 27, 1999. During the same meeting it was agreed that copies of the analytical data sheets and chain-of-custody forms could be provided in the reports submitted by Fort Stewart. In a subsequent phone conversation between representatives from the GA EPD USTMP and Fort Stewart, it was agreed that certificates of analysis would also be included. The original certificates of analysis and chain-of-custody forms are provided in Attachment C.

STATE OF GEORGIA
ENVIRONMENTAL LABORATORY ACCREDITATION

	Name of Laboratory:	**General Engineering Laboratories, Inc.**
	Address:	P.O. Box 30712 2040 Savage Road Charleston, SC 29407
	Contact:	Bob Pullano or Wendy Dimmick
	Telephone number:	(843) 556-8171
	Fax number:	(843) 766-1178
#1	Accrediting Authority:	**State of South Carolina**
	Accreditation Number:	SC-10120001
	Effective Date:	extension granted while re-certification in process
	Expiration Date:	—
	Accreditation Scope:	SDWA, CWA, RCRA, CERCLA[1]
#2	Accrediting Authority:	**State of Florida**
	Accreditation Number:	E-87156
	Effective Date:	July 1, 2001
	Expiration Date:	June 30, 2002
	Accreditation Scope:	SDWA, CWA, RCRA, CERCLA

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[1] Safe Drinking Water Act of 1974, Clean Water Act of 1972, Resource Conservation and Recovery Act of 1976, and Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

DATA VALIDATION REASON CODES

Organic, Inorganic, and Radiological Analytical Data

Holding Times

A01	Extraction holding times were exceeded.
A02	Extraction holding times were grossly exceeded.
A03	Analysis holding times were exceeded.
A04	Analysis holding times were grossly exceeded.
A05	Samples were not preserved properly.
A06	Professional judgment was used to qualify the data.

GC/MS Tuning

B01	Mass calibration was in error, even after applying expanded criteria.
B02	Mass calibration was not performed every 12 hours.
B03	Mass calibration did not meet ion abundance criteria.
B04	Professional judgment was used to qualify the data.

Initial/Continuing Calibration – Organics

C01	Initial calibration RRF was < 0.05.
C02	Initial calibration RDS was > 30%.
C03	Initial calibration sequence was not followed as required.
C04	Continuing calibration RRF was < 0.05.
C05	Continuing calibration %D was > 25%.
C06	Continuing calibration was not performed at the required frequency.
C07	Resolution criteria were not met.
C08	RPD criteria were not met.
C09	RDS criteria were not met.
C10	Retention time of compounds was outside windows.
C11	Compounds were not adequately resolved.
C12	Breakdown of endrin or DDT was > 30%.
C13	Combined breakdown of endrin/DDT was > 30%.
C14	Professional judgment was used to qualify the data.

Initial/Continuing Calibration – Inorganics

D01	ICV or CCV were not performed for every analyte.
D02	ICV recovery was above the upper control limit.
D03	ICV recovery was below the lower control limit.
D04	CCV recovery was above the upper control limit.
D05	CCV recovery was below the lower control limit.
D06	Standard curve was not established with the minimum number of standards.
D07	Instrument was not calibrated daily or each time the instrument was set up.
D08	Correlation coefficient was <0.995.
D09	Mid range cyanide standard was not distilled.
D10	Professional judgment was used to qualify the data.

ICP and Furnace Requirements

E01	Interference check sample recovery was outside the control limit.
E02	Duplicate injections were outside the control limit.
E03	Post digestion spike recovery was outside the control limit.
E04	MSA was required but not performed.
E05	MSA correlation coefficient was <0.995.
E06	MSA spikes were not at the correct concentration.
E07	Serial dilution criteria were not met.
E08	Professional judgment was used to qualify the data.

Blanks

F01	Sample data were qualified as a result of the method blank.
F02	Sample data were qualified as a result of the field blank.
F03	Sample data were qualified as a result of the equipment rinsate.
F04	Sample data were qualified as a result of the trip blank.
F05	Gross contamination exists.
F06	Concentration of the contaminant was detected at a level below the CRQL.
F07	Concentration of the contaminant was detected at a level less than the action limit, but greater than the CRQL.
F08	Concentration of the contaminant was detected at a level that exceeds the action level.
F09	No laboratory blanks were analyzed.
F10	Blank had a negative value >2×’s the IDL.
F11	Blanks were not analyzed at required frequency.
F12	Professional judgment was used to qualify the data.

Surrogate/Radiological Chemical Recovery

G01	Surrogate/radiological chemical recovery was above the upper control limit.
G02	Surrogate/radiological chemical recovery was below the lower control limit.
G03	Surrogate recovery was <10%.
G04	Surrogate recovery was zero.
G05	Surrogate/radiological chemical recovery data was not present.
G06	Professional judgment was used to qualify the data.
G07	Radiological chemical recovery was <20%.
G08	Radiological chemical recovery was >150%.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

H01	MS/MSD recovery was above the upper control limit.
H02	MS/MSD recovery was below the lower control limit.
H03	MD/MSD recovery was <10%.
H04	MS/MSD pairs exceed the RPD limit.
H05	No action was taken on MS/MSD limit.
H06	Professional judgment was used to qualify the data.
H07	Radiological MS/MSD recovery was <20%.
H08	Radiological MS/MSD recovery was >160%.
H09	Radiological MS/MSD samples were not analyzed at the required frequency.

Matrix Spike

I01	MS recovery was above the upper control limit.
I02	MS recovery was below the lower control limit.
I03	MS recovery was <30%.
I04	No action was taken on MS data.
I05	Professional judgment was used to qualify the data.

Laboratory Duplicate

J01	Duplicate RPD/radiological duplicate error ratio (DER) was outside the control limit.
J02	Duplicate sample results were >5× the CRDL.
J03	Duplicate sample results were <5× the CRDL.
J04	Professional judgment was used to qualify the data.
J05	Duplicate was not analyzed at the required frequency.

Internal Area Summary

K01	Area counts were outside the control limits.
K02	Extremely low area counts or performance was exhibited by a major drop off.
K03	IS retention time varied by more than 30 seconds.
K04	Professional judgment was used to qualify the data.

Pesticide Cleanup Checks

L01	10% recovery was obtained during either check.
L02	Recoveries during either check were >120%.
L03	GPC Cleanup recoveries were outside the control limits.
L04	Florisil cartridge cleanup recoveries were outside the control limits.
L05	Professional judgment was used to qualify the data.

Target Compound Identification

M01	Incorrect identifications were made.
M02	Qualitative criteria were not met.
M03	Cross contamination occurred.
M04	Confirmatory analysis was not performed
M05	No results were provided.
M06	Analysis occurred outside 12 hr GC/MS window.
M07	Professional judgment was used to qualify the data.
M08	The %D between the two pesticide/PCB column checks was >25%.

Compound Quantitation and Reported CRQLs

N01	Quantitation limits were affected by large off-scale peaks.
N02	MDLs reported by the laboratory exceeded corresponding CRQLs.
N03	Professional judgment used to qualify the data.

Tentatively Identified Compounds (TICs)

O01	Compound was suspected laboratory contaminant and was not detected in the blank.
O02	TIC result was not above 10× the level found in the blank.
O03	Professional judgment was used to qualify analytical data.

Laboratory Control Samples (LCSs)

P01	LCS recovery was above upper control limit.
P02	LCS recovery was below lower control limit.
P03	LCS recovery was <50%.
P04	No action was taken on the LCS data.
P05	LCS was not analyzed at required frequency.
P06	Radiological LCS recovery was <50% for aqueous samples; <40% for solid samples.
P07	Radiological LCS recovery was >150% for aqueous samples; >160% for solid samples.
P08	Professional judgment was used to qualify the data.

Field Duplicate

Q01	Field duplicate RPDs were >30% for waters and/or >50% for soils.
Q02	Radiological field duplicate error ratio (DER) was outside the control limit.
Q03	Duplicate sample results were >5× the CRDL.
Q04	Duplicate sample results were <5× the CRDL.

Radiological Calibration

R01	Efficiency calibration criteria were not met.
R02	Energy calibration criteria were not met.
R03	Resolution calibration criteria were not met.
R04	Background determination criteria were not met.
R05	Quench curve criteria were not met.
R06	Absorption curve criteria were not met.
R07	Plateau curve criteria were not met.
R08	Professional judgment was used to qualify the data.

Radiological Calibration Verification

S01	Efficiency verification criteria were not met.
S02	Energy verification criteria were not met.
S03	Resolution verification criteria were not met.
S04	Background verification criteria were not met.
S05	Cross-talk verification criteria were not met.
S06	Professional judgment was used to qualify the data.

FIRST SEMIANNUAL MONITORING EVENT

JANUARY 2001

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711022

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 36245

Matrix: (soil/water) WATER Lab Sample ID: 36245007

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1R515

Level: (low/med) LOW Date Received: 01/10/01

% Moisture: not dec. ________ Date Analyzed: 01/12/01

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	1.0	U	U
108-88-3	Toluene	1.0	U	U
100-41-4	Ethylbenzene	1.0 0~~.081~~	J	U F04,F06
1330-20-7	Xylenes (total)	3.0	U	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711122

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 36245

Matrix: (soil/water) WATER Lab Sample ID: 36245006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1R533

Level: (low/med) LOW Date Received: 01/10/01

% Moisture: not dec. ________ Date Analyzed: 01/13/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0

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	267		=
108-88-3	Toluene	10 ~~3.0~~	J	U F04, F06
100-41-4	Ethylbenzene	10 ~~1.6~~	J	U F04, F06
1330-20-7	Xylenes (total)	6.2	J	J

DATA VALIDATION
COPY

FORM I VOA

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711126

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 36245

Matrix: (soil/water) WATER

Lab Sample ID: 36245005

Sample wt/vol: 5.000 (g/ml) ML

Lab File ID: 1R514

Level: (low/med) LOW

Date Received: 01/10/01

% Moisture: not dec. ________

Date Analyzed: 01/12/01

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	1.0	U	U
108-88-3	Toluene	1,0 ~~0.32~~	J	U F04,F06
100-41-4	Ethylbenzene	1.0 ~~0.069~~	J	U F04,F06
1330-20-7	Xylenes (total)	0.32	J	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711222

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 36245

Matrix: (soil/water) WATER Lab Sample ID: 36245008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1R516

Level: (low/med) LOW Date Received: 01/10/01

% Moisture: not dec. ________ Date Analyzed: 01/12/01

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	31.6		=
108-88-3	Toluene	1.0 ~~0.68~~	J	U F04, F06
100-41-4	Ethylbenzene	1.0 ~~0.24~~	J	U F04, F06
1330-20-7	Xylenes (total)	3.0	U	U

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1 of 2

CHAIN OF CUSTODY RECORD

COC NO.: GLTM23

20010111665 1. → 2.

PROJECT NAME: Fort Stewart CAP B LTM

PROJECT NUMBER: 01-1624-04-2725-200

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: (843) 556-8171

REQUESTED PARAMETERS

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	BTEX, GRO	PAH, DRO	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
060622	1/10/01	0905	water	2	2			4		362445 001
060322	1/10/01	0935		2	2			4		002
060722	1/9/01	1723		2	1			3		003
060922	1/10/01	0820		2	1			3		004
711126	1/10/01	1030		2				2		005
711122	1/9/01	1630		2				2		006
711022	1/9/01	1530		2				2		007
711222	1/9/01	1720		2				2		008
370634	1/9/01	1745		2				2		009
370632	1/9/01	1745		2				2		010
370732	1/9/01	1640		2				2		011
370932	1/9/01	1715		2				2		012
TB5516	1/10/01	0740		2				2		013

RELINQUISHED BY: Laura Lumley	Date/Time 1/10/01	RECEIVED BY: M. ElLH	Date/Time
COMPANY NAME: SAIC		COMPANY NAME: GEL	
RECEIVED BY: Patrice Dauk	Date/Time 01/10/01 15:00	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS:

Cooler ID: #22

Cooler Temperature: 3.3

FEDEX NUMBER:

SECOND SEMIANNUAL MONITORING EVENT

JUNE 2001

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711032

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 43823

Matrix: (soil/water) WATER Lab Sample ID: 43823018

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5N444

Level: (low/med) LOW Date Received: 06/09/01

% Moisture: not dec. ________ Date Analyzed: 06/15/01

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	1.0	U	U
108-88-3	Toluene	1.0 ~~0.29~~	JB	U F01, F06
100-41-4	Ethylbenzene	1.0	U	U
1330-20-7	Xylenes (total)	3.0	U	U

WMP
7/11/01

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711132

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 43823

Matrix: (soil/water) WATER

Lab Sample ID: 43823019

Sample wt/vol: 5.000 (g/ml) ML

Lab File ID: 5N515

Level: (low/med) LOW

Date Received: 06/09/01

% Moisture: not dec. ________

Date Analyzed: 06/15/01

GC Column: DB-624 ID: 0.25 (mm)

Dilution Factor: 2.0

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	125		=
108-88-3	Toluene	2.3		=
100-41-4	Ethylbenzene	2.3		=
1330-20-7	Xylenes (total)	4.0	J	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711136

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 43823

Matrix: (soil/water) WATER Lab Sample ID: 43823020

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5N445

Level: (low/med) LOW Date Received: 06/09/01

% Moisture: not dec. ________ Date Analyzed: 06/15/01

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	0.41	J	J
108-88-3	Toluene	2.1	B	U F01,F07
100-41-4	Ethylbenzene	0.15	J	J
1330-20-7	Xylenes (total)	0.58	J	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

711232

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 43827

Matrix: (soil/water) WATER Lab Sample ID: 43827001

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 50217

Level: (low/med) LOW Date Received: 06/09/01

% Moisture: not dec. ________ Date Analyzed: 06/19/01

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	19.4		=
108-88-3	Toluene	0.22	J	J
100-41-4	Ethylbenzene	1.0	U	u
1330-20-7	Xylenes (total)	3.0	U	u

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CHAIN OF CUSTODY RECORD

COC NO.: GLTM24

PROJECT NAME: ~~Fort Stewart OAP B~~ LTM
Long Term Monitoring

PROJECT NUMBER: 01-1624-04-2725-~~200~~ 240

PROJECT MANAGER: Patty Stoll

Sampler (Signature) (Printed Name) Laura Lumley

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS
2040 Savage Raod
Charleston, SC 29417

PHONE NO: (843) 556 8171

				REQUESTED PARAMETERS						
Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	BTEX, GRO	PAH, DRO	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
370644	6/8/01	1630	water	2				2		43823 014
370642	6/8/01	1630		2				2		015
370742	6/8/01	1620		2				2		016
370942	6/8/01	1600		2				2		017
711032	6/8/01	1325		2				2		018
711132	6/8/01	1405		2				2		019
711136	6/8/01	1415		2				2		020
711232	6/8/01	1500		2				2		43821 001
AD0574	6/8/01	0930		2				2		002
AD0572	6/8/01	0930		2				2		003
AD0672	6/8/01	1039		2				2		004
AD0972	6/8/01	1140		2				2		005
AD1072	6/8/01	1310		2				2		006

RELINQUISHED BY:	Date/Time 6/9/01 0930	RECEIVED BY: Mike Kinlaw	Date/Time 6/9/01 1230	TOTAL NUMBER OF CONTAINERS:	Cooler Temperature: 5°
COMPANY NAME: SAIC		COMPANY NAME: GEL		Cooler ID: #594	FEDEX NUMBER:
RECEIVED BY:	Date/Time 6/9/01 0930	RELINQUISHED BY:	Date/Time		
COMPANY NAME: GEL		COMPANY NAME:			
RELINQUISHED BY:	Date/Time 6/9/01 1230	RECEIVED BY:	Date/Time		
COMPANY NAME: GEL		COMPANY NAME:			

APPENDIX IV

SITE RANKING FORM

FIRST SEMIANNUAL MONITORING EVENT

JANUARY 2001

SITE RANKING FORM

Facility Name: USTs 5 & 6, Building 1824

Ranked by: S. Stoller

County: Liberty **Facility ID #:** 9-089066

Date Ranked: 3/8/01

SOIL CONTAMINATION (based on soil closure and CAP-Part A 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 710511 (1998)*

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

** No benzene detected during CAP-Part A*

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 (based on CAP-Part A groundwater 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 = 500
☐ >10,000 µg/L = 1500

Fill in the blanks: (E. 0) + (F. 50) = (G. 50)

Facility Name: USTs 5 & 6, Building 1824 **County:** Liberty **Facility ID #:** 9-089066

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 attached text.

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' = 2

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

* *Industrial wastewater line is located at or below the water table, benzene concentrations less than IWQS.*

Fill in the blanks: (H. 0) + (I. 0) + (J. 50) + (K. 0) = L. 50

(G. 50) x (L. 50) = M. 2500

(M. 2500) + (D. 250) = N. 2750

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. 2750) x (P. 1) = (2750) + (Q. 0)

= 2750 (First Semiannual Sampling Event - January 2001)
ENVIRONMENTAL SENSITIVITY SCORE

SECOND SEMIANNUAL MONITORING EVENT

JUNE 2001

SITE RANKING FORM

Facility Name: **USTs 5 & 6, Building 1824** **Ranked by:** **S. Stoller**

County: **Liberty** **Facility ID #:** **9-089066** **Date Ranked:** **11/2/01**

SOIL CONTAMINATION (based on soil closure and CAP-Part A 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 710511 (1998)*

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

* *No benzene detected during CAP-Part A*

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 (based on CAP-Part A groundwater 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 = 500
☐ >10,000 μg/L = 1500

* *LTM Sample 711132 (June 2001)*

Fill in the blanks: **(E. 0) + (F. 50) = (G. 50)**

Facility Name: USTs 5 & 6, Building 1824 **County:** Liberty **Facility ID #:** 9-089066

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 attached text.

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'	=	2

* *Industrial wastewater line is located at or below the water table, benzene concentrations less than IWQS.*

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. 50) x (L. 50) = M. 2500

(M. 2500) + (D. 250) = N. 2750

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. 2750) x (P. 1) = (2750) + (Q. 0)

= 2750 (Second Semiannual Sampling Event - June 2001)
ENVIRONMENTAL SENSITIVITY SCORE

ADDITIONAL GEOLOGIC AND HYDROGEOLOGIC DATA

The following information is presented to provide supplemental information to Item H of the Site Ranking Form and details relating to the geologic and hydrogeologic conditions at Fort Stewart that support Fort Stewart's determination that the water withdrawal points located at Fort Stewart 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 below ground surface (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 were 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 predominantly 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 feet 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 feet 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 feet to 50 feet BGS; thus, the effective aquifer thickness would be approximately 35 feet 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 feet 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 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, argillaceous 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.

Groundwater encountered at all the UST investigation sites is part of the surficial aquifer system. Based on the fact that all public and nonpublic water supply wells draw water from the Principal Artesian (Floridan) Aquifer and that the Hawthorn confining unit separates the Principal Artesian 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.

3.0 REFERENCES

Arora, Ram, 1984. *Hydrologic Evaluation for Underground Injection Control in the Coastal Plain of Georgia,* Department of Natural Resources, Environmental Protection Division, Georgia Geological Survey.

Geraghty and Miller, 1993. *RCRA Facility Investigation Work Plan, Fort Stewart, Georgia*.

Herrick, S. M., and Vochis, R. C., 1963. *Subsurface Geology of the Georgia Coastal Plain*, Georgia Geologic Survey Information Circular 25.

Looper, Edward E., 1980. *Soil Survey of Liberty and Long Counties, Georgia*, U.S. Department of Agriculture, Soil Conservation Service.

Miller, James A., 1990. *Groundwater Atlas of the United States*, U.S. Department of the Interior, U.S. Geological Survey, Hydrologic Inventory Atlas 730G.

ATTACHMENT A

SUMMARY OF FATE AND TRANSPORT MODELING RESULTS

A.1 FATE AND TRANSPORT MODELING

The fate and transport modeling that was performed as part of the *Corrective Action Plan (CAP) – Part B Report for USTs 5 & 6, Facility ID #9-089066, Building 1824, Fort Stewart, Georgia* (SAIC 2000) was based on the assumption of a continuous source of contamination of infinite duration at the site given the maximum observed benzene concentration in groundwater (i.e., 2,730 µg/L in well 71-05 during the CAP–Part A in May 1998). Modeling of leaching to groundwater by percolating rainwater was not performed because there was no soil contamination above the water table. The modeling was performed to develop alternate concentration limits (ACLs) for the site. Benzene was the only constituent at the site that exceeded its In-stream Water Quality Standard (IWQS); therefore, an ACL was developed for only benzene.

The fate and transport modeling is being revised as part of the First Annual Monitoring Only Report in order to reflect more recent site conditions and the maximum observed benzene concentration of 267 µg/L in well 71-11 during the first year of monitoring.

A.1.1 Fate and Transport Modeling Results

In summary, lateral migration of contaminant from the source to the receptor was performed using the Analytical Transient 1-, 2-, 3-Dimensional Model (AT123D). AT123D was used to model contaminant migration to three potential downgradient receptors: an industrial wastewater line located 50 feet northwest of the site, a drainage ditch located 800 feet northwest of the site, and Mill Creek located approximately 1,600 feet northwest of the site. The steady-state model was calibrated using the maximum groundwater concentration (i.e., 2,730 µg/L in well 71-05 during the CAP–Part A in May 1998) and matching observed concentrations in 71-11 and 71-12 during the sampling events in 2001. The calibrated model also represents the conditions after the source removal (i.e., the source loading was discontinued after steady-state condition was reached).

The revised modeling results indicated that, due to dilution attenuation, benzene does not impact the drainage ditch and Mill Creek at detectable concentrations. The dilution attenuation factor (DAF) at the receptor location was calculated by dividing the source term concentration with the predicted concentration at the receptor. Based on revised modeling results, the estimated DAF for benzene at the industrial wastewater line is 67 and the DAFs for the drainage ditch and Mill Creek both remained infinity. Simulations of a 2-year period were also performed to predict the maximum concentrations of benzene in the downgradient wells on a semiannual basis through June 2003. The predicted maximum concentrations in the wells are based on the maximum observed benzene concentration of 2,730 µg/L in May 1998 and the recently observed maximum concentration of 267 µg/L in January 2001 and are presented in Table A-1. The results of the revised fate and transport model are presented in Tables A-2 and A-3. Figures A-1a and A-1b are plots of concentration versus downgradient distance from the edge of the source. Figure A-2 is a plot of predicted concentration versus time for the monitoring wells 71-11 and 71-12 used in the model calibration process. For comparison purposes, the observed data from these monitoring wells are presented in this figure. The time period necessary to attain concentration of 71.28 µg/L for benzene through natural attenuation is predicted to be 2 years from January 2001.

During fate and transport modeling conducted as part of the CAP–Part B Report, the DAF was estimated to be 25 at the industrial wastewater line and infinity for the drainage ditch and Mill Creek. The infinite DAF indicates that the contamination will never reach these locations; thus, no ACLs were developed for the tributary because the ACLs would be infinite for each constituent of potential concern. However, the site ranking score of 2,750 during the CAP–Part B indicated that a corrective action for groundwater was warranted. The CAP–Part B Report proposed that the ACL for benzene be 1,782 µg/L. The Georgia Environmental Protection Division (GA EPD) approved the CAP–Part B Report in correspondence dated February 9, 2001. The ACL for the site could be recalculated based on the revised DAF; however, since the DAF is higher, the ACL would also increase. Since concentrations at the site are below the ACL approved in the CAP–Part B Report, the ACL will not be revised.

A.1.2 Fate and Transport Modeling Conclusions

The conclusions below are based on fate and transport modeling that assumed a continuous source of contamination of infinite duration at the site, based on the maximum observed benzene concentration in groundwater (i.e., 2,730 µg/L) in May 1998 and the observed benzene concentrations in groundwater in wells 71-11 and 71-12 during sampling events conducted in 2001.

- An ACL of 1,782 µg/L was proposed in the CAP–Part B Report and approved by GA EPD in correspondence dated February 9, 2001.

- Benzene concentrations in groundwater did not exceed the ACL of 1,782 µg/L in any of the wells at the site during the two semiannual sampling events.

- Benzene does not impact the closest downgradient receptor, a industrial wastewater line located 50 feet east of the site, above the IWQS.

Table A-1. Predicted 2-Year Maximum Benzene Concentrations in Groundwater at the USTs 5 & 6 Site

Monitoring Wells	Predicted Maximum Benzene Concentration (µg/L)			
	Jan-02	Jul-02	Jan-03	Jul-03
71-10	0.019	0.019	0.018	0.018
71-11	140	99	70.2	49.9
71-12	23.8	20.2	16.9	13.8
71-13	0.008	0.007	0.006	0.005
71-14	0.033	0.025	0.018	0.014
71-15	0.011	0.010	0.009	0.009
71-16	0.63	0.45	0.32	0.23
71-10	0.019	0.019	0.018	0.018

Table A-2. Natural Attenuation Modeling Results (Benzene Concentration vs. Distance) for the USTs 5 & 6 Site

Distance from the Source (feet)	Distance from the Source (meters)	Predicted Maximum Benzene Concentration in Groundwater (μg/L)
0.0	0.0	2,940
3.3	1.0	2,940
6.6	2.0	2,870
9.8	3.0	2,690
13.1	4.0	2,350
16.4	5.0	1,830
23.0	7.0	866
29.5	9.0	411
39.4	12.0	135
50.9	15.5	44.2
65.6	20.0	7.07
82.0	25.0	1.14
98.4	30.0	0.183
114.8	35.0	0.0297
131.2	40.0	0.0048
147.6	45.0	0
800.0	243.8	0
1,600.0	487.7	0

Table A-3. Natural Attenuation Modeling Results (Benzene Concentration vs. Time) for the USTs 5 & 6 Site

Time (years)	Predicted Benzene Concentration in Groundwater (μg/L)	
	71-11	71-12
-3.0	2,700	27.4
-2.0	1,230	31
-1.0	583	33.1
0.0[a]	284	30.2
1.0	140	23.8
2.0	70.2	16.9
3.0	35.5	11.1
4.0	18	7.01
5.0	9.21	4.26
6.0	4.72	2.52
7.0	2.43	1.47
8.0	1.26	0.84

NOTES:

[a] Time zero is set at January 2001.

Figure A-1(a). AT123D modeled maximum concentration of benzene in the groundwater versus downgradient distance from the source (USTs 5 & 6)

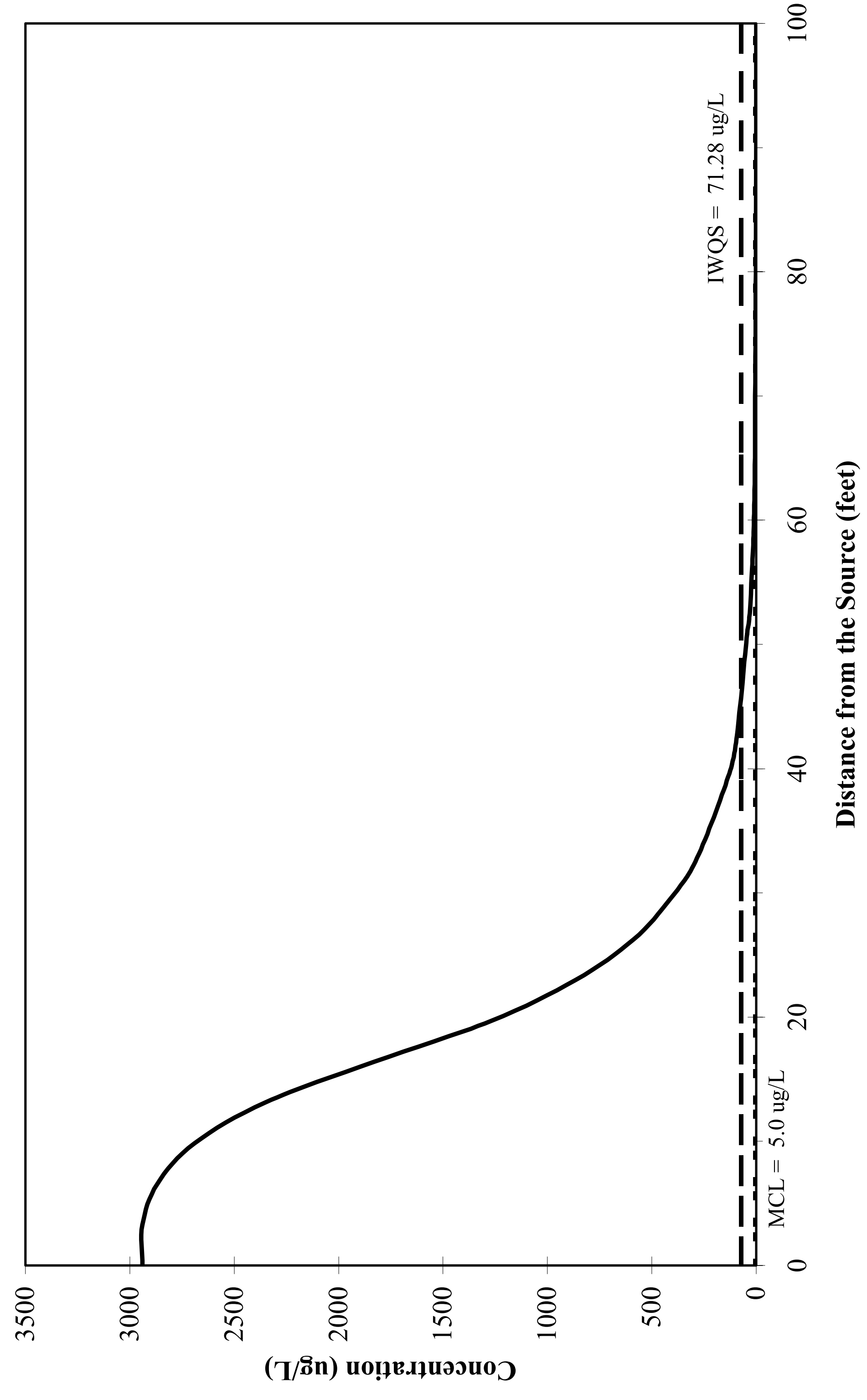


Figure A-1(b). AT123D modeled maximum concentration of benzene in the groundwater versus downgradient distance from the source (USTs 5 & 6)

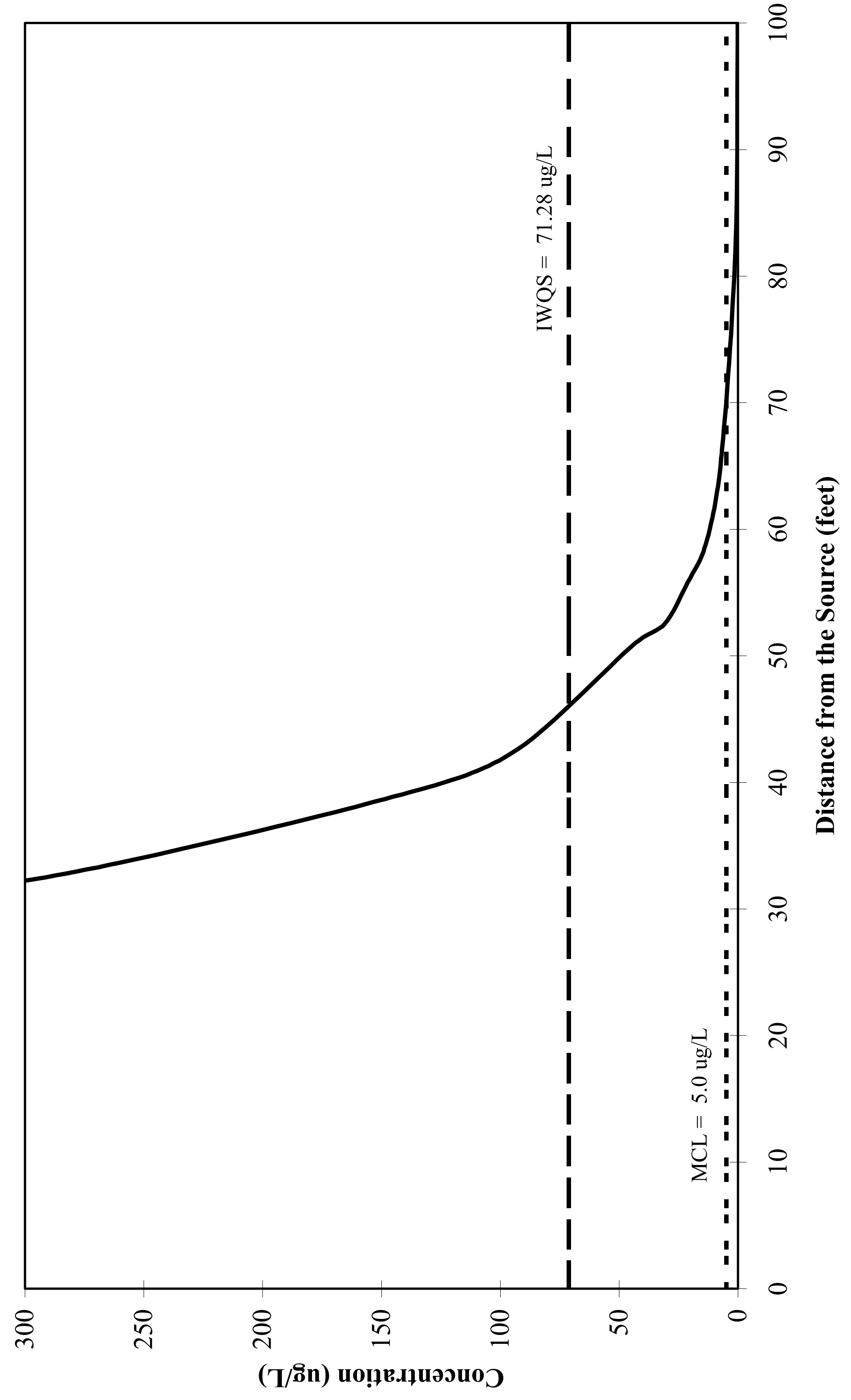


Figure A-2(a). AT123D modeled concentration of benzene in the groundwater at Sample Locations 71-11 and 71-12 (USTs 5 & 6)
(Time 0 = January 2001)

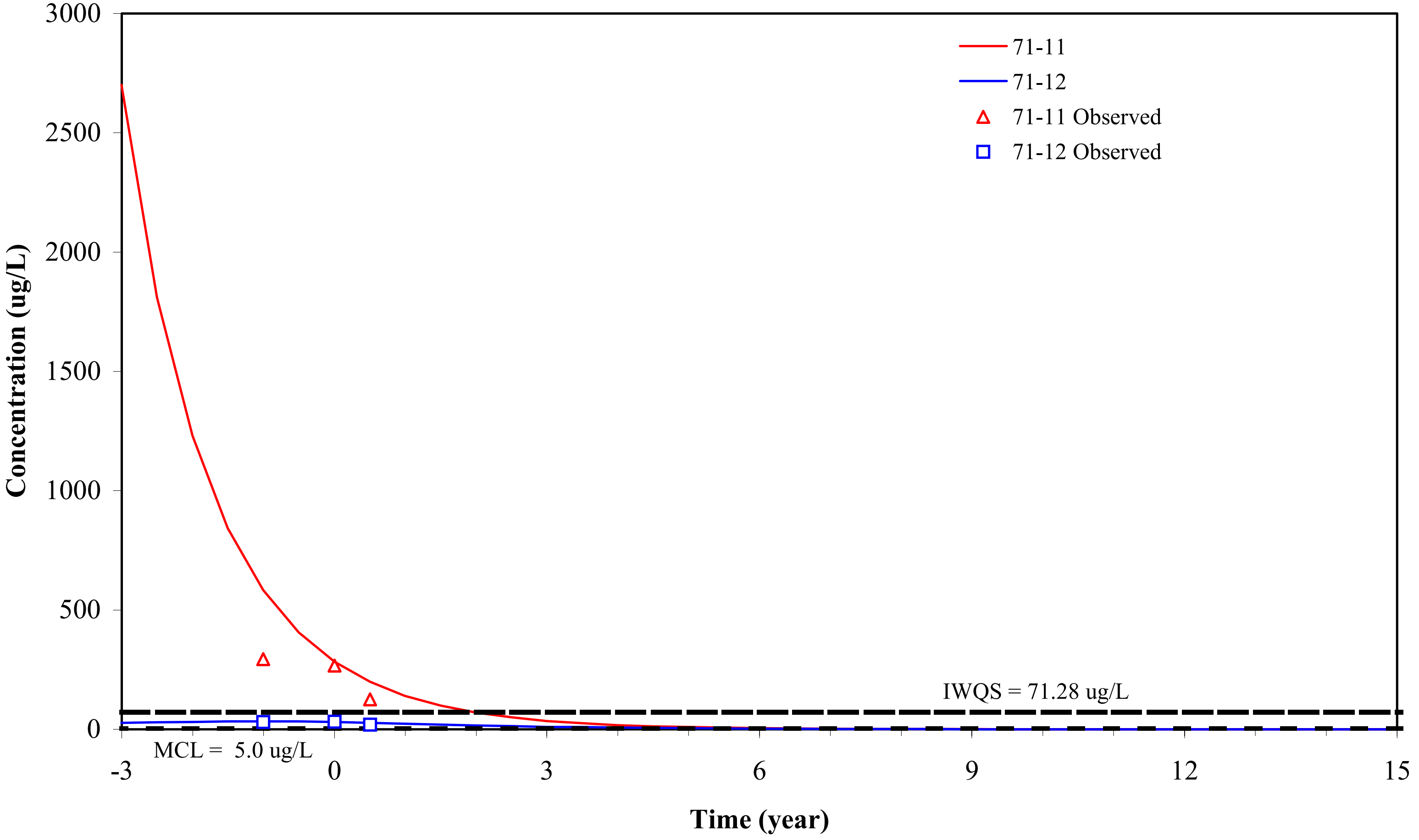
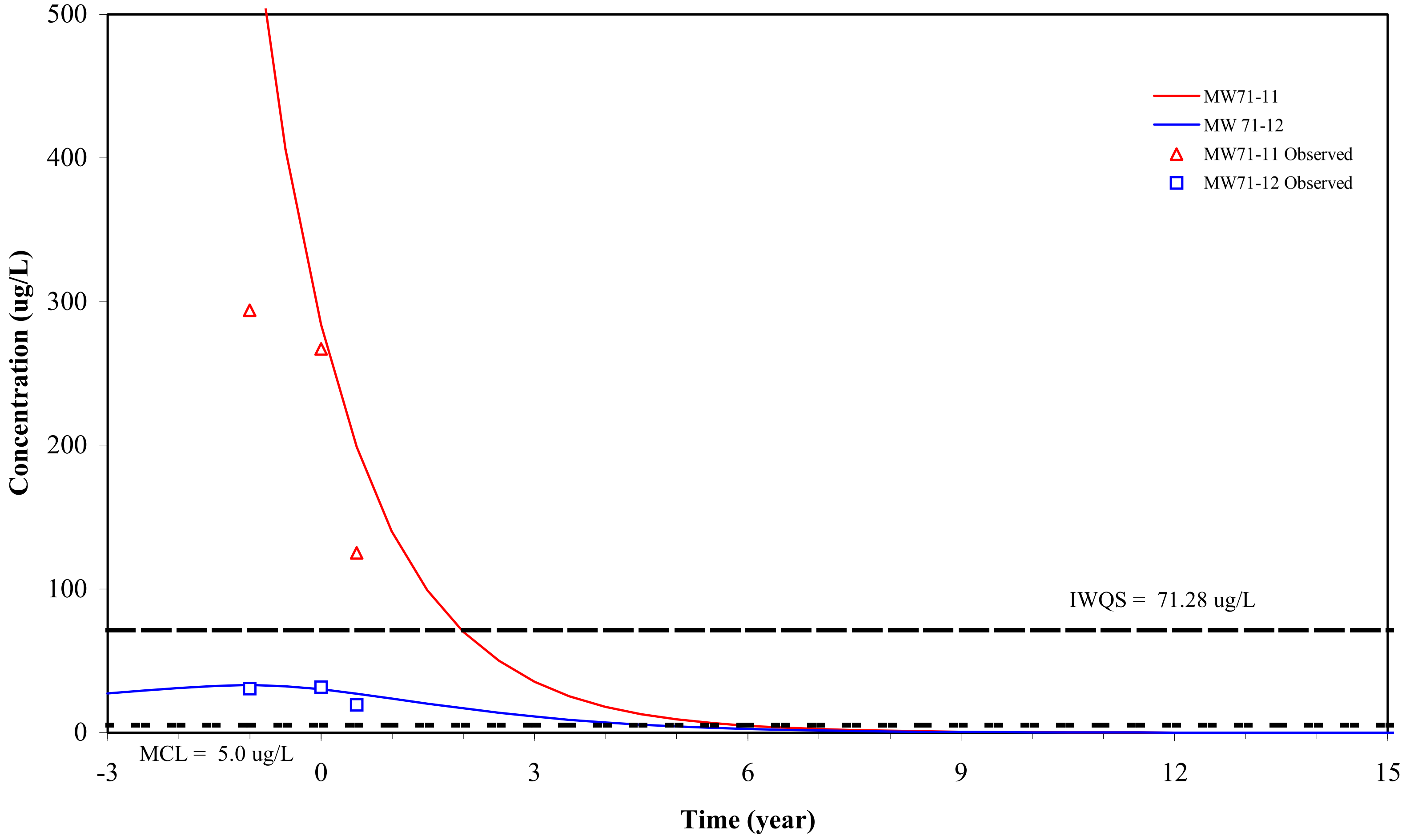


Figure A-2(b). AT123D modeled concentration of benzene in the groundwater at Sample Locations 71-11 and 71-12 (USTs 5 & 6) (Time 0 = January 2001)



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USTs 5 & 6 Steady-State Calibration for Benzene


NO. OF POINTS IN X-DIRECTION .....................   15
NO. OF POINTS IN Y-DIRECTION .....................    5
NO. OF POINTS IN Z-DIRECTION .....................    1
NO. OF ROOTS: NO. OF SERIES TERMS ................  400
NO. OF BEGINNING TIME STEP .......................   79
NO. OF ENDING TIME STEP ..........................  187
NO. OF TIME INTERVALS FOR PRINTED OUT SOLUTION ....    6
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) ......... -0.5000E+01
END POINT OF X-SOURCE LOCATION (METERS) ...........  0.5000E+01
BEGIN POINT OF Y-SOURCE LOCATION (METERS) ......... -0.3810E+01
END POINT OF Y-SOURCE LOCATION (METERS) ...........  0.3810E+01
BEGIN POINT OF Z-SOURCE LOCATION (METERS) .........  0.0000E+00
END POINT OF Z-SOURCE LOCATION (METERS) ...........  0.3000E+01

POROSITY ..........................................  0.2000E+00
HYDRAULIC CONDUCTIVITY (METER/HOUR) ...............  0.8000E-03
HYDRAULIC GRADIENT ................................  0.2600E-01
LONGITUDINAL DISPERSIVITY (METER) .................  0.1000E+02
LATERAL DISPERSIVITY (METER) ......................  0.3000E+01
VERTICAL DISPERSIVITY (METER) .....................  0.1000E+01
DISTRIBUTION COEFFICIENT, KD (M**3/KG) ............  0.1620E-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) .........................  0.7000E-04
BULK DENSITY OF THE SOIL (KG/M**3) ................  0.1782E+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) .  0.2925E-04

RETARDATION FACTOR ................................  0.2443E+01
RETARDED DARCY VELOCITY (M/HR) ....................  0.4256E-04
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/HR) ..  0.4329E-03
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/HR) .  0.1349E-03
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/HR).  0.4979E-04
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   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.0000E+00 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                         X
  Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  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
  1.   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
 -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
 -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
                                                    CONTINUE
                                                         X
  Y          7.         10.         15.         16.         18.

  2.   0.000E+00   0.000E+00   0.000E+00   0.000E+00   0.000E+00
  1.   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
 -2.   0.000E+00   0.000E+00   0.000E+00   0.000E+00   0.000E+00
 -3.   0.000E+00   0.000E+00   0.000E+00   0.000E+00   0.000E+00


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.5694E+05 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                         X
  Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  2.   0.720E-05   0.224E+01   0.248E+01   0.269E+01   0.270E+01   0.263E+01   0.246E+01   0.215E+01   0.166E+01   0.114E+01
  1.   0.781E-05   0.239E+01   0.264E+01   0.288E+01   0.288E+01   0.281E+01   0.263E+01   0.230E+01   0.178E+01   0.123E+01
  0.   0.802E-05   0.243E+01   0.269E+01   0.293E+01   0.293E+01   0.285E+01   0.267E+01   0.234E+01   0.182E+01   0.126E+01
 -2.   0.720E-05   0.224E+01   0.248E+01   0.269E+01   0.270E+01   0.263E+01   0.246E+01   0.215E+01   0.166E+01   0.114E+01
 -3.   0.630E-05   0.188E+01   0.207E+01   0.224E+01   0.225E+01   0.219E+01   0.206E+01   0.180E+01   0.138E+01   0.935E+00
                                                    CONTINUE
                                                         X
  Y          7.         10.         15.         16.         18.

  2.   0.760E+00   0.228E+00   0.290E-01   0.207E-01   0.692E-02
  1.   0.832E+00   0.252E+00   0.320E-01   0.227E-01   0.757E-02
  0.   0.854E+00   0.260E+00   0.330E-01   0.234E-01   0.780E-02
 -2.   0.760E+00   0.228E+00   0.290E-01   0.207E-01   0.692E-02
 -3.   0.622E+00   0.189E+00   0.246E-01   0.176E-01   0.593E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.6132E+05 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                         X
  Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  2.   0.934E-05   0.224E+01   0.248E+01   0.270E+01   0.270E+01   0.263E+01   0.246E+01   0.216E+01   0.166E+01   0.114E+01
  1.   0.101E-04   0.239E+01   0.265E+01   0.288E+01   0.289E+01   0.281E+01   0.263E+01   0.230E+01   0.179E+01   0.124E+01
  0.   0.104E-04   0.243E+01   0.269E+01   0.293E+01   0.294E+01   0.286E+01   0.268E+01   0.234E+01   0.182E+01   0.127E+01
 -2.   0.934E-05   0.224E+01   0.248E+01   0.270E+01   0.270E+01   0.263E+01   0.246E+01   0.216E+01   0.166E+01   0.114E+01
 -3.   0.819E-05   0.188E+01   0.207E+01   0.225E+01   0.225E+01   0.219E+01   0.206E+01   0.180E+01   0.138E+01   0.938E+00
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                                                 CONTINUE
                                                      X
  Y           7.         10.         15.         16.         18.

  2.    0.764E+00   0.231E+00   0.303E-01   0.217E-01   0.747E-02
  1.    0.836E+00   0.255E+00   0.333E-01   0.238E-01   0.816E-02
  0.    0.858E+00   0.263E+00   0.343E-01   0.245E-01   0.840E-02
 -2.    0.764E+00   0.231E+00   0.303E-01   0.217E-01   0.747E-02
 -3.    0.626E+00   0.191E+00   0.257E-01   0.185E-01   0.642E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.6570E+05 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                      X
  Y         -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  2.    0.115E-04   0.225E+01   0.248E+01   0.270E+01   0.270E+01   0.263E+01   0.247E+01   0.216E+01   0.167E+01   0.114E+01
  1.    0.124E-04   0.239E+01   0.265E+01   0.289E+01   0.289E+01   0.281E+01   0.263E+01   0.231E+01   0.179E+01   0.124E+01
  0.    0.127E-04   0.243E+01   0.269E+01   0.294E+01   0.294E+01   0.286E+01   0.268E+01   0.235E+01   0.182E+01   0.127E+01
 -2.    0.115E-04   0.225E+01   0.248E+01   0.270E+01   0.270E+01   0.263E+01   0.247E+01   0.216E+01   0.167E+01   0.114E+01
 -3.    0.101E-04   0.188E+01   0.208E+01   0.225E+01   0.225E+01   0.220E+01   0.206E+01   0.181E+01   0.139E+01   0.941E+00
                                                 CONTINUE
                                                      X
  Y           7.         10.         15.         16.         18.

  2.    0.767E+00   0.233E+00   0.312E-01   0.225E-01   0.792E-02
  1.    0.839E+00   0.257E+00   0.343E-01   0.246E-01   0.864E-02
  0.    0.861E+00   0.265E+00   0.353E-01   0.254E-01   0.889E-02
 -2.    0.767E+00   0.233E+00   0.312E-01   0.225E-01   0.792E-02
 -3.    0.628E+00   0.193E+00   0.265E-01   0.192E-01   0.682E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.7008E+05 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                      X
  Y         -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  2.    0.136E-04   0.225E+01   0.249E+01   0.270E+01   0.270E+01   0.263E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
  1.    0.146E-04   0.239E+01   0.265E+01   0.289E+01   0.289E+01   0.282E+01   0.264E+01   0.231E+01   0.179E+01   0.124E+01
  0.    0.149E-04   0.243E+01   0.270E+01   0.294E+01   0.294E+01   0.286E+01   0.268E+01   0.235E+01   0.183E+01   0.127E+01
 -2.    0.136E-04   0.225E+01   0.249E+01   0.270E+01   0.270E+01   0.263E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
 -3.    0.120E-04   0.188E+01   0.208E+01   0.225E+01   0.226E+01   0.220E+01   0.206E+01   0.181E+01   0.139E+01   0.943E+00
                                                 CONTINUE
                                                      X
  Y           7.         10.         15.         16.         18.

  2.    0.769E+00   0.234E+00   0.319E-01   0.231E-01   0.827E-02
  1.    0.841E+00   0.259E+00   0.350E-01   0.253E-01   0.902E-02
  0.    0.863E+00   0.267E+00   0.361E-01   0.261E-01   0.928E-02
 -2.    0.769E+00   0.234E+00   0.319E-01   0.231E-01   0.827E-02
 -3.    0.630E+00   0.194E+00   0.272E-01   0.197E-01   0.715E-02
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    DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.7446E+05 HRS
      (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                     Z =       0.00
                                                                 X
   Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

   2.   0.155E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
   1.   0.166E-04   0.240E+01   0.265E+01   0.289E+01   0.289E+01   0.282E+01   0.264E+01   0.231E+01   0.179E+01   0.124E+01
   0.   0.170E-04   0.243E+01   0.270E+01   0.294E+01   0.294E+01   0.287E+01   0.268E+01   0.235E+01   0.183E+01   0.127E+01
  -2.   0.155E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
  -3.   0.137E-04   0.188E+01   0.208E+01   0.225E+01   0.226E+01   0.220E+01   0.207E+01   0.181E+01   0.139E+01   0.944E+00
                                                           CONTINUE
                                                                 X
   Y          7.         10.         15.         16.         18.

   2.   0.770E+00   0.235E+00   0.324E-01   0.235E-01   0.856E-02
   1.   0.842E+00   0.260E+00   0.356E-01   0.258E-01   0.932E-02
   0.   0.864E+00   0.268E+00   0.367E-01   0.266E-01   0.959E-02
  -2.   0.770E+00   0.235E+00   0.324E-01   0.235E-01   0.856E-02
  -3.   0.631E+00   0.195E+00   0.276E-01   0.201E-01   0.740E-02


    DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.7884E+05 HRS
      (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                     Z =       0.00
                                                                 X
   Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

   2.   0.172E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
   1.   0.185E-04   0.240E+01   0.265E+01   0.289E+01   0.289E+01   0.282E+01   0.264E+01   0.231E+01   0.179E+01   0.124E+01
   0.   0.189E-04   0.244E+01   0.270E+01   0.294E+01   0.294E+01   0.287E+01   0.269E+01   0.235E+01   0.183E+01   0.127E+01
  -2.   0.172E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
  -3.   0.153E-04   0.188E+01   0.208E+01   0.225E+01   0.226E+01   0.220E+01   0.207E+01   0.181E+01   0.139E+01   0.945E+00
                                                           CONTINUE
                                                                 X
   Y          7.         10.         15.         16.         18.

   2.   0.771E+00   0.236E+00   0.328E-01   0.239E-01   0.878E-02
   1.   0.843E+00   0.261E+00   0.360E-01   0.261E-01   0.955E-02
   0.   0.865E+00   0.269E+00   0.371E-01   0.269E-01   0.982E-02
  -2.   0.771E+00   0.236E+00   0.328E-01   0.239E-01   0.878E-02
  -3.   0.632E+00   0.196E+00   0.280E-01   0.205E-01   0.760E-02


    DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.8322E+05 HRS
      (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                     Z =       0.00
                                                                 X
   Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

   2.   0.187E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
   1.   0.201E-04   0.240E+01   0.266E+01   0.289E+01   0.289E+01   0.282E+01   0.264E+01   0.231E+01   0.179E+01   0.125E+01
   0.   0.205E-04   0.244E+01   0.270E+01   0.294E+01   0.295E+01   0.287E+01   0.269E+01   0.235E+01   0.183E+01   0.127E+01
  -2.   0.187E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
  -3.   0.167E-04   0.189E+01   0.208E+01   0.226E+01   0.226E+01   0.220E+01   0.207E+01   0.181E+01   0.139E+01   0.945E+00
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                                                  CONTINUE
                                                                     X
 Y           7.          10.          15.          16.          18.

 2.    0.772E+00   0.237E+00   0.331E-01   0.241E-01   0.894E-02
 1.    0.844E+00   0.261E+00   0.363E-01   0.264E-01   0.973E-02
 0.    0.866E+00   0.269E+00   0.374E-01   0.272E-01   0.100E-01
-2.    0.772E+00   0.237E+00   0.331E-01   0.241E-01   0.894E-02
-3.    0.632E+00   0.196E+00   0.283E-01   0.207E-01   0.776E-02


  DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.8760E+05 HRS
    (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                                     X
 Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

 2.    0.201E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
 1.    0.215E-04   0.240E+01   0.266E+01   0.289E+01   0.289E+01   0.282E+01   0.264E+01   0.231E+01   0.180E+01   0.125E+01
 0.    0.220E-04   0.244E+01   0.270E+01   0.294E+01   0.295E+01   0.287E+01   0.269E+01   0.235E+01   0.183E+01   0.127E+01
-2.    0.201E-04   0.225E+01   0.249E+01   0.270E+01   0.271E+01   0.264E+01   0.247E+01   0.216E+01   0.167E+01   0.115E+01
-3.    0.179E-04   0.189E+01   0.208E+01   0.226E+01   0.226E+01   0.220E+01   0.207E+01   0.181E+01   0.139E+01   0.946E+00
                                                  CONTINUE
                                                                     X
 Y           7.          10.          15.          16.          18.

 2.    0.772E+00   0.237E+00   0.333E-01   0.243E-01   0.907E-02
 1.    0.845E+00   0.262E+00   0.365E-01   0.266E-01   0.987E-02
 0.    0.866E+00   0.270E+00   0.376E-01   0.274E-01   0.101E-01
-2.    0.772E+00   0.237E+00   0.333E-01   0.243E-01   0.907E-02
-3.    0.633E+00   0.197E+00   0.285E-01   0.209E-01   0.787E-02


  DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.9198E+05 HRS
    (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                                     X
 Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

 2.    0.221E-04   0.147E+01   0.167E+01   0.187E+01   0.188E+01   0.182E+01   0.169E+01   0.149E+01   0.125E+01   0.986E+00
 1.    0.237E-04   0.157E+01   0.178E+01   0.200E+01   0.201E+01   0.195E+01   0.181E+01   0.160E+01   0.134E+01   0.106E+01
 0.    0.243E-04   0.160E+01   0.181E+01   0.204E+01   0.204E+01   0.198E+01   0.184E+01   0.163E+01   0.137E+01   0.108E+01
-2.    0.221E-04   0.147E+01   0.167E+01   0.187E+01   0.188E+01   0.182E+01   0.169E+01   0.149E+01   0.125E+01   0.986E+00
-3.    0.196E-04   0.123E+01   0.139E+01   0.157E+01   0.157E+01   0.152E+01   0.141E+01   0.125E+01   0.104E+01   0.819E+00
                                                  CONTINUE
                                                                     X
 Y           7.          10.          15.          16.          18.

 2.    0.738E+00   0.251E+00   0.353E-01   0.258E-01   0.965E-02
 1.    0.798E+00   0.275E+00   0.388E-01   0.283E-01   0.105E-01
 0.    0.816E+00   0.283E+00   0.400E-01   0.292E-01   0.108E-01
-2.    0.738E+00   0.251E+00   0.353E-01   0.258E-01   0.965E-02
-3.    0.611E+00   0.207E+00   0.299E-01   0.219E-01   0.830E-02
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   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.9636E+05 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                                  X
  Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

  2.    0.241E-04   0.100E+01   0.113E+01   0.128E+01   0.130E+01   0.126E+01   0.118E+01   0.107E+01   0.925E+00   0.768E+00
  1.    0.260E-04   0.107E+01   0.121E+01   0.137E+01   0.138E+01   0.135E+01   0.127E+01   0.114E+01   0.992E+00   0.825E+00
  0.    0.266E-04   0.109E+01   0.123E+01   0.140E+01   0.141E+01   0.137E+01   0.129E+01   0.116E+01   0.101E+01   0.842E+00
 -2.    0.241E-04   0.100E+01   0.113E+01   0.128E+01   0.130E+01   0.126E+01   0.118E+01   0.107E+01   0.925E+00   0.768E+00
 -3.    0.213E-04   0.836E+00   0.945E+00   0.107E+01   0.108E+01   0.105E+01   0.987E+00   0.890E+00   0.770E+00   0.639E+00
                                                            CONTINUE
                                                                  X
  Y           7.          10.          15.          16.          18.

  2.    0.611E+00   0.248E+00   0.374E-01   0.274E-01   0.102E-01
  1.    0.659E+00   0.270E+00   0.412E-01   0.301E-01   0.112E-01
  0.    0.673E+00   0.276E+00   0.424E-01   0.310E-01   0.116E-01
 -2.    0.611E+00   0.248E+00   0.374E-01   0.274E-01   0.102E-01
 -3.    0.508E+00   0.205E+00   0.314E-01   0.230E-01   0.873E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1007E+06 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                                  X
  Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

  2.    0.261E-04   0.691E+00   0.776E+00   0.882E+00   0.895E+00   0.878E+00   0.834E+00   0.766E+00   0.679E+00   0.582E+00
  1.    0.282E-04   0.738E+00   0.829E+00   0.943E+00   0.956E+00   0.939E+00   0.892E+00   0.820E+00   0.729E+00   0.626E+00
  0.    0.289E-04   0.751E+00   0.844E+00   0.959E+00   0.973E+00   0.956E+00   0.908E+00   0.835E+00   0.742E+00   0.638E+00
 -2.    0.261E-04   0.691E+00   0.776E+00   0.882E+00   0.895E+00   0.878E+00   0.834E+00   0.766E+00   0.679E+00   0.582E+00
 -3.    0.230E-04   0.577E+00   0.648E+00   0.737E+00   0.747E+00   0.733E+00   0.696E+00   0.638E+00   0.566E+00   0.485E+00
                                                            CONTINUE
                                                                  X
  Y           7.          10.          15.          16.          18.

  2.    0.482E+00   0.224E+00   0.391E-01   0.288E-01   0.109E-01
  1.    0.519E+00   0.243E+00   0.429E-01   0.316E-01   0.119E-01
  0.    0.529E+00   0.249E+00   0.441E-01   0.325E-01   0.123E-01
 -2.    0.482E+00   0.224E+00   0.391E-01   0.288E-01   0.109E-01
 -3.    0.401E+00   0.186E+00   0.326E-01   0.240E-01   0.918E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1051E+06 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                                  X
  Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

  2.    0.281E-04   0.480E+00   0.536E+00   0.609E+00   0.620E+00   0.614E+00   0.589E+00   0.549E+00   0.496E+00   0.435E+00
  1.    0.305E-04   0.514E+00   0.573E+00   0.651E+00   0.663E+00   0.656E+00   0.630E+00   0.588E+00   0.532E+00   0.467E+00
  0.    0.313E-04   0.523E+00   0.583E+00   0.663E+00   0.675E+00   0.668E+00   0.642E+00   0.599E+00   0.542E+00   0.476E+00
 -2.    0.281E-04   0.480E+00   0.536E+00   0.609E+00   0.620E+00   0.614E+00   0.589E+00   0.549E+00   0.496E+00   0.435E+00
 -3.    0.245E-04   0.401E+00   0.448E+00   0.508E+00   0.518E+00   0.512E+00   0.491E+00   0.458E+00   0.414E+00   0.363E+00
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                                                CONTINUE
                                                      X
  Y          7.         10.         15.         16.         18.

  2.   0.371E+00   0.192E+00   0.394E-01   0.294E-01   0.114E-01
  1.   0.398E+00   0.208E+00   0.431E-01   0.322E-01   0.125E-01
  0.   0.406E+00   0.212E+00   0.442E-01   0.331E-01   0.129E-01
 -2.   0.371E+00   0.192E+00   0.394E-01   0.294E-01   0.114E-01
 -3.   0.308E+00   0.159E+00   0.327E-01   0.245E-01   0.958E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1095E+06 HRS
    (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                      X
  Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  2.   0.301E-04   0.336E+00   0.373E+00   0.423E+00   0.432E+00   0.430E+00   0.417E+00   0.393E+00   0.361E+00   0.322E+00
  1.   0.327E-04   0.359E+00   0.399E+00   0.452E+00   0.462E+00   0.460E+00   0.446E+00   0.421E+00   0.387E+00   0.346E+00
  0.   0.336E-04   0.366E+00   0.406E+00   0.460E+00   0.471E+00   0.468E+00   0.454E+00   0.429E+00   0.394E+00   0.353E+00
 -2.   0.301E-04   0.336E+00   0.373E+00   0.423E+00   0.432E+00   0.430E+00   0.417E+00   0.393E+00   0.361E+00   0.322E+00
 -3.   0.261E-04   0.280E+00   0.311E+00   0.353E+00   0.361E+00   0.359E+00   0.348E+00   0.328E+00   0.301E+00   0.269E+00
                                                CONTINUE
                                                      X
  Y          7.         10.         15.         16.         18.

  2.   0.281E+00   0.158E+00   0.378E-01   0.288E-01   0.117E-01
  1.   0.301E+00   0.170E+00   0.412E-01   0.315E-01   0.128E-01
  0.   0.307E+00   0.174E+00   0.423E-01   0.323E-01   0.132E-01
 -2.   0.281E+00   0.158E+00   0.378E-01   0.288E-01   0.117E-01
 -3.   0.234E+00   0.131E+00   0.314E-01   0.240E-01   0.979E-02


   DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1139E+06 HRS
     (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                 Z =       0.00
                                                      X
  Y        -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

  2.   0.321E-04   0.236E+00   0.261E+00   0.295E+00   0.302E+00   0.303E+00   0.295E+00   0.281E+00   0.261E+00   0.237E+00
  1.   0.350E-04   0.253E+00   0.279E+00   0.316E+00   0.324E+00   0.324E+00   0.316E+00   0.301E+00   0.280E+00   0.254E+00
  0.   0.360E-04   0.257E+00   0.284E+00   0.321E+00   0.329E+00   0.330E+00   0.322E+00   0.307E+00   0.285E+00   0.259E+00
 -2.   0.321E-04   0.236E+00   0.261E+00   0.295E+00   0.302E+00   0.303E+00   0.295E+00   0.281E+00   0.261E+00   0.237E+00
 -3.   0.276E-04   0.197E+00   0.218E+00   0.246E+00   0.252E+00   0.252E+00   0.246E+00   0.235E+00   0.218E+00   0.198E+00
                                                CONTINUE
                                                      X
  Y          7.         10.         15.         16.         18.

  2.   0.210E+00   0.126E+00   0.348E-01   0.271E-01   0.116E-01
  1.   0.226E+00   0.136E+00   0.378E-01   0.295E-01   0.127E-01
  0.   0.230E+00   0.139E+00   0.387E-01   0.302E-01   0.131E-01
 -2.   0.210E+00   0.126E+00   0.348E-01   0.271E-01   0.116E-01
 -3.   0.175E+00   0.105E+00   0.289E-01   0.225E-01   0.970E-02
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 DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1183E+06 HRS
    (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                             X
 Y         -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

 2.   0.340E-04   0.166E+00   0.183E+00   0.207E+00   0.212E+00   0.213E+00   0.210E+00   0.201E+00   0.189E+00   0.174E+00
 1.   0.372E-04   0.178E+00   0.196E+00   0.221E+00   0.227E+00   0.228E+00   0.224E+00   0.216E+00   0.203E+00   0.186E+00
 0.   0.383E-04   0.181E+00   0.199E+00   0.225E+00   0.231E+00   0.232E+00   0.228E+00   0.220E+00   0.206E+00   0.190E+00
-2.   0.340E-04   0.166E+00   0.183E+00   0.207E+00   0.212E+00   0.213E+00   0.210E+00   0.201E+00   0.189E+00   0.174E+00
-3.   0.291E-04   0.139E+00   0.153E+00   0.173E+00   0.177E+00   0.178E+00   0.175E+00   0.168E+00   0.158E+00   0.145E+00
                                                      CONTINUE
                                                             X
 Y           7.         10.         15.         16.         18.

 2.   0.156E+00   0.993E-01   0.308E-01   0.245E-01   0.112E-01
 1.   0.168E+00   0.107E+00   0.334E-01   0.266E-01   0.122E-01
 0.   0.171E+00   0.109E+00   0.342E-01   0.272E-01   0.125E-01
-2.   0.156E+00   0.993E-01   0.308E-01   0.245E-01   0.112E-01
-3.   0.130E+00   0.826E-01   0.256E-01   0.204E-01   0.929E-02


  DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1226E+06 HRS
    (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                             X
 Y         -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

 2.   0.357E-04   0.118E+00   0.129E+00   0.145E+00   0.150E+00   0.151E+00   0.149E+00   0.144E+00   0.137E+00   0.127E+00
 1.   0.391E-04   0.126E+00   0.138E+00   0.156E+00   0.160E+00   0.161E+00   0.160E+00   0.154E+00   0.146E+00   0.136E+00
 0.   0.402E-04   0.128E+00   0.140E+00   0.158E+00   0.163E+00   0.164E+00   0.162E+00   0.157E+00   0.149E+00   0.139E+00
-2.   0.357E-04   0.118E+00   0.129E+00   0.145E+00   0.150E+00   0.151E+00   0.149E+00   0.144E+00   0.137E+00   0.127E+00
-3.   0.303E-04   0.981E-01   0.107E+00   0.121E+00   0.125E+00   0.126E+00   0.124E+00   0.120E+00   0.114E+00   0.106E+00
                                                      CONTINUE
                                                             X
 Y           7.         10.         15.         16.         18.

 2.   0.115E+00   0.769E-01   0.265E-01   0.214E-01   0.103E-01
 1.   0.124E+00   0.827E-01   0.287E-01   0.232E-01   0.112E-01
 0.   0.126E+00   0.844E-01   0.294E-01   0.238E-01   0.115E-01
-2.   0.115E+00   0.769E-01   0.265E-01   0.214E-01   0.103E-01
-3.   0.961E-01   0.640E-01   0.220E-01   0.178E-01   0.860E-02


 DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1270E+06 HRS
    (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                  Z =       0.00
                                                             X
 Y         -27.         -3.         -2.          0.          1.          2.          3.          4.          5.          6.

 2.   0.369E-04   0.833E-01   0.910E-01   0.103E+00   0.106E+00   0.107E+00   0.106E+00   0.103E+00   0.986E-01   0.924E-01
 1.   0.404E-04   0.892E-01   0.974E-01   0.110E+00   0.113E+00   0.114E+00   0.114E+00   0.111E+00   0.106E+00   0.990E-01
 0.   0.415E-04   0.908E-01   0.992E-01   0.112E+00   0.115E+00   0.117E+00   0.116E+00   0.113E+00   0.108E+00   0.101E+00
-2.   0.369E-04   0.833E-01   0.910E-01   0.103E+00   0.106E+00   0.107E+00   0.106E+00   0.103E+00   0.986E-01   0.924E-01
-3.   0.312E-04   0.695E-01   0.759E-01   0.855E-01   0.882E-01   0.892E-01   0.885E-01   0.861E-01   0.822E-01   0.770E-01
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                                                     CONTINUE
                                                            X
   Y           7.          10.          15.          16.          18.
   2.   0.849E-01   0.589E-01   0.222E-01   0.183E-01   0.929E-02
   1.   0.911E-01   0.633E-01   0.241E-01   0.198E-01   0.101E-01
   0.   0.928E-01   0.646E-01   0.246E-01   0.202E-01   0.103E-01
  -2.   0.849E-01   0.589E-01   0.222E-01   0.183E-01   0.929E-02
  -3.   0.707E-01   0.490E-01   0.185E-01   0.152E-01   0.773E-02

    DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1314E+06 HRS
      (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                   Z =       0.00
                                                            X
   Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

   2.   0.374E-04   0.591E-01   0.644E-01   0.725E-01   0.749E-01   0.759E-01   0.756E-01   0.740E-01   0.711E-01   0.671E-01
   1.   0.409E-04   0.633E-01   0.690E-01   0.776E-01   0.801E-01   0.813E-01   0.810E-01   0.793E-01   0.762E-01   0.720E-01
   0.   0.420E-04   0.645E-01   0.702E-01   0.790E-01   0.816E-01   0.828E-01   0.825E-01   0.807E-01   0.776E-01   0.733E-01
  -2.   0.374E-04   0.591E-01   0.644E-01   0.725E-01   0.749E-01   0.759E-01   0.756E-01   0.740E-01   0.711E-01   0.671E-01
  -3.   0.315E-04   0.493E-01   0.538E-01   0.605E-01   0.625E-01   0.633E-01   0.631E-01   0.617E-01   0.593E-01   0.560E-01
                                                     CONTINUE
                                                            X
   Y           7.          10.          15.          16.          18.

   2.   0.623E-01   0.447E-01   0.183E-01   0.153E-01   0.813E-02
   1.   0.668E-01   0.481E-01   0.198E-01   0.165E-01   0.881E-02
   0.   0.681E-01   0.490E-01   0.202E-01   0.169E-01   0.902E-02
  -2.   0.623E-01   0.447E-01   0.183E-01   0.153E-01   0.813E-02
  -3.   0.519E-01   0.373E-01   0.152E-01   0.127E-01   0.676E-02

STEADY STATE SOLUTION HAS NOT BEEN REACHED BEFORE FINAL SIMULATING TIME

    DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT  0.1358E+06 HRS
      (ADSORBED CHEMICAL CONC. =   0.1620E+00 * DISSOLVED CHEMICAL CONC.)
                   Z =       0.00
                                                            X
   Y         -27.          -3.          -2.           0.           1.           2.           3.           4.           5.           6.

   2.   0.371E-04   0.421E-01   0.457E-01   0.514E-01   0.531E-01   0.540E-01   0.540E-01   0.531E-01   0.513E-01   0.488E-01
   1.   0.405E-04   0.450E-01   0.490E-01   0.550E-01   0.569E-01   0.578E-01   0.578E-01   0.568E-01   0.550E-01   0.523E-01
   0.   0.415E-04   0.459E-01   0.499E-01   0.560E-01   0.579E-01   0.589E-01   0.589E-01   0.579E-01   0.560E-01   0.532E-01
  -2.   0.371E-04   0.421E-01   0.457E-01   0.514E-01   0.531E-01   0.540E-01   0.540E-01   0.531E-01   0.513E-01   0.488E-01
  -3.   0.311E-04   0.351E-01   0.381E-01   0.429E-01   0.443E-01   0.450E-01   0.450E-01   0.442E-01   0.428E-01   0.406E-01
                                                     CONTINUE
                                                            X
   Y           7.          10.          15.          16.          18.

   2.   0.456E-01   0.338E-01   0.148E-01   0.125E-01   0.696E-02
   1.   0.489E-01   0.363E-01   0.160E-01   0.135E-01   0.754E-02
   0.   0.498E-01   0.370E-01   0.163E-01   0.138E-01   0.771E-02
  -2.   0.456E-01   0.338E-01   0.148E-01   0.125E-01   0.696E-02
  -3.   0.380E-01   0.281E-01   0.123E-01   0.104E-01   0.579E-02
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ATTACHMENT B

REFERENCES

REFERENCES

Logan, William E., 2000. Letter to Thomas Fry (Fort Stewart Directorate of Public Works, Environmental Branch), January 19.

Logan, William E., 2001. Letter to Colonel Gregory V. Stanley (Fort Stewart Directorate of Public Works, Environmental Branch), February 9.

SAIC (Science Applications International Corporation) 1999. *CAP–Part A Report, Underground Storage Tanks 5 & 6, Facility ID #9-089066, Building 1824, Fort Stewart, Georgia*, June.

SAIC 2000. *CAP–Part B Report, Underground Storage Tanks 5 & 6, Facility ID #9-089066, Building 1824, Fort Stewart, Georgia*, November.

SAIC 2001. *First Semiannual Monitoring Only Report, Underground Storage Tanks 5 & 6, Facility ID #9-089066, Building 1824, Fort Stewart, Georgia*, March.

ATTACHMENT C

CERTIFICATES OF ANALYSIS

GENERAL ENGINEERING LABORATORIES, INC.

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Certificate of Analysis

Company :	SAIC
Address :	800 Oak Ridge Turnpike Oak Ridge, TN 37831
Contact:	Ms. Leslie Barbour
Project:	Fort Stewart CAP B LTM

Report Date: November 5, 2001

Client Sample ID:	711022	Project:	SAIC00400
Sample ID:	36245007	Client ID:	SAIC010
Matrix:	Ground Water		
Collect Date:	09-JAN-01		
Receive Date:	10-JAN-01		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Volatile Organics Federal											
VOABTXB_LF											
Benzene	U	ND	0.140	1.00	ug/L	1	RMB	01/12/01	1618	60637	1
Ethylbenzene	U	ND	0.150	1.00	ug/L	1					
Toluene	U	ND	0.220	1.00	ug/L	1					
Xylenes (total)	U	ND	0.440	3.00	ug/L	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
546 8260B	8260B Volatiles In Liquid Federal	RMB	01/12/01	1618	60637

The following Analytical Methods were performed

Method	Description
1	SW846 8260B

Surrogate recovery	Test	Recovery%	Acceptable Limits
Bromofluorobenzene	VOABTXB_LF	95%	(59%-129%)
Dibromofluoromethane	VOABTXB_LF	98%	(66%-130%)
Toluene-d8	VOABTXB_LF	87%	(64%-130%)

Notes:

The Qualifiers in this report are defined as follows :

**	Indicates the analyte is a surrogate compound.
<	Actual result is less than amount reported
>	Actual result is greater than amount reported
B	Analyte found in the sample as well as the associated blank.
E	Concentration exceeds instrument calibration range
J	Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
U	Indicates the compound was analyzed for but not detected above the detection limit
X	Lab-specific qualifier - must be fully described in case narrative and data summary package

The above sample is reported on an "as received" basis.