DATA VALIDATION COPY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-18

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F3016

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 16 Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	Benzene	2.4	U
108-88-3	Toluene	2.4	U
100-41-4	Ethylbenzene	2.4	U
1330-20-7	Xylenes (total)	7.1	U

U

FORM I VOA

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-18

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 1P519

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/14/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/17/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	397	U
91-58-7	2-chloronaphthalene	397	U
208-96-8	acenaphthylene	397	U
83-32-9	acenaphthene	397	U
86-73-7	fluorene	397	U
85-01-8	phenanthrene	397	U
120-12-7	anthracene	397	U
206-44-0	fluoranthene	397	U
129-00-0	pyrene	397	U
56-55-3	benzo(a)anthracene	397	U
218-01-9	chrysene	397	U
205-99-2	benzo(b)fluoranthene	397	U
207-08-9	benzo(k)fluoranthene	397	U
50-32-8	benzo(a)pyrene	397	U
193-39-5	indeno(1,2,3-cd)pyrene	397	U
53-70-3	dibenz(a,h)anthracene	397	U
191-24-2	benzo(g,h,i)perylene	397	U

U

FORM I SV-1 OLM03.0

FORM 1 Science Applications10 APR-1998 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HP2175

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-18

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 4D40029

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 16 decanted: (Y/N) N Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/24/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	0.41	JB	U5 C14, F01, F06, G02

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-18

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F105

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 16 Date Analyzed: 04/20/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics_____	595	U	U

DATA VALIDATED
GDT

DATA VALIDATION COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-15

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F3013

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 19 Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	Benzene	2.5	U
108-88-3	Toluene	2.5	U
100-41-4	Ethylbenzene	2.5	U
1330-20-7	Xylenes (total)	7.4	U

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HP3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-15

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 1P516

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 19 decanted: (Y/N) N Date Extracted: 04/14/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/17/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	406	U
91-58-7	2-chloronaphthalene	406	U
208-96-8	acenaphthylene	406	U
83-32-9	acenaphthene	406	U
86-73-7	fluorene	406	U
85-01-8	phenanthrene	406	U
120-12-7	anthracene	406	U
206-44-0	fluoranthene	406	U
129-00-0	pyrene	406	U
56-55-3	benzo(a)anthracene	406	U
218-01-9	chrysene	406	U
205-99-2	benzo(b)fluoranthene	406	U
207-08-9	benzo(k)fluoranthene	406	U
50-32-8	benzo(a)pyrene	406	U
193-39-5	indeno(1,2,3-cd)pyrene	406	U
53-70-3	dibenz(a,h)anthracene	406	U
191-24-2	benzo(g,h,i)perylene	406	U

U

FORM I SV-1 OLM03.0

FORM 1 Science Applications10-APR-1998 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HP3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-15

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 4D40025

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 19 decanted: (Y/N) N Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/24/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	0.91	B	UJ C14, FD1, FD7

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-15

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F3017

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 19 Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	Gasoline Range Organics	617	U	UJ GØZ

USQ

DATA VALIDATION COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-16

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F3014

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 20 Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	Benzene	2.5	U
108-88-3	Toluene	2.5	U
100-41-4	Ethylbenzene	2.5	U
1330-20-7	Xylenes (total)	7.5	U

U

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HP3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-16

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 1P517

Level: (low/med) LOW DATA VALIDATION COPY Date Received: 04/10/98

% Moisture: 20 decanted: (Y/N) N Date Extracted: 04/14/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/17/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	417	U
91-58-7	2-chloronaphthalene	417	U
208-96-8	acenaphthylene	417	U
83-32-9	acenaphthene	417	U
86-73-7	fluorene	417	U
85-01-8	phenanthrene	417	U
120-12-7	anthracene	417	U
206-44-0	fluoranthene	417	U
129-00-0	pyrene	417	U
56-55-3	benzo(a)anthracene	417	U
218-01-9	chrysene	417	U
205-99-2	benzo(b)fluoranthene	417	U
207-08-9	benzo(k)fluoranthene	417	U
50-32-8	benzo(a)pyrene	417	U
193-39-5	indeno(1,2,3-cd)pyrene	417	U
53-70-3	dibenz(a,h)anthracene	417	U
191-24-2	benzo(g,h,i)perylene	417	U

U

FORM I SV-1 OLM03.0

FORM 1 Science Applications 0-APR-1998. SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HP3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-16

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 4D40026

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 20 decanted: (Y/N) N Date Extracted: 04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/24/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	0.42	JB	US C14, F01, F06

DATA VALIDATION COPY

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA011S

Matrix: (soil/water) SOIL Lab Sample ID: 9804286-16

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F3018

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 20 Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
	----------Gasoline Range Organics	625	U	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4104

DATA VALIDATION COPY

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-03

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F5012

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 17 Date Analyzed: 04/24/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	Benzene	2.4	U
108-88-3	Toluene	2.4	U
100-41-4	Ethylbenzene	2.4	U
1330-20-7	Xylenes (total)	7.2	U

U

FORM I VOA

DATA VALIDATION COPY

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4104

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 1R114

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/15/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/27/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	402	U
91-58-7	2-chloronaphthalene	402	U
208-96-8	acenaphthylene	402	U
83-32-9	acenaphthene	402	U
86-73-7	fluorene	402	U
85-01-8	phenanthrene	402	U
120-12-7	anthracene	402	U
206-44-0	fluoranthene	402	U
129-00-0	pyrene	402	U
56-55-3	benzo(a)anthracene	402	U
218-01-9	chrysene	402	U
205-99-2	benzo(b)fluoranthene	402	U
207-08-9	benzo(k)fluoranthene	402	U
50-32-8	benzo(a)pyrene	402	U
193-39-5	indeno(1,2,3-cd)pyrene	402	U
53-70-3	dibenz(a,h)anthracene	402	U
191-24-2	benzo(g,h,i)perylene	402	U

U

FORM I SV-1 OLM03.0

DATA VALIDATION COPY

FORM 1 Science Applications10-APR-1998 SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HP4104RE

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4E20033

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/28/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/29/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USQ

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	Diesel Range Organics	0.44	JB	UJ AP1, FD1, FD6

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4104

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-03

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F4010

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 17 Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Gasoline Range Organics	602	U

U

DATA VALIDATION COPY

FORM I VOA

DATA VALIDATION COPY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F5011

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 18 Date Analyzed: 04/24/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
71-43-2	Benzene	2.4	U
108-88-3	Toluene	2.4	U
100-41-4	Ethylbenzene	2.4	U
1330-20-7	Xylenes (total)	7.3	U

FORM I VOA

DATA VALIDATION COPY

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 1R113

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/15/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/27/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	406	U
91-58-7	2-chloronaphthalene	406	U
208-96-8	acenaphthylene	406	U
83-32-9	acenaphthene	406	U
86-73-7	fluorene	406	U
85-01-8	phenanthrene	406	U
120-12-7	anthracene	406	U
206-44-0	fluoranthene	406	U
129-00-0	pyrene	406	U
56-55-3	benzo(a)anthracene	406	U
218-01-9	chrysene	406	U
205-99-2	benzo(b)fluoranthene	406	U
207-08-9	benzo(k)fluoranthene	406	U
50-32-8	benzo(a)pyrene	406	U
193-39-5	indeno(1,2,3-cd)pyrene	406	U
53-70-3	dibenz(a,h)anthracene	406	U
191-24-2	benzo(g,h,i)perylene	406	U

U

FORM I SV-1 OLM03.0

FORM 1 Science Applications 10-APR-1998 SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

DATA VALIDATION COPY

HP4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 4C50013

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/16/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/23/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	Diesel Range Organics	2.5	B	U FD1, FD7

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA012S

Matrix: (soil/water) SOIL Lab Sample ID: 9804285-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F409

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. 18 Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Gasoline Range Organics	610	U

U

DATA VALIDATION COPY

FORM I VOA

DATA VALIDATION
COPY

Client: Science Applications International Corp.
P.O. Box 2502
800 Oak Ridge Turnpike
Oak Ridge, Tennessee 37831
Contact: Ms. Lorene Rollins
Project Description: Hunter Army Airfield Site

cc: SAIC00398

Report Date: April 22, 1998

Sample ID	: HP6400
Lab ID	: 9804285-01
Matrix	: Soil
Date Collected	: 04/10/98
Date Received	: 04/10/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
TOTAL ORGANIC CARBON (TOC)		805	24.1	100	mg/kg	1.0	LS	04/17/98	1450	120173	1

M = Method	Method-Description
M 1	SW846 9060 modified

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

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Valerie Davis at (803) 769-7391.

Reviewed By

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX VI

ALTERNATE THRESHOLD LEVEL (ATL) CALCULATIONS

THIS PAGE INTENTIONALLY LEFT BLANK

Calculations of alternate threshold levels are not indicated for the Former Heating Oil Tank (HOT), Building 8593-1 site based on the evaluation of the analytical results. However, the geotechnical data collected during the Corrective Action Plan-Part A investigations are presented in Table VI-A for future reference.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

CAP-Part A UST Investigation Sites
Hunter Army, Chatham County

TABLE VI-A. GEOTECHNICAL PARAMETERS FOR ALL CAP-PART A UST/HOT INVESTIGATION SITES

Building ID	Tank ID	Facility ID	Sample ID	Sample Depth	Classification	Moisture Content (%)	Total Organic Carbon (%)	Specific Gravity	Porosity, n	Permeability (cm/s)	Gravel (wt %)	Sand (wt %)	Mud (wt %)
1346	108	9-025104	HD8400	4.0 - 6.0	SC-SM	24.1	0.547	2.57	0.56	2.0E-7	19.3	45.7	35.0
8464	112	9-025108	HG6400	0.0 - 2.0	SP-SC	10.8	0.095	2.67	0.54	1.2E-3	0.3	91.7	8.0
1310	109	9-025105	HH6400	0.0 - 2.0	SC	13.2	0.209	2.59	0.60	3.9E-6	6.9	81.1	12.0
8059	28	9-025083	HI8400	2.0 - 4.0	SP-SC	12.8	0.527	2.63	0.45	1.4E-4	4.6	88.4	7.0
9002	116	9-025112	HJ6400	2.0 - 4.0	SC	22.7	0.155	2.66	0.53	7.8E-5	5.3	87.7	7.0
1327	21	9-025053	HL8400	2.0 - 4.0	SM	8.1	0.710	2.67	0.40	1.1E-4	20.7	65.3	14.0
8582	X	N/A	HO5400	2.0 - 4.0	CL	27.8	0.161	2.65	0.54	2.1E-7	31.0	16.0	53.0
8593-1	X	N/A	HP5400	4.0 - 6.0	SC	17.6	0.080	2.65	0.44	1.3E-7	15.0	55.0	30.0

NOTE: CAP = Corrective Action Plan.
CL = Clay.
HOT = Heating Oil Tank.
N/A = Not applicable.
SC = Clayey sand.
SC-SM = Clayey, silty sand.
SM = Silty sand.
SP-SC = Poorly graded, clayey sand.
UST = Underground storage tank.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX VII

MONITORING WELL DETAILS

THIS PAGE INTENTIONALLY LEFT BLANK

Monitoring wells were not installed as part of the Corrective Action Plan-Part A investigation. Temporary piezometers were installed at the Former Heating Oil Tank (HOT), Building 8593-1 site. Refer to Figures 4 and 5 (Appendix I) and Appendix IV for temporary piezometer installation details.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX VIII

GROUNDWATER LABORATORY RESULTS

THIS PAGE INTENTIONALLY LEFT BLANK

Former HOT, Building 8593-1
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE VIII-A. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS[3]

Location	P-1	P-1	P-2	P-3	P-4	P-5	P-5	P-5	
Sample ID	HP1200	HP1210	HP2200	HP3200	HP4200	HP5301	HP5302	HP5303	
Date Collected	04/09/98	04/09/98	04/09/98	04/10/98	04/10/98	04/10/98	04/10/98	04/10/98	
Depth (ft BGS)	9.0-13.0	9.0-13.0 Dup.	9.0-13.0	11.0-15.0	11.0-15.0	16.0-20.0	26.0-30.0	36.0-40.0	Applicable Standards[1]
VOCs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	2.5 =	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.008
Toluene	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	6.000
Ethylbenzene	10.1 =	4.4 U	2 U	2 U	2 U	2 U	2 U	2 U	10
Xylenes	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	700
PAHs	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2-Chloronaphthalene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Acenaphthene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Acenaphthylene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Anthracene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Benzo(a)anthracene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Benzo(a)pyrene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	0.2
Benzo(b)fluoranthene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	NRC
Benzo(g,h,i)perylene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Benzo(k)fluoranthene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	NRC
Chrysene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	NRC
Dibenzo(a,h)anthracene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	NRC
Fluoranthene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	5.8 J	11.6 U	10.3 U	N/A[2]
Fluorene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Indeno(1,2,3-cd)pyrene	10.6 U	10.4 U	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	NRC
Naphthalene	20.4 =	22.2 J	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Phenanthrene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]
Pyrene	10.6 U	10.2 UJ	10.4 U	10.4 U	10.4 U	10.3 U	11.6 U	10.3 U	N/A[2]

NOTE: [1]U.S. Environmental Protection Agency maximum contaminant level.
[2]Not applicable; the health-based threshold level is exceeded only if free product exists.
[3]All field work and analytical sampling were performed prior to the release of the new Georgia Department of Natural Resources (GA DNR) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.
BGS - Below ground surface.
NRC - No regulatory criteria.
PAH - Polynuclear aromatic hydrocarbon.
VOCs - Volatile organic compounds.

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

THIS PAGE INTENTIONALLY LEFT BLANK

Science Applications International Corporation — An Employee-Owned Company

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

CHAIN OF CUSTODY RECORD

COC NO.: 41098F-

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell H. Hall (Printed Name): Mitchell Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HC12ØØ	4/Ø9/98	1325	water	X					2	NA	w#
HP12ØØ	4/Ø9/98	153Ø	water	X					2	NA	w#

REQUESTED PARAMETERS

RELINQUISHED BY: Mitchell H. Hall — Date/Time: 4/10/98 1325 — COMPANY NAME: SAIC

RECEIVED BY: — COMPANY NAME: — Date/Time:

TOTAL NUMBER OF CONTAINERS: 4

Cooler ID: 375

Cooler Temperature: 4°C

FEDEX NUMBER: NA

RECEIVED BY: Raymd Reed — Date/Time: 4/10/98 1325 — COMPANY NAME: G.E.L

RELINQUISHED BY: — COMPANY NAME: — Date/Time:

HC12ØØ - Quick turnaround

RELINQUISHED BY: — Date/Time — COMPANY NAME:

RECEIVED BY: — COMPANY NAME: — Date/Time:

THIS PAGE INTENTIONALLY LEFT BLANK

Science Applications International Corporation — An Employee-Owned Company

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

CHAIN OF CUSTODY RECORD

COC NO.: 4107SE

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell Hall (Printed Name): Mitchell Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
x HP533Ø	4/1Ø/98	1Ø1Ø	water		X				2	NA	equipment rinsate
x HP53Ø3	4/1Ø/98	1Ø4Ø	water		X				2	NA	vert. prof. 31-35
HP323Ø	4/1Ø/98	Ø73Ø	water	X					2	NA	equip. rinsate
HP53Ø3	4/1Ø/98	1ØØØ	water	X					2	NA	vert. prof. 31-35'
HP533Ø	4/1Ø/98	1Ø1Ø	water	X					2	NA	equip. rinsate
HTBØ1Ø	4/1Ø/98	Ø8ØØ	water	X					2	NA	~~TRIP~~ LOT # J3Ø3
HP42ØØ	4/1Ø/98	Ø93Ø	water	X					2	NA	NA
HP22ØØ	4/Ø9/98	163Ø	water	X					2	NA	9-13'
HP53Ø2	4/1Ø/98	Ø83Ø	water	X					2	NA	26-3Ø' BGS
HP32ØØ	4/1Ø/98	Ø8ØØ	water	X					2	NA	1Ø-15 BGS
HP53Ø1	4/1Ø/98	Ø815	water	X					2	NA	16-2Ø' BGS
HP121Ø	4/Ø9/98	153Ø	water	X					2	NA	NA
HC22ØØ	4/Ø9/98	141Ø	water	X					2	NA	NA

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time	TOTAL NUMBER OF CONTAINERS: 26	Cooler Temperature: 4°C
Mitchell	4/1Ø/98 1325			Cooler ID: #375	FEDEX NUMBER: NA
COMPANY NAME: SAIC		COMPANY NAME:			
RECEIVED BY: Raymond Reed	Date/Time 4/1Ø/98 1325	RELINQUISHED BY:	Date/Time	HC22ØØ - quick turnaround	
COMPANY NAME: G.E.L.		COMPANY NAME:			
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time		
COMPANY NAME:		COMPANY NAME:			

REQUESTED PARAMETERS

VIII-7

Hunter Army Airfield CAP-Part A Report
Former Heating Oil Tank, Building 8593-1

THIS PAGE INTENTIONALLY LEFT BLANK

Science Applications International Corporation — An Employee-Owned Company

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

CHAIN OF CUSTODY RECORD

COC NO.: 41098C

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell Hall (Printed Name): Mitchell Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HP22ΦΦ	4/9/98	163Φ	water		X				2	NA	9 - 13'
HP121Φ	4/9/98	153Φ	water		X				2	NA	NA
HC22ΦΦ	4/9/98	141Φ	water		X				2	NA	NA
HP12ΦΦ	4/9/98	153Φ	water		X				2	NA	NA
HC12ΦΦ	4/9/98	1325	water		X				2	NA	NA

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Mitchell Hall	4/10/98 1325		
COMPANY NAME: SAIC		COMPANY NAME:	
RECEIVED BY: Raymond Reed	Date/Time 4/10/98 1325	RELINQUISHED BY:	Date/Time
COMPANY NAME: G.E.L		COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 10

Cooler ID: 518

Cooler Temperature: 4°C

FEDEX NUMBER: NA

~~HC22ΦΦ~~ MS/MSD 4/10/98

VIII-9

Hunter Army Airfield CAP-Part A Report
Former Heating Oil Tank, Building 8593-1

THIS PAGE INTENTIONALLY LEFT BLANK

Science Applications International Corporation — An Employee-Owned Company

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

CHAIN OF CUSTODY RECORD

COC NO.: 410487

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell A. Hall (Printed Name): Mitchell Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

REQUESTED PARAMETERS: BTEX, PAH, DRP, GRO, TOC

Sample ID	Date Collected	Time Collected	Matrix	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HP53Φ2	4/10/98	Φ83Φ				matrix spike 4/10/98
HP53Φ1	4/10/98	Φ815	water	2	NA	vertical prof. 16-2Φ
HP323Φ	4/10/98	Φ73Φ	water	2	NA	equipment rinsate
HP32ΦΦ	4/10/98	Φ8ΦΦ	water	2	NA	10-15' BGS
HP42ΦΦ	4/10/98	Φ93Φ	water	2	NA	NA
HP53Φ2	4/10/98	Φ83Φ	water	2	NA	26-3Φ' BGS

MS/MSD 4/9/98

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time	TOTAL NUMBER OF CONTAINERS: 10	Cooler Temperature: 4°C
Mitchell Hall	4/10/98 1325				
COMPANY NAME: SAIC		COMPANY NAME:		Cooler ID: 497	FEDEX NUMBER: NA
RECEIVED BY: Raymond Reed	Date/Time 4/10/98 1325	RELINQUISHED BY:	Date/Time		
COMPANY NAME: G.E.L.		COMPANY NAME:			
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time		
COMPANY NAME:		COMPANY NAME:			

VIII-11

Former Heating Oil Tank, Building 8593-1 Hunter Army Airfield CAP-Part A Report

THIS PAGE INTENTIONALLY LEFT BLANK

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP1200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-20

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3034

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	2.5		
108-88-3	Toluene	2.0	U	
100-41-4	Ethylbenzene	10.1		
1330-20-7	Xylenes (total)	6.0	U	

DATA VALIDATION COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP1200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-08

Sample wt/vol: 940.0 (g/mL) ML Lab File ID: 4Q312

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	20.4	
91-58-7	2-chloronaphthalene	10.6	U
208-96-8	acenaphthylene	10.6	U
83-32-9	acenaphthene	10.6	U
86-73-7	fluorene	10.6	U
85-01-8	phenanthrene	10.6	U
120-12-7	anthracene	10.6	U
206-44-0	fluoranthene	10.6	U
129-00-0	pyrene	10.6	U
56-55-3	benzo(a)anthracene	10.6	U
218-01-9	chrysene	10.6	U
205-99-2	benzo(b)fluoranthene	10.6	U
207-08-9	benzo(k)fluoranthene	10.6	U
50-32-8	benzo(a)pyrene	10.6	U
193-39-5	indeno(1,2,3-cd)pyrene	10.6	U
53-70-3	dibenz(a,h)anthracene	10.6	U
191-24-2	benzo(g,h,i)perylene	10.6	U

= U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP1210

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-19

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3033

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	2.0	U	U
108-88-3	Toluene	2.0	U	U
100-41-4	Ethylbenzene	4.4		=
1330-20-7	Xylenes (total)	6.0	U	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP1210

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA010W

Matrix: (soil/water) WATER Lab Sample ID: 9804219-16

Sample wt/vol: 980.0 (g/mL) ML Lab File ID: 1Q219

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N) _____ Date Extracted: 04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

USQ

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	22.2	J G01
91-58-7	2-chloronaphthalene	10.2	U
208-96-8	acenaphthylene	10.2	U
83-32-9	acenaphthene	10.2	U
86-73-7	fluorene	10.2	U
85-01-8	phenanthrene	10.2	U
120-12-7	anthracene	10.2	U
206-44-0	fluoranthene	10.2	U
129-00-0	pyrene	10.2	U
56-55-3	benzo(a)anthracene	10.2	U
218-01-9	chrysene	10.2	U
205-99-2	benzo(b)fluoranthene	10.2	U
207-08-9	benzo(k)fluoranthene	10.2	U
50-32-8	benzo(a)pyrene	10.2	U
193-39-5	indeno(1,2,3-cd)pyrene	10.2	U
53-70-3	dibenz(a,h)anthracene	10.2	U
191-24-2	benzo(g,h,i)perylene	10.2	U

FORM I SV-1 OLM03.0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP2200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-15

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3028

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	2.0	U	U
108-88-3	Toluene	2.0	U	
100-41-4	Ethylbenzene	2.0	U	
1330-20-7	Xylenes (total)	6.0	U	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP2200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA010W

Matrix: (soil/water) WATER Lab Sample ID: 9804219-15

Sample wt/vol: 965.0 (g/mL) ML Lab File ID: 1Q218

Level: (low/med) LOW DATA VALIDATION COPY Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 04/13/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/22/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.4	U
91-58-7	2-chloronaphthalene	10.4	U
208-96-8	acenaphthylene	10.4	U
83-32-9	acenaphthene	10.4	U
86-73-7	fluorene	10.4	U
85-01-8	phenanthrene	10.4	U
120-12-7	anthracene	10.4	U
206-44-0	fluoranthene	10.4	U
129-00-0	pyrene	10.4	U
56-55-3	benzo(a)anthracene	10.4	U
218-01-9	chrysene	10.4	U
205-99-2	benzo(b)fluoranthene	10.4	U
207-08-9	benzo(k)fluoranthene	10.4	U
50-32-8	benzo(a)pyrene	10.4	U
193-39-5	indeno(1,2,3-cd)pyrene	10.4	U
53-70-3	dibenz(a,h)anthracene	10.4	U
191-24-2	benzo(g,h,i)perylene	10.4	U

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-17

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3031

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

U ↓

DATA VALIDATION COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-03

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 4Q307

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.4	U
91-58-7	2-chloronaphthalene	10.4	U
208-96-8	acenaphthylene	10.4	U
83-32-9	acenaphthene	10.4	U
86-73-7	fluorene	10.4	U
85-01-8	phenanthrene	10.4	U
120-12-7	anthracene	10.4	U
206-44-0	fluoranthene	10.4	U
129-00-0	pyrene	10.4	U
56-55-3	benzo(a)anthracene	10.4	U
218-01-9	chrysene	10.4	U
205-99-2	benzo(b)fluoranthene	10.4	U
207-08-9	benzo(k)fluoranthene	10.4	U
50-32-8	benzo(a)pyrene	10.4	U
193-39-5	indeno(1,2,3-cd)pyrene	10.4	U
53-70-3	dibenz(a,h)anthracene	10.4	U
191-24-2	benzo(g,h,i)perylene	10.4	U

U

FORM I SV-1 OLM03.0

COPY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3230

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-10

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3021

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

U ↓

DATA VALIDATION COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP3230

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-02

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 4Q306

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

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

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-14

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3027

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

U ↓

DATA VALIDATION COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP4200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-04

Sample wt/vol: 965.0 (g/mL) ML Lab File ID: 4Q308

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.4	U
91-58-7	2-chloronaphthalene	10.4	U
208-96-8	acenaphthylene	10.4	U
83-32-9	acenaphthene	10.4	U
86-73-7	fluorene	10.4	U
85-01-8	phenanthrene	10.4	U
120-12-7	anthracene	10.4	U
206-44-0	fluoranthene	10.4	U
129-00-0	pyrene	10.4	U
56-55-3	benzo(a)anthracene	10.4	U
218-01-9	chrysene	10.4	U
205-99-2	benzo(b)fluoranthene	10.4	U
207-08-9	benzo(k)fluoranthene	10.4	U
50-32-8	benzo(a)pyrene	10.4	U
193-39-5	indeno(1,2,3-cd)pyrene	10.4	U
53-70-3	dibenz(a,h)anthracene	10.4	U
191-24-2	benzo(g,h,i)perylene	10.4	U

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5301

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-18

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F5010

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/24/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

DATA VALIDATION COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5301

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-01

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 4Q305

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.3	U
91-58-7	2-chloronaphthalene	10.3	U
208-96-8	acenaphthylene	10.3	U
83-32-9	acenaphthene	10.3	U
86-73-7	fluorene	10.3	U
85-01-8	phenanthrene	10.3	U
120-12-7	anthracene	10.3	U
206-44-0	fluoranthene	10.3	U
129-00-0	pyrene	5.8	J
56-55-3	benzo(a)anthracene	10.3	U
218-01-9	chrysene	10.3	U
205-99-2	benzo(b)fluoranthene	10.3	U
207-08-9	benzo(k)fluoranthene	10.3	U
50-32-8	benzo(a)pyrene	10.3	U
193-39-5	indeno(1,2,3-cd)pyrene	10.3	U
53-70-3	dibenz(a,h)anthracene	10.3	U
191-24-2	benzo(g,h,i)perylene	10.3	U

U
U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5302

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-16

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3030

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HP5302

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-05
Sample wt/vol: 860.0 (g/mL) ML Lab File ID: 4Q309
Level: (low/med) LOW Date Received: 04/10/98
% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98
Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98
Injection Volume: 1.0(uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	11.6	U
91-58-7	2-chloronaphthalene	11.6	U
208-96-8	acenaphthylene	11.6	U
83-32-9	acenaphthene	11.6	U
86-73-7	fluorene	11.6	U
85-01-8	phenanthrene	11.6	U
120-12-7	anthracene	11.6	U
206-44-0	fluoranthene	11.6	U
129-00-0	pyrene	11.6	U
56-55-3	benzo(a)anthracene	11.6	U
218-01-9	chrysene	11.6	U
205-99-2	benzo(b)fluoranthene	11.6	U
207-08-9	benzo(k)fluoranthene	11.6	U
50-32-8	benzo(a)pyrene	11.6	U
193-39-5	indeno(1,2,3-cd)pyrene	11.6	U
53-70-3	dibenz(a,h)anthracene	11.6	U
191-24-2	benzo(g,h,i)perylene	11.6	U

U

FORM I SV-1 OLM03.0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5303

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-11

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3024

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/22/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5303

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-07

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 4Q311

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

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

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5330

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-12

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2F3025

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: not dec. _____ Date Analyzed: 04/23/98

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
71-43-2	Benzene	2.0	U
108-88-3	Toluene	2.0	U
100-41-4	Ethylbenzene	2.0	U
1330-20-7	Xylenes (total)	6.0	U

U ↓

CAP VALIDATION COPY

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HP5330

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA013W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804284-06

Sample wt/vol: 955.0 (g/mL) ML Lab File ID: 4Q310

Level: (low/med) LOW Date Received: 04/10/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

Injection Volume: 1.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
91-20-3	naphthalene	10.5	U
91-58-7	2-chloronaphthalene	10.5	U
208-96-8	acenaphthylene	10.5	U
83-32-9	acenaphthene	10.5	U
86-73-7	fluorene	10.5	U
85-01-8	phenanthrene	10.5	U
120-12-7	anthracene	10.5	U
206-44-0	fluoranthene	10.5	U
129-00-0	pyrene	10.5	U
56-55-3	benzo(a)anthracene	10.5	U
218-01-9	chrysene	10.5	U
205-99-2	benzo(b)fluoranthene	10.5	U
207-08-9	benzo(k)fluoranthene	10.5	U
50-32-8	benzo(a)pyrene	10.5	U
193-39-5	indeno(1,2,3-cd)pyrene	10.5	U
53-70-3	dibenz(a,h)anthracene	10.5	U
191-24-2	benzo(g,h,i)perylene	10.5	U

U

FORM I SV-1 OLM03.0

APPENDIX IX

CONTAMINATED SOIL DISPOSAL MANIFESTS

THIS PAGE INTENTIONALLY LEFT BLANK

All contaminated soil removed during the entire project [i.e., all underground storage tanks/heating oil tanks (USTs/HOTs) removed under contract with Omega Environmental Services, Inc., to include clean and non-clean closures] was tested and transported to Kadesh, Inc., Highway 84, Ludowici, GA 31316. The installation has records of all manifests and weight tickets for this project. However, site-specific information is not available.

I certify that the above information is true and accurate. If the Georgia Environmental Protection Division (GA EPD), Underground Storage Tank Management Program (USTMP), would like copies of all manifests and weight tickets for the numerous UST/HOT removal contracts that we have conducted, we will gladly forward copies to the USTMP.

Name: Thomas C. Fry

Title: Chief, Environmental Branch

Signature: _____

Date: _____

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX X

SITE RANKING FORM

THIS PAGE INTENTIONALLY LEFT BLANK

SITE RANKING FORM

Facility Name: UST X, Building 8593-1 **Ranked by:** C. Allison Bailey

County: Chatham **Facility ID #:** N/A **Date Ranked:** 7-6-98

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

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. 1) = (1) x (C. 10) = (D. 10)**

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 = 100
- ☐ >10,000 µg/L = 250

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

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.

J. Distance from nearest Contaminant Plume boundary to downgradient Surface Waters **OR UTILITY TRENCHES & VAULTS** (a utility trench may be omitted from ranking if its invert elevation is more than 5 feet above the water table)

☐	Impacted	= 500
☐	≤500'	= 50
☒	>500' - 1,000'	= 5
☐	>1,000'	= 1

K. Distance from any Free Product to basements and crawl spaces

☐	Impacted	= 500
☐	<500'	= 50
☐	>500' - 1,000'	= 5
☒	>1,000' or no free product.	= 0

Fill in the blanks: (H. 0) + (I. 0) + (J. 5) + (K. 0) = L. 5

(G. 0) x (L. 5) = M. 0

(M. 0) + (D. 10) = N. 10

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. 10) x (P. 1) = (10) + (Q. 0)

= 10

ENVIRONMENTAL SENSITIVITY SCORE

1.0 OTHER GEOLOGIC AND HYDROGEOLOGIC DATA

The following information is presented to provide supporting documentation to Appendix X (Site Ranking Form) of the Corrective Action Plan (CAP)-Part A Report and provides detailed information relating to the geologic and hydrogeologic conditions at Hunter Army Airfield (HAAF) to support determinations of groundwater flow pathway(s) or direction(s) and contaminant transport.

1.1 REGIONAL GEOLOGY

Southeast Georgia is located within the Coastal Plain Physiographic Province of the Southeast United States (Clark and Zisa 1976). In this region, the thickness of southeastward dipping, subsurface strata ranges from 0 feet at the fall line, located approximately 350 miles inland from the Atlantic coast, to approximately 4200 feet below land surface (BLS) at the coast. Herrick (1961) provides detailed lithologic descriptions of the stratigraphic units encountered during the installation of water and petroleum exploration wells in Chatham County. The well log of GGS Well 125, located on White Bluff Road, 700 feet west and 0.3 miles north of Buckhalter Road, Savannah, provides one of the more complete lithologic descriptions of upper Eocene, Miocene, and Pliocene to Recent sedimentary strata in Chatham County.

The upper Eocene (Ocala Limestone) section of GGS Well 125 is approximately 225 feet thick and dominated by light-gray to white, fossiliferous limestone. The Miocene section is approximately 250 feet thick and consists of limestone with a 160-feet-thick cap of dark green phosphatic clay. This clay is regionally extensive and is known to occupy the Coosawatchie Formation of the Hawthorn Group (Furlow 1969; Arora 1984; Huddlestun 1988). The interval from approximately 80 feet to the surface is Plicoene to Recent in age and composed primarily of sand interbedded with clay and silt. This section is occupied by the Satilla and Cypresshead Formations (Huddlestun 1988).

1.2 LOCAL GEOLOGY

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

HAAF, as well as most of Chatham County, is underlain by the Pleistocene Pamlico Terrace. The Pleistocene Satilla Formation (formerly known as the Pamlico Formation) consists of deposits of the Pamlico Terrace complex and other terrace complexes in the region (Huddlestun 1988). The Satilla Formation is a lithologically heterogeneous unit that consists of variably bedded to nonbedded sand and variably bedded silty to sandy clay. During the Pleistocene, these sand and clay deposits were formed in offshore and inner continental shelf, barrier island, and marsh/lagoonal-type environments (Huddlestun 1988). According to the Geologic Map of

Georgia (GA DNR 1976), clay beds of marsh origin, which were deposited on the northwest side of the former Pamlico Barrier Island complex, exist in the western quarter of HAAF. Very fine- to coarse-grained sand deposits of barrier island origin are more common throughout the remaining areas of HAAF.

Based on the coring and sampling of unconsolidated strata at HAAF during the CAP-Part A investigations, it is concluded that all former heating oil tanks (HOTs) and underground storage tanks (USTs) were buried within the Satilla Formation, which is overlain by various soil types. Soil groups at HAAF include the Chipley, Leon, Ellabelle, Kershaw, Pelham, Albany, Wahee, and Ogeechee (Wilkes et al. 1974).

1.3 REGIONAL AND LOCAL HYDROGEOLOGY

The hydrogeology in the vicinity of HAAF is mostly influenced by two aquifer systems. These are referred to as the Principal (Floridan) Aquifer and the Surficial Aquifer (Miller 1990). The Principal Aquifer is the lowermost hydrologic unit and is regionally extensive from South Carolina through Georgia, Alabama, and most of Florida. Known elsewhere as the Floridan, this aquifer, approximately 800 feet in total thickness, is composed primarily of Tertiary age limestone including the Bug Island Formation, the Ocala Group, and the Suwannee Limestone. Groundwater from the Floridan is used primarily for drinking water (Arora 1984). According to Miller (1990), one of the largest cones of depression produced in the Upper Floridan Aquifer exists directly beneath Savannah, Georgia. Net water-level decline in the Floridan system, between the predevelopment period and 1980, exceeded 80 feet beneath Savannah. In addition, according to 1980 estimates, more than 500 million gallons of water per day were withdrawn from the Floridan for public and industrial use in southeast Georgia, more than any other region.

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

The Surficial Aquifer consists of widely varying amounts of sand and clay, ranging from 55 to 150 feet in thickness, and is composed primarily of the Satilla and Cypresshead Formations in the Savannah vicinity (Arora 1984). This aquifer is primarily used for domestic lawn and agricultural irrigation. The top of the water table ranges from approximately 2 to 10 feet below ground level (Miller 1990). Groundwater in the Surficial Aquifer system is under unconfined, or water table, conditions. However, locally, thin clay beds create confined or semiconfined conditions, as is the case at HAAF where thin, surficial clay beds are present in the west quadrant (GA DNR 1976).

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

1.4 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS AT THE FORMER HOT, BUILDING 8593-1 SITE

The soil common in the area occupied by Building 8593-1 consists of the Wahee sandy loam (Waf) (Wilkes et al. 1974). The surface layer of this soil consists of loamy coarse sand. Below this sand, a clay-rich layer usually exists (probably the clay of the Satilla Formation), which causes slow percolation of water. Therefore, in areas occupied by the Wahee, some type of drainage system is needed, especially in areas designated for agriculture and/or commercial development (Wilkes et al. 1974).

During direct-push soil sampling events at the Former HOT, Building 8593-1 site, three major unconsolidated sediment types were encountered (Figure 4, Appendix I). These include: (1) native and non-native sand- and clay-fill in the former tank pit; (2) clayey sand (SC) of the Satilla Formation, which was most likely deposited in a marsh environment; and (3) moderately to well sorted, medium-grained, clean quartz sand (SW) deposited in the shallow marine environment of the Pamlico Barrier Island complex.

During direct-push activities at the Former HOT, Building 8593-1 site, the top of the saturated zone was encountered at the clayey sand (SC) and sand (SW) boundary (Figure 4, Appendix I). Following the installation of piezometers at the site, water levels were measured above the saturated zone. These measurements indicate that the SC unit, which is characterized by low hydraulic conductivity, acts as a confining layer to the water-bearing SW unit.

THIS PAGE INTENTIONALLY LEFT BLANK

FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

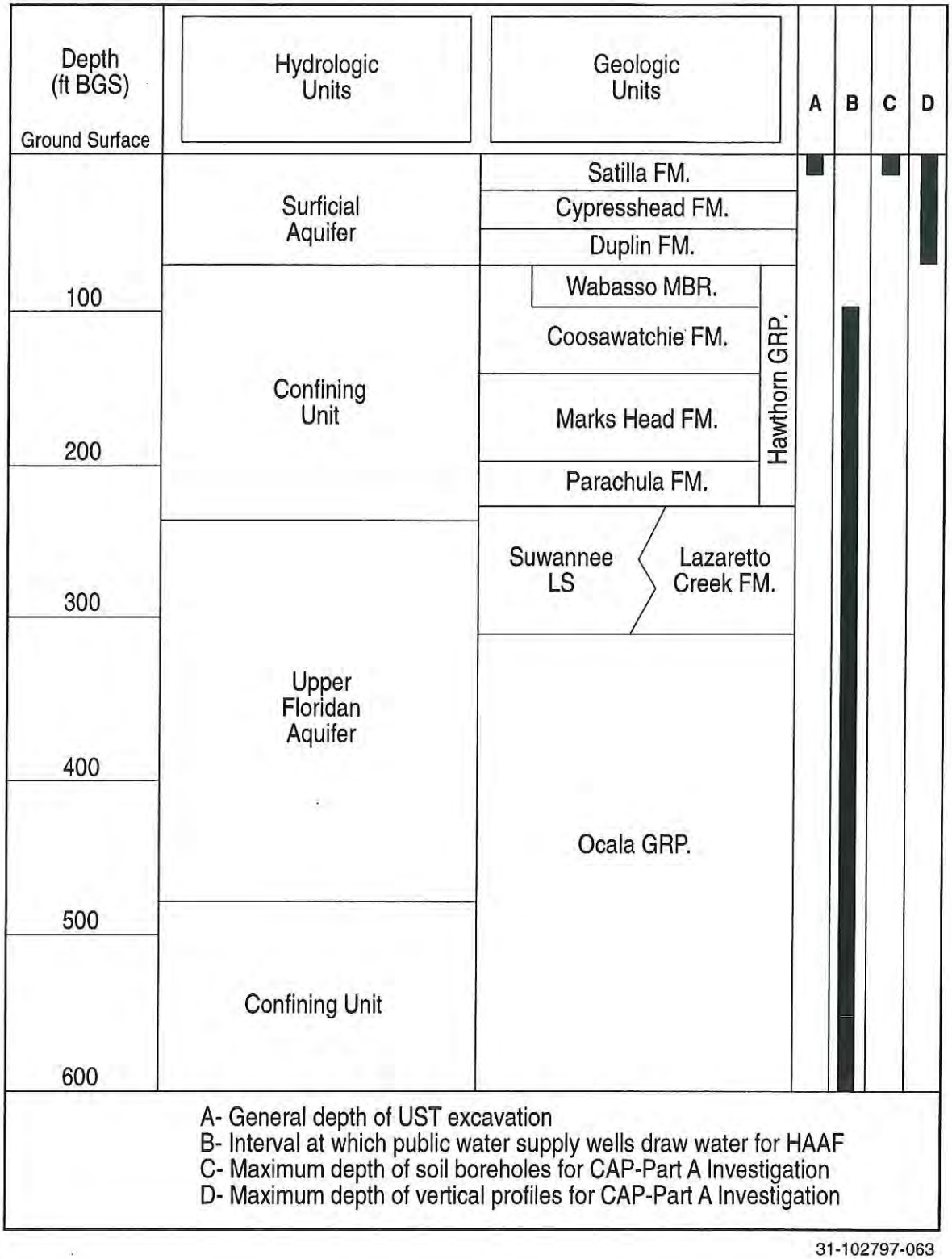

Figure X-A. Generalized Stratigraphy of Chatham County, Georgia

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX XI

COPIES OF PUBLIC NOTIFICATION LETTERS AND CERTIFIED RECEIPTS OR NEWSPAPAPER NOTICE

THIS PAGE INTENTIONALLY LEFT BLANK

Public notification letters are not required for the Former Heating Oil Tank (HOT), Building 8593-1 site because heating oil tanks are not regulated as defined by Georgia Department of Natural Resources (GA DNR) guidance.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX XII

GUST TRUST FUND REIMBURSEMENT APPLICATION AND CLAIM FOR REIMBURSEMENT

THIS PAGE INTENTIONALLY LEFT BLANK

The Hunter Army Airfield is a federally owned facility and has funded the investigation for the Former Heating Oil Tank (HOT), Building 8593-1 site, which is unregulated as defined by Georgia Department of Natural Resources (GA DNR) guidance and has no Facility Identification Number, using Environmental Restoration Account funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT A

TECHNICAL APPROACH

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

TECHNICAL APPROACH

1.0 INTRODUCTION

The overall objective of this project was to provide the services required to produce Corrective Action Plans (CAPs) for the subject underground storage tank (UST) and heating oil tank (HOT) sites per the requirement of the Georgia Environmental Protection Division (EPD). The field activities included the installation of temporary piezometers, soil borings, and soil and groundwater sampling. Upon completion of the field activities, this CAP-Part A report was prepared to meet requirements of the Georgia EPD, Fort Stewart Directorate of Public Works (FS DPW), and the U.S. Army Corps of Engineers (USACE)-Savannah District.

2.0 FIELD ACTIVITIES

The following sections detail the methodologies used for direct-push sampling and piezometer installation. All boreholes were drilled and piezometers installed by R. E. Wright [Science Applications International Corporation (SAIC), Drilling Services Division], a drilling firm licensed in the state of Georgia. A geologist from SAIC, working under the direction of a registered professional engineer, was on site at all times. No drilling activities were undertaken until all utility clearances and permits were obtained from Hunter Army Airfield (HAAF) utility personnel.

2.1 SUBSURFACE SOIL SAMPLING

2.1.1 Borehole Installation

A truck-mounted direct-push Geoprobe was used for installation of soil boreholes. All sampling devices were pushed to required depths using 4.0- and 3.0-foot push rods. During all borehole drilling, 4.0-foot soil cores were collected continuously from ground surface to the top of the water table.

2.1.2 Sample Collection

Soil samples were collected from boreholes using a 4.0-foot acetate-lined, steel macrocoring device. Upon retrieval of the sampling device, the acetate liner containing the soil core was removed from the steel macrocoring device and removed from the core using a truck-mounted, acetate-liner cutting device. The exposed soil core was split into two 2.0-foot sections using a stainless steel knife. A portion of each 2.0-foot section was collected for possible laboratory analysis. The remaining portion of each 2.0-foot section was used for field measurements.

Samples designated for possible laboratory analysis were collected from the cores using a stainless steel spoon. Soil was collected from along the entire length of the core in order to collect a representative sample. The portion of the sample designated for volatile organic analyses was placed into laboratory sample containers first, followed by placement of the remaining portion of the sample into the containers designated for other types of analyses. Sample containers designated for volatile organic analyses were filled so that minimal headspace was present. Headspace gas concentration measurements were made using a field organic vapor meter (OVM). Initially, soil

from each 2.0-foot interval was placed into a glass jar, leaving some air space, and covered with aluminum foil to create an air-tight seal. The sample was allowed to volatilize for a minimum of 15 minutes. The sealed jar was punctured with the OVM probe and headspace gas drawn until the meter reading was stable. The concentration of the headspace gas was recorded to the nearest 0.1 parts per million (ppm).

Immediately following collection of each sample and completion of bottle label information, each potential analytical sample container was placed into an ice-filled cooler to ensure preservation. A clean acetate-lined, steel macrocore sampling device was used to collect soil core from each interval of the project boreholes. Information regarding the soil sample selection criteria for off-site shipment to a laboratory for chemical analysis is presented in Section 3.1.3 of the project Sampling and Analysis Plan. Soil samples, which were not selected for laboratory analysis, were disposed of as investigation-derived waste (IDW).

2.2 GROUNDWATER SAMPLING

2.2.1 Groundwater Collection

Collection of groundwater samples from soil boreholes was accomplished through the use of a 3.5-foot-long, 1.0-inch-diameter steel slotted screen encased in a 3.5-foot-long, 1.5-inch-diameter stainless steel sleeve attached to an expendable 1.5-inch length, 1.5-inch-diameter steel drive point. The entire device was pushed 5 feet below the water table. The 3.5-foot steel sleeve was subsequently raised 4.0 feet from the bottom while discarding the steel drive point and exposing the entire length of the screen to groundwater. By raising the steel sleeve 4.0 feet, the steel slotted screen was raised 0.5 feet from the bottom of the borehole. As a result, the groundwater was collected from a 4.0-foot interval. Water was brought to the surface using a peristaltic pump attached to a clean acetate tube, which was cut to desired length prior to sampling and discarded following each sampling event. Enough water was extracted for laboratory sample containment and for water quality parameters to be measured with a Horiba U-10. Following groundwater sample collection, subsurface sampling devices were removed from the borehole, and a temporary piezometer was installed. Temporary piezometers were constructed of 1.0-inch inside diameter (ID) polyvinyl chloride (PVC) casing with a 5-foot screened interval.

2.2.2 Field Measurements

Groundwater field measurements performed during the project included measurement of static groundwater level, pH, specific conductance, and temperature. Groundwater levels were measured inside the temporary PVC piezometers. A summary of the procedures and criteria to be used for groundwater field measurements is presented in the following sections.

Static Groundwater Level

Static groundwater level measurements were made using an electronic water-level indicator. Initially, the indicator probe was lowered into each temporary piezometer casing until the alarm sounded and/or the indicator light illuminated. The probe was withdrawn several feet and slowly lowered again until the groundwater surface was contacted as indicated by the alarm and/or light. Water-level measurements were estimated to the nearest 0.01 foot based on the difference between the nearest probe cord mark to the top of the piezometer casing.

The distance between the top of the casing and the surrounding ground surface was taken into account in measuring the water level to within 0.01 foot. The static water level measurement

procedure was repeated two or three times to ensure that the water level measurements were consistent (plus or minus 0.01 foot).

pH, Specific Conductance, and Temperature

The pH, specific conductance, and temperature measurements were recorded for groundwater during groundwater sampling. The pH, temperature, and conductivity measurements were made using a Horiba U-10 designed to measure these parameters. A portion of each groundwater sample was retrieved from the sampler and poured into the collection cup. With the combination meter set in the pH mode, the meter electrode was swirled at a slow, constant rate within the sample until the meter reading reached equilibrium. The sample pH was recorded to the nearest 0.1 pH unit.

Upon completion of the pH measurement, conductivity and temperature measurements were made on a groundwater sample collected in the same manner as described above. With the combination meter set in the conductivity mode, the meter electrode was swirled at a slow, constant rate until the meter reading reached equilibrium. Concurrently, a temperature probe was placed into the sample and allowed to reach equilibrium. The sample conductivity was recorded to the nearest 10 mS/cm and the temperature to the nearest 0.1°C. All recorded conductivity values were converted to conductance at 25°C.

2.3 TEMPORARY PIEZOMETER INSTALLATION

Following the collection of the groundwater sample, a 2-inch PVC piezometer, with a 5-foot screened section, was installed to prevent the borehole from collapsing. The piezometer remained in the borehole at least 24 hours, after which time the static water level was measured.

2.4 BOREHOLE ABANDONMENT

Once static water levels were measured, the temporary piezometers were removed, and the boreholes were abandoned. Abandonment was conducted in a manner preventing any current, or subsequent, fluid media from entering, or migrating within, the subsurface environment along the axis or from the endpoint of the borehole. Abandonment was accomplished by filling the entire volume of the borehole with bentonite powder.

Boreholes located in concrete-covered areas were capped with grout. After a 24-hour period, the abandoned borehole was checked for grout and bentonite settlement.

2.5 SURVEYING

A topographic survey of the horizontal and vertical locations of all soil boreholes was conducted after completion of field activities. The topographic survey was conducted by a surveyor registered in the state of Georgia.

The horizontal coordinates for each soil borehole were surveyed to the closest 1.0 foot and referenced to the State Plane Coordinate System. Ground elevations were surveyed to the closest 0.01 foot. Elevations were referenced to the National Geodetic Vertical Datum of 1983.

2.6 DECONTAMINATION PROCEDURES

Decontamination of equipment used for soil and groundwater sampling was conducted at each investigation site. Non-dedicated equipment was decontaminated after each use. The direct-push sampling equipment was decontaminated by removing soil and other contaminants with potable water, phosphate-free detergent, and scrub brushes. This was followed by a potable water rinse, American Society for Testing and Materials (ASTM) Type I or equivalent water rinse, methanol rinse, and ASTM Type I or equivalent water rinse. The sampling equipment was then allowed to air dry and was wrapped in plastic or aluminum foil.

In addition to the sampling equipment, field measurement instruments were also decontaminated between uses. Only those portions of each instrument that came into contact with environmental media were decontaminated. Because of the delicate nature of these instruments, the decontamination procedure only involved initial rinsing of the instrument probes with ASTM Type I or equivalent water.

2.7 INVESTIGATION-DERIVED WASTE MANAGEMENT

Soil cuttings obtained during the installation of each borehole, and water collected for the measurement of water quality parameters, were the only indigenous IDW generated during the project. Non-indigenous IDW included solid compactible trash, decontamination solutions, and sludges.

2.7.1 Waste Collection and Containment

All soil waste was contained in a 55-gallon U.S. Department of Transportation (DOT) Specification 17C drums at the point of generation. At each site, water waste was contained in four 55-gallon DOT specification 17E drums. All containers were appropriately labeled with generation point information and transported to the Central Staging Area. Sanitary waste was placed in trash bags at the point of generation.

2.7.2 Waste Characterization

Soil IDW was characterized by collecting a representative soil aliquot from each drum and creating a single homogenized composite sample. The sample was analyzed for Resource Conservation and Recovery Act Toxicity Characteristic Leaching Procedure (TCLP) analytes. Soil was considered non-contaminated if the TCLP results were below the regulatory criteria, and the analytical results for the associated field samples indicated all of the following:

- benzene, toluene, ethylbenzene, and xylene (BTEX) and polynuclear aromatic hydrocarbon (PAH) concentrations below applicable Table A or B Threshold Levels as defined in Rules of Georgia Department of Natural Resources, Environmental Protection Division, rule 391-3-15-.09;
- total petroleum hydrocarbon (TPH) concentrations below 100 ppm; and
- total lead concentrations below 100 ppm.

Water IDW was characterized by collecting one sample from each drum. Each sample was analyzed for BTEX, pH, oil and grease, phenols, and TCLP metals.

2.7.3 Waste Disposal

All of the soil IDW was characterized as being non-contaminated and approved for disposal by FS DPW personnel. The soil was disposed of by spreading in the area designated by FS DPW personnel.

All of the water IDW was characterized as meeting the acceptance criteria of the FS Industrial Waste Treatment Plant (IWTP) and approved for disposal by FS DPW personnel at the IWTP.

2.8 DOCUMENTATION OF FIELD ACTIVITIES

All information pertinent to drilling and sampling activities, including instrument calibration data, was recorded in field logbooks. The logbooks were bound and the pages consecutively numbered. Entries in the logbooks were made in black permanent ink and included, at a minimum, a description of all activities, individuals involved in drilling and sampling activities, date and time of drilling and sampling, weather conditions, problems encountered, and field measurements. Lot numbers, manufacturers' names, and expiration dates of standard solutions used for field instrument calibration were also recorded. Sufficient information was recorded in the logbooks to permit reconstruction of direct-push and sampling activities.

3.0 SAMPLE HANDLING AND ANALYSIS

3.1 ANALYTICAL PROGRAM

Soil samples were screened for the presence of volatile vapors using a PhotoVac photoionization detector. The PhotoVac was calibrated daily using 100 ppm isobutylene. The headspace of each sample was measured approximately 15 minutes after collection.

Soil samples were analyzed for BTEX by method SW 846-8020, for PAH by method SW 846-8270, and for TPH by method SW 846-8015 (modified). TPH analysis included both gasoline-range organics and diesel-range organics. Groundwater samples were analyzed for BTEX by method SW 846-8240 and PAH by method SW 846-8270. The groundwater and soil sample containers, preservatives, and holding times are summarized in Table 1.1 of the Quality Assurance Project Plan of the SAP (SAIC 1998). All samples were shipped to General Engineering Laboratories (GEL), Charleston, South Carolina.

Duplicate samples of soil and groundwater were collected throughout the project and represented approximately 10 percent of the total sample population. Rinsate blanks, which represented approximately 5 percent of the total sample population, were collected to detect sample cross-contamination. Duplicates and rinsates were submitted to GEL.

Split samples were collected in addition to the other quality control samples but were sent to the USACE quality assurance laboratory in Marietta, Georgia, as an independent quality check.

3.2 SAMPLE PACKAGING AND SHIPMENT

Each sample container was labeled and taped shut with electrical tape (except those containing samples designated for volatile organic analysis), and an initialed/dated custody seal was placed over the lid. Each sample bottle was placed into a separate plastic bag and sealed. The samples were placed upright in thermally insulated rigid-body coolers and surrounded by vermiculite to prevent breakage during shipment. In addition, samples were cooled to approximately 4°C with wet ice. These measures were taken to slow the decomposition and volatilization of contaminants during shipping and handling. The sample coolers were shipped to the analytical laboratory via courier service provided by the laboratory.

ATTACHMENT B

REFERENCES

THIS PAGE INTENTIONALLY LEFT BLANK

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.

Clark, W. Z. Jr., and Zisa, A. C., 1976. *Physiographic Map of Georgia,* Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey (reprinted 1988).

City of Savannah Bureau of Water Operations, 1998. *Personal communication with Michael Coon.*

City of Savannah Bureau of Sewer and Water Planning, 1998. *Personal communication with Clay Rogers.*

Environmental Protection Agency (EPA), 1998. *Watershed Environmental Profile, Ogeechee Coastal Dataset,* July.

Furlow, J. W., 1969. *Stratigraphy and Economic Geology of the Eastern Chatham County Phosphate Deposit,* Department of Mines and Mining, Division of Conservation, Georgia Geologic Survey, Bulletin 82.

Fort Stewart Directorate of Public Works (FS DPW), 1998. *Personal communication with Fort Stewart DPW Personnel.*

Georgia Department of Natural Resources (GA DNR), 1976. *Geologic Map of Georgia,* Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey (reprinted 1997).

GA DNR, 1998a. *Rules and Regulations for Water Quality Control,* Chapter 391-3-6, Department of Natural Resources, Environmental Protection Division.

GA DNR, 1998b. *Underground Storage Tank Corrective Action Plan-Part A Guidance,* Department of Natural Resources, Environmental Protection Division.

Herrick, S. M., 1961. *Wells Logs of the Coastal Plain of Georgia,* Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey.

Huddlestun, P. F., 1988. *A Revision of the Lithostratigraphic Units of the Coastal Plain of Georgia, The Miocene through Holocene,* Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey, Bulletin 104.

Miller, J. A., 1990. *Groundwater Atlas of the United States, Segment 6,* U.S. Department of the Interior, U.S. Geological Survey, Hydrologic Inventory Atlas 730G, 28 pp.

Omega Environmental Services, Inc. (OES), 1997. *Closure Report for Underground Storage Tank at Building 8593-1, Hunter Army Airfield, Savannah, Georgia.*

Science Applications International Corporation (SAIC), 1995. *Data Validation Guidelines for Analytical Data,* Quality Assurance Technical Procedure TP-DM-300-7, Revision 1.

SAIC, 1998. *Sampling and Analysis Plan for the Corrective Action Plan-Part A Investigations for Former Underground Storage Tanks at Hunter Army Airfield, Georgia,* U.S. Army Corps of Engineers, Savannah District, Contract No. DACA21-95-D-0022, Delivery Order 0019.

SAIC, *Sampling and Analysis Plan for the CAP A Investigation for former UST*, Hunter Army Airfield, Georgia, March 1998.

Trent, V. P., 1992. *Groundwater Pollution Susceptibility Map of Georgia,* Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey, Hydrologic Atlas 20.

United States Geological Survey (USGS), 1990. *Water Use for the Ogeechee Coastal Watershed.*

Wilkes, R. L., Johnson, J. H., Stoner, H. T., and Bacon, D. D., 1974. *Soil Survey of Bryan and Chatham Counties, Georgia,* U.S. Department of Agriculture Soil Conservation Service, 71 pp.