

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH7101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA024S

Matrix: (soil/water) SOIL Lab Sample ID: 9804657-01

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2H2015

Level: (low/med) LOW Date Received: 04/24/98

% Moisture: not dec. 14 Date Analyzed: 05/05/98

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           | 2.3 | U |
| 108-88-3-----Toluene          | 2.3 | U |
| 100-41-4-----Ethylbenzene     | 2.3 | U |
| 1330-20-7-----Xylenes (total) | 7.0 | U |

U  
↓

DATA VALIDATION  
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FORM 1  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Science Applications 24-APR-1998 SA

HH7101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA024S  
Matrix: (soil/water) SOIL Lab Sample ID: 9804657-01  
Sample wt/vol: 30.1 (g/mL) G Lab File ID: 5A5007  
Level: (low/med) . LOW Date Received: 04/24/98  
% Moisture: 14 decanted: (Y/N) N Date Extracted: 05/01/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 05/07/98  
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 | 0.64                 | JB    |

U F01, F06

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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH7101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA024S

Matrix: (soil/water) SOIL Lab Sample ID: 9804657-01

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1G6020

Level: (low/med) LOW Date Received: 04/24/98

% Moisture: not dec. 14 Date Analyzed: 05/02/98

GC Column: J&W DB-624 (FID) ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/KG Q

|                              |      |   |
|------------------------------|------|---|
| -----Gasoline Range Organics | 1160 | U |
|------------------------------|------|---|

U

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1B  
 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HH7101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
 Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA024S  
 Matrix: (soil/water) SOIL Lab Sample ID: 9804657-01  
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 2S216  
 Level: (low/med) LOW Date Received: 04/24/98  
 % Moisture: 14 decanted: (Y/N) N Date Extracted: 05/01/98  
 Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 05/05/98  
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
 GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO.  | COMPOUND                 | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/KG | Q |
|----------|--------------------------|-----------------------------------------------|---|
| 91-20-3  | naphthalene              | 388                                           | U |
| 91-58-7  | 2-chloronaphthalene      | 388                                           | U |
| 209-96-8 | acenaphthylene           | 388                                           | U |
| 83-32-9  | acenaphthene             | 388                                           | U |
| 86-73-7  | fluorene                 | 388                                           | U |
| 85-01-8  | phenanthrene             | 388                                           | U |
| 120-12-7 | anthracene               | 388                                           | U |
| 206-44-0 | fluoranthene             | 388                                           | U |
| 129-00-0 | pyrene                   | 388                                           | U |
| 56-55-3  | benzo (a) anthracene     | 388                                           | U |
| 218-01-9 | chrysene                 | 388                                           | U |
| 205-99-2 | benzo (b) fluoranthene   | 388                                           | U |
| 207-08-9 | benzo (k) fluoranthene   | 388                                           | U |
| 50-32-8  | benzo (a) pyrene         | 388                                           | U |
| 193-39-5 | indeno (1,2,3-cd) pyrene | 388                                           | U |
| 53-70-3  | dibenz (a,h) anthracene  | 388                                           | U |
| 191-24-2 | benzo (g,h,i) perylene   | 388                                           | U |

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FORM I SV-1

OLM03.0



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH7103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA0245

Matrix: (soil/water) SOIL Lab Sample ID: 9804657-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2H2017

Level: (low/med) LOW Date Received: 04/24/98

% Moisture: not dec. 16 Date Analyzed: 05/06/98

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 |

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FORM 1 Science Applications24-APR-1998 SA  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA024S  
Matrix: (soil/water) SOIL Lab Sample ID: 9804657-02  
Sample wt/vol: 30.0 (g/mL) G Lab File ID: 5A5008  
Level: (low/med) LOW Date Received: 04/24/98  
% Moisture: 16 decanted: (Y/N) N Date Extracted: 05/01/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 05/07/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO. | COMPOUND              | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) MG/KG | Q |
|---------|-----------------------|-----------------------------------------------|---|
| -----   | Diesel Range Organics | 1.0                                           | B |

U F01, F07

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FORM I SV

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH7103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HA024S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804657-02

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 1G6023

Level: (low/med) LOW

Date Received: 04/24/98

% Moisture: not dec. 16

Date Analyzed: 05/02/98

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

Dilution Factor: 2.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/KG

Q

|                              |      |   |
|------------------------------|------|---|
| -----Gasoline Range Organics | 1190 | U |
|------------------------------|------|---|

U

DATA VALIDATION  
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FORM I VOA

V-47

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH7103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA024S

Matrix: (soil/water) SOIL Lab Sample ID: 9804657-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 2S217

Level: (low/med) LOW Date Received: 04/24/98

% Moisture: 16 decanted: (Y/N) N Date Extracted: 05/01/98

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

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              | 397 | U |
| 91-58-7  | -----2-chloronaphthalene      | 397 | U |
| 209-96-8 | -----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 |

## SPECIFIC GRAVITY AND POROSITY

Hunter Army Airfield UST CAP-A Report

UST 109, Building 1310, Facility ID: 9-025105

PROJECT: Hunter Air Force Base

JOB NO.: 98064

LOCATION OF PROJECT: CAP Part A

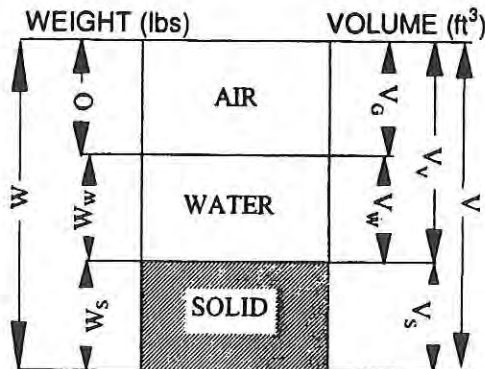
SAMPLE NO.: HH6400

DESCRIPTION OF SOIL: Light Brown Clayey Sand

DEPTH OF SAMPLE: 0-2 ft.

TESTED BY: BV-CA

DATE OF TESTING: 4/27/98



$$W = 0.61488$$

$$W_w = W - W_s = 0.07190$$

$$W_s = Y_d \cdot V = 0.5430$$

$$V = 0.00831$$

$$V_w = W_w / \gamma_w = 0.0012$$

$$V_s = W_s / G_s \cdot \gamma_w = 0.0034$$

$$V_G = V - (V_s + V_w) = 0.00380$$

$$V_v = V_G + V_w = 0.0050$$

### MEASUREMENTS OF TUBE/CAN

HEIGHT= 13.0 cm

DIAMETER= 4.8 cm

WT. OF TUBE/CAN + WET SOIL= 458.70 g

WEIGHT OF TUBE/CAN= 179.79 g

WEIGHT OF WET SOIL= 278.91 g

W = 0.61488 lb

### CALCULATED VOLUME OF TUBE/CAN

$$V = 235.24 \text{ cm}^3$$

$$0.00831 \text{ ft}^3$$

### MOISTURE CONTENT

$M_{cws} = 26.25 \text{ g}$

$M_c = 15.56 \text{ g}$

$M_{cbs} = 25.00 \text{ g}$

$M_s = 9.44 \text{ g}$

$M_w = 1.25 \text{ g}$

$w = 13.2 \%$

Wet Density,  $Y_m = W / V$

| Dry Density, $Y_d = W_s / V$ or $Y_d = Y_m / (1 + w)$ |                                |
|-------------------------------------------------------|--------------------------------|
| <u>double check</u>                                   | $Y_d = Y_m / (1 + w)$          |
| $Y_d = W_s / V$                                       | $Y_m = 74.00 \text{ lbs/ft}^3$ |
| $Y_d = 65.35 \text{ lbs/ft}^3$                        | $Y_d = 65.35 \text{ lbs/ft}^3$ |

Void Ratio,  $e = V_v / V_s$   
 $e = 1.4743$

Porosity,  $n = V_v / V$   
 $n = 0.60$

Specific Gravity = 2.59

Degree of Saturation,  $S = V_w / V_v$   
 $S = 0.2326$



# PERMEABILITY TEST ANALYSIS (ASTM D5084)

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

Project : Hunter AFB  
Location of Project : Cap Part A  
Description of Soil : Light Brown Clayey Sand

Job # : 98064  
Date of Testing: 5/18-20/98  
Tested by: BV-CA  
Boring # :   
Sample # : HH6400  
Sample Depth : 0-2 ft.

Sample Type (Undisturbed or Remolded)  
Standard Proctor:  
Maximum 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: 100 %  
Cell Pressure: 35 psi  
Lower Pressure: 31 psi  
Upper Pressure: 30 psi  
Gradient: 11.73

| Sample Dimensions |        |        |
|-------------------|--------|--------|
|                   | Before | After  |
| Length (cm)       | 6.00   | 4.60   |
| Diameter (cm)     | 4.70   | 5.00   |
| Water Content (%) | 46.5   | 23.5   |
| Weight (g)        | 185.0  | 168.52 |

## Constant Head Calculation:

$$K = [V(t_1, t_2) LR_T] / [P_B A t] \text{ (cm/sec)}$$

$V(t_1, t_2)$  = Volume of flow from  $t_1$  to  $t_2$  (cm<sup>3</sup>)

$L$  = Length of Sample = 6.00 cm

$A$  = Area of Sample = 17.35 cm<sup>2</sup>

$t$  =  $t_2 - t_1$  (sec)

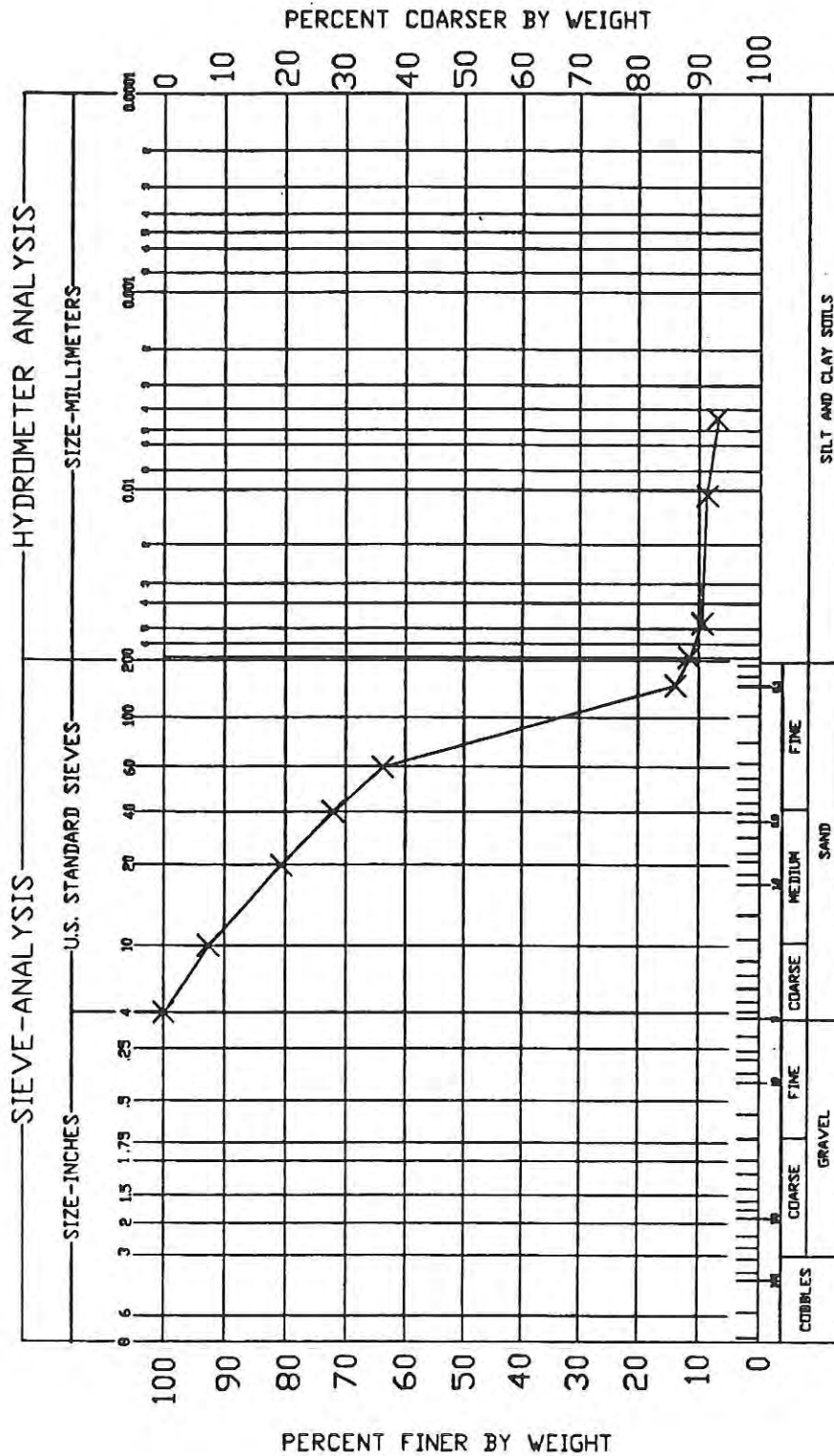
$P_B$  = Bias Pressure = 1 psi x 70.37 cm/psi (cm - H<sub>2</sub>O) = 70.37 cm

$R_T$  = Temperature correction = 0.931

| $t_2$<br>(min) | $t_1$<br>(min) | $(t_2 - t_1) \cdot 60$<br>(sec) | $V$<br>(cm <sup>3</sup> ) | $[LR_T] / [P_B A]$<br>(cm <sup>2</sup> ) | $K$<br>(cm/sec) |
|----------------|----------------|---------------------------------|---------------------------|------------------------------------------|-----------------|
| 75             | 60             | 900                             | 0.8                       | 4.58E-03                                 | 4.07E-06        |
| 90             | 75             | 900                             | 0.7                       | 4.58E-03                                 | 3.56E-06        |
| 105            | 90             | 900                             | 0.9                       | 4.58E-03                                 | 4.58E-06        |
| 120            | 105            | 900                             | 0.7                       | 4.58E-03                                 | 3.56E-06        |
|                |                |                                 |                           |                                          |                 |

$$K_{avg} = \underline{3.94E-06} \text{ cm/sec}$$

CATLIN Engineers and Scientists  
Geotechnical Laboratories



| SAMPLE NO. | ELEV. OR DEPTH | CLASSIFICATION | NAT. VC | LL | PL | PI | REMARKS                | PROJECT NAME     | HUNTER AFB |
|------------|----------------|----------------|---------|----|----|----|------------------------|------------------|------------|
| HAK400     | 0-2 FT.        | SC             | 13.2    | -  | -  | -  | LIGHT BROWN            | PROJECT LOCATION | CAP PART A |
|            |                |                |         |    |    |    | CLAYEY SAND            | COLA PROJECT #   | 98064      |
|            |                |                |         |    |    |    | 12% PASSING #200 SIEVE | BORING NO.       |            |
|            |                |                |         |    |    |    |                        | DATE             | 06/18/98   |

GRADATION CURVES

# GRAIN SIZE ANALYSIS-SIEVE (ASTM D422)

Project Hunter AFB Job No. #98064  
Location of Project Cap Area A Sample No. HH 640  
Description of Soil \_\_\_\_\_ Depth of Sample 0-2 Boring No. \_\_\_\_\_  
Tested By \_\_\_\_\_ Date of Testing 4/30/58

Sample preparation procedures outlined in ASTM D421 and D2217.

Nominal diameter of largest particle  
No. 10 sieve  
No. 4 sieve  
3/4 in.

Approximate minimum Wt. of sample, g  
200  
500  
1500

Weight of sample used,  $M_s$ , = 235.85 g

A-2

| $M_{cu}$ | $M_{ub}$ | $M_c$  | $M_u$  | $M_s$ | w % | $M_{ss}$ | $M_s$ |
|----------|----------|--------|--------|-------|-----|----------|-------|
|          | 397.68   | 161.83 | 235.85 |       |     |          |       |

## Sieve analysis and grain shape

| Sieve no. | Diam. (mm) | Wt. retained | % retained | $\Sigma$ % retained | % passing |
|-----------|------------|--------------|------------|---------------------|-----------|
| 3"        |            |              |            |                     |           |
| 2"        |            |              |            |                     |           |
| 1 1/2"    |            |              |            |                     |           |
| 3/4"      |            |              |            |                     |           |
| 3/8"      |            |              |            |                     |           |
| #4        |            | 0.69         | 0.29       | 0.29                | 99.71     |
| #10       |            | 15.51        | 6.58       | 6.87                | 93.13     |
| #20       |            | 28.61        | 12.57      | 19.44               | 80.56     |
| #40       |            | 19.69        | 8.36       | 27.80               | 72.20     |
| #60       |            | 18.79        | 7.98       | 35.78               | 64.22     |
| #140      |            | 133.62       | 56.71      | 92.49               | 7.51      |
| #200      |            | 12.84        | 5.46       | 97.95               | 2.05      |
| pan       |            | 4.84         | 2.05       | 100                 | 0         |
|           |            | 235.61       |            |                     |           |

$$\% \text{ retained} = (Wt. \text{ retained} / W_s) \cdot 100$$

$$\% \text{ passing} = 100 - \Sigma \% \text{ retained}$$



# DATA VALIDATION COPY

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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 08, 1998

Page 1 of 1

Sample ID : HH7400  
Lab ID : 9804657-03  
Matrix : Soil  
Date Collected : 04/22/98  
Date Received : 04/24/98  
Priority : Routine  
Collector : Client

| Parameter                  | Qualifier | Result | DL                       | RL  | Units | DF  | Analyst | Date     | Time | Batch  | M |
|----------------------------|-----------|--------|--------------------------|-----|-------|-----|---------|----------|------|--------|---|
| General Chemistry          |           |        |                          |     |       |     |         |          |      |        |   |
| TOTAL ORGANIC CARBON (TOC) | 2090      | =      | F01, F08 <sub>24.1</sub> | 100 | mg/kg | 1.0 | LS      | 05/05/98 | 1233 | 121449 | 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



\*9804657-03\*

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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 Underground Storage Tank 109, Facility ID: 9-025105 site because soil concentrations did not exceed the Georgia Environmental Protection Division (GA EPD) applicable soil threshold levels (i.e., Table A, column 2). However, the geotechnical data collected during the Corrective Action Plan - Part A investigation are presented in Table VI-A.

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## TABLES

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UST 109, Building 1310  
Hunter Army Airfield  
Chatham County, Facility ID: 9-025105

TABLE VI-A. GEOTECHNICAL PARAMETERS

| 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 %) |
|-------------|---------|-------------|-----------|--------------|----------------|----------------------|--------------------------|------------------|-------------|---------------------|---------------|-------------|------------|
| 1310        | 109     | 9-025105    | HH6400    | 0.0 to 2.0   | SC             | 13.2                 | N/A                      | 2.59             | 0.60        | 3.9E-6              | 6.9           | 81.1        | 12.0       |
| 1310        | 109     | 9-025105    | HH7400    | 0.4 to 2.7   | SC             | N/A                  | 0.209                    | N/A              | N/A         | N/A                 | N/A           | N/A         | N/A        |

NOTE: N/A = Not applicable.  
SC = Clayey sand.  
UST = Underground storage tank.



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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 Underground Storage Tank 109, Building 1310 site. Refer to Appendix IV for temporary piezometer installation details.

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## **APPENDIX VIII**

# **GROUNDWATER LABORATORY RESULTS**

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UST 109, Building 1310  
Hunter Army Airfield  
Chatham County, Facility ID: 9-025105

TABLE VIII-A. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS<sup>2</sup>

| Location<br>Sample ID<br>Date Collected<br>Depth (ft BGS) | Applicable<br>Standards <sup>1</sup> | H-1<br>HH1200<br>04/02/98<br>9.0 to 13.0 | H-2<br>HH2200<br>04/03/98<br>5.0 to 9.0 | H-3<br>HH3200<br>04/03/98<br>5.0 to 9.0 | H-3<br>HH3210 <sup>3</sup><br>04/03/98<br>5.0 to 9.0 | H-4<br>HH4200<br>04/03/98<br>5.5 to 9.5 | H-5<br>HH5301<br>04/04/98<br>6.0 to 10.0 | H-5<br>HH5302<br>04/04/98<br>16.0 to 20.0 | H-5<br>HH5310 <sup>4</sup><br>04/04/98<br>16.0 to 20.0 |
|-----------------------------------------------------------|--------------------------------------|------------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------------------|-----------------------------------------|------------------------------------------|-------------------------------------------|--------------------------------------------------------|
| VOCs                                                      | µg/L                                 | µg/L                                     | µg/L                                    | µg/L                                    | µg/L                                                 | µg/L                                    | µg/L                                     | µg/L                                      | µg/L                                                   |
| Benzene                                                   | 5                                    | 2 UJ                                     | 2 UJ                                    | 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                                                  | 18.2 J                                  | 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                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Acenaphthene                                              | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Acenaphthylene                                            | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Anthracene                                                | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Benzo(a)anthracene                                        | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Benzo(a)pyrene                                            | 0.2                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Benzo(b)fluoranthene                                      | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Benzo(g,h,i)perylene                                      | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Benzo(k)fluoranthene                                      | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Chrysene                                                  | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Dibenzo(a,h)anthracene                                    | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Fluoranthene                                              | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Fluorene                                                  | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Indeno(1,2,3-cd)pyrene                                    | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Naphthalene                                               | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Phenanthrene                                              | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |
| Pyrene                                                    | NRC                                  | 10.3 U                                   | 10.3 U                                  | 10.3 U                                  | 10.2 U                                               | 10.1 U                                  | 19.9 U                                   | 10.2 U                                    | 10.3 U                                                 |

NOTE: <sup>1</sup>U.S. Environmental Protection Agency maximum contaminant level.

<sup>2</sup>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.

<sup>3</sup>Duplicate sample for sample collected from location H-3 at a depth of 5.0 to 9.0 feet BGS.

<sup>4</sup>Duplicate sample for sample collected from location H-5 at a depth of 16.0 to 20 feet BGS.

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.

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.

TABLE VIII-A. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (continued)<sup>2</sup>

| Location<br>Sample ID<br>Date Collected<br>Depth (ft BGS) | Applicable<br>Standards <sup>1</sup> | H-5<br>HH5303<br>04/04/98<br>26.0 to 30.0 | H-5<br>HH5304<br>04/04/98<br>36.0 to 40.0 | H-5<br>HH5305<br>04/04/98<br>46.0 to 50.0 | H-7<br>HH7200<br>04/22/98<br>6.5 to 10.5 |
|-----------------------------------------------------------|--------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------|
| VOCs                                                      | µg/L                                 | µg/L                                      | µg/L                                      | µg/L                                      | µg/L                                     |
| Benzene                                                   | 5                                    | 2 U                                       | N/A <sup>3</sup>                          | N/A <sup>3</sup>                          | 2 U                                      |
| Toluene                                                   | 1,000                                | 2 U                                       | N/A <sup>3</sup>                          | N/A <sup>3</sup>                          | 2 U                                      |
| Ethylbenzene                                              | 700                                  | 2 U                                       | N/A <sup>3</sup>                          | N/A <sup>3</sup>                          | 2 U                                      |
| Xylenes                                                   | 10,000                               | 6 U                                       | N/A <sup>3</sup>                          | N/A <sup>3</sup>                          | 6 U                                      |
| PAHs                                                      | µg/L                                 | µg/L                                      | µg/L                                      | µg/L                                      | µg/L                                     |
| 2-Chloronaphthalene                                       | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Acenaphthene                                              | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Acenaphthylene                                            | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Anthracene                                                | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Benzo(a)anthracene                                        | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Benzo(a)pyrene                                            | 0.2                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Benzo(b)fluoranthene                                      | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Benzo(g,h,i)perylene                                      | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Benzo(k)fluoranthene                                      | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Chrysene                                                  | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Dibenzo(a,h)anthracene                                    | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Fluoranthene                                              | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Fluorene                                                  | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Indeno(1,2,3-cd)pyrene                                    | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Naphthalene                                               | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Phenanthrene                                              | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |
| Pyrene                                                    | NRC                                  | 10.3 UJ                                   | 10 UJ                                     | 10.4 UJ                                   | 10.2 U                                   |

NOTE: <sup>1</sup>U.S. Environmental Protection Agency maximum contaminant level.

<sup>2</sup>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.

<sup>3</sup>N/A - Analytical data not available. Although the samples were collected, they were inadvertently disposed of by the laboratory before being analyzed for the VOCs.

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.

UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.





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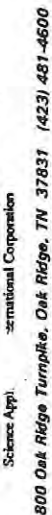
## CHAIN OF CUSTODY RECORD

COC NO.: 40,787

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

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COC NO.: 40-18C

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

VIII-9

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COC NO.: 40398B

**PROJECT NAME: CAP - Hunter AFB - Part A**

PROJECT NUMBER: 0019

**PROJECT MANAGER: Allison Bailey**

Exampler (Signature) Mitchell H. Hall  
(Printed Name) Mitchell H. Hall

(Printed Name) Mitchell H. Hall

| Sample ID | Date Collected | Time Collected                           | Matrix                                   |
|-----------|----------------|------------------------------------------|------------------------------------------|
| HH 2102   | 4/3/98         | 0805                                     | soil <sup>14240</sup><br><del>soil</del> |
| HH 3101   | 4/3/98         | 0855                                     | soil                                     |
| HH 3103   | 4/3/98         | 0900                                     | soil                                     |
| HH 4101   | 4/3/98         | 0930                                     | soil                                     |
| HH 4103   | 4/3/98         | 0940                                     | soil                                     |
| HN 3101   | 4/3/98         | 1105                                     | soil                                     |
| HN 3105   | 4/3/98         | 1130                                     | soil                                     |
| HN 3110   | 4/3/98         | 1130                                     | soil                                     |
| HH 3210   | 4/3/98         | 1140 <sup>14240</sup><br><del>0905</del> | soil                                     |

|         |         |       |       |
|---------|---------|-------|-------|
| HA 2110 | 4/13/98 | 28:05 | Sci 1 |
| HA 2103 | 4/2/98  | 16:15 | Sci 1 |

|                                           |                             |                                       |
|-------------------------------------------|-----------------------------|---------------------------------------|
| RELINQUISHED BY:<br><i>Donnell G Hall</i> | Date/Time<br><i>4/1/98</i>  | RECEIVED BY:<br><i>Donnell G Hall</i> |
| COMPANY NAME:<br><i>SAI</i>               | <i>4/13/98</i>              | COMPANY NAME:<br><i>GEL</i>           |
| RELINQUISHED BY:<br><i>Donnell G Hall</i> | Date/Time<br><i>4/13/98</i> | RELINQUISHED BY:<br><i>GEL</i>        |
| COMPANY NAME:<br><i>GEL</i>               | <i>1340</i>                 | COMPANY NAME:                         |
| RELINQUISHED BY:<br><i>Donnell G Hall</i> | Date/Time<br><i>4/13/98</i> | RECEIVED BY:                          |
| COMPANY NAME:<br><i>GEL</i>               | <i>1640</i>                 | COMPANY NAME:                         |

[illegible]

TOTAL NUMBER OF CONTAINERS:

Cooler ID: 252#

Date/Time

504

۱۹۷۵

Date/Time

Date/TIME:

Date/time

| OVA<br>SCREENING                                                                                                                  | OBSERVATIONS, COMMENTS,<br>SPECIAL INSTRUCTIONS                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <p>1. <input type="checkbox"/> Normal</p> <p>2. <input type="checkbox"/> Abnormal</p> <p>3. <input type="checkbox"/> Not done</p> | <p>1. <input type="checkbox"/> Normal</p> <p>2. <input type="checkbox"/> Abnormal</p> <p>3. <input type="checkbox"/> Not done</p> |

OBSERVATIONS, COMMENTS,  
SPECIAL INSTRUCTIONS

**LABORATORY NAME:**  
General Engineering Laboratory

LABORATORY ADDRESS:  
2040 Savage Road  
Charleston, SC 29417

PHONE NO: (803) 556-8171

Cooler Temperature: 4°C

FEDEX NUMBER.

|           |              |
|-----------|--------------|
| 201105-09 | added by DAG |
| 201105-10 | added by DAG |

added by DAG  
added by DAG

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

# CHAIN OF CUSTODY RECORD

COC NO.: 40498C

|                                               |                     |                  |        |                                   |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  |                                              |  |
|-----------------------------------------------|---------------------|------------------|--------|-----------------------------------|-----|--------------------------------|-----|----------------|--|--------------------------|--|-------------------|--|--|--|-----------------------------------------------------------------|--|---------------|------------------|----------------------------------------------|--|
| PROJECT NAME: CAP - Hunter AFB - Part A       |                     |                  |        | REQUESTED PARAMETERS              |     |                                |     |                |  |                          |  |                   |  |  |  | LABORATORY NAME:<br>General Engineering Laboratory              |  |               |                  |                                              |  |
| PROJECT NUMBER: 0019                          |                     |                  |        |                                   |     |                                |     |                |  |                          |  |                   |  |  |  | LABORATORY ADDRESS:<br>2040 Savage Road<br>Charleston, SC 29417 |  |               |                  |                                              |  |
| PROJECT MANAGER: Allison Bailey               |                     |                  |        |                                   |     |                                |     |                |  |                          |  |                   |  |  |  | PHONE NO: (803) 556-8171                                        |  |               |                  |                                              |  |
| Sampler (Signature)<br><i>Michael A. Hall</i> |                     |                  |        | (Printed Name)<br>Michael A. Hall |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  | OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS |  |
| Sample ID                                     | Date Collected      | Time Collected   | Matrix | BTEX                              | PAH | DRP                            | GRO | TOC            |  |                          |  |                   |  |  |  |                                                                 |  | OVA SCREENING |                  |                                              |  |
| HL3103                                        | 4/3/98              | 1610             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | 4.0 to 4.7'      |                                              |  |
| HL1110                                        | 4/3/98              | 1445             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | 4.0 to 4.8'      |                                              |  |
| HL2101                                        | 4/3/98              | 1520             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | to 2'            |                                              |  |
| HL2103                                        | 4/3/98              | 1525             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | 4.0-5.0'         |                                              |  |
| HL3101                                        | 4/3/98              | 1555             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | to 2 ft.         |                                              |  |
| HN4101                                        | 4/3/98              | 1255             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | to 2 ft.         |                                              |  |
| HN4105                                        | 4/3/98              | 1315             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | 8.0-9.3 ft.      |                                              |  |
| HL1101                                        | 4/3/98              | 1430             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | 4.5-3.5'         |                                              |  |
| HL1103                                        | 4/3/98              | 1445             | soil   | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | 4.0-4.8'         |                                              |  |
| HH5305                                        | 4/4/98              | 1205             | water  | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | vert. profile 5' |                                              |  |
| HTB003                                        | 4/4/98              | 0750             | water  | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | TRIP BLANK       |                                              |  |
| HH5301                                        | 4/4/98              | 1040             | water  | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | vert. profile 2' |                                              |  |
| HH5310                                        | 4/4/98              | 1055             | water  | X                                 | X   | X                              | X   |                |  |                          |  |                   |  |  |  |                                                                 |  | 2             | vert. profile 2' |                                              |  |
| RELINQUISHED BY:<br><i>Michael A. Hall</i>    | Date/Time<br>4/4/98 | RECEIVED BY:     |        | Date/Time                         |     | TOTAL NUMBER OF CONTAINERS: 26 |     | Cooler ID: 359 |  | Cooler Temperature: 14°C |  | FEDEX NUMBER: N/A |  |  |  |                                                                 |  |               |                  |                                              |  |
| COMPANY NAME:<br>SA                           |                     | COMPANY NAME:    |        |                                   |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  |                                              |  |
| RECEIVED BY:<br>Carol Sandoz                  | Date/Time<br>4/4/98 | RELINQUISHED BY: |        | Date/Time                         |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  |                                              |  |
| COMPANY NAME:<br>General Engineering          |                     | COMPANY NAME:    |        |                                   |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  |                                              |  |
| RELINQUISHED BY:                              | Date/Time           | RECEIVED BY:     |        | Date/Time                         |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  |                                              |  |
| COMPANY NAME:                                 |                     | COMPANY NAME:    |        |                                   |     |                                |     |                |  |                          |  |                   |  |  |  |                                                                 |  |               |                  |                                              |  |

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

*Michael A. Hall*  
4/4/98

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## CHAIN OF CUSTODY RECORD

COC NO.: 404, 3A

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

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## CHAIN OF CUSTODY RECORD

COC NO.: 46, 18D

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

|                                                                                                                         |     |     |     |     |  |  |  |  |  |                                                                                                                                        |  |  |  |  |  |  |  |  |  |                                                                               |     |     |     |     |                                                                                                                                                                                |  |  |  |  |                                                                              |  |  |  |  |  |  |  |  |  |                                                                |  |  |  |  |  |  |  |  |  |                                                                                                                                                                 |  |  |  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|--|--|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|-------------------------------------------------------------------------------|-----|-----|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|----------------------------------------------------------------|--|--|--|--|--|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>PROJECT NAME:</b> CAP - Hunter AFB - Part A<br><b>PROJECT NUMBER:</b> 0019<br><b>PROJECT MANAGER:</b> Allison Bailey |     |     |     |     |  |  |  |  |  | <b>REQUESTED PARAMETERS</b><br><table border="1"> <tr> <td>BTX</td> <td>PAH</td> <td>DRP</td> <td>GRO</td> <td>TOC</td> </tr> </table> |  |  |  |  |  |  |  |  |  | BTX                                                                           | PAH | DRP | GRO | TOC | <b>LABORATORY NAME:</b><br>General Engineering Laboratory<br><br><b>LABORATORY ADDRESS:</b><br>2040 Savage Road<br>Charleston, SC 29417<br><br><b>PHONE NO:</b> (803) 556-8171 |  |  |  |  |                                                                              |  |  |  |  |  |  |  |  |  |                                                                |  |  |  |  |  |  |  |  |  |                                                                                                                                                                 |  |  |  |  |  |  |  |  |  |
| BTX                                                                                                                     | PAH | DRP | GRO | TOC |  |  |  |  |  |                                                                                                                                        |  |  |  |  |  |  |  |  |  |                                                                               |     |     |     |     |                                                                                                                                                                                |  |  |  |  |                                                                              |  |  |  |  |  |  |  |  |  |                                                                |  |  |  |  |  |  |  |  |  |                                                                                                                                                                 |  |  |  |  |  |  |  |  |  |
| <b>Sampler (Signature)</b><br><i>Michelle Hall</i>                                                                      |     |     |     |     |  |  |  |  |  | <b>Sampler (Signature)</b><br><i>Michelle Hall</i>                                                                                     |  |  |  |  |  |  |  |  |  |                                                                               |     |     |     |     |                                                                                                                                                                                |  |  |  |  |                                                                              |  |  |  |  |  |  |  |  |  |                                                                |  |  |  |  |  |  |  |  |  |                                                                                                                                                                 |  |  |  |  |  |  |  |  |  |
| <b>Sample ID</b><br>HH5302-<br>HH5330-<br>HH5303-<br>HL3200-<br>HL2200-<br>HH4200-<br>HL2200-                           |     |     |     |     |  |  |  |  |  | <b>Date Collected</b><br>4/4/98<br>4/4/98<br>4/4/98<br>4/4/98<br>4/4/98<br>4/3/98<br>4/3/98                                            |  |  |  |  |  |  |  |  |  | <b>Time Collected</b><br>1055<br>1105<br>1115<br>1135<br>1450<br>1325<br>1530 |     |     |     |     |                                                                                                                                                                                |  |  |  |  | <b>Matrix</b><br>water<br>water<br>water<br>water<br>water<br>water<br>water |  |  |  |  |  |  |  |  |  | <b>OVA SCREENING</b><br>NA<br>NA<br>NA<br>NA<br>NA<br>NA<br>NA |  |  |  |  |  |  |  |  |  | <b>OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS</b><br>vert. prot. 20<br>Equip. Rins. 30<br>vert. prot. 30<br>vert. prot. 40<br>grab sample<br>1 grab.<br>grab. |  |  |  |  |  |  |  |  |  |
| <b>RELINQUISHED BY:</b><br><i>Carol Dandel</i>                                                                          |     |     |     |     |  |  |  |  |  | <b>Date/Time</b><br>4/17/98                                                                                                            |  |  |  |  |  |  |  |  |  | <b>RECEIVED BY:</b><br>COMPANY NAME:                                          |     |     |     |     |                                                                                                                                                                                |  |  |  |  | <b>Date/Time</b><br>4/17/98                                                  |  |  |  |  |  |  |  |  |  | <b>COOLER ID:</b><br>359                                       |  |  |  |  |  |  |  |  |  | <b>COOLER TEMPERATURE:</b><br>49                                                                                                                                |  |  |  |  |  |  |  |  |  |
| <b>RELINQUISHED BY:</b><br>COMPANY NAME:                                                                                |     |     |     |     |  |  |  |  |  | <b>Date/Time</b><br>4/17/98                                                                                                            |  |  |  |  |  |  |  |  |  | <b>RECEIVED BY:</b><br>COMPANY NAME:                                          |     |     |     |     |                                                                                                                                                                                |  |  |  |  | <b>Date/Time</b><br>4/17/98                                                  |  |  |  |  |  |  |  |  |  | <b>FEDEX NUMBER:</b><br>NA                                     |  |  |  |  |  |  |  |  |  |                                                                                                                                                                 |  |  |  |  |  |  |  |  |  |
| <b>RELINQUISHED BY:</b><br>COMPANY NAME:                                                                                |     |     |     |     |  |  |  |  |  | <b>Date/Time</b><br>4/17/98                                                                                                            |  |  |  |  |  |  |  |  |  | <b>RECEIVED BY:</b><br>COMPANY NAME:                                          |     |     |     |     |                                                                                                                                                                                |  |  |  |  | <b>Date/Time</b><br>4/17/98                                                  |  |  |  |  |  |  |  |  |  | <b>FEDEX NUMBER:</b><br>NA                                     |  |  |  |  |  |  |  |  |  |                                                                                                                                                                 |  |  |  |  |  |  |  |  |  |

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## CHAIN OF CUSTODY RECORD

COC NO.: 21647813

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105

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COC NO.: 42398B

VIII-21

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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH1200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA002W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804064-19

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2C709

Level: (low/med) LOW Date Received: 04/02/98

% Moisture: not dec. \_\_\_\_\_ Date Analyzed: 04/05/98

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: |      | Q           |
|----------------|-----------------|----------------------|------|-------------|
|                |                 | (ug/L or ug/Kg)      | UG/L |             |
| 71-43-2-----   | Benzene         | 2.0                  | U    | US CFS<br>↓ |
| 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.

HH1200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W  
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-10  
Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 20514  
Level: (low/med) LOW Date Received: 04/03/98  
% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/04/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/10/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO.  | COMPOUND                      | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L | Q |
|----------|-------------------------------|----------------------------------------------|---|
| 91-20-3  | -----naphthalene              | 10.3                                         | U |
| 91-58-7  | -----2-chloronaphthalene      | 10.3                                         | U |
| 209-96-8 | -----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  
↓  
UJ C05  
↓

FORM I SV-1

OLM03.0

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH2200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA002W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804064-20

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2C7010

Level: (low/med) LOW Date Received: 04/02/98

% Moisture: not dec. Date Analyzed: 04/05/98

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: |      | Q           |
|----------------|-----------------|----------------------|------|-------------|
|                |                 | (ug/L or ug/Kg)      | UG/L |             |
| 71-43-2-----   | Benzene         | 2.0                  | U    | UJ cφ5<br>↓ |
| 108-88-3-----  | Toluene         | 2.0                  | U    |             |
| 100-41-4-----  | Ethylbenzene    | 2.0                  | U    |             |
| 1330-20-7----- | Xylenes (total) | 6.0                  | U    |             |

FORM 1 VOA



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-01

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D306

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. Date Analyzed: 04/08/98

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:<br>(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  
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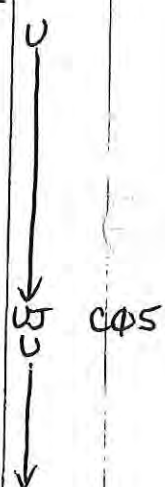


1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W  
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-07  
Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 20511  
Level: (low/med) LOW Date Received: 04/03/98  
% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/04/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/10/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO.  | COMPOUND                      | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L |   | Q                                                                                    |
|----------|-------------------------------|----------------------------------------------|---|--------------------------------------------------------------------------------------|
| 91-20-3  | -----naphthalene              | 10.3                                         | U |  |
| 91-58-7  | -----2-chloronaphthalene      | 10.3                                         | U |                                                                                      |
| 209-96-8 | -----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 |                                                                                      |

FORM I SV-1

OLM03.0

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3210

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-04

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D3011

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. Date Analyzed: 04/08/98

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<br>↓ |
| 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.

HH3210

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W  
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-08  
Sample wt/vol: 980.0 (g/mL) ML Lab File ID: 20512  
Level: (low/med) LOW Date Received: 04/03/98  
% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/04/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/10/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO.  | COMPOUND                    | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L | Q |
|----------|-----------------------------|----------------------------------------------|---|
| 91-20-3  | -----naphthalene            | 10.2                                         | U |
| 91-58-7  | -----2-chloronaphthalene    | 10.2                                         | U |
| 209-96-8 | -----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.

HH4200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-02

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D309

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. Date Analyzed: 04/08/98

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:<br>(ug/L or ug/Kg) UG/L |   | Q               |
|-----------|-----------------|----------------------------------------------|---|-----------------|
| 71-43-2   | Benzene         | 2.0                                          | U | U<br>↓<br>J Mφ8 |
| 108-88-3  | Toluene         | 2.0                                          | U |                 |
| 100-41-4  | Ethylbenzene    | 2.0                                          | U |                 |
| 1330-20-7 | Xylenes (total) | 18.2                                         | P |                 |





1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5301

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-13

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D508

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

% Moisture: not dec. 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/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.

HH5301

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-07

Sample wt/vol: 1005 (g/mL) ML Lab File ID: 7P319

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

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/08/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98

Injection Volume: 1.0 (uL) Dilution Factor: 2.0

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              | 19.9 | U   |
| 91-58-7-----  | 2-chloronaphthalene      | 19.9 | U   |
| 208-96-8----- | acenaphthylene           | 19.9 | U - |
| 83-32-9-----  | acenaphthene             | 19.9 | U   |
| 86-73-7-----  | fluorene                 | 19.9 | U   |
| 85-01-8-----  | phenanthrene             | 19.9 | U   |
| 120-12-7----- | anthracene               | 19.9 | U   |
| 206-44-0----- | fluoranthene             | 19.9 | U   |
| 129-00-0----- | pyrene                   | 19.9 | U   |
| 56-55-3-----  | benzo (a) anthracene     | 19.9 | U   |
| 218-01-9----- | chrysene                 | 19.9 | U   |
| 205-99-2----- | benzo (b) fluoranthene   | 19.9 | U   |
| 207-08-9----- | benzo (k) fluoranthene   | 19.9 | U   |
| 50-32-8-----  | benzo (a) pyrene         | 19.9 | U   |
| 193-39-5----- | indeno (1,2,3-cd) pyrene | 19.9 | U   |
| 53-70-3-----  | dibenz (a,h) anthracene  | 19.9 | U   |
| 191-24-2----- | benzo (g,h,i) perylene   | 19.9 | U   |

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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5302

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-13

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D3012

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

% Moisture: not dec. Date Analyzed: 04/08/98

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.

HH5302

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-09

Sample wt/vol: 980.0 (g/mL) ML Lab File ID: 7P321

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

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/08/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98

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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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH5310

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-14

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D509

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

% Moisture: not dec. COPY 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/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.

HH5310

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W  
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-08  
Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 7P320  
Level: (low/med) LOW Date Received: 04/04/98  
% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/08/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO.  | COMPOUND               | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L | Q      |
|----------|------------------------|----------------------------------------------|--------|
| 91-20-3  | naphthalene            | 10.3 U                                       | U<br>↓ |
| 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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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5303

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-15

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D3015

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

% Moisture: not dec. Date Analyzed: 04/08/98

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:<br>(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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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5303

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-11

Sample wt/vol: 970.0 (g/mL) ML Lab File ID: 7P322

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

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/08/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98

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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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5330

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA004W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804106-14

Sample wt/vol: 10.00 (g/ml) ML Lab File ID: 2D3014

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

% Moisture: not dec. Date Analyzed: 04/08/98

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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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5330

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W  
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-10  
Sample wt/vol: 1000 (g/mL) ML Lab File ID: 7P312  
Level: (low/med) LOW Date Received: 04/04/98  
% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/08/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

| CAS NO.  | COMPOUND               | CONCENTRATION UNITS:<br>(ug/L or ug/Kg) UG/L | Q |
|----------|------------------------|----------------------------------------------|---|
| 91-20-3  | naphthalene            | 10.0                                         | U |
| 91-58-7  | 2-chloronaphthalene    | 10.0                                         | U |
| 208-96-8 | acenaphthylene         | 10.0                                         | U |
| 83-32-9  | acenaphthene           | 10.0                                         | U |
| 86-73-7  | fluorene               | 10.0                                         | U |
| 85-01-8  | phenanthrene           | 10.0                                         | U |
| 120-12-7 | anthracene             | 10.0                                         | U |
| 206-44-0 | fluoranthene           | 10.0                                         | U |
| 129-00-0 | pyrene                 | 10.0                                         | U |
| 56-55-3  | benzo(a)anthracene     | 10.0                                         | U |
| 218-01-9 | chrysene               | 10.0                                         | U |
| 205-99-2 | benzo(b)fluoranthene   | 10.0                                         | U |
| 207-08-9 | benzo(k)fluoranthene   | 10.0                                         | U |
| 50-32-8  | benzo(a)pyrene         | 10.0                                         | U |
| 193-39-5 | indeno(1,2,3-cd)pyrene | 10.0                                         | U |
| 53-70-3  | dibenz(a,h)anthracene  | 10.0                                         | U |
| 191-24-2 | benzo(g,h,i)perylene   | 10.0                                         | U |

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5304

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-03

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 7P315

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

% Moisture: \_\_\_\_\_ decanted: (Y/N) ( ) Date Extracted: 04/08/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98

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

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH5305

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA005W

Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804121-01

Sample wt/vol: 965.0 (g/mL) ML Lab File ID: 7P313

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

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_ Date Extracted: 04/08/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/15/98

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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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH7200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA023W  
Matrix: (soil/water) GROUNDH2O  
Sample wt/vol: 10.00 (g/ml) ML  
Level: (low/med) LOW  
% Moisture: not dec. \_\_\_\_\_  
GC Column: J&W DB-624 (PID) ID: 0.53 (mm)  
Soil Extract Volume: \_\_\_\_\_ (ml)  
Lab Sample ID: 9804617-18  
Lab File ID: 2H207  
Date Received: 04/22/98  
Date Analyzed: 05/05/98  
Dilution Factor: 1.0  
Soil Aliquot Volume: \_\_\_\_\_ (uL)

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

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1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH7200

Lab Name: GENERAL ENGINEERING LABOR Contract: NA  
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA023W  
Matrix: (soil/water) GROUNDH2O Lab Sample ID: 9804617-18  
Sample wt/vol: 985.0 (g/mL) ML Lab File ID: 7S321  
Level: (low/med) LOW Date Received: 04/22/98  
% Moisture: \_\_\_\_\_ decanted: (Y/N) Date Extracted: 04/28/98  
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 05/07/98  
Injection Volume: 1.0 (uL) Dilution Factor: 1.0  
GPC Cleanup: (Y/N) N pH: 7.0

DATA VALIDATION  
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| CAS NO.  | COMPOUND                 | CONCENTRATION UNITS:<br>(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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## **APPENDIX IX**

### **CONTAMINATED SOIL DISPOSAL MANIFESTS**

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All contaminated soil removed during the entire project [i.e., all underground storage tanks (USTs) removed under contract with Anderson Columbia Environmental, Inc., to include clean and non-clean closures] was tested in accordance with the disposal facility requirements and transported to Kedesh, 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 removal contracts that we have conducted, we will gladly forward copies to the USTMP.

Name: Thomas C. Fry

Title: Chief, Environmental Branch

Signature: Thomas C. Fry

Date: 03/01/99

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## **APPENDIX X**

### **SITE RANKING FORM**

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### SITE RANKING FORM

Facility Name: Tank 109, Building 1310

Ranked by: C. Allison Bailey

County: Chatham Facility ID #: 9-025105

Date Ranked: 10/29/98

#### 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. 0) = (0) x (C. 10) = (D. 0)

#### 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.**

\* Note: Please see Section 1.0, Other Geologic and Hydrogeologic Data, page X-5, for justification of this evaluation.

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

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

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

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

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

(G. 0) x (L. 50) = M. 0

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

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

= 0

**ENVIRONMENTAL SENSITIVITY SCORE**

## 1.0 OTHER GEOLOGIC AND HYDROGEOLOGIC DATA

The following information is presented to provide supplemental information to Appendix X (Site Ranking Form) of the Corrective Action Plan (CAP)-Part A form 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; Huddleston 1988). The interval from approximately 80 feet to the surface is Pliocene to Recent in age and composed primarily of sand interbedded with clay and silt. This section is occupied by the Satilla and Cypresshead Formations (Huddleston 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; Huddleston 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 (Huddleston 1988). The Satilla Formation is a lithologically heterogeneous unit that consists of variably bedded to non-bedded 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/lagoon-type environments (Huddleston 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 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) 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 CAP-Part A 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 Floridan Aquifer from the Surficial Aquifer, it is concluded that there is no hydraulic interconnection between UST sites (and associated plumes, if applicable) and water supply withdrawal points (Figure X-A).

### **1.4 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS AT THE UST 109, BUILDING 1310 SITE**

According to Wilkes et al. (1974), the soil common in the area occupied by Building 1310 consists of the Chipley-Urban land complex (Cuc). This complex contains 40 to 70 percent Chipley soils and 20 to 40 percent Urban Land soils. The surface layer of this complex is very

dark grayish brown to gray, with the underlying layer being olive brown to light yellowish brown mottled with gray. A seasonal high water table is 15 to 36 inches below the surface. In places, the soil profile has been altered due to the cutting, filing, and grading activities resulting from urban development (Wilkes et al. 1974).

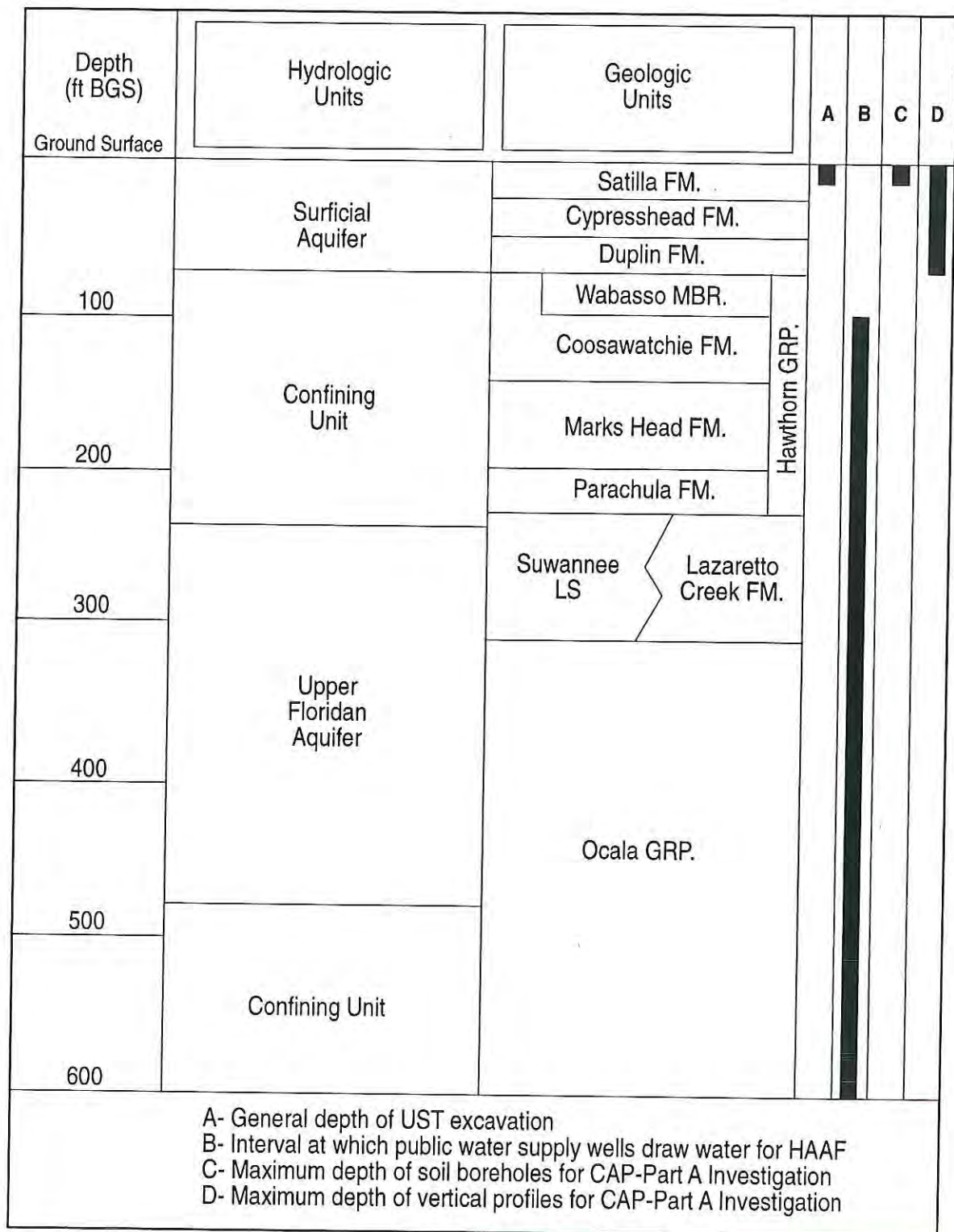
During direct-push sampling events at the UST 109, Facility ID: 9-025105 site, two major unconsolidated sediment types were encountered (Figure 4, Appendix I). These include: (1) non-native sandy fill in the former tank pit and (2) well-graded sand with silt (SW-SM).

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## FIGURES

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

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## **APPENDIX XI**

### **COPIES OF PUBLIC NOTIFICATION LETTERS AND CERTIFIED RECEIPTS OR NEWSPAPER NOTICE**

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STATE OF GEORGIA  
CHATHAM COUNTY

Hunter Army Airfield UST CAP-A Report  
UST 109, Building 1310, Facility ID: 9-025105  
Affidavit of Publication  
Savannah Morning News  
Savannah Evening Press

Personally appeared before me, Joan T. Jenkins, to me known, who being sworn, deposes and says:

That he is the Classified Adv Surv of Southeastern Newspapers Corporation, a Georgia corporation, doing business in Chatham County, Georgia, under the trade name of Savannah Morning News/Savannah Evening Press, a daily newspaper published in said county;

That he is authorized to make affidavits of publication on behalf of said published corporation;

That said newspaper is of general circulation in said county and in the area adjacent thereto;

That he has reviewed the regular editions of the Savannah Morning News/Savannah Evening Press, published on 1-24, 1999, 1-31, 1999,           , 19    ,           , 19    , and finds that the following Advertisement, to-wit:

**015 Miscellaneous Notices**

**PUBLIC NOTICE**  
Notification of Corrective Action Plan, Underground Storage Tank Releases, Fort Stewart Georgia Area, Fort Stewart Georgia. The United States Army Corps of Engineers and Fort Stewart Directorate of Public Works have prepared Corrective Action Plan (CAP) - Part A reports to assess the environmental impact of releases from numerous underground storage tanks (USTs) located at the above referenced property. These reports will be submitted to the Georgia Environmental Protection Division after February 1, 1999. A listing of the UST sites for which CAP - Part A reports have been prepared is presented at the end of this notification. The Georgia rules for UST management require notification of the public of any release effected by this plan. If you would like a copy of any of the plans, please contact:  
Commander, 3rd Infantry Division (Mechanized) and Fort Stewart, AFZP-DEV (M. Little), 1557 Frank Cochran Dr., Bldg. 1130, Fort Stewart, Ga. 31314-6728. A copy of each requested plan will be mailed at a nominal copying and shipping fee.  
To make comments on any of the plans, or to examine the Georgia Environmental Protection Division's files, contact the Corrective Action Unit, Underground Storage Tank Management Program, Division at 404-362-2887. The Underground Storage Tank Management Program will accept public comments on the CAP - Part A reports up to 30 days after submittal to the Georgia Environmental Protection Division. Following is their mailing address:  
Corrective Action Unit, Underground Storage Tank Management Program, 424 International Parkway, Suite 100, Atlanta, Ga. 30354  
Hunter Army Airfield CAP - Part A, Underground Storage Tank Sites  
Tank Number, Facility ID, Building  
21 and 22: 9-025033; 1327  
27 and 28: 9-025083; 8057  
108: 9-025104; 1346  
109: 9-025105; 1310  
112: 9-025108; 8464  
116: 9-025112; 9002

appeared in each of said editions.

Sworn to and subscribed  
before me this 2 day  
of Feb, 1999.

Joan T. Jenkins  
(Deponent)  
Lillie D. Lang  
Notary Public, Chatham County, Georgia

LILLIE D. LANG  
Notary Public, Chatham County, Ga.  
My Commission Expires Apr. 8, 2001



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## **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 Underground Storage Tank 109, Building 1310 site, Facility ID: 9-025105, 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 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. Drilling activities were not 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. The soil core was removed from the protective sleeve 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 that 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, free product layer thickness, 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 indicator 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 measurements to determine the presence of a free product layer were made, if applicable, and 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 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 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 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**



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