FINAL

FIRST ANNUAL MONITORING ONLY REPORT
FOR
UNDERGROUND STORAGE TANK 1
FACILITY ID #9-089064
BUILDING 1841
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 0061

Prepared by

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

November 2000

TABLE OF CONTENTS

List of Abbreviations and Acronyms

ACL	alternate concentration limit
AT123D	Analytical Transient 1-, 2-, 3-Dimensional
BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
DAF	dilution attenuation factor
GA EPD	Georgia Environmental Protection Division
IWQS	In-stream Water Quality Standard
SAIC	Science Applications International Corporation
USACE	U.S. Army Corps of Engineers
UST	underground storage tank
USTMP	Underground Storage Tank Management Program

MONITORING ONLY REPORT

Submittal Date: November 2000 Monitoring Report Number: 1st Annual

For Period Covering: January 2000 to November 2000

Facility Name: UST 1, Building 1841 Street Address: McFarland Avenue and West 18th Street

Facility ID: 9-089064 City: Fort Stewart County: Liberty Zip Code: 31314

Latitude: 31° 52′ 40″ Longitude: 81° 38′ 00″

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 2502
	1550 Frank Cochran Drive		
City:	Fort Stewart State: GA	City:	Oak Ridge State: TN
Zip Code:	31314-4927	Zip Code:	37831
Telephone:	(912) 767-2010	Telephone:	(865) 481-8792

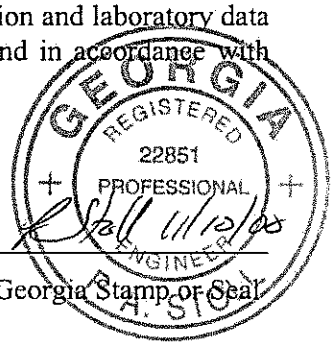
I. REGISTERED PROFESSIONAL ENGINEER OR PROFESSIONAL GEOLOGIST CERTIFICATION

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: P. A. Stoll

Date: 11/10/00



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.

Former Underground Storage Tank (UST) 1, Facility ID #9-089064, was located near Building 1841 at Fort Stewart, Georgia. The tank and piping were excavated and removed on June 19, 1995. Science Applications International Corporation (SAIC) performed a Corrective Action Plan (CAP)–Part A investigation in 1996 to determine the extent of petroleum contamination at the site. Results of the 1996 investigation were documented in the CAP–Part A Report that was submitted to the Georgia Environmental Protection Department (GA EPD) in April 1997.

The GA EPD Underground Storage Tank Management Program (USTMP) conducted a technical review of the CAP–Part A Report (SAIC 1997), and in correspondence dated August 1, 1997 (Coughlan 1997), it was requested that additional borings be installed and fate and transport modeling be conducted to identify the risk of exposure. The results were summarized in the CAP–Part A Addendum Report that was submitted to GA EPD in August 1998.

GA EPD conducted a technical review of the CAP–Part A Addendum Report (SAIC 1998) and provided comments in correspondence dated November 16, 1998 (Coughlan 1998). The comments indicated that the request for No Further Action Required status was not approved and that the site should be monitored semiannually for 2 years.

On January 27, 1999, representatives from GA EPD USTMP, the Fort Stewart Directorate of Public Works, the U.S. Army Corps of Engineers (USACE), and SAIC met to discuss further action required at 15 former UST sites at Fort Stewart. UST 1 was one of the sites discussed. As a result of the meeting, GA EPD stated that the site would require monitoring. Fort Stewart agreed to install three monitoring wells (01-08, 01-09, and 01-10) at the site and perform semiannual monitoring for benzene, toluene, ethylbenzene, and xylenes (BTEX) only.

In January 2000, three monitoring wells were installed at the site, and the results of that sampling effort are presented in this document. Well construction details are provided in Table 3, and boring logs and well construction diagrams are provided in Attachment C.

Fate and transport modeling was performed as part of the CAP–Part A Addendum (SAIC 1998). Upon completion of the second semiannual monitoring event in June 2000, the fate and transport modeling results were revised using the results from the semiannual monitoring events to calibrate the model. The revised 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 measured benzene concentrations have been below the In-stream Water Quality Standard (IWQS) of 71.28 µg/L and the alternate concentration limit (ACL) of 142 µg/L for the last two semiannual sampling events (i.e., since January 2000 when the monitoring only started); therefore, No Further Action Required 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/February 2000, groundwater elevations were measured in all of the monitoring wells to determine the groundwater flow direction. In February 2000, the groundwater flow direction was toward the north-northeast, and the groundwater gradient was approximately 0.0625 foot/foot.

During the second semiannual sampling event in June 2000, groundwater elevations were measured in all of the monitoring wells to determine the groundwater flow direction. In June 2000, the groundwater flow direction was toward the east-northeast, and the groundwater gradient was approximately 0.087 foot/foot.

B. Analytical Data:

(Appendix I, Figure 3: Groundwater Quality Maps)
(Appendix I, Figure 4: Trend of Contaminant Concentrations)
(Appendix II, Table 2: Groundwater Analytical Results)
(Appendix III: Laboratory Analytical Results)

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

During the first semiannual sampling event in January 2000, monitoring wells 01-08, 01-09, and 01-10 were sampled for BTEX. Analytical results from the first sampling event showed no detectable BTEX concentrations in wells 01-09 and 01-10. BTEX compounds were present in well 01-08; however, none of the constituents exceeded its respective IWQS. Benzene was detected at 44.4 µg/L in well 01-08, which is below the IWQS of 71.28 µg/L and the ACL of 142 µg/L. Figure 4 shows the variations in benzene concentrations in groundwater for all the wells.

During the second semiannual sampling event in June 2000, monitoring wells 01-08, 01-09, and 01-10 were sampled for BTEX. Analytical results from the second sampling event showed no detectable BTEX concentrations in well 01-09. BTEX compounds were present in wells 01-08 and 01-10; however, none of the constituents exceeded its respective IWQS. Benzene was detected at 6.6 µg/L in well 01-08 and 0.95J µg/L in well 01-10, which are below the IWQS of 71.28 µg/L and the ACL of 142 µg/L. Figure 4 shows the variations in benzene concentrations in groundwater for all the wells.

As discussed during the January 1999 meeting, polynuclear aromatic hydrocarbon analysis was not required 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 for 2000 scores.)*

1,000 (CAP–Part A Report)
2,510 (Revised CAP–Part A ranking based on May 1998 version of the Site Ranking Form)
350 (Jan. 2000 – First Semiannual Monitoring Event)
350 (June 2000 – 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 #9-089064 a No Further Action Required (NFAR) status for the following reasons:

- The Monitoring Only Plan is being conducted in accordance with correspondence dated April 22, 1999 (Perez 1999) and approved by GA EPD USTMP in correspondence May 21, 1999 (McAllister 1999).
- The site score for the last two rounds of semiannual groundwater sampling has been 350, which GA EPD USTMP representatives have indicated is an acceptable score for requesting an NFAR status (i.e., January 27, 1999, meeting between GA EPD, Fort Stewart, USACE, and SAIC representatives).
- The revised fate and transport model summarized in Attachment A indicated that benzene will never reach the nearest potential preferential pathway (i.e., a sanitary sewer) at a concentration above the IWQS of 71.28 µg/L.
- The benzene concentrations in all wells were below the IWQS of 71.28 µg/L and the ACL of 142 µg/L during the two semiannual monitoring events in January 2000 and June 2000.
- The closest surface water bodies are a drainage ditch located 500 feet northeast (downgradient) of the site and Mill Creek located 2,090 feet southeast (upgradient) of the site.
- Natural attenuation has continued to take place at the site, as indicated by the decreasing benzene concentrations, which are approaching 5 µg/L.

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 UST 1 site, Building 1841, Facility ID #9-089064 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

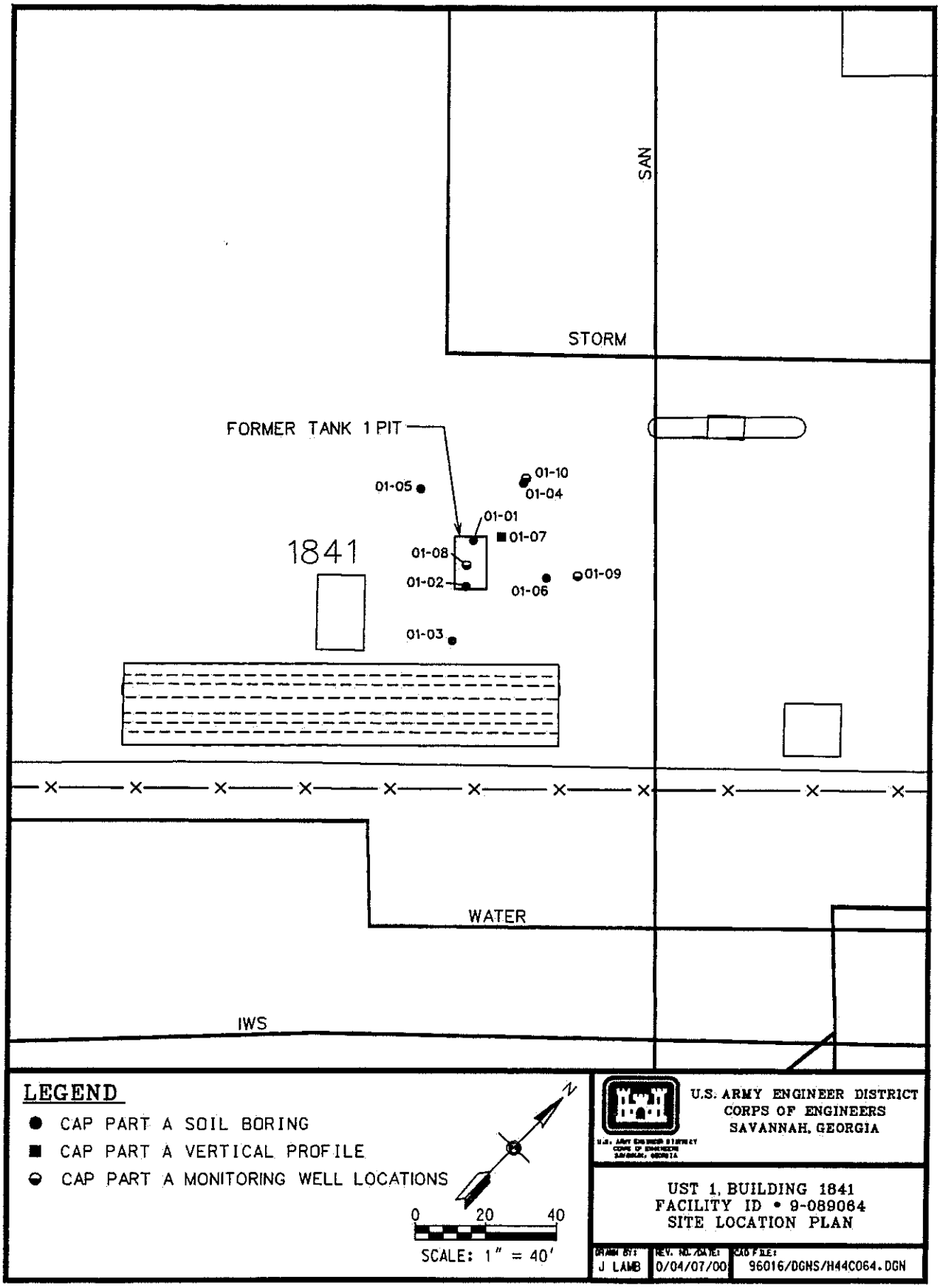


Figure 1. Location Map of UST 1 at Fort Stewart, Liberty County, Georgia

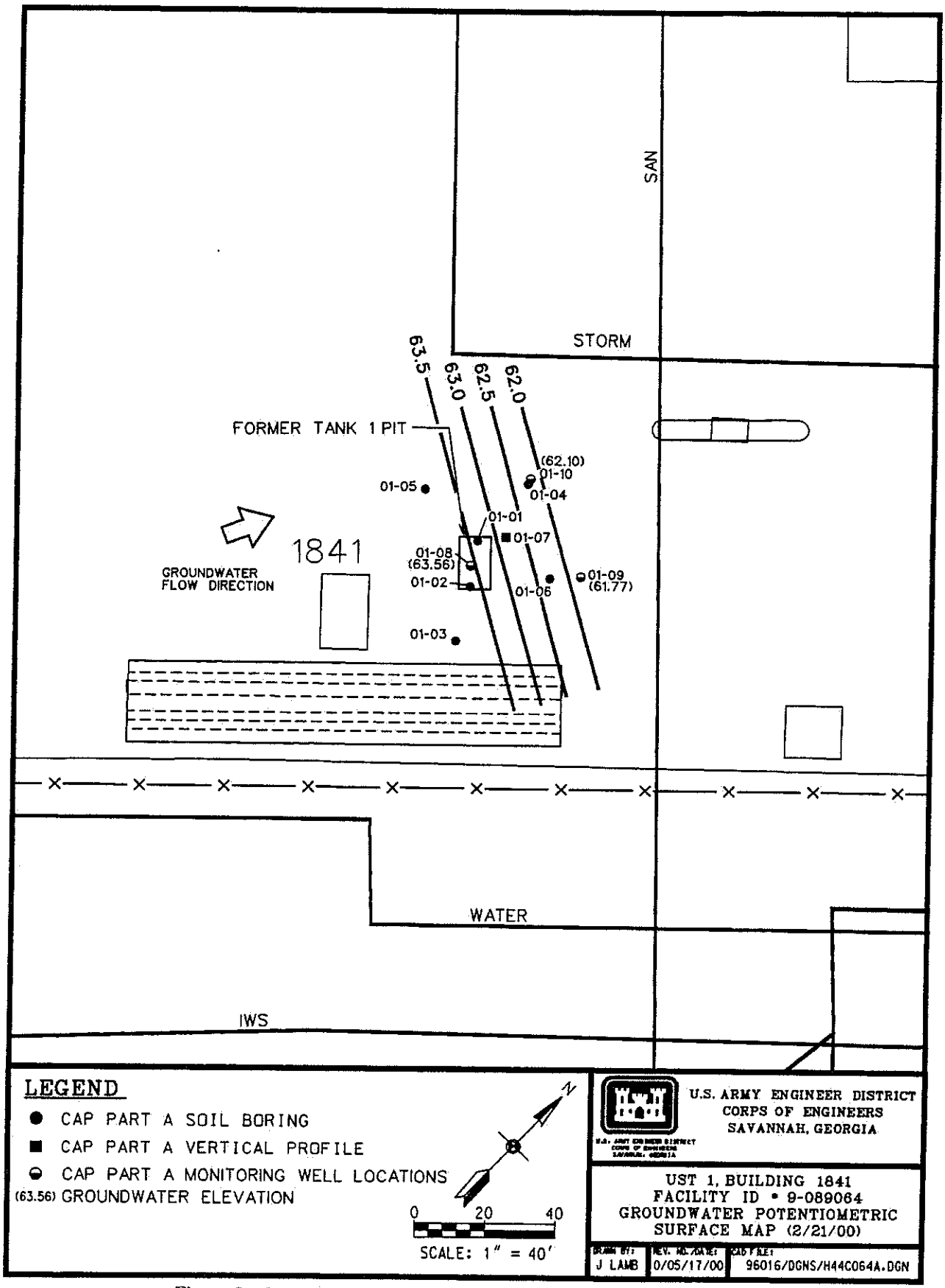


Figure 2a. Potentiometric Surface Map of the UST 1 Site (February 2000)

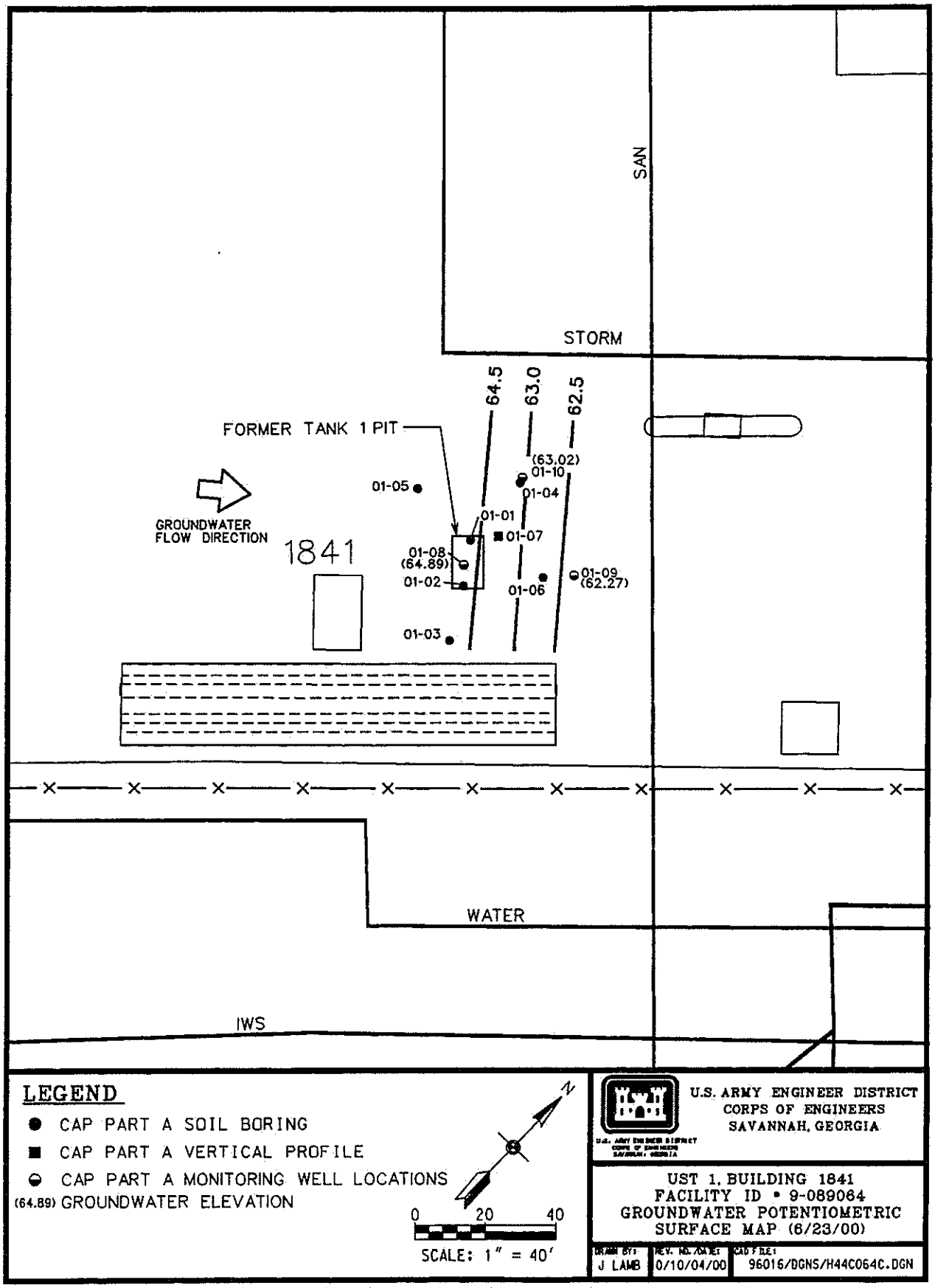


Figure 2b. Potentiometric Surface Map of the UST 1 Site (June 2000)

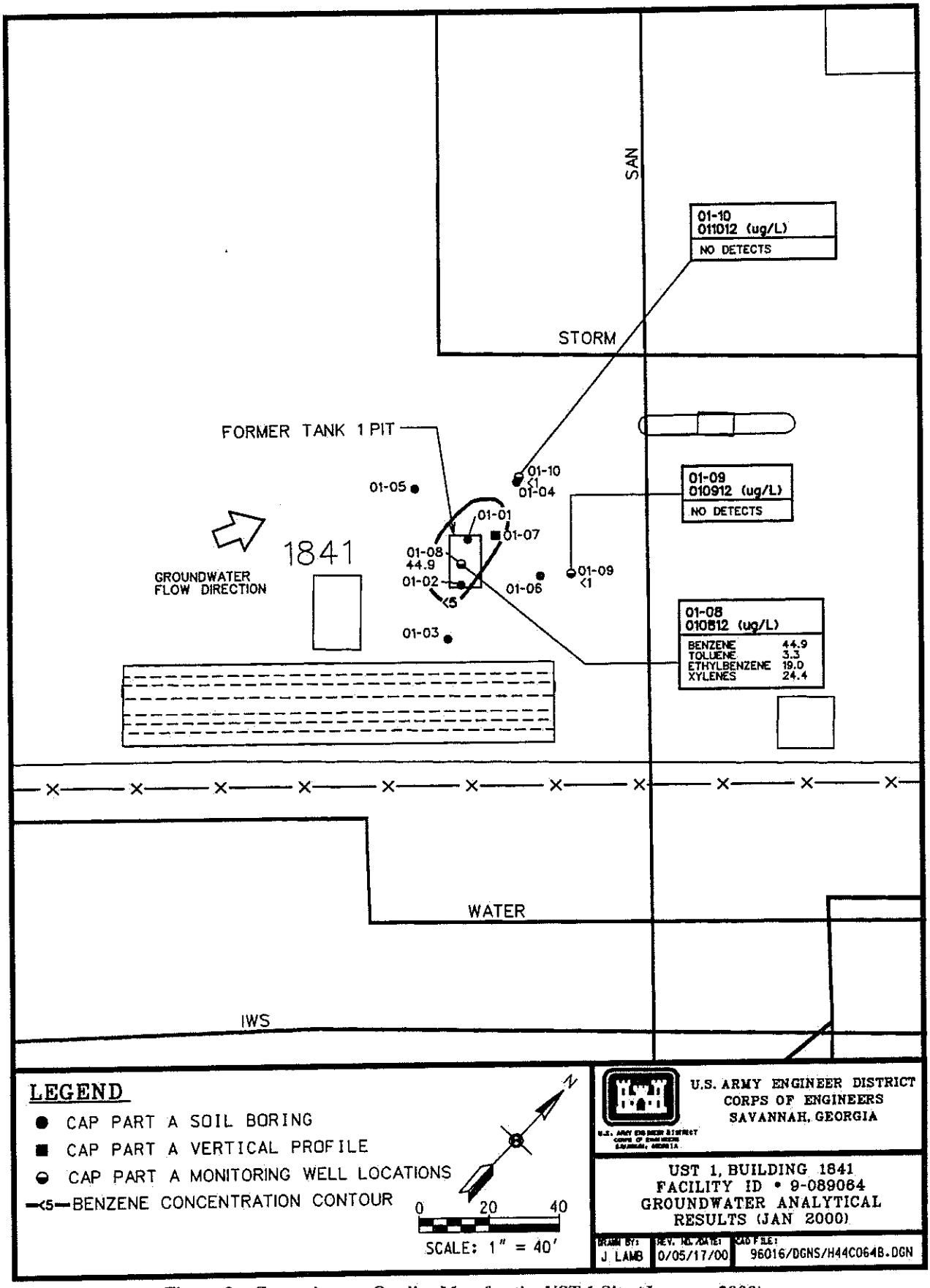


Figure 3a. Groundwater Quality Map for the UST 1 Site (January 2000)

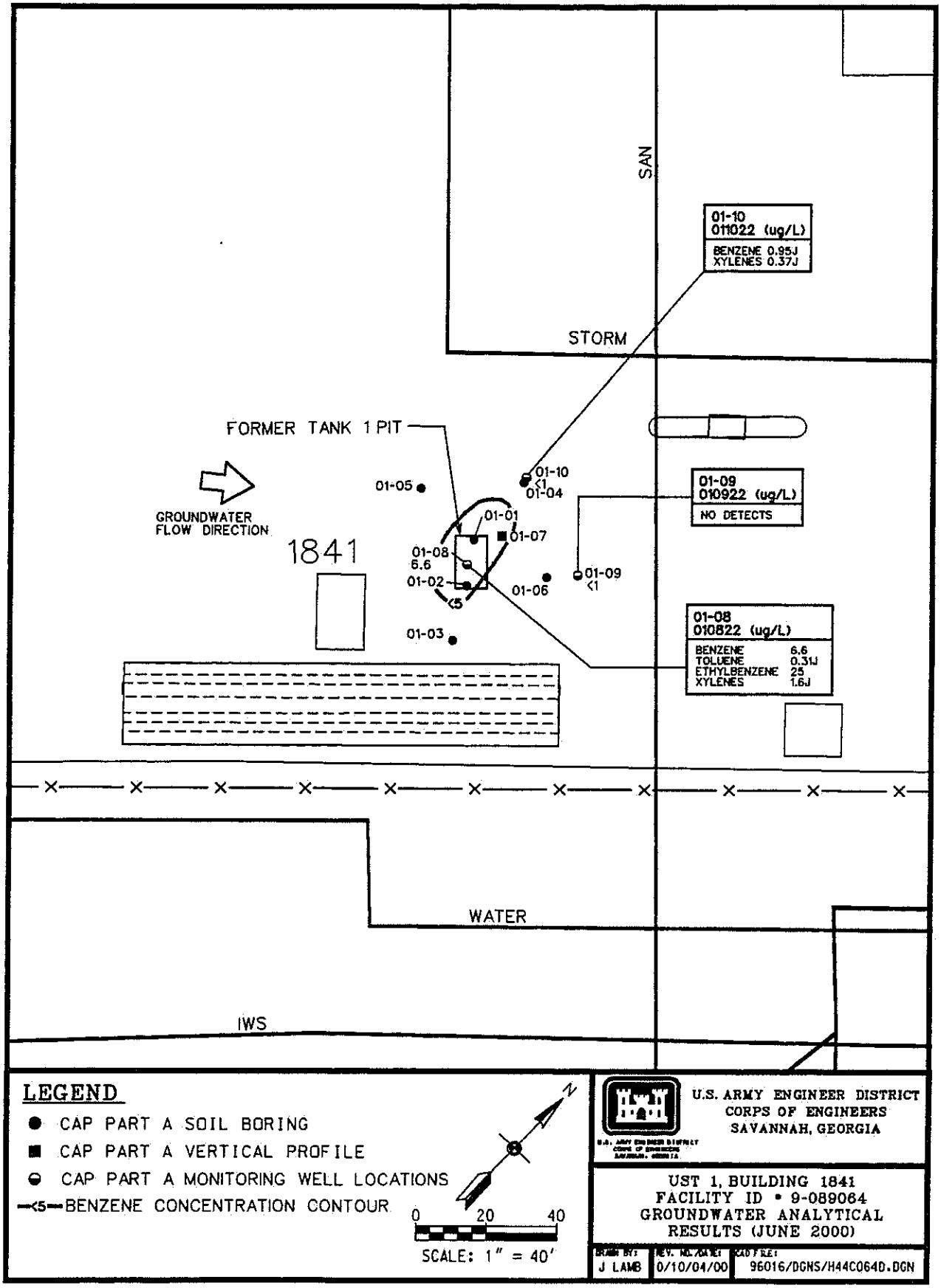


Figure 3b. Groundwater Quality Map for the UST 1 Site (June 2000)

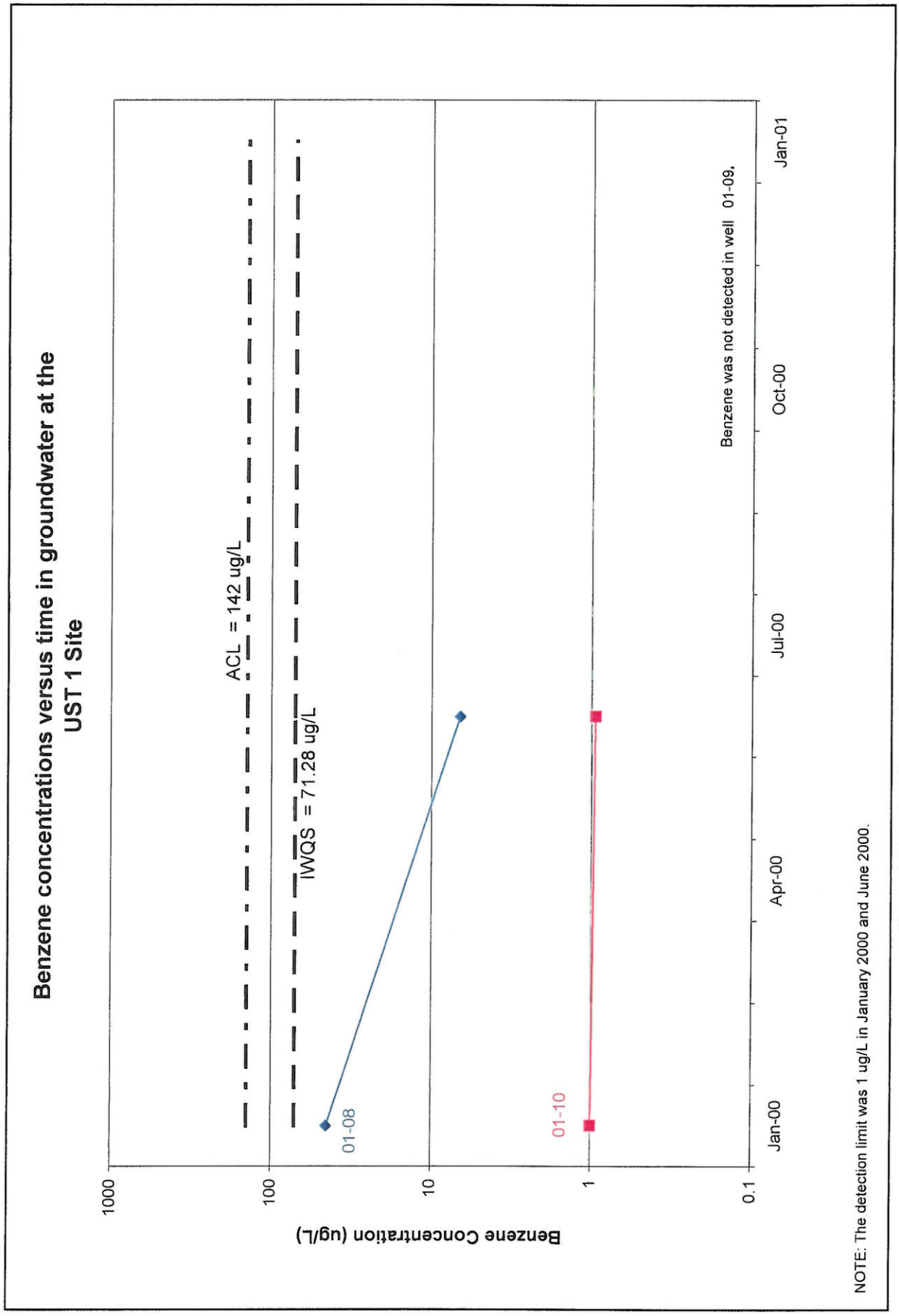


Figure 4. Trend of Contaminant Concentrations for the UST 1 Site

APPENDIX II

REPORT TABLES

Table 1. Groundwater Elevations

Well Number	Date of Measurement	Top of Casing Elevation (feet AMSL)	Screened Interval (feet BGS)	Water Depth (feet BTOC)	Groundwater Elevation (feet AMSL)
First Semiannual Monitoring Event – January/February 2000					
01-08	2/21/00	67.56	2.7 – 12.7	4.00	63.56
01-09	2/21/00	67.57	5.2 – 15.2	5.80	61.77
01-10	2/21/00	67.42	5.2 – 15.2	5.32	62.10
Second Semiannual Monitoring Event – June 2000					
01-08	6/23/00	67.56	2.7 – 12.7	2.67	64.89
01-09	6/23/00	67.57	5.2 – 15.2	5.30	62.27
01-10	6/23/00	67.42	5.2 – 15.2	4.40	63.02

NOTES:
AMSL Above mean sea level
BGS Below ground surface
BTOC Below top of casing

Table 2. Groundwater Analytical Results

Sample Location	Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)
First Semiannual Monitoring Event – January/February 2000							
01-08	010812	1/13/00	44.9 =	3.3 =	19.0 =	24.4 =	91.6
01-09	010912	1/13/00	1 U	1 U	1 U	3 U	ND
01-10	011012	1/13/00	1 U	1 U	1 U	3 U	ND
Second Semiannual Monitoring Event – June 2000							
01-08	010822	6/23/00	6.6 =	0.31 J	2.5 =	1.6 J	11.01
01-09	010922	6/23/00	1.0 U	1.0 U	1.0 U	3.0 U	ND
01-10	011022	6/23/00	0.95 J	1.0 U	1.0 U	0.37 J	1.32
In-stream Water Quality Standard (GA EPD Chapter 391-3-6)			71.28	200,000	28,718	NRC	NRC
Alternate Concentration Limit			142	—	—	—	—

NOTES:
Bold values exceed IWQSs.
Italic values exceed ACLs.
BGS Below ground surface
BTEX Benzene, toluene, ethylbenzene, and xylenes
ND Not detected
NRC No regulatory criteria
Laboratory Qualifiers
U Indicates that the compound was not detected at the concentration reported.
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.

Table 3. Well Construction Details

Boring/Well Number	Date Installed	Boring Depth (ft BGS)	Screened Interval (ft BGS)	Type of Completion	Coordinates		Ground Surface Elevation	Top of Casing Elevation
					Northing (NAD83)	Easting (NAVD88)		
First Semiannual Monitoring Event – January/February 2000								
01-08	1/13/00	13.0	2.7 – 12.7	¾" PVC	683318.7	821689.4	67.78	67.56
01-09	1/13/00	15.5	5.2 – 15.2	¾" PVC	683337.9	821714.2	67.82	67.57
01-10	1/13/00	16.0	5.2 – 15.2	¾" PVC	683347.9	821684.6	67.69	67.42

NOTES:
BGS Below ground surface
PVC Polyvinyl chloride

APPENDIX III

LABORATORY ANALYTICAL RESULTS

FIRST SEMIANNUAL MONITORING EVENT

JANUARY/FEBURARY 2000

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

010812

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: FSABC01W

Matrix: (soil/water) WATER Lab Sample ID: 20655008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5S515

Level: (low/med) LOW Date Received: 01/14/00

% Moisture: not dec. _____ Date Analyzed: 01/21/00

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	44.9		=
108-88-3	Toluene	3.3		=
100-41-4	Ethylbenzene	19.0	B	= FD1, FD2
1330-20-7	Xylenes (total)	24.4		=

DATA VAL
CC

DAT:

FORM I VOA

VLM1.1

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

010912

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: FSAB001W

Matrix: (soil/water) WATER Lab Sample ID: 20655009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: SS507

Level: (low/med) LOW Date Received: 01/14/00

% Moisture: not dec. _____ Date Analyzed: 01/21/00

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
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

011012

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: FSAB002W

Matrix: (soil/water) WATER Lab Sample ID: 20656005

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 5S322

Level: (low/med) LOW Date Received: 01/14/00

% Moisture: not dec. _____ Date Analyzed: 01/19/00

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
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

DATA VALIDATION COPY

Science Applications International Corporation
An Employee-owned Company

800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600

1062

CHAIN OF CUSTODY RECORD

COC NO.: D0554/1

PROJECT NAME: Ft. Stewart USTs D.O. #55

PROJECT NUMBER: 01 1624 04 2352-200

PROJECT MANAGER: Patty Stoll

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

REQUESTED PARAMETERS

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	PAH, Lead	Dissolved Iron	TPH	TCLP BTEX	TCLP Lead	No. of Bottles/ Vials	OVA SCREENING	OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS
220712	1/13/00	1005	water	2	2						4	20656009	20656001
220912	1/13/00	1245		2	2						4	002	002
161412	1/13/00	1450		2	2						5	003	003
161312	1/13/00	1540		2	2						5	004	004
801014	1/13/00	1720		2							2		20655001
801312	1/13/00	1635		2							2		002
801012	1/13/00	1720		2							2		003
770912	1/13/00	1440		2							2		004
771012	1/13/00	1550		2							2		005
771014	1/13/00	1550		2							2		006
771312	1/13/00	1720		2							2		007
010812	1/13/00	1035		2							2		008
010912	1/13/00	1325		2							2		009

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29417

PHONE NO: (803) 556-8171

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Laura Lumley	1/14/00	Dionne FRANCO	1/14/00
COMPANY NAME: SAIC	1200	COMPANY NAME: GEL	1450
RECEIVED BY: Scott Hamilton	Date/Time 1-14-00	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL	1700	COMPANY NAME:	
RELINQUISHED BY: Scott Hamilton	Date/Time 1-17-00	RECEIVED BY:	Date/Time
COMPANY NAME: GEL	1458	COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS:

Cooler ID: # 847

Cooler Temperature: 4°C

FEDEX NUMBER:

Science Applications International Corporation
An Employee-Owned Company

100 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481 4600

2 of 2

CHAIN OF CUSTODY RECORD

COC NO.: D0550/1

PROJECT NAME: Ft. Stewart USTs D.O. #55

PROJECT NUMBER: 01-1624-04-2352-200

PROJECT MANAGER: Patty Stoll

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

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

REQUESTED PARAMETERS

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	PAH, Lead	Dissolved Iron	TPH	TCLP BTEX	TCLP Lead	No. of Bottles/ Vials	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
01012	1/13/00	1300	water	2							2		20656001
TB5501	1/13/00	0745	↓	2							2		DUP
770911	1/13/00	1410	Soil	1		1					2		20657001
770921	1/13/00	1355	Soil	1		1					2		DUP

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME: SAIC	1/14/00 1200	COMPANY NAME: GEL	1/14/00 1450
RECEIVED BY:	Date/Time	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL	1-14-00 1250	COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME: GEL	1-17-00 1452	COMPANY NAME	

TOTAL NUMBER OF CONTAINERS: 44

Cooler ID: # 847

Cooler Temperature: 4°

FEDEX NUMBER:

SECOND SEMIANNUAL MONITORING EVENT

JUNE 2000

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

010822

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: FSBLTM12W

Matrix: (soil/water) WATER Lab Sample ID: 27457013

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2P116

Level: (low/med) LOW Date Received: 06/24/00

% Moisture: not dec. _____ Date Analyzed: 06/26/00

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	6.6	
108-88-3	Toluene	0.31	J
100-41-4	Ethylbenzene	2.5	
1330-20-7	Xylenes (total)	1.6	J

DATA VALIDATION COPY

FORM I VOA OLM03.0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

010922

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: FSBLTM12W

Matrix: (soil/water) WATER Lab Sample ID: 27457014

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2P117

Level: (low/med) LOW Date Received: 06/24/00

% Moisture: not dec. _____ Date Analyzed: 06/26/00

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
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

011022

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: FSBLTM12W

Matrix: (soil/water) WATER Lab Sample ID: 27457015

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2P118

Level: (low/med) LOW Date Received: 06/24/00

% Moisture: not dec. _____ Date Analyzed: 06/26/00

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	0.95	J	J
108-88-3	Toluene	1.0	U	U
100-41-4	Ethylbenzene	1.0	U	U
1330-20-7	Xylenes (total)	0.37	J	J

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

2 of 2

CHAIN OF CUSTODY RECORD

COC NO.: GLTM18

PROJECT NAME: Fort Stewart CAP B LTM

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

PROJECT MANAGER: Patty Stoll

SAMPLER (Signature) (Printed Name)
Layca Lumley / Layca Lumley

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
370922	6/23/00	1200	water	2				2		
01 0622	6/23/00	0910		2				2		
01 0922	6/23/00	0930		2				2		
01 1022	6/23/00	0945		2				2		
T B5511	6/23/00	0745	↓	2				2		

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (843) 556-8171

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME: SAIC	6/24/00 0905	COMPANY NAME: GEL	6/24/00 1155
RELINQUISHED BY:	Date/Time	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL	6/24/00 0905	COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME: GEL	6/24/00 1155	COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 38

Cooler ID: #476

Cooler Temperature: 3.9°C

FEDEX NUMBER:

APPENDIX IV

SITE RANKING FORMS

FIRST SEMIANNUAL MONITORING EVENT

JANUARY/FEBRUARY 2000

SITE RANKING FORM

Facility Name: UST 1, Bldg 1841 **Ranked by:** S. Stoller

County: Liberty **Facility ID #:** 9-089064 **Date Ranked:** 5/16/2000

SOIL CONTAMINATION

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

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

* *Closure sample T1-S1 (1995)*

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. 0) + (B. 10) = (10) x (C. 10) = (D. 100)**

GROUNDWATER CONTAMINATION

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 010812 (January 2000)*

Fill in the blanks: **(E. 0) + (F. 5) = (G. 5)**

Facility Name: UST 1, Bldg 1841 **County:** Liberty **Facility ID #:** 9-089064

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

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.

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

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

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

(G. 5) x (L. 50) = M. 250

(M. 250) + (D. 100) = N. 350

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. 350) x (P. 1) = (350) + (Q. 0)**

= 350 (January 2000 - First semiannual Sampling Event
ENVIRONMENTAL SENSITIVITY SCORE

SECOND SEMIANNUAL MONITORING EVENT

JUNE 2000

SITE RANKING FORM

Facility Name: UST 1, Bldg 1841 **Ranked by:** S. Stoller

County: Liberty **Facility ID #:** 9-089064 **Date Ranked:** 10/17/2000

SOIL CONTAMINATION

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

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

* *Closure sample T1-S1 (1995)*

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. 0) + (B. 10) = (10) x (C. 10) = (D. 100)**

GROUNDWATER CONTAMINATION

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 010812 (June 2000)*

Fill in the blanks: **(E. 0) + (F. 5) = (G. 5)**

Facility Name: UST 1, Bldg 1841 **County:** Liberty **Facility ID #:** 9-089064

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

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.

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

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

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

(G. 5) x (L. 50) = M. 250

(M. 250) + (D. 100) = N. 350

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. 350) x (P. 1) = (350) + (Q. 0)**

= 350 (June 2000 - Second Semiannual Sampling Event)
ENVIRONMENTAL SENSITIVITY SCORE

OTHER GEOLOGIC AND HYDROLOGIC DATA

The following information is presented to provide supplemental information to Item H of the Site Ranking Form and gives detailed information relating to the geologic and hydrogeologic conditions at Fort Stewart to support determinations of groundwater flow pathway(s) or direction(s) and contaminant transport.

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.

APPENDIX V

REIMBURSEMENT APPLICATION

Fort Stewart is a federally owned facility and has funded the investigation for the UST 1 site, Building 1841, Facility ID #9-089064, 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.

ATTACHMENT A

SUMMARY OF FATE AND TRANSPORT MODELING RESULTS

A.1. FATE AND TRANSPORT MODELING

In summary, the Analytical Transient 1-, 2-, 3-Dimensional (AT123D) Model was used to model contaminant migration to two potential downgradient receptors: a sanitary sewer line located approximately 50 feet northeast of the site and a drainage ditch located approximately 500 feet northeast of the site. Mill Creek is located 2,090 feet southwest (upgradient) of the site and is not considered to be a potential receptor.

The fate and transport modeling that was performed as part of the CAP–Part A Addendum Report (SAIC 1998) was based on the assumption that the source of contamination had been eliminated when the UST was removed. As a result of the January 27, 1999, meeting between representatives of GA EPD, Fort Stewart, USACE, and SAIC, the fate and transport modeling that was previously conducted was revised to reflect a continuous source of contamination of infinite duration. In addition, the underground utilities located downgradient of the site are considered the nearest receptors (i.e., the potential preferential pathway).

As a result of the benzene concentrations observed during the CAP–Part A investigation and one year of semiannual monitoring, the fate and transport modeling results have been revised using the maximum observed benzene concentration in groundwater during the CAP–Part A investigation (i.e., 381 µg/L well 01-02 in September 1996). The benzene concentrations in well 01-08 during the two semiannual sampling events were used in calibrating the model.

A near steady-state source was assumed for conservatism. The source, together with hydraulic conductivity and longitudinal dispersivity, was evaluated through the calibration process and was modified from the original fate and transport modeling presented in the CAP–Part A Addendum Report (SAIC 1998). The source was calibrated as a 20 mg/hour continuous pulse for 5 years that was shut off 6 months before the first measurement. Based on the revised modeling results, the dilution attenuation factor (DAF) for benzene is 2 at the sanitary sewer and 6,850 at the drainage ditch. Simulations of a 2-year period were conducted to predict the maximum concentrations of benzene in the downgradient wells in June 2002. The revised predicted maximum concentrations in the wells, based on the maximum observed benzene concentration of 381 µg/L in September 1996, are presented in Table A-1. The results of the revised fate and transport model are presented in Tables A-2 and A-3 and Figures A-1 and A-2.

Benzene was the only constituent that exceeded its respective IWQS of 71.28 µg/L during the CAP–Part A investigation. An ACL of 990 µg/L was developed during the CAP–Part A based on risk values. The original ACL was revised based on the regulatory level for each compound and the fate and transport modeling DAF. The IWQS was used as the regulatory level because the surficial aquifer is not a drinking water aquifer, and the most likely receptor for the surficial aquifer is a surface water body. Based on these changes, the revised benzene ACL was determined to be 174 µg/L, as presented in Table A-4.

A.1.1 FATE AND TRANSPORT MODELING CONCLUSIONS

The conclusions provided in the bulleted list below are based on the revised fate and transport modeling, which assumed that the source was a continuous pulse for 5 years that was shut off 6 months before the first measurement at the site based on the maximum observed benzene concentration (i.e., 381 µg/L) in groundwater during the CAP–Part A investigation. The continuous pulse was used to calibrate the model based on the results of semiannual sampling.

- Benzene concentrations in groundwater do not exceed the ACL of 142 µg/L in any of the wells at the site and have not exceeded the ACL during the two semiannual sampling events.
- Benzene does not impact the closest downgradient receptor, a sanitary sewer located 50 feet downgradient of the site, at concentrations above the IWQS.
- Benzene concentrations in groundwater are below the IWQS and have continued to degrade due to natural attenuation.

Table A-1. Predicted Maximum Benzene Concentrations in Groundwater at the UST 1 Site

Well	Predicted Maximum Benzene Concentration (µg/L)
01-08	36.90
01-09	39.90
01-10	39.40

Table A-2. Natural Attenuation Modeling Results (Benzene Concentration vs. Distance) for the UST 1 Site

Distance from the source (feet)	Distance from the source (meters)	Predicted Maximum Benzene Concentration in Groundwater (µg/L)
0.0	0.0	387
9.8	3.0	379
26.2	8.0	313
42.7	13.0	217
49.2	15.0	181
98.4	30.0	63
164.0	50.0	18
500.0	152.4	5.65E-02
2090.0	637.2	0

Table A-3. Natural Attenuation Modeling Results (Benzene Concentration vs. Time) for the UST 1 Site

Time (years)	Predicted Benzene Concentration In Groundwater (µg/L)	Time (years)	Predicted Benzene Concentration in Groundwater (µg/L)
0.0[a]	387	3.5	46.9
0.5	254	4.0	36.9
1.0	180	4.5	29.2
1.5	133	5.0	23.2
2.0	101	5.5	18.5
2.5	77.2	6.0	14.8
3.0	59.9	6.5	11.8

NOTE:
[a] Time zero is set at September 1996.

Table A-4. ACLs for the UST 1 Site

Contaminant	IWQS (µg/L)	DAF[a] (storm drain)	ACL[b] (µg/L)
Benzene	71.28	2	142

[a] DAF = Maximum observed benzene concentration ÷ predicted benzene concentration at the receptor
= 381 ÷ 181 ≈ 2 at the sanitary sewer.
[b] ACL = IWQS × DAF.

Figure A-1. AT123D modeled maximum concentration of benzene in the groundwater versus downgradient distance from the source (UST 1)

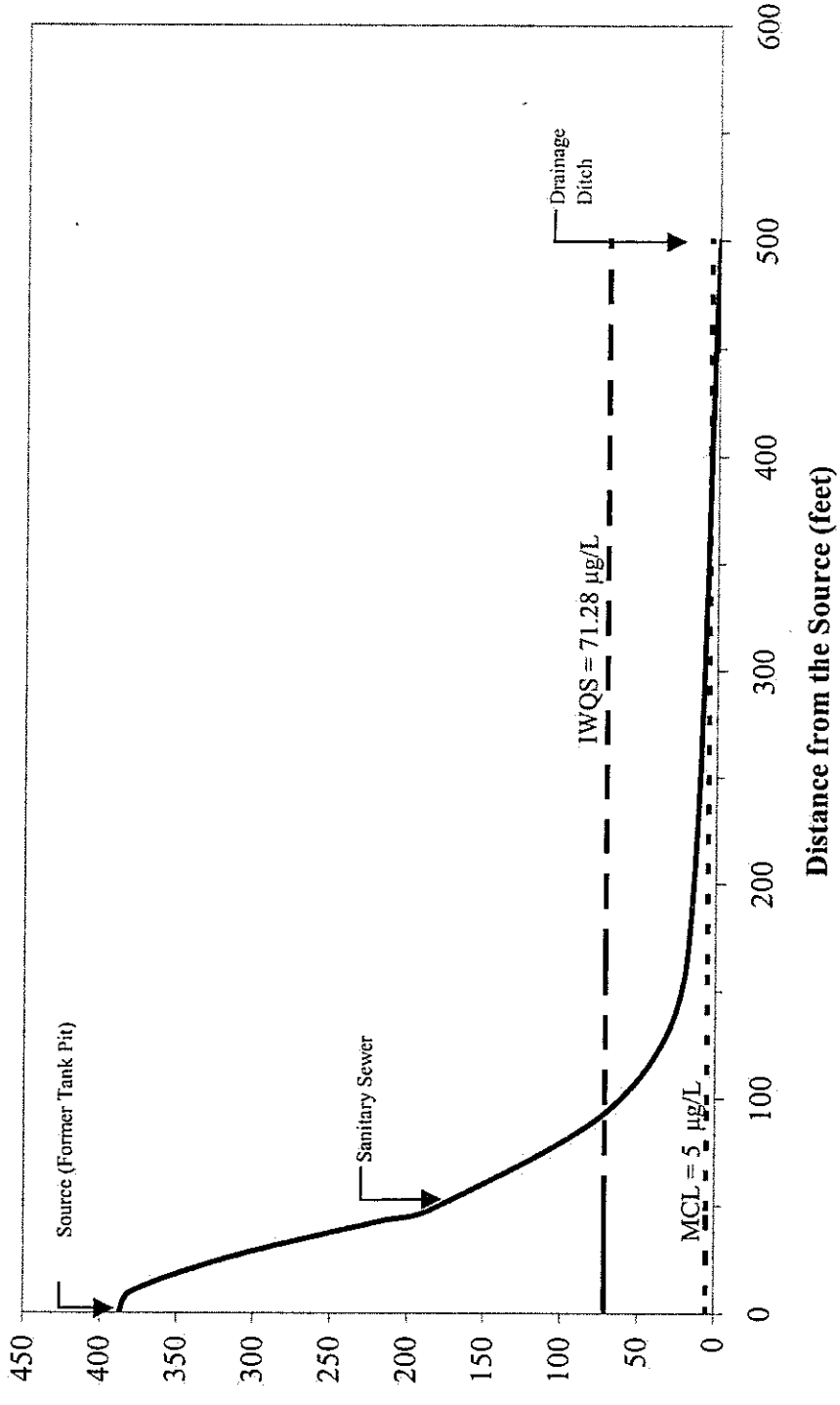
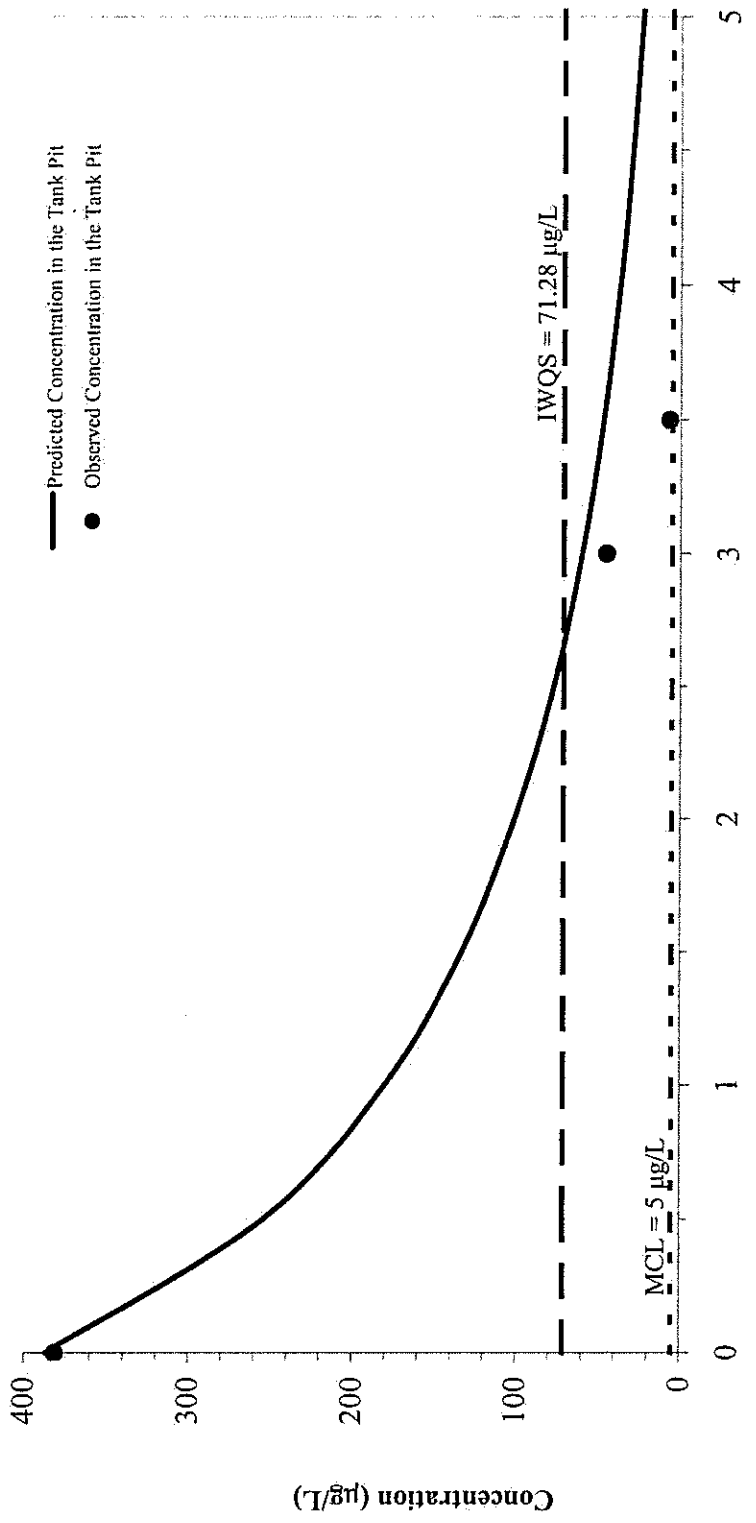


Figure A-2. AT123D modeled concentration of benzene in the groundwater at the Source (UST 1)



NOTE: Time zero is equal to September 1996.

Ft Stewart, UST 1, Benzene (calibrated plume)

NO. OF POINTS IN X-DIRECTION	11
NO. OF POINTS IN Y-DIRECTION	4
NO. OF POINTS IN Z-DIRECTION	2
NO. OF ROOTS: NO. OF SERIES TERMS	400
NO. OF BEGINNING TIME STEP	37
NO. OF ENDING TIME STEP	145
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)	-0.3050E+01
END POINT OF X-SOURCE LOCATION (METERS)	0.0000E+00
BEGIN POINT OF Y-SOURCE LOCATION (METERS)	-0.2290E+01
END POINT OF Y-SOURCE LOCATION (METERS)	0.2290E+01
BEGIN POINT OF Z-SOURCE LOCATION (METERS)	0.0000E+00
END POINT OF Z-SOURCE LOCATION (METERS)	0.0000E+00

POROSITY	0.2000E+00
HYDRAULIC CONDUCTIVITY (METER/HOUR)	0.3000E-01
HYDRAULIC GRADIENT	0.4670E-02
LONGITUDINAL DISPERSIVITY (METER)	0.3000E+02
LATERAL DISPERSIVITY (METER)	0.1000E+02
VERTICAL DISPERSIVITY (METER)	0.3000E+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)	0.4012E-04
BULK DENSITY OF THE SOIL (KG/M**3)	0.1600E+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)	0.4380E+05
WASTE RELEASE RATE (KCAL/HR), (KG/HR), OR (CI/HR)	0.2000E-04

RETARDATION FACTOR	0.2296E+01
RETARDED DARCY VELOCITY (M/HR)	0.3051E-03
RETARDED LONGITUDINAL DISPERSION COEF. (M**2/HR)	0.9161E-02
RETARDED LATERAL DISPERSION COEFFICIENT (M**2/HR)	0.3059E-02
RETARDED VERTICAL DISPERSION COEFFICIENT (M**2/HR)	0.9230E-03

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.0000E+00 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	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
13.	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

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	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
13.	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

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2628E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.216E-01	0.217E-01	0.208E-01	0.198E-01	0.163E-01	0.148E-01	0.495E-02	0.594E-03	0.140E-06	0.000E+00
13.	0.340E-01	0.339E-01	0.320E-01	0.301E-01	0.239E-01	0.213E-01	0.655E-02	0.744E-03	0.169E-06	0.000E+00
1.	0.813E+00	0.583E+00	0.341E+00	0.240E+00	0.118E+00	0.921E-01	0.165E-01	0.149E-02	0.296E-06	0.000E+00
0.	0.855E+00	0.610E+00	0.353E+00	0.246E+00	0.120E+00	0.932E-01	0.166E-01	0.150E-02	0.297E-06	0.000E+00

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00

0. 0.000E+00

Z = 2.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.196E-01	0.197E-01	0.189E-01	0.181E-01	0.150E-01	0.136E-01	0.465E-02	0.565E-03	0.134E-06	0.000E+00
13.	0.303E-01	0.302E-01	0.287E-01	0.271E-01	0.217E-01	0.194E-01	0.613E-02	0.707E-03	0.162E-06	0.000E+00
1.	0.372E+00	0.305E+00	0.219E+00	0.173E+00	0.980E-01	0.784E-01	0.153E-01	0.141E-02	0.285E-06	0.000E+00
0.	0.386E+00	0.314E+00	0.224E+00	0.176E+00	0.993E-01	0.793E-01	0.154E-01	0.142E-02	0.286E-06	0.000E+00

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.3066E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.234E-01	0.236E-01	0.227E-01	0.217E-01	0.182E-01	0.166E-01	0.611E-02	0.921E-03	0.658E-06	0.000E+00
13.	0.362E-01	0.361E-01	0.343E-01	0.323E-01	0.261E-01	0.234E-01	0.791E-02	0.113E-02	0.775E-06	0.000E+00
1.	0.816E+00	0.587E+00	0.345E+00	0.244E+00	0.122E+00	0.955E-01	0.187E-01	0.211E-02	0.127E-05	0.000E+00
0.	0.859E+00	0.613E+00	0.356E+00	0.250E+00	0.123E+00	0.966E-01	0.188E-01	0.212E-02	0.127E-05	0.000E+00

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.213E-01	0.215E-01	0.208E-01	0.199E-01	0.168E-01	0.153E-01	0.577E-02	0.883E-03	0.638E-06	0.000E+00
13.	0.323E-01	0.323E-01	0.309E-01	0.292E-01	0.238E-01	0.215E-01	0.745E-02	0.108E-02	0.752E-06	0.000E+00
1.	0.376E+00	0.308E+00	0.222E+00	0.177E+00	0.101E+00	0.817E-01	0.174E-01	0.201E-02	0.123E-05	0.000E+00
0.	0.389E+00	0.317E+00	0.227E+00	0.180E+00	0.103E+00	0.826E-01	0.175E-01	0.202E-02	0.123E-05	0.000E+00

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00

0. 0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.3504E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.248E-01	0.250E-01	0.242E-01	0.232E-01	0.196E-01	0.179E-01	0.708E-02	0.126E-02	0.206E-05	0.000E+00
13.	0.377E-01	0.377E-01	0.359E-01	0.340E-01	0.277E-01	0.250E-01	0.903E-02	0.152E-02	0.238E-05	0.000E+00
1.	0.819E+00	0.589E+00	0.347E+00	0.247E+00	0.124E+00	0.979E-01	0.204E-01	0.270E-02	0.369E-05	0.000E+00
0.	0.861E+00	0.616E+00	0.359E+00	0.252E+00	0.126E+00	0.990E-01	0.205E-01	0.271E-02	0.370E-05	0.000E+00

CONTINUE

Y	X = 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.227E-01	0.229E-01	0.222E-01	0.213E-01	0.182E-01	0.167E-01	0.672E-02	0.122E-02	0.201E-05	0.000E+00
13.	0.338E-01	0.339E-01	0.325E-01	0.308E-01	0.254E-01	0.230E-01	0.854E-02	0.146E-02	0.232E-05	0.000E+00
1.	0.378E+00	0.310E+00	0.225E+00	0.179E+00	0.104E+00	0.841E-01	0.191E-01	0.260E-02	0.360E-05	0.000E+00
0.	0.392E+00	0.320E+00	0.230E+00	0.182E+00	0.105E+00	0.850E-01	0.192E-01	0.260E-02	0.361E-05	0.000E+00

CONTINUE

Y	X = 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.3942E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.258E-01	0.260E-01	0.253E-01	0.243E-01	0.207E-01	0.190E-01	0.789E-02	0.160E-02	0.490E-05	0.443E-09
13.	0.389E-01	0.389E-01	0.371E-01	0.352E-01	0.289E-01	0.262E-01	0.994E-02	0.190E-02	0.559E-05	0.499E-09
1.	0.820E+00	0.591E+00	0.349E+00	0.248E+00	0.126E+00	0.997E-01	0.217E-01	0.325E-02	0.832E-05	0.714E-09
0.	0.863E+00	0.617E+00	0.360E+00	0.254E+00	0.128E+00	0.101E+00	0.218E-01	0.326E-02	0.834E-05	0.715E-09

CONTINUE

Y	X = 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.237E-01	0.239E-01	0.233E-01	0.224E-01	0.192E-01	0.177E-01	0.752E-02	0.154E-02	0.481E-05	0.437E-09
13.	0.350E-01	0.351E-01	0.337E-01	0.321E-01	0.266E-01	0.242E-01	0.944E-02	0.183E-02	0.549E-05	0.492E-09
1.	0.380E+00	0.312E+00	0.226E+00	0.181E+00	0.106E+00	0.858E-01	0.203E-01	0.313E-02	0.816E-05	0.703E-09
0.	0.393E+00	0.322E+00	0.232E+00	0.184E+00	0.107E+00	0.867E-01	0.205E-01	0.314E-02	0.818E-05	0.705E-09

CONTINUE

Y	X = 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.4380E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.266E-01	0.268E-01	0.261E-01	0.251E-01	0.215E-01	0.198E-01	0.855E-02	0.191E-02	0.967E-05	0.232E-08
13.	0.397E-01	0.398E-01	0.380E-01	0.361E-01	0.299E-01	0.271E-01	0.107E-01	0.224E-02	0.109E-04	0.259E-08
1.	0.822E+00	0.592E+00	0.350E+00	0.250E+00	0.127E+00	0.101E+00	0.228E-01	0.373E-02	0.157E-04	0.360E-08
0.	0.864E+00	0.619E+00	0.362E+00	0.255E+00	0.129E+00	0.102E+00	0.229E-01	0.374E-02	0.157E-04	0.361E-08

CONTINUE

Y	X = 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.244E-01	0.247E-01	0.241E-01	0.232E-01	0.201E-01	0.186E-01	0.817E-02	0.185E-02	0.952E-05	0.229E-08
13.	0.358E-01	0.360E-01	0.346E-01	0.330E-01	0.276E-01	0.251E-01	0.102E-01	0.218E-02	0.107E-04	0.256E-08
1.	0.381E+00	0.313E+00	0.228E+00	0.182E+00	0.107E+00	0.871E-01	0.214E-01	0.361E-02	0.154E-04	0.356E-08
0.	0.394E+00	0.323E+00	0.233E+00	0.185E+00	0.108E+00	0.880E-01	0.215E-01	0.362E-02	0.155E-04	0.357E-08

CONTINUE

Y	X = 637.
15.	0.000E+00

13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.4818E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.191E-01	0.196E-01	0.195E-01	0.192E-01	0.176E-01	0.167E-01	0.863E-02	0.223E-02	0.171E-04	0.912E-08
13.	0.280E-01	0.285E-01	0.282E-01	0.276E-01	0.248E-01	0.233E-01	0.112E-01	0.268E-02	0.194E-04	0.102E-07
1.	0.371E+00	0.363E+00	0.331E+00	0.300E+00	0.210E+00	0.175E+00	0.338E-01	0.490E-02	0.284E-04	0.143E-07
0.	0.387E+00	0.379E+00	0.345E+00	0.313E+00	0.217E+00	0.181E+00	0.342E-01	0.492E-02	0.284E-04	0.143E-07

CONTINUE

X
Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.177E-01	0.181E-01	0.180E-01	0.178E-01	0.163E-01	0.155E-01	0.818E-02	0.215E-02	0.168E-04	0.901E-08
13.	0.254E-01	0.259E-01	0.257E-01	0.252E-01	0.228E-01	0.215E-01	0.105E-01	0.258E-02	0.191E-04	0.101E-07
1.	0.200E+00	0.198E+00	0.185E+00	0.171E+00	0.130E+00	0.112E+00	0.291E-01	0.468E-02	0.279E-04	0.141E-07
0.	0.205E+00	0.203E+00	0.190E+00	0.176E+00	0.133E+00	0.115E+00	0.293E-01	0.470E-02	0.279E-04	0.141E-07

CONTINUE

X
Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.5256E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.143E-01	0.147E-01	0.149E-01	0.148E-01	0.140E-01	0.135E-01	0.814E-02	0.248E-02	0.273E-04	0.273E-07
13.	0.207E-01	0.213E-01	0.214E-01	0.212E-01	0.199E-01	0.191E-01	0.108E-01	0.306E-02	0.312E-04	0.306E-07
1.	0.243E+00	0.245E+00	0.237E+00	0.227E+00	0.188E+00	0.170E+00	0.511E-01	0.673E-02	0.464E-04	0.431E-07
0.	0.254E+00	0.255E+00	0.247E+00	0.236E+00	0.196E+00	0.176E+00	0.523E-01	0.678E-02	0.466E-04	0.432E-07

CONTINUE

X
Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

Y	X 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.132E-01	0.136E-01	0.138E-01	0.137E-01	0.130E-01	0.126E-01	0.767E-02	0.238E-02	0.268E-04	0.269E-07
13.	0.188E-01	0.194E-01	0.195E-01	0.193E-01	0.182E-01	0.175E-01	0.101E-01	0.292E-02	0.306E-04	0.302E-07
1.	0.135E+00	0.137E+00	0.134E+00	0.129E+00	0.111E+00	0.102E+00	0.372E-01	0.617E-02	0.455E-04	0.426E-07
0.	0.139E+00	0.141E+00	0.138E+00	0.133E+00	0.114E+00	0.104E+00	0.378E-01	0.620E-02	0.456E-04	0.426E-07

CONTINUE

Y	X 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	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

Y	X 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.109E-01	0.113E-01	0.115E-01	0.115E-01	0.112E-01	0.109E-01	0.731E-02	0.261E-02	0.402E-04	0.671E-07
13.	0.157E-01	0.162E-01	0.164E-01	0.164E-01	0.158E-01	0.154E-01	0.991E-02	0.331E-02	0.462E-04	0.754E-07
1.	0.173E+00	0.177E+00	0.175E+00	0.171E+00	0.153E+00	0.143E+00	0.604E-01	0.970E-02	0.708E-04	0.107E-06
0.	0.180E+00	0.184E+00	0.182E+00	0.178E+00	0.159E+00	0.149E+00	0.623E-01	0.984E-02	0.709E-04	0.108E-06

CONTINUE

Y	X 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y	X 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.101E-01	0.105E-01	0.106E-01	0.106E-01	0.104E-01	0.101E-01	0.686E-02	0.249E-02	0.393E-04	0.661E-07
13.	0.143E-01	0.148E-01	0.150E-01	0.150E-01	0.145E-01	0.141E-01	0.921E-02	0.314E-02	0.452E-04	0.743E-07
1.	0.979E-01	0.100E+00	0.998E-01	0.981E-01	0.895E-01	0.846E-01	0.402E-01	0.808E-02	0.691E-04	0.106E-06
0.	0.100E+00	0.103E+00	0.102E+00	0.101E+00	0.917E-01	0.867E-01	0.410E-01	0.816E-02	0.693E-04	0.106E-06

CONTINUE

Y	X 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.6132E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.845E-02	0.875E-02	0.894E-02	0.899E-02	0.887E-02	0.873E-02	0.637E-02	0.262E-02	0.553E-04	0.143E-06
13.	0.121E-01	0.125E-01	0.128E-01	0.128E-01	0.126E-01	0.123E-01	0.873E-02	0.339E-02	0.642E-04	0.161E-06
1.	0.128E+00	0.131E+00	0.132E+00	0.131E+00	0.122E+00	0.116E+00	0.612E-01	0.131E-01	0.103E-03	0.232E-06
0.	0.133E+00	0.137E+00	0.137E+00	0.136E+00	0.126E+00	0.121E+00	0.633E-01	0.133E-01	0.103E-03	0.232E-06

CONTINUE

Y	X = 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.784E-02	0.812E-02	0.829E-02	0.834E-02	0.824E-02	0.811E-02	0.597E-02	0.249E-02	0.540E-04	0.141E-06
13.	0.110E-01	0.114E-01	0.117E-01	0.117E-01	0.115E-01	0.113E-01	0.808E-02	0.319E-02	0.626E-04	0.159E-06
1.	0.731E-01	0.752E-01	0.758E-01	0.753E-01	0.711E-01	0.684E-01	0.389E-01	0.990E-02	0.996E-04	0.228E-06
0.	0.750E-01	0.772E-01	0.778E-01	0.772E-01	0.729E-01	0.701E-01	0.398E-01	0.100E-01	0.999E-04	0.229E-06

CONTINUE

Y	X = 637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.6570E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)
Z = 0.00

Y	X = 0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.660E-02	0.685E-02	0.702E-02	0.708E-02	0.707E-02	0.700E-02	0.545E-02	0.253E-02	0.721E-04	0.272E-06
13.	0.941E-02	0.976E-02	0.999E-02	0.101E-01	0.100E-01	0.988E-02	0.752E-02	0.332E-02	0.846E-04	0.308E-06
1.	0.968E-01	0.998E-01	0.101E+00	0.101E+00	0.965E-01	0.935E-01	0.571E-01	0.157E-01	0.145E-03	0.448E-06
0.	0.101E+00	0.104E+00	0.105E+00	0.105E+00	0.100E+00	0.971E-01	0.591E-01	0.161E-01	0.145E-03	0.449E-06

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.612E-02	0.636E-02	0.651E-02	0.658E-02	0.657E-02	0.651E-02	0.510E-02	0.240E-02	0.701E-04	0.268E-06
13.	0.861E-02	0.893E-02	0.914E-02	0.922E-02	0.918E-02	0.907E-02	0.695E-02	0.312E-02	0.822E-04	0.303E-06
1.	0.557E-01	0.575E-01	0.583E-01	0.583E-01	0.564E-01	0.549E-01	0.354E-01	0.111E-01	0.139E-03	0.441E-06
0.	0.571E-01	0.590E-01	0.598E-01	0.598E-01	0.578E-01	0.563E-01	0.362E-01	0.113E-01	0.139E-03	0.442E-06

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.519E-02	0.539E-02	0.554E-02	0.561E-02	0.565E-02	0.562E-02	0.461E-02	0.237E-02	0.895E-04	0.473E-06
13.	0.738E-02	0.767E-02	0.787E-02	0.796E-02	0.799E-02	0.793E-02	0.638E-02	0.315E-02	0.107E-03	0.538E-06
1.	0.743E-01	0.768E-01	0.782E-01	0.784E-01	0.765E-01	0.748E-01	0.508E-01	0.172E-01	0.202E-03	0.794E-06
0.	0.772E-01	0.799E-01	0.813E-01	0.815E-01	0.795E-01	0.777E-01	0.527E-01	0.177E-01	0.204E-03	0.796E-06

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.482E-02	0.501E-02	0.515E-02	0.521E-02	0.525E-02	0.522E-02	0.431E-02	0.223E-02	0.867E-04	0.464E-06
13.	0.676E-02	0.702E-02	0.721E-02	0.729E-02	0.733E-02	0.727E-02	0.589E-02	0.294E-02	0.103E-03	0.528E-06
1.	0.430E-01	0.445E-01	0.454E-01	0.456E-01	0.448E-01	0.440E-01	0.311E-01	0.117E-01	0.188E-03	0.779E-06
0.	0.441E-01	0.456E-01	0.465E-01	0.467E-01	0.459E-01	0.451E-01	0.319E-01	0.119E-01	0.189E-03	0.781E-06

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.410E-02	0.427E-02	0.440E-02	0.446E-02	0.452E-02	0.451E-02	0.386E-02	0.216E-02	0.106E-03	0.761E-06
13.	0.582E-02	0.606E-02	0.623E-02	0.631E-02	0.639E-02	0.637E-02	0.536E-02	0.290E-02	0.128E-03	0.870E-06
1.	0.576E-01	0.597E-01	0.610E-01	0.615E-01	0.608E-01	0.599E-01	0.441E-01	0.176E-01	0.280E-03	0.131E-05
0.	0.599E-01	0.621E-01	0.634E-01	0.639E-01	0.632E-01	0.622E-01	0.457E-01	0.182E-01	0.283E-03	0.132E-05

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.381E-02	0.397E-02	0.408E-02	0.414E-02	0.421E-02	0.420E-02	0.361E-02	0.203E-02	0.103E-03	0.746E-06
13.	0.534E-02	0.555E-02	0.571E-02	0.579E-02	0.586E-02	0.584E-02	0.494E-02	0.270E-02	0.124E-03	0.852E-06
1.	0.335E-01	0.347E-01	0.355E-01	0.358E-01	0.356E-01	0.352E-01	0.268E-01	0.116E-01	0.250E-03	0.128E-05
0.	0.343E-01	0.356E-01	0.364E-01	0.367E-01	0.365E-01	0.361E-01	0.274E-01	0.118E-01	0.251E-03	0.129E-05

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.326E-02	0.339E-02	0.350E-02	0.356E-02	0.363E-02	0.363E-02	0.322E-02	0.194E-02	0.122E-03	0.115E-05
13.	0.462E-02	0.481E-02	0.496E-02	0.503E-02	0.512E-02	0.512E-02	0.448E-02	0.262E-02	0.149E-03	0.132E-05

1.	0.451E-01	0.468E-01	0.480E-01	0.485E-01	0.485E-01	0.480E-01	0.376E-01	0.171E-01	0.379E-03	0.206E-05
0.	0.469E-01	0.486E-01	0.499E-01	0.504E-01	0.503E-01	0.499E-01	0.390E-01	0.177E-01	0.384E-03	0.206E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.303E-02	0.315E-02	0.325E-02	0.331E-02	0.338E-02	0.338E-02	0.300E-02	0.182E-02	0.117E-03	0.112E-05
13.	0.423E-02	0.441E-02	0.454E-02	0.461E-02	0.470E-02	0.470E-02	0.412E-02	0.243E-02	0.143E-03	0.129E-05
1.	0.263E-01	0.273E-01	0.280E-01	0.283E-01	0.284E-01	0.282E-01	0.227E-01	0.110E-01	0.321E-03	0.200E-05
0.	0.269E-01	0.280E-01	0.287E-01	0.290E-01	0.292E-01	0.289E-01	0.232E-01	0.112E-01	0.324E-03	0.201E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.260E-02	0.271E-02	0.280E-02	0.284E-02	0.292E-02	0.293E-02	0.267E-02	0.171E-02	0.134E-03	0.164E-05
13.	0.368E-02	0.383E-02	0.395E-02	0.402E-02	0.412E-02	0.413E-02	0.372E-02	0.233E-02	0.166E-03	0.190E-05
1.	0.355E-01	0.369E-01	0.379E-01	0.384E-01	0.387E-01	0.385E-01	0.317E-01	0.161E-01	0.492E-03	0.310E-05
0.	0.369E-01	0.383E-01	0.394E-01	0.399E-01	0.402E-01	0.400E-01	0.329E-01	0.166E-01	0.501E-03	0.311E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.241E-02	0.252E-02	0.260E-02	0.264E-02	0.271E-02	0.273E-02	0.249E-02	0.161E-02	0.128E-03	0.160E-05
13.	0.337E-02	0.351E-02	0.363E-02	0.369E-02	0.378E-02	0.379E-02	0.343E-02	0.216E-02	0.159E-03	0.186E-05

1.	0.207E-01	0.216E-01	0.222E-01	0.225E-01	0.227E-01	0.227E-01	0.191E-01	0.102E-01	0.397E-03	0.298E-05
0.	0.213E-01	0.221E-01	0.227E-01	0.230E-01	0.233E-01	0.232E-01	0.195E-01	0.104E-01	0.401E-03	0.299E-05

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.208E-02	0.217E-02	0.224E-02	0.228E-02	0.235E-02	0.236E-02	0.221E-02	0.149E-02	0.143E-03	0.224E-05
13.	0.294E-02	0.306E-02	0.316E-02	0.322E-02	0.331E-02	0.333E-02	0.308E-02	0.204E-02	0.180E-03	0.262E-05
1.	0.281E-01	0.292E-01	0.301E-01	0.305E-01	0.310E-01	0.310E-01	0.265E-01	0.147E-01	0.610E-03	0.454E-05
0.	0.292E-01	0.304E-01	0.313E-01	0.317E-01	0.322E-01	0.321E-01	0.275E-01	0.152E-01	0.623E-03	0.456E-05

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.193E-02	0.201E-02	0.208E-02	0.212E-02	0.219E-02	0.220E-02	0.206E-02	0.140E-02	0.137E-03	0.218E-05
13.	0.269E-02	0.281E-02	0.290E-02	0.295E-02	0.304E-02	0.306E-02	0.284E-02	0.189E-02	0.171E-03	0.255E-05
1.	0.164E-01	0.171E-01	0.176E-01	0.179E-01	0.182E-01	0.182E-01	0.159E-01	0.921E-02	0.471E-03	0.430E-05
0.	0.168E-01	0.175E-01	0.181E-01	0.184E-01	0.187E-01	0.187E-01	0.163E-01	0.942E-02	0.477E-03	0.431E-05

CONTINUE

X

Y 637.

15. 0.000E+00
13. 0.000E+00
1. 0.000E+00
0. 0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.

15.	0.166E-02	0.174E-02	0.180E-02	0.183E-02	0.190E-02	0.191E-02	0.182E-02	0.129E-02	0.149E-03	0.292E-05
13.	0.235E-02	0.245E-02	0.254E-02	0.259E-02	0.267E-02	0.269E-02	0.255E-02	0.177E-02	0.189E-03	0.345E-05
1.	0.223E-01	0.232E-01	0.240E-01	0.244E-01	0.249E-01	0.249E-01	0.221E-01	0.132E-01	0.722E-03	0.648E-05
0.	0.232E-01	0.241E-01	0.249E-01	0.253E-01	0.258E-01	0.259E-01	0.229E-01	0.137E-01	0.739E-03	0.652E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.155E-02	0.162E-02	0.167E-02	0.171E-02	0.176E-02	0.178E-02	0.170E-02	0.121E-02	0.142E-03	0.284E-05
13.	0.216E-02	0.225E-02	0.233E-02	0.237E-02	0.245E-02	0.247E-02	0.234E-02	0.164E-02	0.179E-03	0.335E-05
1.	0.131E-01	0.136E-01	0.141E-01	0.143E-01	0.146E-01	0.147E-01	0.132E-01	0.820E-02	0.537E-03	0.599E-05
0.	0.134E-01	0.140E-01	0.144E-01	0.147E-01	0.150E-01	0.151E-01	0.135E-01	0.838E-02	0.545E-03	0.602E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.134E-02	0.140E-02	0.145E-02	0.148E-02	0.153E-02	0.155E-02	0.150E-02	0.111E-02	0.151E-03	0.367E-05
13.	0.189E-02	0.197E-02	0.204E-02	0.208E-02	0.216E-02	0.218E-02	0.210E-02	0.153E-02	0.194E-03	0.438E-05
1.	0.178E-01	0.185E-01	0.192E-01	0.195E-01	0.200E-01	0.201E-01	0.183E-01	0.117E-01	0.819E-03	0.902E-05
0.	0.185E-01	0.193E-01	0.199E-01	0.202E-01	0.208E-01	0.208E-01	0.190E-01	0.121E-01	0.840E-03	0.911E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.

15.	0.124E-02	0.130E-02	0.135E-02	0.137E-02	0.143E-02	0.144E-02	0.140E-02	0.104E-02	0.144E-03	0.356E-05
13.	0.173E-02	0.181E-02	0.187E-02	0.191E-02	0.198E-02	0.200E-02	0.193E-02	0.141E-02	0.183E-03	0.423E-05
1.	0.104E-01	0.109E-01	0.113E-01	0.115E-01	0.118E-01	0.118E-01	0.109E-01	0.720E-02	0.591E-03	0.810E-05
0.	0.107E-01	0.112E-01	0.115E-01	0.117E-01	0.121E-01	0.121E-01	0.112E-01	0.736E-02	0.600E-03	0.815E-05

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

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	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.108E-02	0.112E-02	0.117E-02	0.119E-02	0.124E-02	0.125E-02	0.124E-02	0.950E-03	0.150E-03	0.446E-05
13.	0.152E-02	0.158E-02	0.164E-02	0.168E-02	0.174E-02	0.176E-02	0.173E-02	0.131E-02	0.194E-03	0.537E-05
1.	0.142E-01	0.148E-01	0.153E-01	0.156E-01	0.161E-01	0.162E-01	0.151E-01	0.102E-01	0.895E-03	0.123E-04
0.	0.148E-01	0.154E-01	0.159E-01	0.162E-01	0.167E-01	0.168E-01	0.157E-01	0.106E-01	0.919E-03	0.124E-04

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

X

Y	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.100E-02	0.105E-02	0.109E-02	0.111E-02	0.115E-02	0.117E-02	0.115E-02	0.889E-03	0.142E-03	0.431E-05
13.	0.139E-02	0.145E-02	0.151E-02	0.154E-02	0.160E-02	0.162E-02	0.159E-02	0.121E-02	0.183E-03	0.518E-05
1.	0.837E-02	0.873E-02	0.903E-02	0.920E-02	0.950E-02	0.957E-02	0.904E-02	0.626E-02	0.629E-03	0.106E-04
0.	0.857E-02	0.894E-02	0.926E-02	0.943E-02	0.974E-02	0.980E-02	0.926E-02	0.640E-02	0.639E-03	0.107E-04

CONTINUE

X

Y 637.

15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

STEADY STATE SOLUTION HAS NOT BEEN REACHED BEFORE FINAL SIMULATING TIME

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1051E+06 HRS

(ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.)

Z = 0.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.868E-03	0.907E-03	0.942E-03	0.962E-03	0.100E-02	0.102E-02	0.102E-02	0.808E-03	0.146E-03	0.525E-05
13.	0.122E-02	0.128E-02	0.133E-02	0.135E-02	0.141E-02	0.143E-02	0.142E-02	0.111E-02	0.190E-03	0.639E-05
1.	0.114E-01	0.119E-01	0.123E-01	0.126E-01	0.130E-01	0.131E-01	0.125E-01	0.883E-02	0.946E-03	0.162E-04
0.	0.118E-01	0.124E-01	0.128E-01	0.130E-01	0.135E-01	0.136E-01	0.130E-01	0.915E-02	0.973E-03	0.164E-04

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

Z = 2.00

Y \ X	0.	3.	6.	8.	13.	15.	30.	50.	100.	152.
15.	0.808E-03	0.844E-03	0.876E-03	0.895E-03	0.934E-03	0.945E-03	0.950E-03	0.755E-03	0.138E-03	0.507E-05
13.	0.112E-02	0.117E-02	0.122E-02	0.124E-02	0.130E-02	0.131E-02	0.131E-02	0.103E-02	0.179E-03	0.614E-05
1.	0.671E-02	0.701E-02	0.726E-02	0.740E-02	0.767E-02	0.774E-02	0.746E-02	0.540E-02	0.651E-03	0.136E-04
0.	0.688E-02	0.718E-02	0.744E-02	0.759E-02	0.786E-02	0.793E-02	0.764E-02	0.552E-02	0.662E-03	0.137E-04

CONTINUE

Y \ X	637.
15.	0.000E+00
13.	0.000E+00
1.	0.000E+00
0.	0.000E+00

ATTACHMENT B

REFERENCES

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.

Coughlan, Michael F., 1997. Letter to John Spears (Fort Stewart Directorate of Public Works, Environmental Branch), August 1.

Coughlan, Michael F., 1998. Letter to Thomas Fry (Fort Stewart Directorate of Public Works, Environmental Branch), November 16.

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

Herrick, S.M., and R.C. Vochis 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.

McAllister, A.J., 1999. Letter to Ovidio Perez (Fort Stewart Directorate of Public Works, Environmental Branch), May 21.

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

Perez, Ovidio, 1999. Letter to A.J. McAllister (Georgia Environmental Protection Division, Underground Storage Tank Management Program), April 22.

SAIC (Science Applications International Corporation) 1997. *CAP–Part A Report for UST 1, Facility ID #9-089064, Building 1841, Fort Stewart, Georgia*, April.

SAIC 1998. *CAP–Part A Addendum Report for UST 1, Facility ID #9-089064, Building 1841, Fort Stewart, Georgia*, August.

ATTACHMENT C

BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

HTRW DRILLING LOG

HOLE NUMBER 01-08

PROJECT: Fort Stewart USTs | INSPECTOR Paul Lucot | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		CONCRETE				
	1	SAND(SM), fine to medium grained, some silt loose, moist, subrounded, Yellowish brown (10 YR 5/8)	1.9 ppm			
	2					
	3		1.0 ppm			
	4					
	5		1.0 ppm			▽ wet below 5.3 FT BGS
	6	SAND (SM), fine to medium grained, some silt, loose, moist to wet, subrounded, Yellowish brown (10 YR 5/8)				
	7		N/A			
	8					
	9	Sandy CLAY (CL), soft to medium stiff, moderately plastic, moist, dark grayish brown (10 YR 4/2)				
	10	SAND (SM), some silt, coarse grained, loose, wet, dark gray (10 YR 3/1)				

HTRW DRILLING LOG

HOLE NUMBER 01-08

PROJECT: Fort Stewart USTs

INSPECTOR Paul Ucot

SHEET 2 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO (F)	REMARKS (G)
	11	CLAY (CH), Some sand, very stiff, very plastic, moist dark greenish gray (10 G 4/1)				
	12					PUSHED TO 13.0 FT BGS TO SET 3/4" MONITORING POINT SCREENED FROM 2.7 TO 12.7 FT BGS
	13					COLLECTED GROUNDWATER SAMPLE 0108I2 FROM MONITORING POINT
	14					
	15					
	16					
	17					
	18					
	19					
	20					

HTRW DRILLING LOG

HOLE NUMBER 01 - 09

PROJECT: Fort Stewart USTs

INSPECTOR Paul Lucot

SHEET 1 OF 1

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	Silty SAND (SM), fine to medium grained, dense, moist, very dark gray (10 YR 3/1)	0.7 ppm			
	1					
	2		1.5 ppm			
	3					
	4		3.7 ppm			
	5					▽ Wet below = 5.7 FT BGS
	6		N/A			
	7	CLAY (CH), Some sand, Very Plastic, medium stiff, wet dark yellowish brown (10 YR 4/4)				
	8					PUSHED TO 15.5 FT BGS TO SET 3/4" MONITORING POINT SCREENED FROM 5.2 TO 15.2 FT BGS
	9					
	10					

HTRW DRILLING LOG

HOLE NUMBER 01-18

PROJECT: Fort Stewart USTs | INSPECTOR Paul Lucot | SHEET 1 OF 2

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		CONCRETE				
	1	SAND (SM), fine to medium grained, some silt, loose, moist, light brownish gray (10YR 6/2)	2.1 ppm			
	2	Silty SAND (SM), some clay, fine to medium grained, moist, dense, black (10YR 2/1)				
	3		0.6 ppm			
	4					
	5		2.3 ppm			
	6					
	7		2.2 ppm			
	8					
	9		N/A			
	10					

HTRW DRILLING LOG

HOLE NUMBER Ø1-1Ø

PROJECT: Fort Stewart USTs

INSPECTOR Paul Ulcot

SHEET 2 OF 2

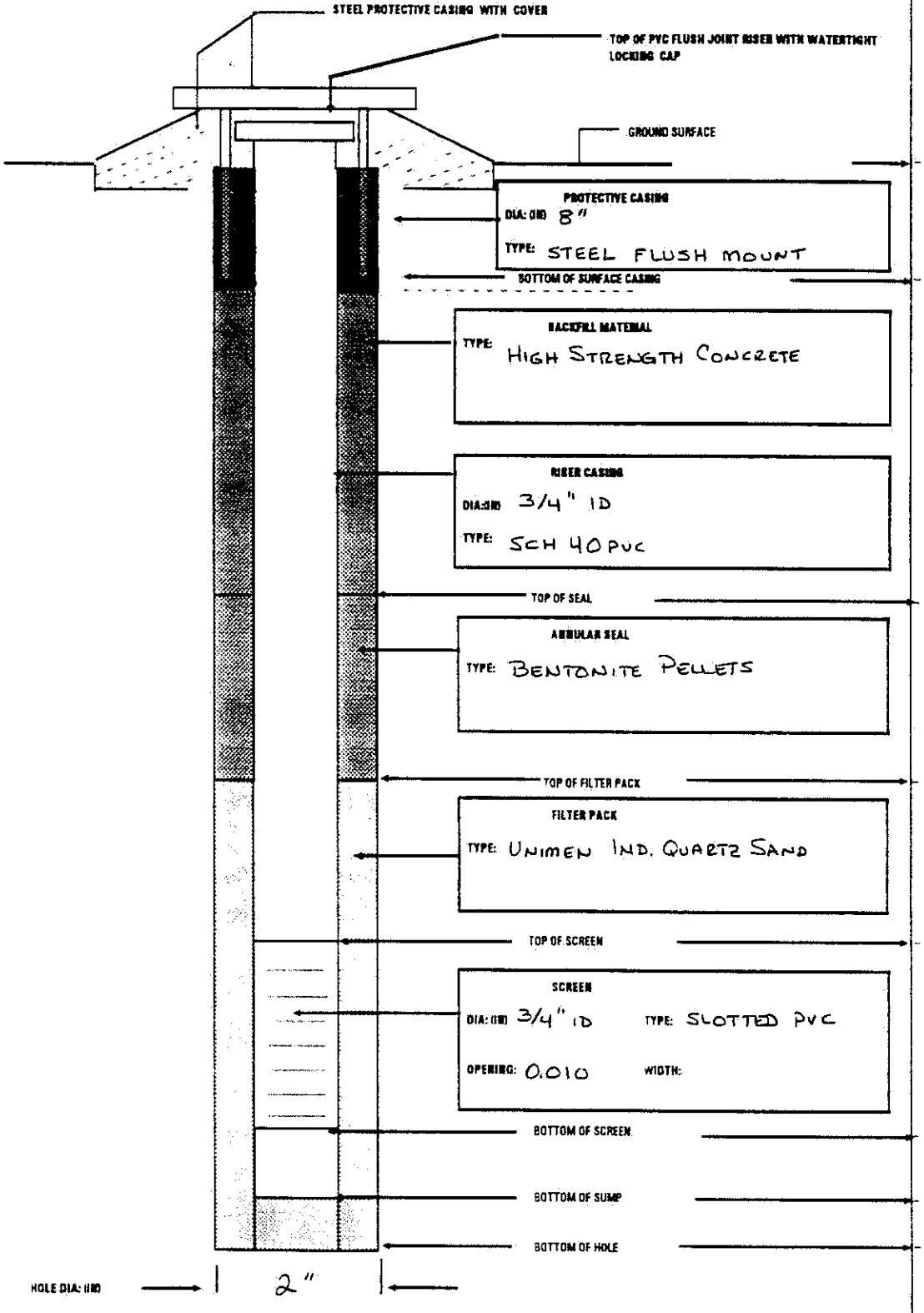
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	11					▽ wet below 11.Ø FT BGS
	12					PUSHED TO 16.Ø FT BGS TO SET 3/4" MONITORING POINT SCREENED FROM 5.2 TO 15.2 FT BGS
	13					
	14					COLLECTED GROUNDWATER SAMPLE Ø1Ø12 FROM MONITORING POINT
	15					
	16					
	17					
	18					
	19					
	20					

MONITORING WELL

PROJECT: UST 1

WELL NUMBER: 01-08	**BEGIN:** 1/13/00	**END:** 1/13/00
COORDINATES: N: 683318.7 E: 821689.4	**REFERENCE POINT:** TOP OF CASING	**ELEVATION:** 67.56

SURVEY DATUM: NAD 83, NAVD 88



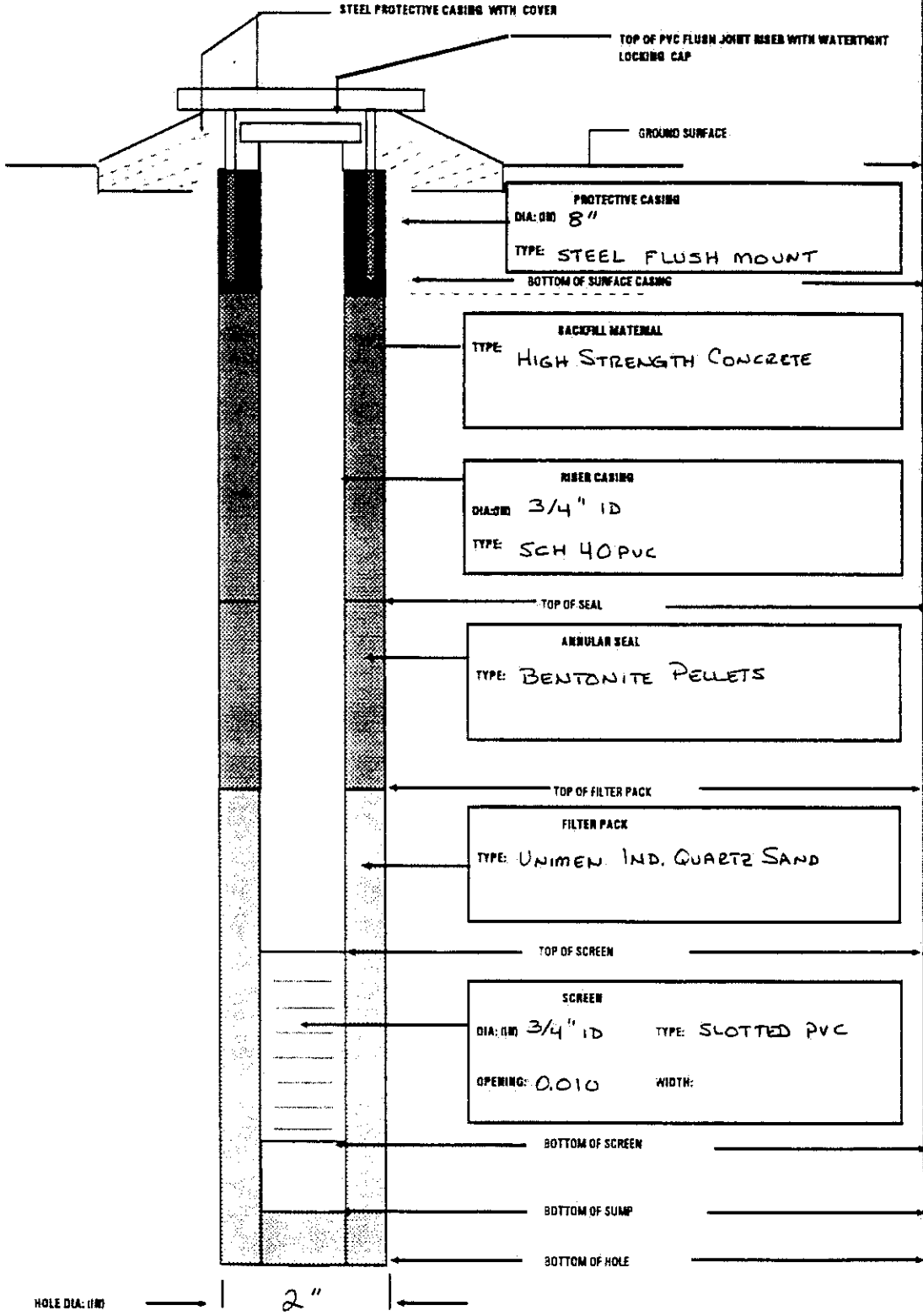
DEPTH	ELEV
0	67.78
0.8	
1.0	
2.0	
2.7	
12.7	
12.8	
13.0	

MONITORING WELL

PROJECT: UST 1

WELL NUMBER: 01-09	**BEGIN:** 1/13/00	**END:** 1/13/00
COORDINATES: N: 683337.9 E: 821714.2	**REFERENCE POINT:** TOP OF CASING	**ELEVATION:** 67.57

SURVEY DATUM: NAD 83, NAVD 88



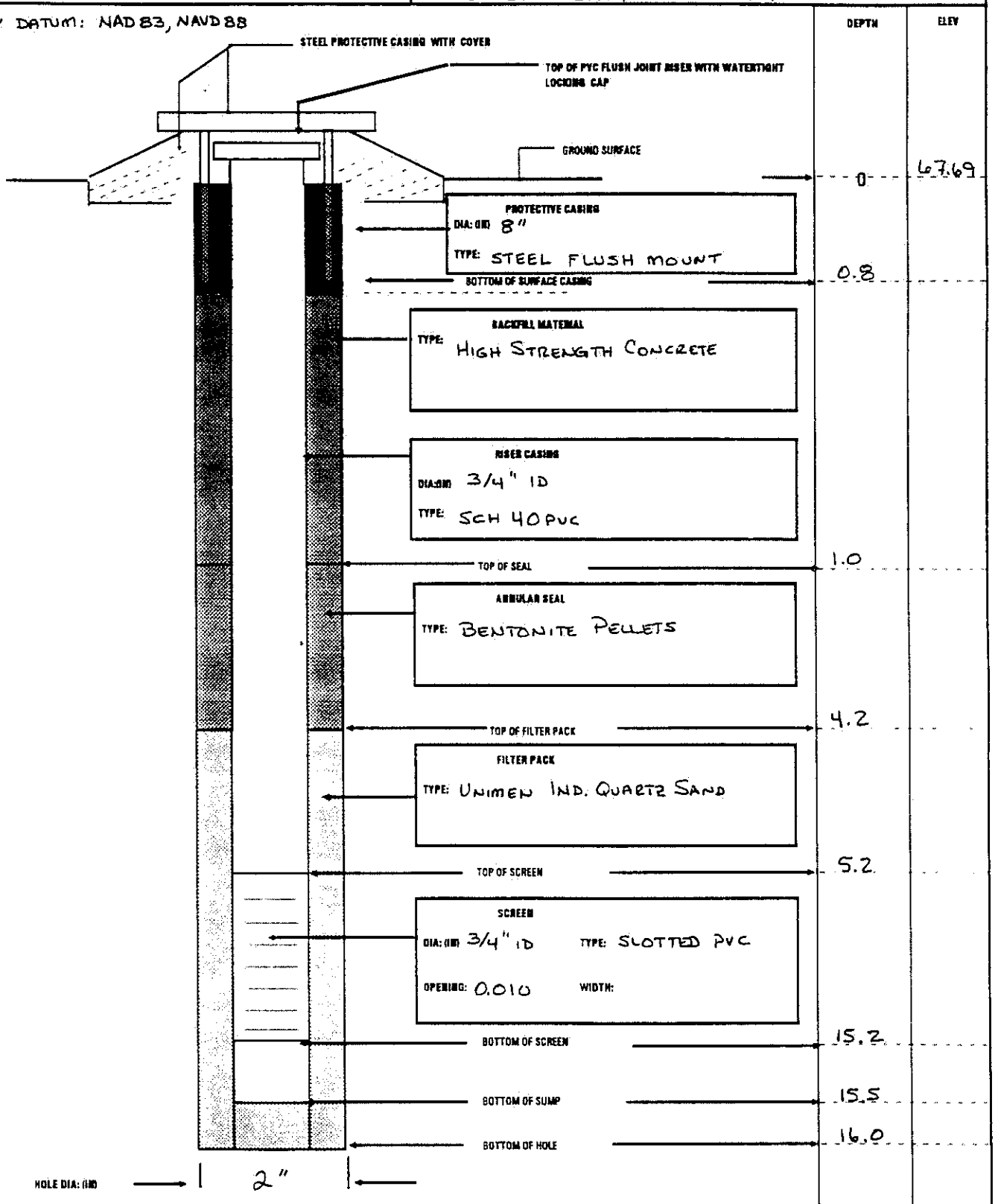
DEPTH	ELEV
0	67.82
0.8	
0.5	
4.0	
5.2	
15.2	
15.3	
15.5	

MONITORING WELL

PROJECT: UST 1

WELL NUMBER: 01-10	**BEGIN:** 1/13/00	**END:** 1/13/00
COORDINATES: N: 683347.9 E: 821684.6	**REFERENCE POINT:** TOP OF CASING	**ELEVATION:** 67.42

SURVEY DATUM: NAD 83, NAVD 88



DEPTH	ELEV
0	67.69
0.8	
1.0	
4.2	
5.2	
15.2	
15.5	
16.0	