1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO1105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-15

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F2016

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 17 Date Analyzed: 04/21/98

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

FORM I VOA

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO1105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-15

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 1Q121

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 17 decanted: (Y/N) N Date Extracted:04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98

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	400	U
91-58-7	2-chloronaphthalene	400	U
208-96-8	acenaphthylene	400	U
83-32-9	acenaphthene	400	U
86-73-7	fluorene	400	U
85-01-8	phenanthrene	400	U
120-12-7	anthracene	400	U
206-44-0	fluoranthene	400	U
129-00-0	pyrene	400	U
56-55-3	benzo(a)anthracene	400	U
218-01-9	chrysene	400	U
205-99-2	benzo(b)fluoranthene	400	U
207-08-9	benzo(k)fluoranthene	400	U
50-32-8	benzo(a)pyrene	400	U
193-39-5	indeno(1,2,3-cd)pyrene	400	U
53-70-3	dibenz(a,h)anthracene	400	U
191-24-2	benzo(g,h,i)perylene	400	U

V

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-16

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F2012

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 9 Date Analyzed: 04/21/98

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	2.2	U	U
108-88-3	Toluene	2.2	U	UJ CP8
100-41-4	Ethylbenzene	2.2	U	U
1330-20-7	Xylenes (total)	6.6	U	UJ CP8

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HO2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-16

Sample wt/vol: 30.9 (g/mL) G Lab File ID: 4D4004

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 9 decanted: (Y/N) N Date Extracted:04/10/98

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	FØ1, FØ7

FORM I SV

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-16

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F2017

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 9 Date Analyzed: 04/21/98

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	549	U	UJ 6Φ2

FORM I VOA

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-16

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 1Q122

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 9 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/21/98

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	365	U
91-58-7	2-chloronaphthalene	365	U
208-96-8	acenaphthylene	365	U
83-32-9	acenaphthene	365	U
86-73-7	fluorene	365	U
85-01-8	phenanthrene	365	U
120-12-7	anthracene	365	U
206-44-0	fluoranthene	365	U
129-00-0	pyrene	365	U
56-55-3	benzo(a)anthracene	365	U
218-01-9	chrysene	365	U
205-99-2	benzo(b)fluoranthene	365	U
207-08-9	benzo(k)fluoranthene	365	U
50-32-8	benzo(a)pyrene	365	U
193-39-5	indeno(1,2,3-cd)pyrene	365	U
53-70-3	dibenz(a,h)anthracene	365	U
191-24-2	benzo(g,h,i)perylene	365	U

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-17

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F2015

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 18 Date Analyzed: 04/21/98

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	UJ CP8
108-88-3	Toluene	2.4	U	UJ CP8
100-41-4	Ethylbenzene	2.4	U	UJ CP8
1330-20-7	Xylenes (total)	7.3	U	UJ CP8

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HO2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA0?8S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-17

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 4D4005

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 18 decanted: (Y/N) N Date Extracted:04/10/98

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	0.50	JB	U FD1, FD2

FORM I SV

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-17

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F2018

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 18 Date Analyzed: 04/21/98

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	UJ 6Φ2

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218 17

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 1Q205

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 18 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98

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	404	U
91-58-7	2-chloronaphthalene	404	U
208-96-8	acenaphthylene	404	U
83-32-9	acenaphthene	404	U
86-73-7	fluorene	404	U
85-01-8	phenanthrene	404	U
120-12-7	anthracene	404	U
206-44-0	fluoranthene	404	U
129-00-0	pyrene	404	U
56-55-3	benzo(a)anthracene	404	U
218-01-9	chrysene	404	U
205-99-2	benzo(b)fluoranthene	404	U
207-08-9	benzo(k)fluoranthene	404	U
50-32-8	benzo(a)pyrene	404	U
193-39-5	indeno(1,2,3-cd)pyrene	404	U
53-70-3	dibenz(a,h)anthracene	404	U
191-24-2	benzo(g,h,i)perylene	404	U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO3101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S

Matrix: (soil/water) SOIL Lab Sample ID: 9804128-19

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2D5019

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 11 Date Analyzed: 04/10/98

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	2.2	U	U
108-88-3	Toluene	2.2	U	
100-41-4	Ethylbenzene	2.2	U	
1330-20-7	Xylenes (total)	6.7	U	

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HO3101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S

Matrix: (soil/water) SOIL Lab Sample ID: 9804128-19

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 4D1008

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 11 decanted: (Y/N) N Date Extracted:04/10/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/20/98

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	1.6	B	U	F01 F07

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H03101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S
Matrix: (soil/water) SOIL Lab Sample ID: 9804128-19
Sample wt/vol: 10.0 (g/mL) G Lab File ID: E1025
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: not dec. 11 Date Analyzed: 04/14/98
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	562	U	UJ 6φ2

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO3101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S
Matrix: (soil/water) SOIL Lab Sample ID: 9804128-19
Sample wt/vol: 30.4 (g/mL) G Lab File ID: 2P518
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: 11 decanted: (Y/N) N Date Extracted: 04/10/98
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	370	U
91-58-7	2-chloronaphthalene	370	U
209-96-8	acenaphthylene	370	U
83-32-9	acenaphthene	370	U
86-73-7	fluorene	370	U
85-01-8	phenanthrene	370	U
120-12-7	anthracene	370	U
206-44-0	fluoranthene	370	U
129-00-0	pyrene	370	U
56-55-3	benzo(a)anthracene	370	U
218-01-9	chrysene	370	U
205-99-2	benzo(b)fluoranthene	370	U
207-08-9	benzo(k)fluoranthene	370	U
50-32-8	benzo(a)pyrene	370	U
193-39-5	indeno(1,2,3-cd)pyrene	370	U
53-70-3	dibenz(a,h)anthracene	370	U
191-24-2	benzo(g,h,i)perylene	370	U

U
UJ cp2
U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S

Matrix: (soil/water) SOIL Lab Sample ID: 9804128-20

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2D5020

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 17 Date Analyzed: 04/10/98

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	U
108-88-3	Toluene	3.2		=
100-41-4	Ethylbenzene	2.4	U	U
1330-20-7	Xylenes (total)	7.2	U	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HO3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S

Matrix: (soil/water) SOIL Lab Sample ID: 9804128-20

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 4D1009

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/10/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/20/98

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	0.60	JB	U FΦ1 FΦ6

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S

Matrix: (soil/water) SOIL Lab Sample ID: 9804128-20

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1E2018

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 17 Date Analyzed: 04/14/98

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

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO3105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA006S

Matrix: (soil/water) SOIL Lab Sample ID: 980428-20

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 2P519

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/10/98

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	400	U	U
91-58-7	2-chloronaphthalene	400	U	
209-96-8	acenaphthylene	400	U	
83-32-9	acenaphthene	400	U	
86-73-7	fluorene	400	U	
85-01-8	phenanthrene	400	U	
120-12-7	anthracene	400	U	
206-44-0	fluoranthene	400	U	
129-00-0	pyrene	400	U	
56-55-3	benzo(a)anthracene	400	U	
218-01-9	chrysene	400	U	
205-99-2	benzo(b)fluoranthene	400	U	
207-08-9	benzo(k)fluoranthene	400	U	
50-32-8	benzo(a)pyrene	400	U	UJ CD2
193-39-5	indeno(1,2,3-cd)pyrene	400	U	U
53-70-3	dibenz(a,h)anthracene	400	U	
191-24-2	benzo(g,h,i)perylene	400	U	

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO4104

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-13

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F209

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 22 Date Analyzed: 04/21/98

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	2.6	U	u
108-88-3	Toluene	2.6	U	uJ L08
100-41-4	Ethylbenzene	2.6	U	u
1330-20-7	Xylenes (total)	7.7	U	uJ L08

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HO4104

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-13

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 4D10056

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 22 decanted: (Y/N) N Date Extracted:04/10/98

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) MG/KG		Q
	----------Diesel Range Organics	0.75	JB	U FΦ1, FΦ6

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO4104

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-13

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F1022

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 22 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	641	U	U

FORM I VOA

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: HO4L04

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218 13

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 1Q119

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 22 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98

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	424	U
91-58-7	2-chloronaphthalene	424	U
208-96-8	acenaphthylene	424	U
83-32-9	acenaphthene	424	U
86-73-7	fluorene	424	U
85-01-8	phenanthrene	424	U
120-12-7	anthracene	424	U
206-44-0	fluoranthene	424	U
129-00-0	pyrene	424	U
56-55-3	benzo(a)anthracene	424	U
218-01-9	chrysene	424	U
205-99-2	benzo(b)fluoranthene	424	U
207-08-9	benzo(k)fluoranthene	424	U
50-32-8	benzo(a)pyrene	424	U
193-39-5	indeno(1,2,3-cd)pyrene	424	U
53-70-3	dibenz(a,h)anthracene	424	U
191-24-2	benzo(g,h,i)perylene	424	U

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-11

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F207

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 20 Date Analyzed: 04/21/98

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	U
108-88-3	Toluene	2.5	U	UJ CP8
100-41-4	Ethylbenzene	2.5	U	U
1330-20-7	Xylenes (total)	7.5	U	UJ CP8

DATA VALIDATION COPY

FORM I VOA

FORM 1 Science Applications08-APR-1998 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HO4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-11

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 4D10054

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 20 decanted: (Y/N) N Date Extracted: 04/10/98

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) MG/KG	Q	
	----------Diesel Range Organics	1.0	B	U FΦ1, FΦ7

FORM I SV

174

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-11

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F1020

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 20 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	625	U	U

FORM I VOA

DATA VALIDATION COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO4105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 1Q117

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 20 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO4110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S
Matrix: (soil/water) SOIL Lab Sample ID: 9804218-12
Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F208
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: not dec. 21 Date Analyzed: 04/21/98
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	U
108-88-3	Toluene	2.5	U	UJ UP
100-41-4	Ethylbenzene	2.5	U	U
1330-20-7	Xylenes (total)	7.6	U	UJ UP

DATA VALIDATION COPY

FORM I VOA

FORM 1 Science Applications08-APR-1998 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HC4110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HAC08S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-12

Sample wt/vol: 30.9 (g/mL) G Lab File ID: 4D10055

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 21 decanted: (Y/N) N Date Extracted:04/10/98

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) MG/KG	Q	
	----------Diesel Range Organics	1.3	B	U FØ1, FØ7

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO4110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-12

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F1021

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 21 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	633	U	V

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO4110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-12

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 1Q118

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 21 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/21/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

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

DATA VALIDATION COPY

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	naphthalene	419	U
91-58-7	2-chloronaphthalene	419	U
208-96-8	acenaphthylene	419	U
83-32-9	acenaphthene	419	U
86-73-7	fluorene	419	U
85-01-8	phenanthrene	419	U
120-12-7	anthracene	419	U
206-44-0	fluoranthene	419	U
129-00-0	pyrene	419	U
56-55-3	benzo(a)anthracene	419	U
218-01-9	chrysene	419	U
205-99-2	benzo(b)fluoranthene	419	U
207-08-9	benzo(k)fluoranthene	419	U
50-32-8	benzo(a)pyrene	419	U
193-39-5	indeno(1,2,3-cd)pyrene	419	U
53-70-3	dibenz(a,h)anthracene	419	U
191-24-2	benzo(g,h,i)perylene	419	U

U

FORM I SV-1 OLM03.0

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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: May 01, 1998 Page 1 of 1

Sample ID	: HO5400
Lab ID	: 9804468-16
Matrix	: Soil
Date Collected	: 04/18/98
Date Received	: 04/18/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
General Chemistry											
TOTAL ORGANIC CARBON (TOC)		1610 = FØ1, FØ8	24.1	100	mg/kg	1.0	RMJ	04/24/98	1312	120610	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.

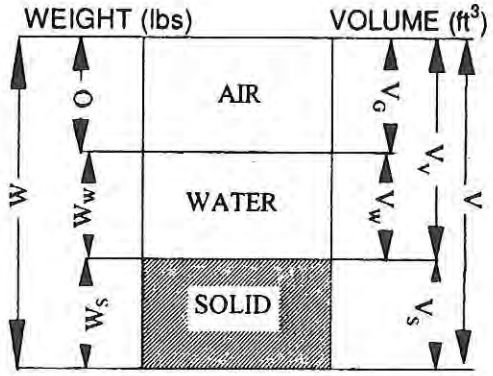
This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Valerie Davis at (803) 769-7391.

Reviewed By

231

PROJECT: Hunter Air Force Base
LOCATION OF PROJECT: CAP Part A
DESCRIPTION OF SOIL: Red Light Brown Clay
TESTED BY: BV-CA

JOB NO.: 98064
SAMPLE NO.: HQ5400
DEPTH OF SAMPLE: 2-4 ft.
DATE OF TESTING: 4/27/98



W = 1.05395
$W_W = W - W_S$ = 0.22916
$W_S = Y_d * V$ = 0.8248

V = 0.01093
$V_W = W_W / Y_W$ = 0.0037
$V_S = W_S / G_S * Y_W$ = 0.0050
$V_G = V - (V_S + V_W)$ = 0.00227
$V_V = V_G + V_W$ = 0.0059

MEASUREMENTS OF TUBE/CAN

HEIGHT= 17.1 cm
DIAMETER= 4.8 cm

CALCULATED VOLUME OF TUBE/CAN

V= 309.43 cm^3
0.01093 ft^3

WT. OF TUBE/CAN + WET SOIL= 714.50 g
WEIGHT OF TUBE/CAN= 236.43 g
WEIGHT OF WET SOIL= 478.07 g
W = 1.05395 lb

MOISTURE CONTENT

M_{CWS} = 26.90 g
M_{CDS} = 24.38 g
M_W = 2.52 g
M_C = 15.31 g
M_S = 9.07 g
w = 27.8 %

Wet Density, $Y_m = W / V$

Dry Density, $Y_d = W_s / V$ or $Y_d = Y_m / (1+ w)$

double check	$Y_d = Y_m / (1+ w)$
$Y_d = W_s / V$	Y_m= 96.43 lbs/ft^3
Y_d= 75.47 lbs/ft^3	Y_d= 75.47 lbs/ft^3

Void Ratio, $e = V_V / V_S$
e = 1.1922

Porosity, $n = V_V / V$
n = 0.54

Specific Gravity = 2.65

Degree of Saturation, $S = V_W / V_V$
S = 0.6176

CATLIN Engineers and Scientists
Geotechnical Laboratories

PERMEABILITY TEST ANALYSIS (ASTM D5084)

Project : Hunter AFB

Location of Project : Cap Part A

Description of Soil : Red Light Brown Clay

Job # : 98064
Date of Testing: 5/1-8/98
Tested by: BV-CA
Boring # :
Sample # : H05400
Sample Depth : 2-4 ft.

Sample Type (**Undisturbed** or Remolded)
Standard Proctor:
Maximim Dry Density: _____ *pcf*
Optimum Moisture Content: _____ %

% Sample Compaction: _____ %
Sample Dry Density: _____ *pcf*
Sample Moisture Content: _____ %
Sample Wet Density: _____ *pcf*

Sample Permeation:

De-Aired Water
% Saturation: 96 %
Cell Pressure: 80 *psi*
Lower Pressure: 71 *psi*
Upper Pressure: 70 *psi*
Gradient: 11.35

Sample Dimensions		
	Before	After
Length (cm)	6.20	6.20
Diameter (cm)	4.70	4.70
Water Content (%)	18.4	21.3
Weight (g)	265.6	222.89

Constant Head Calculation:

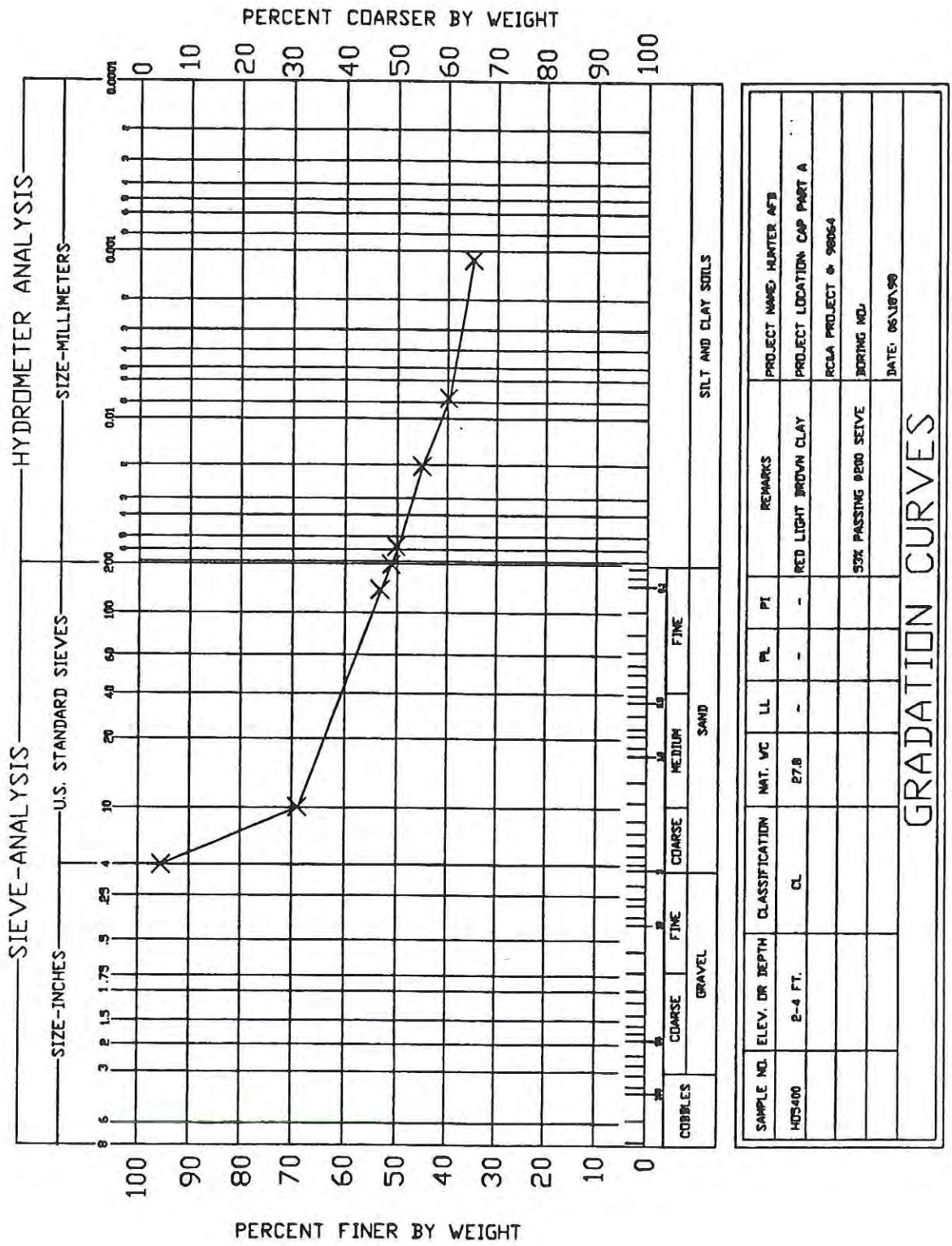
$$K = [V(t_1,t_2)\ LR_T]/[P_BAt]\ (cm/sec)$$

$V(t_1,t_2)$ = Volume of flow from t_1 to t_2 (cm^2)
L = Length of Sample = 6.20 cm
A = Area of Sample = 17.35 cm^2
t = $t_2 - t_1$ (sec)
P_B = Bias Pressure = 1 psi x 70.37 cm/psi $_{(cm - H2O)}$: 70.37 cm
R_T = Temperature correction = 0.931

t_2 (min)	t_1 (min)	$(t_2 - t_1)*60$ (sec)	V (cm^3)	$[LR_T]/[P_BA]$ (cm^3)	K (cm/sec)
4545	4320	13500	0.6	4.73E-03	2.10E-07
4620	4545	4500	0.1	4.73E-03	1.05E-07
4650	4620	1800	0.1	4.73E-03	2.63E-07
4680	4650	1800	0.1	4.73E-03	2.63E-07

K_{avg} = 2.10E-07 cm/sec

CATLIN Engineers and Scientists
Geotechnical Laboratories


PERCENT COARSER BY WEIGHT
0 10 20 30 40 50 60 70 80 90 100
SIEVE-ANALYSIS
HYDROMETER ANALYSIS
SIZE-INCHES
U.S. STANDARD SIEVES
SIZE-MILLIMETERS
8 6 3 2 1.5 1.75 .5 .25 4 10 20 40 60 100 200 0.01 0.001 0.0001
COBBLES
GRAVEL
COARSE FINE
SAND
COARSE MEDIUM FINE
SILT AND CLAY SOILS
100 90 80 70 60 50 40 30 20 10 0
PERCENT FINER BY WEIGHT
GRADATION CURVES
SAMPLE NO. | ELEV. OR DEPTH | CLASSIFICATION | NAT. WC | LL | PL | PI | REMARKS
HD3400 | 2-4 FT. | CL | 27.8 | - | - | - | RED LIGHT BROWN CLAY
PROJECT NAME: HUNTER AFB
PROJECT LOCATION: CAP PART A
RCRA PROJECT #: 98064
53% PASSING #200 SEIVE
BORING NO:
DATE: 05/18/98
CALIN
GEOTECHNICAL LABORATORIES
MOUNT PLEASANT, SOUTH CAROLINA

GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project Hunter AFB Job No. F98064

Location of Project Cap Part A Sample No. HO 5400

Description of Soil _____ Depth of Sample 2-4' Boring No. _____

Tested By BV Date of Testing 4/30/98

Sample preparation procedures outlined in ASTM D421 and D2217.

Nominal diameter of largest particle	Approximate minimum Wt. of sample, g
No. 10 sieve	200
No. 4 sieve	500
3/4 in.	1500

Weight of sample used, M_{ss} = 377.80 g

PS6

M_{can}	M_{can}	M_c ___	M_w	M_s	w %	M_{ss}	M_s
	455.70	119.80	377.90				

Sieve analysis and grain shape

Sieve no.	Diam. (mm)	Wt. retained	% retained	Σ % retained	% passing
3"					
2"					
1 1/2 "					
3/4"					
3/8"					
#4		14.04	3.70	3.70	96.30
#10		103.38	27.27	30.97	69.03
#20		81.61	21.53	52.50	47.50
#40		37.96	10.01	62.51	37.49
#60		28.60	7.54	70.05	29.95
#140		75.00	19.78	89.83	10.17
#200		13.80	3.64	93.47	6.53
pan		24.70	6.52	99.99	0.01
		379.09			

% retained = (Wt. retained/W_s) · 100 % passing = 100 - Σ % retained.

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APPENDIX VI

ALTERNATE THRESHOLD LEVEL (ATL) CALCULATIONS

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Calculations of alternate threshold levels are not indicated for the Former Heating Oil Tank (HOT), Building 8582 site because soil concentrations did not exceed the Georgia Environmental Protection Division (GA EPD) applicable soil threshold levels (i.e., Table A, column 1). However, the geotechnical data collected during this investigation are presented in Table VI-A.

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TABLES

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

TABLE VI-A. GEOTECHNICAL PARAMETERS FOR FORMER HEATING OIL TANK, BUILDING 8582

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 %)
8582	X	N/A	HO5400	2.0 to 4.0	CL	27.8	0.161	2.65	0.54	2.1E-7	31.0	16.0	53.0

NOTE: CAP = Corrective Action Plan.
CL = Clay.
HOT = Heating Oil Tank.
N/A = Not applicable.

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APPENDIX VII

MONITORING WELL DETAILS

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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 8582 site. Refer to Appendix IV for temporary piezometer installation details.

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APPENDIX VIII

GROUNDWATER LABORATORY RESULTS

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Former HOT, Building 8562
Hunter Army Airfield
Chatham County, Facility ID: N/A

TABLE VIII-A. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS[2]

Location Sample ID Date Collected Depth (ft BGS)	Applicable Standards[1]	O-1 HO1200 04/07/98 10.0 to 14.0	O-1 HO1210 04/07/98 10.0 to 14.0	O-2 HO2200 04/07/98 10.5 to 14.5	O-3 HO3200 04/07/98 9.0 to 13.0	O-4 HO4200 04/08/98 10.0 to 14.0	O-5 HO5301 04/18/98 16.0 to 20.0	O-5 HO5302 04/18/98 26.0 to 30.0	O-5 HO5303 04/18/98 36.0 to 40.0
VOCs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Benzene	5	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toluene	1,000	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Ethylbenzene	700	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Xylenes	10,000	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
PAHs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
2-Chloronaphthalene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Acenaphthene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Acenaphthylene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Anthracene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Benzo(a)anthracene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Benzo(a)pyrene	0.2	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Benzo(b)fluoranthene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Benzo(g,h,i)perylene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Benzo(k)fluoranthene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Chrysene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Dibenzo(a,h)anthracene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Fluoranthene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Fluorene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Indeno(1,2,3-cd)pyrene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Naphthalene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Phenanthrene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U
Pyrene	NRC	10.4 U	10.3 U	10.2 U	10.2 U	10.4 U	10.5 UJ	10.4 U	10.6 U

NOTE: [1] U.S. Environmental Protection Agency maximum contaminant level.
[2] **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.
PAHs - Polynuclear aromatic hydrocarbons.
VOCs - Volatile organic compounds.

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

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

CHAIN OF CUSTODY RECORD

COC NO.: 40898D

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	40% DRO 60% DRO	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HO31Ø1	4/7/98	16ØØ	soil	X	X	X	X		2	Ø.7 ppm	9804128-19
HO31Ø5	4/7/98	1625 16Ø5	soil	X	X	X	X		2	Ø.2 ppm	9804128-20
HF111Ø	4/8/98	1Ø55	soil	X	X	X	X		2	13 ppm	Field Duplicate
HF11Ø2	4/8/98	1Ø25	soil	X	X	X	X		2	38 ppm	9804128-14
HF11Ø5	4/8/98	1Ø55	soil	X	X	X	X		2	13 ppm	9804128-15
HF12ØØ	4/8/98	11ØØ	water soil	X					2	NA	9804128-18
HO12ØØ	4/7/98	1355	water	X					2	NA	9804216-01
									2	NA	9804216-02

4/8/98

REQUESTED PARAMETERS

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time	TOTAL NUMBER OF CONTAINERS: 12	Cooler Temperature: 4°C
Mitchell Hall	4/8/98 1330		4-8-98 1636	Cooler ID: 423	FEDEX NUMBER: NA
COMPANY NAME: SAIC		COMPANY NAME: GEL			
RECEIVED BY:	Date/Time 4/8/98 1330	RELINQUISHED BY:	Date/Time	Quick Turnaround on HF's	
COMPANY NAME: GEL		COMPANY NAME:			
RELINQUISHED BY:	Date/Time 4/8/98 1630	RECEIVED BY:	Date/Time		
COMPANY NAME: GEL		COMPANY NAME:			

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

CHAIN OF CUSTODY RECORD

COC NO.: ~~40898A~~ 40898 E

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

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

LABORATORY NAME: South Atlantic Savannah District Lab.

LABORATORY ADDRESS: 611 South Cobb Drive, Marietta, GA 30060

PHONE NO: (770) 919-5295

REQUESTED PARAMETERS

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	GRO	DRO	TOC	No. of Bottles/Vials	OVA Screening	Observations, Comments, Special Instructions
HO121Ø	4/7/98	1355	water		X				2	NA	9804219-0[illegible]
HO22ØØ	4/7/98	144Ø	water		X				2	NA	0[illegible]
HO32ØØ	4/7/98	1425	water		X				2	NA	04
HO323Ø	4/7/98	15Ø5	water		X				2	NA	equipment rinsate 05
~~HTBØØ8~~	~~4/8/98~~	~~Ø8ØØ~~	~~water~~		X						X
~~HTBØØ7~~	~~4/8/98~~	~~Ø8ØØ~~	~~water~~								X
HF12ØØ	4/8/98	11ØØ	water		X				2	NA	9804219-06
~~HF42ØØ~~	~~4/8/98~~	~~Ø85Ø~~	~~water~~		X				2		4/8/98
HO12ØØ	4/7/98	1355	water		X				2	NA	9804219-07
HO42ØØ	4/8/98	Ø85Ø	water		X				2	NA	9804219-08

4/8/98 MH 4/8/98

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time	TOTAL NUMBER OF CONTAINERS: 12	Cooler Temperature: 4°C
Mitchell Hall; COMPANY NAME: SAIC	4/8/98 1330	[signature]; COMPANY NAME: GEL	4-8-98 1130	Cooler ID: 546	FEDEX NUMBER: NA
RECEIVED BY: [signature]; COMPANY NAME: GEL	4/8/98 1330	RELINQUISHED BY:; COMPANY NAME:	Date/Time	Quick Turnaround on HF's	
RELINQUISHED BY: [signature]; COMPANY NAME: GEL	4/8/98 1630	RECEIVED BY:; COMPANY NAME:	Date/Time		

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

CHAIN OF CUSTODY RECORD

COC NO.: 40898C / 40898D

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

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

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	ERP-DRO	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HTBØØ7	4/8/98	ØØØØ	water	X					2	NA	9804216-16 ASTM TYPE II, LOT J3
HO12Ø	4/7/98	1355	water	X					2	NA	NA 9804216-15
HO22ØØ	4/7/98	144Ø	water	X					2	NA	NA 9804216-14
HO32ØØ	4/7/98	1425	water	X					2	NA	NA 9804216-13
HO323Ø	4/7/98	15Ø5	water	X					2	NA	NA 9804216-12
HO42ØØ	4/8/98	Ø85Ø	water	X					2	NA	9804219-01
HO4Ø5	4/8/98	Ø845	soil	X	X	X	X		2	68 ppm	9804218-11
HO411Ø	4/8/98	Ø845	soil	X	X	X	X		2	6Ø ppm	NA 10
HO41Ø4	4/8/98	Ø835	soil	X	X	X	X		2	13Ø ppm	NA 09
HO11Ø2	4/7/98	1325	Soil	X	X	X	X		2	Ø.9 ppm	NA 15
HO11Ø5	4/7/98	1345	soil	X	X	X	X		2	Ø ppm	NA 16
HO21Ø1	4/7/98	~~1420~~ 1410	soil	X	X	X	X		2	Ø ppm	NA 17
HO21Ø5	4/7/98	143Ø	soil	X	X	X	X		2	Ø ppm	NA 18

RELINQUISHED BY: Mitchell Hall	Date/Time 4/8/98 1330	RECEIVED BY:	Date/Time 4.8.98	TOTAL NUMBER OF CONTAINERS: 26	Cooler Temperature: 4°C
COMPANY NAME: SAIC		COMPANY NAME: GEL	1130	Cooler ID: 423	FEDEX NUMBER: NA
RECEIVED BY:	Date/Time 4/8/98	RELINQUISHED BY:	Date/Time		
COMPANY NAME: SAIC	1330	COMPANY NAME:			
RELINQUISHED BY:	Date/Time 4/8/98	RECEIVED BY:	Date/Time		
COMPANY NAME: GEL	1630	COMPANY NAME:			

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CHAIN OF CUSTODY RECORD

COC NO.: 41898D

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): [signature] (Printed Name): Mitchell Hall

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	DRP	GRO	TOC	9804186-	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HI73Ø1	4/18/98	Ø74Ø	water	X					-01	2	NA	11.Ø - 15.Ø ft
HI73Ø2	4/18/98	Ø82Ø	water	X					-02	2	NA	21.Ø - 25.Ø
HI731Ø	4/18/98	Ø74Ø	water	X					-03	2	NA	11.Ø - 15.Ø ft
HI733Ø	4/18/98	Ø725	water	X					-04	2	NA	Equip Rinsate
HD52ØØ	4/17/98	164Ø	water	X					-05	2	NA	8.Ø - 12.Ø ft
HD32ØØ	4/17/98	134Ø	water	X					-06	2	NA	2.Ø - 6.Ø ft
HI73Ø3	4/18/98	Ø845	water	X					-07	2	NA	31.Ø - 35.Ø ft
HTBØ14	4/18/98	Ø9ØØ	water	X					-08	2	NA	TRIP BLANK
HD42ØØ	4/17/98	16Ø5	water	X					-09	2	NA	9.Ø - 13.Ø ft
HI73Ø4	4/18/98	Ø925	water	X					-10	2	NA	41.Ø - 45.Ø ft
HØ53Ø1	4/18/98	1Ø5Ø	water	X					-11	2	NA	16.Ø - 20.Ø ft
HØ53Ø2	4/18/98	11ØØ	water	X					-12	2	NA	26.Ø - 30.Ø ft
HØ53Ø3	4/18/98	1125	water	X					-13	2	NA	36.Ø - 40.Ø ft

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
[signature]	4/18/98 1539	[signature]	4-18-98 1606
COMPANY NAME: SAIC		COMPANY NAME: GEL	
RECEIVED BY: [signature]	Date/Time 4/18/98 1330	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 26

Cooler ID: 5Ø4

Cooler Temperature: 4°C

FEDEX NUMBER: NA

HD 52ØØ
HD 32ØØ
HD 42ØØ
} VSO 4/20/98 Quick turnaround

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Science Applications International Corporation
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800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4500

CHAIN OF CUSTODY RECORD

COC NO.: 4/898C

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 Road Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	8015 GRO	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HI73Ø2	4/18/98	Ø82Ø	water	X	X				X	2	NA	21.Ø-25.Ø
HI73Ø3	4/18/98	Ø845	water	X	X				X	2	NA	31.Ø - 35.Ø
HI73Ø4	4/18/98	Ø925	water	X	X				X	2	NA	41.Ø-45.Ø
HØ53Ø1	4/18/98	1Ø5Ø	water	X	X				X	2	NA	16.Ø-2Ø.Ø
HØ53Ø2	4/18/98	11ØØ	water	X	X				X	2	NA	26.Ø-3Ø.Ø

RELINQUISHED BY: Mitchell Hall — Date/Time: 4/18/98 1330 — RECEIVED BY: Donald Webb — Date/Time: 4-18-98 1600

COMPANY NAME: SAIC — COMPANY NAME: GEL

RELINQUISHED BY: Shawn Kelley — Date/Time: 4/18/98 1330 — RECEIVED BY: — Date/Time:

COMPANY NAME: GEL — COMPANY NAME:

RELINQUISHED BY: — Date/Time: — RECEIVED BY: — Date/Time:

COMPANY NAME: — COMPANY NAME:

TOTAL NUMBER OF CONTAINERS: 1Ø

Cooler ID: #226

Cooler Temperature: 4°C

FEDEX NUMBER: NA

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

CHAIN OF CUSTODY RECORD

COC NO.: 41898B

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature) (Printed Name)

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	DRP	GRO	TOC	Lab No.	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS
HD3101	4/17/98	1335	Soil	X	X	X	X		9804468-11	2	NA	0.0 - 2.0 ft
HD4104	4/17/98	1545	Soil	X	X	X	X		12	2	NA	6.0 - 8.0 ft
HD4101	4/17/98	1530	Soil	X	X	X	X		13	2	NA	0.0 - 2.0 ft
HD5101	4/17/98	1620	Soil	X	X	X	X		14	2	NA	0.0 - 2.0 ft
HD5104	4/17/98	1635	Soil	X	X	X	X		15	2	NA	6.0 - 8.0 ft
HO5400	4/18/98	1020	Soil					X	16	1	NA	2.0 - 4.0 ft
HO5303	4/18/98	1125	water ~~Soil~~		X				9804484-13	2	NA	36.0 - 40.0 ft

RELINQUISHED BY: [signature]	Date/Time 4/18/98 1330	RECEIVED BY: [signature]	Date/Time 4-18-98 1600	TOTAL NUMBER OF CONTAINERS: 13	Cooler Temperature: 4°C
COMPANY NAME: SAIC		COMPANY NAME: GEL		Cooler ID: 504	FEDEX NUMBER: NA
RECEIVED BY: [signature]	Date/Time 4/18/98 1330	RELINQUISHED BY:	Date/Time		
COMPANY NAME: GEL		COMPANY NAME:			
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time		
COMPANY NAME:		COMPANY NAME:			

HD3101, HD4104, HD4101, HD5101, HD5104 } Quick turnaround (initialed 4/20/98)

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO1200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA009W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804216-02

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2E305

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. _____ Date Analyzed: 04/15/98

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	

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO1200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA015W

Matrix: (soil/water) WATER Lab Sample ID: 9804219-07

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 1Q216

Level: (low/med) LOW Date Received: 04/08/98

% 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

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FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO1210

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA009W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804216-17

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2E3021

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. _____ Date Analyzed: 04/15/98

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	

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO1210

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: 9804219-02
Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 1Q212
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98
Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98
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

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FORM I SV-1 OLM03.0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO2200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA009W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804216-18

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2E3022

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. _____ Date Analyzed: 04/15/98

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	

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO2200

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: 9804219-03
Sample wt/vol: 980.0 (g/mL) ML Lab File ID: 1Q213
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98
Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98
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	10.2	U
91-58-7	2-chloronaphthalene	10.2	U
208-96-8	acenaphthylene	10.2	U
83-32-9	acenaphthene	10.2	U
86-73-7	fluorene	10.2	U
85-01-8	phenanthrene	10.2	U
120-12-7	anthracene	10.2	U
206-44-0	fluoranthene	10.2	U
129-00-0	pyrene	10.2	U
56-55-3	benzo(a)anthracene	10.2	U
218-01-9	chrysene	10.2	U
205-99-2	benzo(b)fluoranthene	10.2	U
207-08-9	benzo(k)fluoranthene	10.2	U
50-32-8	benzo(a)pyrene	10.2	U
193-39-5	indeno(1,2,3-cd)pyrene	10.2	U
53-70-3	dibenz(a,h)anthracene	10.2	U
191-24-2	benzo(g,h,i)perylene	10.2	U

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FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO3200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA009W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804216-19

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2E3023

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. _____ Date Analyzed: 04/15/98

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	

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO3200

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: 9804219-04
Sample wt/vol: 980.0 (g/mL) ML Lab File ID: 1Q214
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/13/98
Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/21/98
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	10.2	U
91-58-7	2-chloronaphthalene	10.2	U
208-96-8	acenaphthylene	10.2	U
83-32-9	acenaphthene	10.2	U
86-73-7	fluorene	10.2	U
85-01-8	phenanthrene	10.2	U
120-12-7	anthracene	10.2	U
206-44-0	fluoranthene	10.2	U
129-00-0	pyrene	10.2	U
56-55-3	benzo(a)anthracene	10.2	U
218-01-9	chrysene	10.2	U
205-99-2	benzo(b)fluoranthene	10.2	U
207-08-9	benzo(k)fluoranthene	10.2	U
50-32-8	benzo(a)pyrene	10.2	U
193-39-5	indeno(1,2,3-cd)pyrene	10.2	U
53-70-3	dibenz(a,h)anthracene	10.2	U
191-24-2	benzo(g,h,i)perylene	10.2	U

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FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO4200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

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

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804219-01

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2E407

Level: (low/med) LOW DATA VALIDATION COPY Date Received: 04/08/98

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

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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO4200

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: 9804219-08

Sample wt/vol: 960.0 (g/mL) ML Lab File ID: 1Q217

Level: (low/med) LOW Date Received: 04/08/98

% 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

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO5301

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA020W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804486-11

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2G5013

Level: (low/med) LOW Date Received: 04/18/98

% Moisture: not dec. _____ Date Analyzed: 05/01/98

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

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FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO5301

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA019W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804484-04

Sample wt/vol: 950.0 (g/mL) ML Lab File ID: 1R412

Level: (low/med) LOW Date Received: 04/18/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/21/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/30/98

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

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO5302

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA020W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804486-12

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2G4024

Level: (low/med) LOW Date Received: 04/18/98

% Moisture: not dec. _____ Date Analyzed: 04/30/98

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

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FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HO5302

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA019W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804484-05

Sample wt/vol: 965.0 (g/mL) ML Lab File ID: 1R413

Level: (low/med) LOW Date Received: 04/18/98

% Moisture: _____ decanted: (Y/N)___ Date Extracted:04/21/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/30/98

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO5303

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA020W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804486-13

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2G5014

Level: (low/med) LOW Date Received: 04/18/98

% Moisture: not dec. _____ Date Analyzed: 05/01/98

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

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HO5303

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA019W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804484-12

Sample wt/vol: 940.0 (g/mL) ML Lab File ID: 1R419

Level: (low/med) LOW Date Received: 04/18/98

% Moisture: ______ decanted: (Y/N)___ Date Extracted:04/21/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/01/98

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	10.6	U	UJ ~~GBS~~
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	

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APPENDIX XII

GUST TRUST FUND REIMBURSEMENT APPLICATION AND CLAIM FOR REIMBURSEMENT

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The Hunter Army Airfield is a federally owned facility and has funded the investigation for the Former Heating Oil Tank (HOT), Building 8582 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.

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ATTACHMENT A

TECHNICAL APPROACH

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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 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).

Free Product Thickness

Free product layer thickness measurements were collected at applicable sites using an electric interface probe. Initially, the interface probe was lowered into each temporary piezometer casing until the alarm sounded and/or the indicator light was illuminated. The probe was withdrawn and then slowly lowered again until the liquid surface was contacted as noted by the alarm and/or indicator light. The meter was lowered until the alarm indicated the water surface. The thickness of the product was determined by subtracting the measurement of the free product layer surface from the measurement of the water surface. The water/product 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 free product measurement was repeated two or three times to ensure that the 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 spread in an 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

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