EPA SAMPLE NO.

AEV212

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS004W

Matrix: (soil/water) GROUNDH20

Lab Sample ID: 9905244-20

Sample wt/vol: 980.0 (g/mL) ML

Lab File ID: 8U124

Level: (low/med) LOW Unit Date Received: 05/08/99

% Moisture: _____ decanted: (Y/N)_____ Date Extracted:05/11/99

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/18/99

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

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

| CAS NO. | CONCENTRATION COMPOUND (ug/L or ug/K | g) UG/L | Q |
|-----------|--|---------|------|
| | The state of the s | 20.4 U | R |
| 51-28-5 | 2,4-dinitrophenol | 10.2 U | Ü |
| 132-64-9 | 2,4-dinitrophenol | 10.2 U | 1 |
| 121-14-2 | dipenzortran | 10.2 U | |
| 84-66-2 | diethylphthalate | 20.4 U | R |
| 100-02-7 | 4-nitrophenor | 5.0 J | 100 |
| | =1 | 10.2 U | ü |
| 7005-72-3 | 4-chlorophenylphenylether 4,6-dinitro-2-methylphenol | 10.2 U | R |
| 534-52-1 | 4,6-dinitro-2-methylphenol | 25.5 U | 1 |
| | | | li. |
| 101 55-3 | 4-bromophenylphenylether | 10.2 U | 11. |
| 779-74-7 | hexachioropenzene | 10.2 U | 4 |
| 87-86-5 | pentachlorophenol | 10.2 0 | R |
| 85-01-8 | phenanthrene | 8.1 J | Rhh |
| 100 10 7 | anthracene | 1.4 J | 1 |
| 24-74-2 | di-n-butylphthalate | 10.2 U | 1 |
| 206-44-0 | fluoranthene | 10.2 U | 5 |
| | nurana | 1.6 J | 3 |
| 129-00-0 | butylbenzylphthalate | 10.2 U | 0 |
| | honzo (a) anthracelle | 10.2 U | - 11 |
| 56-55-3 | 3,3'-dichlorobenzidine | 51.0 U | |
| 91-94-1 | | 10.2 0 | - 11 |
| 218-01-9 | bis(2-ethylhexyl)phthalate_ | 10.2 U | - 11 |
| 117-81-7 | 1: - activities y 1 process | 10.2 U | - 11 |
| 117-84-0 | di-n-octylphthalate | 10.2 0 | - 11 |
| 205-99-2 | benzo (b) fluoranthene | 10.2 U | - 11 |
| 207-08-9 | benzo(k) fluoranthene | 10.2 U | - 11 |
| 50-32-8 | benzo(a)pyrene | 10.2 U | - 11 |
| 193-39-5 | indeno(1,2,3-cd)pyrene | 10.2 U | |
| 53-70-3 | dibenz(a, n) anthracene | 10.2 U | |
| 191-24-2 | benzo (q, h, 1) perylene | 10.2 U | |
| 122-39-4 | diphenylamine | 10.2 U | |
| 86-74-8 | Carbazole | 10.2 | J |

EPA SAMPLE NO.

SDG No.: HPS006W1

AEVW12

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

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

- 1 C---- TD- 000F0F0 01

CONCENTRATION UNITS:

Matrix: (soil/water) WATER Lab Sample ID: 9905252-01

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8J608

Level: (low/med) LOW Date Received: 05/09/99

% Moisture: not dec. Date Analyzed: 05/22/99

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO. COMPOUND (ug/L or ug/Kg) UG/L 2.0 U 74-87-3-----chloromethane 74-83-9-----bromomethane 2.0 U 2.0 U 1.5 J 2.0 U 75-01-4-----vinyl chloride C05 75-00-3-----chloroethane 75-09-2----methylene chloride F08 53.1 B 67-64-1----acetone 5.0 U 2.0 U 75-15-0-----carbon disulfide 75-35-4-----1,1-dichloroethene 75-34-3-----1,1-dichloroethane 8.4 2.0 0 67-66-3-----chloroform U 2.0 U 107-06-2----1,2-dichloroethane 78-93-3----2-butanone 5.0 U 2.0 U 71-55-6----1,1,1-trichloroethane 2.0 U 5.0 U 2.0 U 2.0 U 56-23-5----carbon tetrachloride 75-27-4-----bromodichloromethane 78-87-5-----1,2-dichloropropane 10061-01-5----cis-1,3-dichloropropene 79-01-6-----trichloroethene 2.0 U 124-48-1-----dibromochloromethane 79-00-5-----1,1,2-trichloroethane 71-43-2-----benzene 2.0 U 2.0 U 10061-02-6----trans-1,3-dichloropropene 2.0 U 75-25-2----bromoform 108-10-1----4-methyl-2-pentanone 5.0 U 591-78-6----2-hexanone 5.0 U 127-18-4-----tetrachloroethene 2.0 U 火しい 2.0 0 79-34-5----1,1,2,2-tetrachloroethane 108-88-3-----toluene 0.91 108-90-7-----chlorobenzene 2.0 U 100-41-4----ethylbenzene 49.4 100-42-5-----styrene 1330-20-7-----xylenes (total) 540-59-0-----1,2-dichloroethylene (total) 2.0 0 U 36.0 20.5

FORM I VOA

EPA SAMPLE NO.

AEVW12

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS006W1

Matrix: (soil/water) GROUNDH20

Lab Sample ID: 9905252-01

Sample wt/vol: 900.0 (g/mL) ML

Lab File ID: 5U410

Level: (low/med) LOW

Date Received: 05/09/99

% Moisture: _____ decanted: (Y/N)___

Date Extracted:05/13/99

Concentrated Extract Volume: 1.00(mL)

Date Analyzed: 05/20/99

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 |
|----------|----------|---|-----|
| 108-95-2 | phenol | ethyl)ether | 1 U |

| | 108-95-2phenol | 11.1 | U | R GOY |
|---|--|--------|--------|---------------|
| | 111-44-4bis(2-chloroethyl)ether | 11.1 | U | US GOZ |
| | 95-57-82-chlorophenol | 11.1 | | R GOY |
| | 541-73-11,3-dichlorobenzene | 11.1 | | U5 G02 |
| | 106-46-71,4-dichlorobenzene | 11.1 | | 1 1 |
| | 95-50-11,2-dichlorobenzene | 11.1 | | |
| | 108-60-12,2'-Oxybis(1-chloropropane) | 11.1 | | 1 1 |
| | 95-48-72-methylphenol | 11.1 | | R GOY |
| | 55-48-7Z-methylphehol | 11.1 | | US GOZ |
| | 621-64-7N-nitroso-di-n-propylamine | 11.1 | | R GDY |
| | 106-44-5m,p-cresol | 11.1 | | US GOZ |
| | 67-72-1hexachloroethane | 11.1 | | 1 1 |
| | 98-95-3nitrobenzene | 11.1 | 177.77 | 11 1 |
| | 78-59-1isophorone | 11.1 | | R 604 |
| | 88-75-52-nitrophenol | 11.1 | - | O COH |
| | 105-67-92,4-dimethylphenol | 11.1 | | R GOY |
| | 111-91-1bis(2-chloroethoxy) methane | 11.1 | | R GOY |
| | 120-83-22,4-dichlorophenol | | | K GW/ |
| | 120-82-11,2,4-trichlorobenzene | 11.1 | 12.5 | V5 602 |
| | 91-20-3naphthalene | 17.6 | | -5-1 |
| | 106-47-84-chloroaniline | 22.2 | | V5 |
| | 87-68-3hexachlorobutadiene | . 11.1 | | N2 A |
| | 59-50-74-chloro-3-methylphenol | 11.1 | | R GOY |
| | 91-57-62-methylnaphthalene | 6.3 | | 5 GOZ |
| | 77-47-4hexachlorocyclopentadiene | 11.1 | | USGOZ |
| | 88-06-22,4,6-trichlorophenol | 11.1 | | RGOY |
| | 95-95-42,4,5-trichlorophenol | 11.1 | | R GPY |
| | 91-58-72-chloronaphthalene | 11.1 | | US GOZ |
| | 99-09-23-nitroaniline | 27.8 | | 11 1 |
| d | 88-74-42-nitroaniline | . 11.1 | U | |
| | 131-11-3dimethylphthalate | 11.1 | | 13 1 |
| | 606-20-22,6-dinitrotoluene | 11.1 | | |
| | 208-96-8acenaphthylene | 11.1 | | 4 4 |
| | 83-32-9acenaphthene | 9.2 | J | JHOZ, HOY, GO |
| | TENER TO THE RESERVE OF THE PROPERTY OF THE PR | | | // |

FORM I SV-1

EPA SAMPLE NO.

AEVW12

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS006W1

Matrix: (soil/water) GROUNDH20

Lab Sample ID: 9905252-01

Sample wt/vol:

900.0 (g/mL) ML

Lab File ID: 5U410

Level: (low/med) LOW

Concentrated Extract Volume:

Date Received: 05/09/99

Date Extracted: 05/13/99

% Moisture: _____ decanted: (Y/N)___

1.00 (mL)

Date Analyzed: 05/20/99

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

| 51-28-5 | 2,4-dinitrophenol | 27.8 | | R GOY |
|---------------------|----------------------------|------|---------|----------------|
| 132-64-9 | dibenzofuran | 7.2 | | J GOZ |
| 121-14-2 | 2,4-dinitrotoluene | 11.1 | | US 1 |
| 84-66-2 | diethylphthalate | 11.1 | | N2 N |
| 100-02-7 | 4-nitrophenol | 27.8 | | A GOY |
| 86-73-7 | fluorene | 10.0 | | J GOZ |
| 7005-72-3 | 4-chlorophenylphenylether | 11.1 | h 550 h | US GOZ |
| 534-52-1 | 4,6-dinitro-2-methylphenol | 11.1 | | RGOY |
| 100-01-6 | 4-nitroaniline | 11.1 | | UJGOZ |
| | diphenylamine | 11.1 | | 11 1 |
| 101-55-3 | 4-bromophenylphenylether | 11.1 | | |
| 118-74-1 | hexachlorobenzene | 11.1 | | W W. |
| | pentachlorophenol | 27.8 | | R G04 |
| 85-01-8 | phenanthrene | 32.0 | | J GOZ |
| 120-12-7 | anthracene | 4.4 | | 51 |
| 84-74-2 | di-n-butylphthalate | 11.1 | | UJ |
| 206-44-0 | fluoranthene | 4.8 | J | 5 1 |
| 129-00-0 | | 3.3 | | J'HOZ, HOY, GO |
| 85-68-7 | butylbenzylphthalate | 11.1 | U | US GOL |
| 56-55-3 | benzo(a) anthracene | 11.1 | U | 11 1 |
| 91-94-1 | 3,3'-dichlorobenzidine | 55.6 | U | |
| 218-01-9 | chrysene | 11.1 | U | H I |
| 117-81-7 | bis(2-ethylhexyl)phthalate | 11.1 | U | 11 1 |
| 117-84-0 | di-n-octylphthalate | 11.1 | U | 13 1 |
| 205-99-2 | benzo(b) fluoranthene | 11.1 | U | 11 1 |
| | benzo(k) fluoranthene | 11.1 | | |
| | benzo(a) pyrene | 11.1 | | |
| 102 20 5 | indeno(1,2,3-cd)pyrene | 11.1 | | 18 1 |
| 133-33-3 53 70 3 | dibenz (a, h) anthracene | 11.1 | | H 1 |
| 701 24 2 | hongo (a h i) norvel and | 11.1 | | LJ / |
| | benzo(g,h,i)perylene | 54.0 | | 5 |

FORM I SV-2

OLMO3.0



| | PROJECT NAME: HAAF-Pilot Study | | | | | | REQUES | TED PA | REQUESTED PARAMETERS | 35 | | | LABORATORY NAME: | NAME: |
|-------------------------------------|--------------------------------|-------------------|------------------|-------------|-------------------|--------------------|----------|--------------|-----------------------------|-------|------------|----------|---------------------------------------|--|
| | | | | | | | | | | | | | General Engin | General Engineering Laboratory |
| PROJECT NUMBER: 01-0331-04-1829-100 | 1-0331-04-1829- | 100 | | | | _ | | | - | | | | LABORATORY ADDRESS: | ADDRESS: |
| PROJECT MANAGER: Patty Stoll | Patty Stoll | | | | | | | | | | | telaiV | 2040 Savage Road Charleston, SC 29407 | Road C 29407 |
| Sampler (Signature) | _ | ~ · | 1.0 | | | пол | ved Iron | | - つぐ | | | \eelijog | | PHONE NO: (843) 556-8171 |
| Sample ID | Date Collected | ed Time Collected | d Matrix | X3T8 H9T | Mitrati Sulfat | Sulfida I letoT | Metha | 202 | A C | | • | No. ol | SCREENING | OBSERVATIONS, COMMENTS. SPECIAL INSTRUCTIONS |
| AEPZIH | bb/t/> | 1320 | water | N | *4 | | 11. | AF. | | | | 1 | | |
| AEP312 | 5/7/99 | 1830 | | 7 | Ħ, | ÷. | | | | | | 7 | | |
| AEP212 | 15/7/99 | 1720 | | 7 | - ijr | i. | ÷,, | | | | | N | | |
| AEP 112 | - | 1600 | | 7 | .* | 14. | | | | | | 2 | | |
| AEP412 | 5/7/99 | 1730 | | 7 | (E) | | | | | | | 2 | | |
| AEVIIZ | 15/7/99 | 345 | | 4. | | Fe I | | | N | | | 2 | 2 | |
| -0 A E V 212 | 199/5/ | 1059 | > | # | *** ** | | 3.4 | | 7 | | | 7 | | |
| | | | | ::. | 3. | | E. | - 4 | | | | | | |
| | | | , , | _ (`_ | *** | *: | ्र | | | | | | | |
| | | | 7 | 141 | | (:) | | | | | | | | |
| | | | 5 | 7 | V. | 7 | 202 | | -7. | • | | | | |
| | | | | ,45 | * | 1 | - | 1: | 1 | 1 | | | | |
| | | | | 10.2 | ·* | | Ī | 15.50 | 457 | y | <u> </u> | 1 | | |
| RELINGUISHED BY: | Da | | REÇEIVED BY: | | | Date/Time | | TAL NU | TOTAL NUMBER OF CONTAINERS: | CONTA | INERS: | 14 | Cooler Temperature: | erature: 3°C. |
| COMPANY NAME: | 15 has | 5/8/8 | ME: O | 2577 | V) - | 18/8 | | Cooler ID: 1 | | 552 | <u>. i</u> | | FEDEX NUMBER: | BER: |
| RECEIVED BY: | Shirt is | F. 15 | RELINQUISHED BY: | | | Date/Time | 9 | | | | | | | |
| COMPANY WATER | 1 10 | 0%,0; | | | - 4/ | | | | | | | | | · 49 |
| RELINGUISHED BY: | KLT S | Date Time REC | RECEIVED BY: | | | Date/Time | e u | | | | | | | |
| C ANY NAME: | / | 1 | COMPANY NAME: | | | (| | | | | | | | (|

OPP

800 Oak Ridge Tumpike, Oak Ridge, TN 37831 (423) 481-4500

24463066

CHAIN OF CUSTODY RECORD

OCC NO.: APOID

7 ~ -OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS る。こ LABORATORY NAME: General Engineering Laboratory PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 Cooler Temperature: FEDEX NUMBER: OVA No. of Bottles/ Viels: 0 2 N 0 TOTAL NUMBER OF CONTAINERS: 59 REQUESTED PARAMETERS NOG Cooler ID: 201 cos Methane Date/Time Date/Time Date/Time noti latol Sulfate etarriN HAI 1 X3T8 Jouer RELINQUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY NAME: Sockey Matrix Laura Lum 184 RECEIVED BY: RECEIVED BY: Time Collected 1730 1059 845 1430 1720 503/ 1720 (Printed Name) 1040 5/4/5/9 020 PROJECT NUMBER: 01-0331-04-1829-100 91717 66/2/5 8/19/9 Date Collected 991F18 66/2/5 5/3/99 66/2/5 66/6/5 PROJECT NAME: HAAF-Pilot Study PROJECT MANAGER: Patty Stoll James Jumber Jun Pen RELINGUISHED BY: RELINGUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY NAME: 10 AEP 412 AEP117 4PODDU Sampler (Signature AEV212 Sample ID AEP31 RECENSED BY Jonna <u>ا</u> (A) 8 s

| 800 Oat Alige Tumpile, Oak Ridge, TN 37831 (423) 481-4500 | Rbge, TN 37831 142. | 3) 481-4600 | | ਹ | IAIN | OF | cns | CHAIN OF CUSTODY RECORD | YR | 00 | 2 | | | | | | 100 H LOVID |
|---|---|------------------|-----------------------------------|------------|---------|--------------------|--------------|-------------------------|------------|------------------|--------------|-----------------------------|------|-----|---------|---|---|
| PROJECT NAME: HAAF-Pilot Study | F-Pilot Study | | | | ŀ | | RE | REQUESTED PARAMETERS | TED P. | RAME | TERS | | | | | LABORATORY NAME | AME: |
| PROJECT NUMBER: 01-0331-04-1829-100 | 1-0331-04-1829- | 100 | | | | | | | | | 0. | | | _ | 2 | Veneral Engineering Laboratory | ing Laboratory |
| PROJECT MANAGER: Patty Stoll | Patty Stoll | | | | | | | | | V |) ア いなの- | QR QR | | | | LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 | ADDRESS: 3ad 29407 |
| Sampler (Signature) | ai / | (Printed Name) | | | | | no not be | | | = > | | 19-1 | | | \selmo8 | PHONE NO: (843) 556-8171 | 3) 556-8171 |
| Sample 10 | Dara Collect | CLUTCA LWM | N EY Matrix | HAT | etantiN | eratiu2 ebitiu2 | of latoT | Methen | DOT | SVC | 10/1 20/1 | 14 | | | 10.0N | OVA SCREENING | OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS |
| AEVW12 | <148/99 | 1615 | Linder | | 1. | ye c | | | Mr. | 7 | N | | | | 7 | | 3/6505066 |
| AEP512 | 66/8/5 | 145 | _ | 77 | _ | - | 1 1 | 7 | de | - | | | | | 50 | | |
| HPOCOCT | 5/4/99 | - | > | 127 | 1.15 | 3. | 72 | sp. | 4 | | 7 | | | 7.6 | N | | |
| SENT AE VIVII | 15/16/99 | 1540 | 138 | | | 53 | •**, | i, | ** | 2. | Ξ | _ | | | 'n | | |
| AEPSII | 4 | 1520 | 5001 | - | | 15 - | | | į | | | | | Ī | 7 | | |
| | | | | | | | ; : | ų. | 9 | | .1. | | | | | | |
| | | | 1 | | ٠,٠ | 16.3 | | | * 44 | 1.0 | | | - | | | | 1 |
| | | | O | (; | | ::: | | | | | | | | | | | |
| | | | | 7 | | 100 | , L | | 3 | | | 1.2 | | | | | |
| | | y | | 1 | | 1 | 7 | 3 | | | | | | | | | |
| | | | | -tak | | | | 2 | Ï | | | | H | | | | |
| | | | | | | ** | | Y. | × | • 4 | | /- | 1 | | | | |
| | | | | night T | | · #5 | 1, | , ** * | | : | 1,7 | | | /- | | | |
| RELINGUISHER BY: | Dat | | RECEIVED BY! | , | | Date | Date/Time | TOT | LAL NI | MBER | OF CC | TOTAL NUMBER OF CONTAINERS: | ERS: | 74 | | Cooler Temperature: | iture: 3°C |
| COMPANY NAME: | 10 / 10 / 10 / 10 / 10 / 10 / 10 / 10 / | 5/2/59 K | COMPANY NAME: | | V | \$ 60 W | 19/19 | 00 | Cooler ID: | # | 3 | 374 | ~ ^ | | | FEDEX NUMBER: | ä |
| REGENCE BY: COMPANY NAME: | | Daryflishe RELIE | RELINQUISHED BY: COMPANY NAME: | | | Dat | Date/Time | | | | - | | | | | | - Tage |
| RELIMONISHED BY: | 2 8/2 | 0 | RECEIVED BY: | | | Dat | Date/Time | 1 | | | | | | | | | |
| COMPANY NAME: | | | COMPANY NAME. | | | | | _ | | | | | | | | | |

GROUNDWATER ANALYTICAL RESULTS FIRST SAMPLING EVENT

JUNE 1999

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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EPA SAMPLE NO.

| ÷ | | | AE0622 |
|---------------------------------|-----------------|--|---------------------------------|
| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA | |
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG | No.: HPS012W |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 9906568-09 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8N436 |
| Level: (low/med) | LOW | Date Received | : 06/16/99 |
| % Moisture: not dec. | k | Date Analyzed | : 06/18/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Facto | or: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot | Volume:(uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS (ug/L or ug/Kg) UG/I | e L Q |
| 71-43-2 108-88-3 100-41-4 | | | 3.7 0.56 J J 3.5 1.9 J |

EPA SAMPLE NO.

AE1122

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS012W

Matrix: (soil/water) WATER

Lab Sample ID: 9906568-07

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8N415

Level: (low/med) LOW Date Received: 06/16/99

% Moisture: not dec. __

Date Analyzed: 06/17/99

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

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

CAS NO.

COMPOUND

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

Q

114 257 71-43-2-----benzene 108-88-3-----toluene 4.7 100-41-4----ethylbenzene 37.1 1330-20-7-----xylenes (total)

FORM I VOA

| EPA | SAMPLE | ИО |
|-----|--------|----|
| | | |

| AE6022 | |
|--------|--|
| ALOUZZ | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

LOW

SAS No.: NA

SDG No.: HPS012W

Matrix: (soil/water) WATER

Lab Sample ID: 9906568-12

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8N439

Level: (low/med)

Date Received: 06/16/99

% Moisture: not dec.

Date Analyzed: 06/18/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 50.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL)

CAS NO.

COMPOUND

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

| 71-43-2benzene | 2360 | = |
|--------------------------|--|-----|
| 108-88-3toluene | 180 | =11 |
| 100-41-4ethylbenzene | $ \begin{vmatrix} 411 \\ 1900 \end{vmatrix}$ $-$ | -11 |
| 1330-20-7xylenes (total) | | - 1 |

EPA SAMPLE NO.

| | | Allendary and an | AE6122 | 1 |
|---------------------------------|------------------|---|----------------------|-------|
| Lab Name: GENERAL EN | IGINEERING LABOR | Contract: NA | 1 | b |
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG | No.: HPS012W | 7 |
| Matrix: (soil/water) | WATER | Lab Sample ID | 9906568-13 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8N409 | |
| Level: (low/med) | LOW | Date Received | l: 06/16/99 | |
| % Moisture: not dec. | | Date Analyzed | l: 06/17/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Fact | or: 1.0 | |
| Soil Extract Volume | :(uL) | Soil Aliquot | Volume: | (uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS (ug/L or ug/Kg) UG/ | 6: ′L Q | |
| 71-43-2 108-88-3 100-41-4 | | | 5.2 2.0 0.73 J | 5 U h |
| 1330-20-7 | vylenes (tota) | PK | 7.6 | = |

FORM I VOA

EPA SAMPLE NO.

| VOLATIDE OF | RGANICS ANALISIS | DATA SHEET | 1 |
|--|-------------------------|--|---|
| Lab Name: GENERAL ENGIN | NEERING LABOR C | ontract: NA | AE6322 |
| Lab Code: NA Cas | se No.: NA | SAS No.: NA SDG | No.: HPS012W |
| Matrix: (soil/water) WA | ATER | Lab Sample ID | : 9906568-11 |
| Sample wt/vol: 5. | .000 (g/ml) ML | Lab File ID: | 8N438 |
| Level: (low/med) LC | WC | Date Received | : 06/16/99 |
| % Moisture: not dec | | Date Analyzed | : 06/18/99 |
| GC Column: DB-624 II | D: 0.25 (mm) | Dilution Facto | or: 50.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot | Volume:(uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS (ug/L or ug/Kg) UG/I | |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | toluene ethylbenzene | | 1960 == = = = = = = = = = = = = = = = = = |

FORM I VOA

EPA SAMPLE NO.

AE 4472 AED422

| Lab Name: GENERAL ENGINEERING LABOR | Contract: NA |
|--|---|
| Lab Code: NA Case No.: NA | SAS No.: NA SDG No.: HPS012W |
| Matrix: (soil/water) WATER | Lab Sample ID: 9906568-03 |
| Sample wt/vol: 5.000 (g/ml) ML | Lab File ID: 8N431 |
| Level: (low/med) LOW | Date Received: 06/16/99 |
| % Moisture: not dec | Date Analyzed: 06/17/99 |
| GC Column: DB-624 ID: 0.25 (mm) | Dilution Factor: 25.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL) |
| CAS NO. COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2benzene 108-88-3toluene 100-41-4ethylbenzene 1330-20-7xylenes (total | 149 183 90.5 814 |

FORM I VOA

EPA SAMPLE NO.

| AED122 |) |
|--------|---|
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| | |

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA | |
|----------------------|-----------------|---|----|
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG No.: HPS012W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9906568-16 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8N406 | |
| Level: (low/med) | LOW | Date Received: 06/16/99 | |
| % Moisture: not dec. | | Date Analyzed: 06/17/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(u | L) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q | |
| | | 58.5 2.0 0 3.7 16.7 | |

108-88-3-----toluene

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

EPA SAMPLE NO.

AED322

1300

1150

3320

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: HPS012W SAS No.: NA Case No.: NA Lab Code: NA Lab Sample ID: 9906568-15 Matrix: (soil/water) WATER Lab File ID: 8N441 5.000 (g/ml) ML Sample wt/vol: Date Received: 06/16/99 Level: (low/med) LOW Date Analyzed: 06/18/99 % Moisture: not dec. ___ Dilution Factor: 50.0 ID: 0.25 (mm) GC Column: DB-624 Soil Aliquot Volume: ____(uL) Soil Extract Volume: ____(uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L 0 COMPOUND CAS NO. 3180 71-43-2-----benzene

FORM I VOA

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA | AED422 |
|----------------------|-----------------|---|-----------------------------|
| | Case No.: NA | | No.: HPS012W |
| Matrix: (soil/water) | WATER | Lab Sample ID | 9906568-04 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8N418 |
| Level: (low/med) | LOW | Date Received | : 06/16/99 |
| % Moisture: not dec. | | Date Analyzed | : 06/17/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Facto | or: 1.0 |
| Soil Extract Volume | (uL) | Soil Aliquot | Volume:(up) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS (ug/L or ug/Kg) UG/ | i a Vi |
| | | | 104 Z D = 50.3 = 50.5 = 126 |

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

DUPLICATE EPA SAMPLE NO.

| _ | | - |
|---|--------|---|
| | AED424 | |
| | ALD424 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: HPS012W SAS No.: NA Lab Code: NA Case No.: NA Matrix: (soil/water) WATER Lab Sample ID: 9906568-05 Lab File ID: 8N417 5.000 (g/ml) ML Sample wt/vol: Date Received: 06/16/99 Level: (low/med) LOW Date Analyzed: 06/17/99 % Moisture: not dec. ID: 0.25 Dilution Factor: 1.0 (mm) GC Column: DB-624 Soil Aliquot Volume: Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q CAS NO. COMPOUND 104 205 71-43-2-----benzene 51.7 108-88-3-----toluene

MAP 7/22/99

24.8

130

EPA SAMPLE NO.

| AEDM22 | |
|--------|--|
| | |

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA AEDM22 | |
|--|-----------------|---|----|
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG No.: HPS012W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9906568-06 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8N416 | |
| Level: (low/med) | LOW | Date Received: 06/16/99 | |
| % Moisture: not dec. | | Date Analyzed: 06/17/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(u | L) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q | |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | | 9.7 1.4 49.6 106 | |

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)_

EPA SAMPLE NO.

523

2790

AEP122

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: HPS012W SAS No.: NA Lab Code: NA Case No.: NA Matrix: (soil/water) WATER Lab Sample ID: 9906568-02 Lab File ID: 8N430 Sample wt/vol: 5.000 (g/ml) ML Date Received: 06/16/99 Level: (low/med) LOW Date Analyzed: 06/17/99 % Moisture: not dec. Dilution Factor: 50.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q CAS NO. COMPOUND 2420 71-43-2-----benzene 4660 108-88-3-----toluene

FORM I VOA

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA |
|--|-----------------|---|
| | Case No.: NA | SAS No.: NA SDG No.: HPS012W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9906568-01 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8N429 |
| Level: (low/med) | LOW | Date Received: 06/16/99 |
| % Moisture: not dec. | | Date Analyzed: 06/17/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 50.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | | 3370 == = = = = = = = = = = = = = = = = = |

FORM I VOA

EPA SAMPLE NO.

AEP322

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS012W

Matrix: (soil/water) WATER

Lab Sample ID: 9906568-10

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8N437

Level: (low/med) LOW

Date Received: 06/16/99

% Moisture: not dec.

CAS NO.

ID: 0.25 (mm)

Date Analyzed: 06/18/99

GC Column: DB-624

Dilution Factor: 50.0

Soil Extract Volume: (uL)

COMPOUND

Soil Aliquot Volume:

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

3200 71-43-2----benzene 6720 6160 E 108-88-3-----toluene 789 100-41-4----ethylbenzene 4430 1330-20-7-----xylenes (total)

FORM I VOA

EPA SAMPLE NO.

AEP422

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS012W

Matrix: (soil/water) WATER

Lab Sample ID: 9906568-08

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8N435

Level:

(low/med)

LOW

Date Received: 06/16/99

% Moisture: not dec.

Date Analyzed: 06/18/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 50.0

Soil Extract Volume: (uL)

Soil Aliquot Volume:

CAS NO.

COMPOUND

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

2010 71-43-2-----benzene 4750_5440 108-88-3-----toluene = 100-41-4-----ethylbenzene 1330-20-7-----xylenes (total) 708 = 4490

FORM I VOA

EPA SAMPLE NO.

AEP522

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS012W

Matrix: (soil/water) WATER

Lab Sample ID: 9906568-14

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8N408

Level:

(low/med) LOW Date Received: 06/16/99

% Moisture: not dec.

Date Analyzed: 06/17/99

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

Dilution Factor: 5.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

CAS NO.

COMPOUND

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

3.0

71-43-2----benzene 108-88-3-----toluene 100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

10.0 U 538 E

FORM I VOA

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An Erployee Owned Company Science Applications International Corporation

中 10 8 90 COC NO .: HP 1725 OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 70 -SP 999568-01 7 LABORATORY NAME: General Engineering Laboratory PHONE NO: (843) 556-8171 LABORATORY ADDRESS: Charleston, SC 29407 Cooler Temperature: 2040 Savage Road FEDEX NUMBER: OVA U No. of Bottles/ Vials: NN N NN 1.450 TOTAL NUMBER OF CONTAINERS: 34 1 1 REQUESTED PARAMETERS CHAIN OF CUSTODY RECORD Cooler ID: 201 14 COS Methane Gre/gg Date/Time Date/Time nou isto apyling 97.1 Sulfate walk 14 HdT X3T8 RELINGUISHED BY: Bocker Dione COMPANY NAME: COMPANY NAME: COMPANY NAME: RECEIVED BY: Mat RECEIVED BY: Laura Lum 1330 Time Collected 0725 1519 0h64 1622 0725 1940 COO 1237 カンロ 기기 1024 [Printed Name] Date/Time CALE FILMS 120 800 Oat Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600 Date/Time 05.21 PROJECT NUMBER: 01-0331-04-1829-160 001 55 15/99 9 56 10/15/199 Date Collected 6/12/0d 66 9 06/2//01 PROJECT NAME: HAAF-Pilot Study 0 10/15/ 15 15/12/ 10/15 15/10 PROJECT MANAGER: Patty Stoll 9 200 COMPANY NAME: HED BY: AFDMZZ と反りるとと PELINQUISHED BY: COMPANYMAME COMPANY NAME: uppler (Signature) Sample ID AFP AT Some AED 4 AED 4 RECEMENT 0 RELINGUIS 178HJ7

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A La Employee Owned Company

CHAIN OF CUSTODY RECORD

787

COC NO.: HP025

OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 111-895066 LABORATORY NAME: General Engineering Laboratory PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 Cooler Temperature: FEDEX NUMBER: SCREENING No. of Bottles/ Vials: . . TOTAL NUMBER OF CONTAINERS: 七十十 REQUESTED PARAMETERS Cooler ID: TOC COS Date/Time Date/Time ebithe esolluz etertiM XILB trouch RELINQUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY MAME: -umley が Matrix RECEIVED BY: RÉCEIVED BY: Time Collected 0652 0269 25050 平む CHERO 56/01/2 (Printed Name) O7655 0521 00 Oak Ridge Tempika, Oak Ridge, TN 37831 (423) 481-4500 Date/Time 16 1k 90 1230 ROJECT NUMBER: 01-0331-04-1829-1967 Date Collected 10/116/99 115/99 1/14/99 ROJECT NAME: HAAF-Pilot Study 3 ROJECT MANAGER: Patty Stoll Samo COMPANY MAME: RELINDINGHED/BY: ELINQUISHER BY: COMPANYNAME COMPANY NAME: AEP522 ED322 Doma ED 122 DOOGH papler (Signature) Sample ID Samo

VIII-150

GROUNDWATER ANALYTICAL RESULTS SECOND SAMPLING EVENT

JULY 1999

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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EPA SAMPLE NO.

AE0632

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA SAS No.: NA

SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-12

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8R412

Level:

(low/med) LOW

Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/15/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL)

CAS NO.

COMPOUND

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

Q

9.6 71-43-2----benzene 2.0 108-88-3-----toluene 29.6 100-41-4----ethylbenzene 1330-20-7-----xylenes (total) 6.0

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FORM I VOA

EPA SAMPLE NO.

AE1132

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-15

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8R310

Level:

(low/med) LOW

Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/14/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL)

CAS NO.

COMPOUND

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

| 71-43-2benzene | 0.82 | J | - |
|--------------------------|------|---|----|
| 108-88-3toluene | 2.0 | U | 17 |
| 100-41-4ethylbenzene | 2.0 | U | 12 |
| 1330-20-7xylenes (total) | 6.0 | U | 15 |

FORM I VOA

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EPA SAMPLE NO.

AE6032

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-17

Sample wt/vol:

5.000 (g/ml) ML

8R320 Lab File ID:

Level:

(low/med)

LOW

Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/14/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 10.0

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5

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

(uL)

CAS NO.

COMPOUND

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

Q

3260 3100 71-43-2-----benzene 197 108-88-3-----toluene 531 100-41-4----ethylbenzene 2720 3110 PD 1330-20-7-----xylenes (total)

FORM I VOA

EPA SAMPLE NO.

AE6132

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Case No.: NA Lab Code: NA

SAS No.: NA

SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-01

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8R218

Level: (low/med) LOW Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/13/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

(uL)

CAS NO.

COMPOUND

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

| 71-43-2benzene | 1.1 | J |
|--------------------------|------|---|
| 108-88-3toluene | 0.56 | J |
| 100-41-4ethylbenzene | 2.0 | U |
| 1330-20-7xylenes (total) | 1.3 | J |

1330-20-7-----xylenes (total)

EPA SAMPLE NO.

523

AE6332

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: 97291W SAS No.: NA Case No.: NA Lab Code: NA Lab Sample ID: 9907291-03 Matrix: (soil/water) WATER 5.000 (g/ml) ML Lab File ID: 8R312 Sample wt/vol: Date Received: 07/09/99 Level: (low/med) LOW Date Analyzed: 07/14/99 % Moisture: not dec. Dilution Factor: 10.0 ID: 0.25 (mm) GC Column: DB-624 Soil Aliquot Volume: ____(uL) Soil Extract Volume: ____(uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L 0 COMPOUND CAS NO. 648 71-43-2-----benzene 88.1 108-88-3-----toluene 135 -100-41-4----ethylbenzene

FORM I VOA

| EPA | | SAMPLE | NO. |
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| VOLATILE ORGANICS ANALYSI | S DATA SHEET |
|---|---|
| | AE6432 |
| Lab Name: GENERAL ENGINEERING LABOR | Contract: NA |
| Lab Code: NA Case No.: NA | SAS No.: NA SDG No.: 97291W |
| Matrix: (soil/water) WATER | Lab Sample ID: 9907291-08 |
| Sample wt/vol: 5.000 (g/ml) ML | Lab File ID: 8R323 |
| Level: (low/med) LOW | Date Received: 07/09/99 |
| % Moisture: not dec. | Date Analyzed: 07/14/99 |
| GC Column: DB-624 ID: 0.25 (mm) | Dilution Factor: 5.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL) |
| CAS NO. COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2benzene | 85.4 |
| 108-88-3toluene 100-41-4ethylbenzene | 72.3 |

EPA SAMPLE NO.

| 2 | ਸ਼ | 13 | 22 | |
|---|------|----|----|--|
| 7 | דודו | , | - | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: 97291W Lab Sample ID: 9907291-04 Matrix: (soil/water) WATER Lab File ID: 8R219 Sample wt/vol: 5.000 (g/ml) ML Date Received: 07/09/99 Level: (low/med) LOW Date Analyzed: 07/13/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: ____(uL) Soil Extract Volume:____(uL) CONCENTRATION UNITS:

| CAS NO. | COMPOUND | (ug/L or ug/kg |) UG/L | Q. |
|--|----------|----------------|-----------------------------|----|
| 71-43-2 108-88-3 100-41-4 1330-20-7 | | al) | 62.7 5.0 10.9 51.3 | |

| | SAMPLE | |
|---|------------|--|
| - | AED332 | |

| AOTWITTE | ORGANICO MIMILIO | .0 2 | | |
|---------------------------------|--|--------------------|------------------------------|--------|
| Lab Name: GENERAL EN | CINEERING LABOR | Contract: NA | AED332 | |
| Lab Name: GENERAL EN | GINEEKING IMPOR | | | |
| Lab Code: NA | Case No.: NA | SAS No.: NA SDO | No.: 97291W | |
| Matrix: (soil/water) | WATER | Lab Sample II |): 9907291-06 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8R414 | |
| Level: (low/med) | LOW | Date Received | i: 07/09/99 | |
| % Moisture: not dec. | | Date Analyzed | 1: 07/15/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Fact | or: 100.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot | Volume: | (uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNIT | S: /L Q | |
| 71-43-2 108-88-3 100-41-4 | benzene toluene ethylbenzene xylenes (tota | 1) | 3430 3830 1250 4460 | ; : |
| 2550 20 | A THE PARTY OF THE | | | |

EPA SAMPLE NO.

| AFT | 1432 | |
|-----|------|--|
| | TUL | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA SAS No.: NA

SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-02

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID:

8R311

Level: (low/med) LOW Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/14/99

GC Column: DB-624

CAS NO.

ID: 0.25 (mm)

COMPOUND

Dilution Factor: 100.0

Soil Aliquot Volume: ____(uL)

Soil Extract Volume: ____(uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

| 71-43-2benzene | 111 | J | J |
|--------------------------|------|---|-----|
| 108-88-3toluene | 612 | | 5 |
| 100-41-4ethylbenzene | 533 | | - 2 |
| 1330-20-7xylenes (total) | 3180 | | |

FORM I VOA

OLMO3.0

DUPLICATE EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA |
|----------------------|-----------------|---|
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG No.: 97291W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9907291-13 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8R317 |
| Level: (low/med) | LOW | Date Received: 07/09/99 |
| % Moisture: not dec. | | Date Analyzed: 07/14/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 10.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| | | 140 87.5 123 456 |

FORM I VOA

OLM03.0

100-41-4-----ethylbenzene 1330-20-7-----xylenes (total)

EPA SAMPLE NO.

0.87 J 3.1 J

AEDM32

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SAS No.: NA SDG No.: 97291W Case No.: NA Lab Code: NA Lab Sample ID: 9907291-10 Matrix: (soil/water) WATER Lab File ID: 8R307 5.000 (g/ml) ML Sample wt/vol: Date Received: 07/09/99 Level: (low/med) LOW Date Analyzed: 07/14/99 % Moisture: not dec. _____ GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0 Soil Aliquot Volume: ____(uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q COMPOUND CAS NO. 2.0 U 0.95 J 71-43-2----benzene 108-88-3-----toluene

OLM03.0

EPA SAMPLE NO.

AEP132

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Case No.: NA SAS No.: NA

SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-05

Sample wt/vol:

Lab Code: NA

5.000 (g/ml) ML

Lab File ID: 8R313

Level: (low/med)

LOW

Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/14/99

GC Column: DB~624

ID: 0.25 (mm)

Dilution Factor: 10.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

CAS NO.

COMPOUND

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

2 1770 1620 71-43-2-----benzene 108-88-3-----toluene 3820 3580 EP -100-41-4----ethylbenzene 402 = 1330-20-7-----xylenes (total) 2050 =

FORM I VOA

OLM03.0

VIII-164

EPA SAMPLE NO.

| AEP | 232 | |
|-----|-----|--|
| | | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA Case No.: NA SAS No.: NA SDG No.: 97291W Lab Code: NA Lab Sample ID: 9907291-09 Matrix: (soil/water) WATER 5.000 (g/ml) ML Lab File ID: 8R415 Sample wt/vol: Date Received: 07/09/99 LOW Level: (low/med) Date Analyzed: 07/15/99 % Moisture: not dec. _____ Dilution Factor: 50.0 GC Column: DB-624 ID: 0.25 (mm)

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

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q COMPOUND CAS NO. 2540 71-43-2----benzene 1600 108-88-3-----toluene 100-41-4----ethylbenzene 565 2170 1330-20-7-----xylenes (total)

| | EPA | SAMPLE | NO. |
|---|-----|--------|-----|
| 1 | 1 | AEP332 | |

Q

| Lab | Name: | GENERAL | ENGINEERING | LABOR | Contract: | NA |
|-----|-------|---------|-------------|-------|-----------|----|
|-----|-------|---------|-------------|-------|-----------|----|

ID: 0.25 (mm)

COMPOUND

SDG No.: 97291W SAS No.: NA Case No.: NA Lab Code: NA

Lab Sample ID: 9907291-14 Matrix: (soil/water) WATER

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

Date Received: 07/09/99 LOW Level: (low/med)

Date Analyzed: 07/15/99 % Moisture: not dec. Dilution Factor: 100.0

GC Column: DB-624

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

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO. 3150 71-43-2-----benzene 8020 108-88-3----toluene 1030 = 100-41-4----ethylbenzene 5 5090 1330-20-7-----xylenes (total)

FORM I VOA

OLM03.0

EPA SAMPLE NO.
AEP432

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA | |
|--|---|---|----|
| | Case No.: NA | SAS No.: NA SDG No.: 97291W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9907291-16 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8R417 | |
| Level: (low/med) | LOW | Date Received: 07/09/99 | |
| % Moisture: not dec. | · | Date Analyzed: 07/15/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 100.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(u | L) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q | |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | benzene toluene ethylbenzene xylenes (tota | 1990 6080 789 1) | |

FORM I VOA

OLMO3.0

EPA SAMPLE NO.

| 7 | FD | 53: | 2 | |
|----|-----|-----|---|--|
| 27 | CIE | 23. | 4 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Case No.: NA Lab Code: NA

SAS No.: NA

SDG No.: 97291W

Matrix: (soil/water) WATER

Lab Sample ID: 9907291-07

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8R308

Level: (low/med) LOW Date Received: 07/09/99

% Moisture: not dec.

Date Analyzed: 07/14/99

ID: 0.25 (mm)

Dilution Factor: 1.0

GC Column: DB-624

CAS NO.

COMPOUND

Soil Aliquot Volume: ____(uL)

Soil Extract Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

2.0 71-43-2-----benzene U 0.62 J 108-88-3-----toluene 100-41-4----ethylbenzene 9.2 1330-20-7-----xylenes (total) 27.9

FORM I VOA

OLM03.0

An Employee-Dunad Company ne International Corporation

70 Ook Ridge Tumpiles, Oak Ridge, TN 37837 (423) 481-4600

CHAIN OF CUSTODY RECORD

COC NO.: HPBBH OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 中谷 71 10-1626066 23 50 B B 50 LABORATORY NAME: General Engineering Laboratory PHONE NO: (803) 556-8171 LABORATORY ADDRESS: 2040 Savage Raod Charleston, SC 29417 Cooler Temperature: FEDEX NUMBER: OVA No. of Bottles/ Vials: N 4 0 0 4.74 TOTAL NUMBER OF CONTAINERS: 2419 420 H 1 REQUESTED PARAMETERS Cooler ID: 1/9/9 Date/Time Date/Time M 5. 70 (a) HAR X3TB N N 2 RELINGUISHED BY: COMPANY NAME: Saber COMPANY NAME: COMPANY NAME: Matrix Pilot Study Bldg 728 ausa Lum ley JONE) REPEIVED BY: RECEIVED BY: Time Collected 1725 1438 1225 1503 1633 1040 1554 子より 力るこ 40 1125 1849 1648 429-216 S021 66/8/4 (Printed Name) Date/Time 2 Gata Time 55-52 ROJECT NAME: HAAF tong Term Menitering 0501 Date/Time 020/ ROJECT NUMBER: 01-0331-04-4784-108-Date Edlected 5/8/60 7/4/99 7/4/99 pp/2/4 18/99 7/2/99 66/8/4 4/8/99 12/90 06/8/5 8/99 ROJECT MANAGER: Patty Stoll OMPANY NAME: SE EVERTON ED43.7 EDM32 ELASOWISHED BY: 332 E6 432 532 7227 BADO3 ED 434 37 6332 0137 E0632 ENNOUISHEPTBY: OMPANYNAME OMPANY NAME 1E6132 ampler (Signature) Sample 10 one

Science Applications International Corporation
Science Applications International Corporation
90 Oast Ridge Termpites, Oast Ridge, TW 37837 (423) 487-4600

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CHAIN OF CUSTODY RECORD

COC NO .: 4PAS 4B

9907291-14 OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS General Engineering Laboratory PHONE NO: (803) 556-8171 LABORATORY ADDRESS: 2040 Savage Raod Charleston, SC 29417 LABORATORY NAME: Cooler Temperature: FEDEX NUMBER: OVA No. of Bottles/ Vials: N 2 TOTAL NUMBER OF CONTAINERS: 34 小炮 12 à. 820 REQUESTED PARAMETERS Cooler 70: Date/Time Date/Time 415 20 NN BTEX RELANDUISHED BY: COMPANY NAME: COMPANY NAME: CONPRINT NAME: water Pilot Study Bldg 728 Mathix RÉCEIVED BY: RECEIVED BY: Lours Lumby Mond Date Collected Time Collected 712-6281 15/2 1327 1534 14/5 Pate/Time (Printed Name) 0201 7 PAPO Pate/Time ROJECT NAME: HAAF Long Larm Monitoring 1030 ROJECT NUMBER: 01-0331-04-4764-100 18/39 7 18199 66/8/4 7/8/89 ROJECT MANAGER: Patty Stoll Mars OMPANY MAME: P432 STINDUISHED BY: AMOUNTED BY: OMPANY NAME: OMPANY NAME EP 332 ECENTED AV. ampler (Signature) Burge F 1132 Sample ID 603 Surgar

GROUNDWATER ANALYTICAL RESULTS THIRD SAMPLING EVENT

AUGUST 1999

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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108-88-3-----toluene

100-41-4----ethylbenzene

1330-20-7-----xylenes (tctal)

EPA SAMPLE NO.

2.0 U

9.2 1.8 J

| AF | 206 | 42 | |
|----|-----|----|--|
| | | | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: HPS013W Lab Code: NA Case No.: NA SAS No.: NA Matrix: (soil/water) WATER Lab Sample ID: 9908981-06 Lab File ID: 8Y227 Sample wt/vol: 5.000 (g/ml) ML Level: (low/med) Date Received: 08/26/99 LOW Date Analyzed: 09/01/99 % Moisture: not dec. GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0 Scil Extract Volume: ____(uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 2.0 U 71-43-2-----benzene

FORM I VOA

EPA SAMPLE NO.

| AL | 211 | 42 | |
|----|-----|----|--|

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-02

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y209

Level: (low/med) LOW Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 08/31/99

GC Column: DB-624

ID: 0.25 (mm)

COMPOUND

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

CAS NO.

Soil Aliquot Volume: ____(uL)

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

| 12 7 | |
|------|----------------------------|
| 2.0 | ii . |
| 1 3 | J - |
| 10.1 | |
| | 13.7 2.0 1.3 10.1 |

EPA SAMPLE NO.

| | 7 F | | 40 | |
|---|-----|----|----|--|
| - | AF | 60 | 42 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-15

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8Y310

Level: (low/med) LOW

Date Received: 08/26/99

% Moisture: not dec.

CAS NO.

Date Analyzed: 09/01/99

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

COMPOUND

Dilution Factor: 5.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL)

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

| | 0.57 | = |
|--------------------------|-----------------|-----|
| 71-43-2benzene | - 257 10.0 T | - u |
| 108-88-3toluene | - 69.4 | = |
| 1330-20-7xylenes (total) | 335 | = |

DUPLICATE EPA SAMPLE NO.

AE6044

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-13

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y308

Level: (low/med)

ow/med) LOW

Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 09/01/99

GC Column: DB-624

ID: 0.25 (mm)

COMPOUND

Dilution Factor: 5.0

Director records

Scil Extract Volume: ____(uL)

CAS NO.

Soil Aliquot Volume: ____(uL)

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

Q

71-43-2-----benzene 278 108-88-3-----toluene 10.0 100-41-4-----ethylbenzene 81.2 1330-20-7-----xylenes (total) 384

EPA SAMPLE NO.

| 4.43.00 | |
|----------|--|
| AE6142 | |
| 4.546.53 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-03

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y210

Level: (low/med) LOW Date Received: 08/25/99

% Moisture: not dec.

Date Analyzed: 08/31/99

GC Column: DB-624

ID: 0.25 (mm.)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(ul)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2benzene | 33.1 | = |
|--------------------------|--------|---|
| 108-88-3toluene | 0.56 J | 5 |
| 100-41-4ethylbenzene | 4.4 | = |
| 1330-20-7xylenes (total) | 11.2 | = |

EPA SAMPLE NO.

AE6342

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA

SAS No.: NA SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-05

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y226

Level: (low/med)

LOW

Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 09/01/99

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

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO. COMPOUND

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

| 911 | - |
|-----|---------------------------|
| | -= |
| 124 | |
| 542 | = |
| | 844 46.8 124 542 |

71-43-2-----benzene

108-88-3-----toluene

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

EPA SAMPLE NO.

| AE6442 | |
|--------|--|
| | |

19.8

21.9

109

0.71 J

11 11

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: HPS013W Lab Code: NA Case No.: NA SAS No.: NA Lab Sample ID: 9908981-12 Matrix: (soil/water) WATER Lab File ID: 8Y230 Sample wt/vol: 5.000 (g/ml) ML Date Received: 08/26/99 Level: (low/med) LOW Date Analyzed: 09/01/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: Soil Extract Volume: (uL) (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND

EPA SAMPLE NO.

AED142

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA SAS No.: NA

SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-08

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y211

LOW L.

Level: (low/med)

Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 08/31/99

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

Dilution Factor: 1.0

Soil Aliquot Volume: (uL)

Soil Extract Volume: (uL)

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

Q

CAS NO.

COMPOUND

30.6 2.0 U

71-43-2-----benzene 108-88-3-----toluene 100-41-4----ethylbenzene 1330-20-7-----xylenes (total)_

2.0 U 6.0 U

EPA SAMPLE NO.

AED342

Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS013W Lab Sample ID: 9908981-16 Matrix: (soil/water) WATER Lab File ID: 8Y234 Sample wt/vol: 5.000 (g/ml) ML Date Received: 08/26/99 Level: (low/med) LOW Date Analyzed: 09/01/99 % Moisture: not dec. Dilution Factor: 50.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q CAS NO. COMPOUND 3460 71-43-2-----benzene 111 2330 108-88-3-----toluene 1530 100-41-4----ethylbenzene = 4550 1330-20-7-----xylenes (total)

EPA SAMPLE NO.

AED442

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-14

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y309

Level: (low/med)

LOW

Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 09/01/99

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

Dilution Factor: 5.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L Q

| 71-43-2benzene | 130 | = |
|--------------------------|--------|-----|
| 108-88-3toluere | 10.0 0 | - 0 |
| 100-41-4ethylbenzene | 50.8 | = |
| 1330-20-7xylenes (total) | 60.1 | = |

COMPOUND

CAS NO.

EPA SAMPLE NO.

Q

AEDM42 Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS013W Lab Sample ID: 9908981-09 Matrix: (soil/water) WATER Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8Y212 Level: (low/med) LOW Date Received: 08/26/99 Date Analyzed: 08/31/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.25 (mm) Soil Extract Volume: ____(uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

2.0 U 71-43-2-----benzene 108-88-3-----toluene 2.0 U 0.62 J 100-41-4----ethylbenzene 1330-20-7-----xylenes (total)_ 0.86 J

(ug/L or ug/Kg) UG/L

71-43-2-----benzene

108-88-3-----toluene

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

EPA SAMPLE NO.

| A | ΞP | 14 | 2 | |
|---|----|----|---|--|
| | | | | |

1 1

3140

2430

484

Lab Name: GENERAL ENGINEERING LABOR Contract: NA SDG No.: HPS013W SAS No.: NA Lab Code: NA Case No .: NA Lab Sample ID: 9908981-07 Matrix: (soil/water) WATER Lab File ID: 8Y216 5.000 (g/ml) ML Sample wt/vol: Date Received: 08/26/99 (low/med) LOW Level: Date Analyzed: 08/31/99 % Moisture: not dec. Dilution Factor: 50.0 ID: 0.25 (mm) GC Column: DB-624 Soil Aliquot Volume: ____(uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 1770

FORM I VOA

OLMO3.0

EFA SAMPLE NO.

| 7 | - | 24 | ~ | |
|---|------|-----|----|--|
| A | E. 2 | 24 | 4 | |
| | = 3 | 7.7 | 7. | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-11

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y229

Level: (low/med)

) LOW

Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 09/01/99

GC Column: DB-624

ID: 0.25 (mm.)

Dilution Factor: 50.0

Soil Extract Volume:____(uL)

CAS NO.

Dilucion Faccor: 50.0

Soil Aliquot Volume: ____(uL)

COMPOUND

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

Q

71-43-2-----benzene 3020 = 108-88-3-----toluene 960 = 100-41-4----ethylbenzene 686 = 1330-20-7-----xylenes (total) 2440 = =

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LASOR | Contract: NA | AEP342 | |
|----------------------|-----------------|---|-----------------------------|------|
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG | No.: HPS013W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 9908981-17 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8Y311 | |
| Level: (low/med) | LOW | Date Received: | 08/26/99 | |
| % Moisture: not dec. | | Date Analyzed: | 09/01/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Facto | r: 100.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot V | olume: | (uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | | |
| | | .) | 1940 3890 496 2590 | |

| EPA | SAMPLE | NO. |
|-----|--------|-----|
| | | |

| VOLATILE ORGANICS ANALISIS DATA SHEET | 1 |
|---|----------------------------|
| - Lab Name: GENERAL ENGINEERING LABOR Contract: NA | AEP442 |
| Lab Code: NA Case No.: NA SAS No.: NA SDG | No.: HPS013W |
| Matrix: (soil/water) WATER Lab Sample ID | : 9908981-18 |
| Sample wt/vol: 5.000 (g/ml) ML Lab File ID: | 8Y312 |
| Level: (low/med) LOW Date Received | : 08/26/99 |
| % Moisture: not dec Date Analyzed | : 09/01/99 |
| GC Column: DB-624 ID: 0.25 (mm) Dilution Factor | or: 50.0 |
| Soil Extract Volume: (uL) Soil Aliquot | Volume:(uL) |
| CONCENTRATION UNITS CAS NO. COMPOUND (ug/L or ug/Kg) UG/I | |
| 71-43-2benzene 108-88-3toluene 100-41-4ethylbenzene 1330-20-7xylenes (total) | 516 1530 309 2080 |

EPA SAMPLE NO.

AEP542

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9908981-10

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8Y228

Level: (low/med) LOW

Date Received: 08/26/99

% Moisture: not dec.

Date Analyzed: 09/01/99

GC Column: DB-624

CAS NO.

ID: 0.25 (mm)

Dilution Factor: 5.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

11

CONCENTRATION UNITS:

COMPOUND

(ug/L or ug/Kg) UG/L

Q

71-43-2-----benzene 108-88-3-----toluene

100-41-4----ethylbenzene 1330-20-7-----xylenes (total)_ 10.0 U 65.4 185

10.0 U

FORM I VOA

OLM03.0

51

Section Applications Described Company Section Applications of the Empire Company Section Applications Described Companion 1990 Oak Ridge Turnspile, Oak Ridge, TW 37831 (423) 481-4600

COC NO. HP DIBO

CHAIN OF CUSTODY RECORD

OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 203 -02 かる 8 10-1868066 5 08 General Engineering Laboratory PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 LABORATORY NAME: Cooler Temperature; FEDEX NUMBER: SCREENING No. of Bottles/ Vials: N N N ft. Stewar TOTAL NUMBER OF CONTAINERS: REQUESTED PARAMETERS Cooler ID: S/26/PS 532 Date/Time Date/Time .7 REPENDED BY: NNNN N BTEX N RELINGUISHED BY: SALACI COMPANY KAME: COMPANY NAME: COMPANY NAME: Matrik Laura Lum les RECEIVED BY: Time Collected 1135 1300 1745 0700 1254 1230 120 1030 1659 165 1503 100 Printed Name 200 asz. 33/97/8 Date/Time -Bejed Time PROJECT NAME: HAAF-Pilot Study Bidg, 728 195/8 PROJECT NUMBER: 01-0331-04-1829-210 66 66 66/12/ 8/25/99 66/52/8 661 8/24/99 8/24/99 Date Chiected 8/25/99 8/25/99 00 42/8 142/8 8/24/ PROJECT MANAGER: Patty Stoff 12/24 B 8 8 E 60 44 EDM 42 NOWISHED BY: COMPANYMAME E 11133 ALINOUISHER BY OMPANY NAME: ED 642 ENHZ PIAZ 466342 EP 547 ampler (Signature) 490012 RPX 12 Sample ED 4564 46614 RECORDED IN COMPANY

Scena Aprilentem International Corporation

800 Out Adge Tumple, Oak Abge, TH 37831 (423) 461-4600

CHAIN OF CUSTODY RECORD

COC NOHPOLED

| DOO ICOT MARKE MARK OF | | | 1000 | | 1 | 7 |
|--|--------------|-----------------------------|------------|----------|-------------|---|
| rhoused Maine: haar-pilot Study Bldg. 728 | REOL | REQUESTED PARAMETERS | AETERS | | | LABORATORY NAME: |
| PROJECT NUMBER: 01-0331-04-1829-210 | | | | | | General Engineering Laboratory |
| PROJECT MANAGER: Patty Stoll | | | | | :ele | LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 |
| Sampler (Signatura) (Printed Name) | | | | | si∨ \estīft | PHONE NO: (843) 556-8171 |
| Sample ID Derd Collected Time Collected Matrix E | | | | | d to .of | OVA DBSERVATIONS, COMMENTS, SCREENING SPECIAL INSTRUCTIONS |
| 1342 water | | | | | 12 | |
| 600 42 2/24/99 1845 1 Z | | <u> </u> | | | 13 | 21-1 |
| D342 8/24/99 13/5 Z | | | 924 | | 12 | |
| V342 8 12499 1 | 原金 | nie Su | | | N | 01 |
| 42 3/24/99 1527 Z | 12 (1 1-3 | | | | 1 | 107 |
| HT 00 1 8/2/199 0750 1 2 1/200 1 | | 133 | | | 17 | 717 |
| | | <u> </u> | j? | | | |
| | | *3 | 21/12 | 100 | - | |
| | \ | 78 | | | | |
| | X | 1 | 447 | | F | |
| 7 | 10 2 L | | | e de | | |
| | 子 然 点 | | | | - | |
| | (A) | | | | 7 | |
| EB BY: Data-Time RECEIVED BY: | Date/Time T | TOTAL NUMBER OF CONTAINERS: | OF CONTAI | NERS: 34 | | Cooler Temperature: |
| COMPANYNAME | | Cooler 10: | Stewar # 7 | mitte. | | FEDEX NUMBER: |
| ENGLINE HELINDUISHED BY: | Date/Time | | | | | |
| OMPANY-NAME: 2010 COMPANY NAME: | | | | | | |
| Syldushep BY: | Date/Time | | | | | |
| \ | | | | | | |

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

GROUNDWATER ANALYTICAL RESULTS FOURTH SAMPLING EVENT

SEPTEMBER 1999

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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1330-20-7-----xylenes (total)

EPA SAMPLE NO.

| - | AE(| 065 | 2 | |
|---|-----|-----|---|--|
| | | | | |

U FOI, FOG

| Lab Name: GENERAL EN | IGINEERING LABOR | Contract: N/A | AE0652 | |
|----------------------|------------------|--|--------------|----------|
| Lab Code: N/A | | SAS No.: N/A SDG | No.: HPS014W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 9909942-15 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 1E209 | |
| Level: (low/med) | LOW | Date Received | : 09/30/99 | |
| % Moisture: not dec | | Date Analyzed | : 10/12/99 | |
| GC Column: DB-624 | ID: 0.53 (mm) | Dilution Facto | or: 1.0 | |
| Soil Extract Volume | :(uL) | Soil Aliquot V | Volume: | _(uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS (ug/L or ug/Kg) UG/1 | | |
| | | | 4.1= | FOI, FO6 |

FORM I VOA

DATA VALIDATION O3.0

EPA SAMPLE NO.

AE1152

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SAS No.: N/A SDG No.: HPS014W Lab Code: N/A Case No.: N/A Lab Sample ID: 9909942-14 Matrix: (soil/water) WATER 5.000 (g/ml) ML Lab File ID: 1E210 Sample wt/vol: Date Received: 09/30/99 Level: (low/med) LOW Date Analyzed: 10/12/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.53 (mm) Soil Aliquot Volume: (uL) Soil Extract Volume: ____(uL) CONCENTRATION UNITS: CAS NO. (ug/L or ug/Kg) UG/L COMPOUND = FO1, F08 27.0 B 71-43-2-----benzene 15.5 B 108-88-3-----toluene = F01, F08 100-41-4----ethylbenzene 3.8 20.1 B 1330-20-7-----xylenes (total) = Fal, Fos

EPA SAMPLE NO.

| AE6052 | |
|--------|--|
| AEGUSZ | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SAS No.: N/A SDG No.: HPS014W Case No.: N/A Lab Code: N/A Lab Sample ID: 9909942-07 Matrix: (soil/water) WATER Lab File ID: 1E124 Sample wt/vol: 5.000 (g/ml) ML Date Received: 09/30/99 Level: (low/med) LOW % Moisture: not dec. __ Date Analyzed: 10/12/99 ID: 0.53 (mm) Dilution Factor: 1.0 GC Column: DB-624 Soil Aliquot Volume: ____(uL) Soil Extract Volume: ____(uL) CONCENTRATION UNITS: CAS NO. (ug/L or ug/Kg) UG/L COMPOUND 98.2 71-43-2-----benzene 108-88-3-----toluene 1.4 J 62.8 100-41-4----ethylbenzene 130 1330-20-7-----xylenes (total)

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EPA SAMPLE NO.

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1A VOLATILE ORGANICS ANALYSIS DATA SHEET

1330-20-7-----xylenes (total)

AE6054

=

122

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS014W Lab Code: N/A Lab Sample ID: 9909942-12 Matrix: (soil/water) WATER Lab File ID: 1E128 Sample wt/vol: 5.000 (g/ml) ML Date Received: 09/30/99 Level: (low/med) LOW Date Analyzed: 10/12/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.53 (mm) (uL) Soil Aliquot Volume: Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q CAS NO. COMPOUND 93.6 71-43-2-----benzene J 1.3 J 108-88-3-----toluene = 59.0 100-41-4----ethylbenzene

FORM I VOA

COLVINSIAN COLMOS.O

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A | AE6152 |
|--|--|---|--|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG | No.: HPS014W |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 9909942-11 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 1E207 |
| Level: (low/med) | LOW | Date Received: | 09/30/99 |
| % Moisture: not dec. | | Date Analyzed: | 10/12/99 |
| GC Column: DB-624 | ID: 0.53 (mm) | Dilution Facto | r: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot V | olume:(uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | benzene toluene ethylbenzene xylenes (total | | 37.4 B = F01, F03 1.0 JB U F01, F6 4.8 9.4 B = F01, F08 |

= FOI, FO8

108-88-3-----toluene

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)_

EPA SAMPLE NO.

AE5352

U

2.0 U

0.85 J

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SAS No.: N/A SDG No.: HPS014W Case No.: N/A Lab Code: N/A Matrix: (soil/water) WATER Lab Sample ID: 9909942-03 5.000 (g/ml) ML Lab File ID: 1E122 Sample wt/vol: Date Received: 09/30/99 Level: (low/med) LOW Date Analyzed: 10/11/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.53 (mm) Soil Aliquot Volume: (uL) Soil Extract Volume: ____(uL) CONCENTRATION UNITS: Q (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 2.4 71-43-2-----benzene 2.0 U

FORM I VOA

108-88-3-----toluene

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

EPA SAMPLE NO.

2.0 U

3.8

18.6

=

AE6452 Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG No.: HPS014W SAS No.: N/A Case No.: N/A Lab Code: N/A Lab Sample ID: 9909942-02 Matrix: (soil/water) WATER Lab File ID: 1E121 Sample wt/vol: 5.000 (g/ml) ML Date Received: 09/30/99 Level: (low/med) LOW Date Analyzed: 10/11/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.53 (mm) Soil Aliquot Volume: ____(uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 4.0 71-43-2-----benzene

FORM I VOA

Carl

EPA SAMPLE NO.

AED152

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A

SAS No.: N/A

SDG No.: HPS014W

Matrix: (soil/water) WATER

Lab Sample ID: 9909942-04

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 1E123

Level: (low/med) LOW

% Moisture: not dec.

Date Received: 09/30/99 Date Analyzed: 10/12/99

GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2benzene | 2.7 | | = |
|--------------------------|-----|---|-----|
| 108-88-3toluene | 2.0 | Ū | - 0 |
| 100-41-4ethylbenzene | 2.0 | U | U |
| 1330-20-7xylenes (total) | 6.0 | U | U |

FORM I VOA

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VIII-200

47

EFA SAMPLE NO.

| t: | : N/A | AED352 |
|-----|----------------|--------------|
| . : | N/A SDG I | No.: HPS014W |
| | Lab Sample ID: | 9909942-13 |
| | Lab File ID: | 1E213 |
| | Date Received: | 09/30/99 |
| | Date Analyzed: | 10/12/99 |

Matrix: (soil/water) WATER

5.000 (g/ml) ML

Sample wt/vol:

Lab Code: N/A

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Case No.: N/A

Level: (low/med) LOW

% Moisture: not dec. GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 100.0

Soil Extract Volume: (uL)

CAS NO.

COMPOUND

Soil Aliquot Volume: (uL)

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

| 71-43-2benzene | 3710 | В | = FOI, FD8 |
|--------------------------|------|---|------------|
| 108-88-3toluene | 1840 | | = FDI, F08 |
| 100-41-4ethylbenzene | 1910 | | = |
| 1330-20-7xylenes (total) | 4940 | В | = FOI, FO8 |

SAS No.: N/A

EPA SAMPLE NO.

AED452

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS014W

Matrix: (soil/water) WATER

Lab Sample ID: 9909942-10

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

Lab File ID: 1E307

Level: (low/med) LOW

Date Received: 09/30/99

% Moisture: not dec.

Date Analyzed: 10/13/99

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 5.0

Soil Aliquot Volume: ____(uL)

Soil Extract Volume: ____(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2benzene | 13601560 | e d | = |
|--------------------------|----------|-----|------------|
| 108-88-3toluene | 22.6 | | 47 |
| 100-41-4ethylbenzene | 220 | | |
| 1330-20-7xylenes (total) | 263 | В | = Fol, Fes |
| | | | |

EPA SAMPLE NO.

AEDM52

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SAS No.: N/A Lab Code: N/A Case No.: N/A SDG No.: HPS014W Matrix: (soil/water) WATER Lab Sample ID: 9909942-01 Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 1E120 Level: (low/med) Date Received: 09/30/99 LOW Date Analyzed: 10/11/99 % Moisture: not dec. GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0 Soil Extract Volume:____(uL) Soil Aliquot Volume: __(uL) CONCENTRATION UNITS:

 CAS NO.
 COMPOUND
 (ug/L or ug/Kg) UG/L
 Q

 71-43-2------benzene
 2.0 U
 U

 108-88-3-----toluene
 2.0 U
 U

 100-41-4-----ethylbenzene
 0.60 J
 J

 1330-20-7-----xylenes (total)
 0.79 J
 J

FORM I VOA

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VIII-203

EPA SAMPLE NO.

AEP152

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG No.: HPS014W Lab Code: N/A Case No.: N/A SAS No.: N/A Lab Sample ID: 9909942-09 Matrix: (soil/water) WATER Lab File ID: 1E211 Sample wt/vol: 5.000 (g/ml) ML Date Received: 09/30/99 Level: (low/med) LOW Date Analyzed: 10/12/99 % Moisture: not dec. Dilution Factor: 100.0 GC Column: DB-624 ID: 0.53 (mm) Soil Extract Volume: ___(uL) Soil Aliquot Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q CAS NO. COMPOUND

=FOI, FOS 1740 B 71-43-2-----benzene 3360 B = Fn1, F08 108-88-3-----toluene 431 100-41-4----ethylbenzene 2470 B 1330-20-7-----xylenes (total) = FOI, FOS

EPA SAMPLE NO.

| AEP | 252 | |
|-----|-----|--|
| ACE | 232 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS014W

Matrix: (soil/water) WATER

Lab Sample ID: 9909942-08

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 1E214

Level: (low/med) LOW

Date Received: 09/30/99

% Moisture: not dec.

CAS NO.

Date Analyzed: 10/12/99

GC Column: DB-624 ID: 0.53 (mm)

COMPOUND

Dilution Factor: 50.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL)

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

Q

| 71-43-2benzene | 1590 | В | = F01, F08 |
|--------------------------|------|-----|------------|
| 108-88-3toluene | 273 | В | UFPI, FOT |
| 100-41-4ethylbenzene | 405 | 2.5 | = |
| 1330-20-7xylenes (total) | 1390 | В | = FOI, FOS |

100-41-4----ethylbenzene

1330-20-7-----xylenes (total)

EPA SAMPLE NO.

| AEP352 | |
|--------|--|
| AEP352 | |

838

4550 B

FOI, FOS

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Lab Code: N/A SAS No.: N/A SDG No.: HPS014W Case No.: N/A Lab Sample ID: 9909942-06 Matrix: (soil/water) WATER Lab File ID: 1E212 5.000 (g/ml) ML Sample wt/vol: Level: (low/med) Date Received: 09/30/99 LOW Date Analyzed: 10/12/99 % Moisture: not dec. Dilution Factor: 100.0 GC Column: DB-624 ID: 0.53 (mm) Soil Aliquot Volume: ____(uL) Soil Extract Volume: ____(uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND = FOI, FOS 2810 B 71-43-2-----benzene = FOI, F93 5680 B 108-88-3-----toluene

EPA SAMPLE NO.

| Lab Name: GENERAL ENGINEERING LABOR | Contract: N/A |
|--|---|
| Dan Name: Children Divolition | SAS No.: N/A SDG No.: HPS014W |
| Matrix: (soil/water) WATER | Lab Sample ID: 9909942-05 |
| Sample wt/vol: 5.000 (g/ml) ML | Lab File ID: 1E216 |
| Level: (low/med) LOW | Date Received: 09/30/99 |
| % Moisture: not dec | Date Analyzed: 10/12/99 |
| GC Column: DB-624 ID: 0.53 (mm) | Dilution Factor: 10.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL) |
| CAS NO. COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2benzene 108-88-3toluene 100-41-4ethylbenzene 1330-20-7xylenes (total | 682 B = FD1,F08 443 B = F01,F08 239 1110 B = F01,F08 |

1330-20-7-----xylenes (total)_

EPA SAMPLE NO.

AEP552

7.6 B

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS014W Lab Code: N/A Lab Sample ID: 9909942-16 Matrix: (soil/water) WATER Lab File ID: 1E208 Sample wt/vol: 5.000 (g/ml) ML Date Received: 09/30/99 Level: (low/med) LOW Date Analyzed: 10/12/99 % Moisture: not dec. Dilution Factor: 1.0 ID: 0.53 (mm) GC Column: DB-624 Soil Aliquot Volume: ____(uL) Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 2.0 71-43-2-----benzene 2 0.82 JB Fer, Fol 108-88-3-----toluene 2.6 100-41-4----ethylbenzene

OLM03.0

An Employee Owned Company Scionce Applications International Corporation

B 12 8 P DBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS B 4 3 to 8 à 11-5 COC NO :: GHADAT 10-24860h General Engineering Laboratory PHONE NO: (843) 556-8171 9/ LABORATORY ADDRESS: Charleston, SC 29407 Cooler Temperature: LABORATORY NAME: 2040 Savage Road FEDEX NUMBER: SCREENING No. of Bottles/ Vials: N TOTAL NUMBER OF CONTAINERS: REQUESTED PARAMETERS CHAIN OF CUSTODY RECORD Cooler ID: EN SUL SUPPLEMENT 930 PR Date/Time Date/Time Date/Time 555 N METEX Marco RELINQUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY NAME: Jacker Matrix RECEIVED BY: RECEIVED BY: Lawra Lumley Time Collected 945 1145 1010 1128 200/ 135G のサナ 1312 3 115 13/2 5201 162 (Printed Name) 800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4500 A 20/79 GerdiTime 75/00 axo1 Date/Time PROJECT NAME: HAAF-Pilot Study Bldg. 728 PROJECT NUMBER: 01-0331-04-1829-210 66/62/6 9/29/99 66/62/ 9/29/99 66/62/6 9/29/99 9/29/99 66/12/6 8/20/99 Dakagollacted 129/99 9 (29) 9 2/2199 9/29/99 Yrand Deer PROJECT MANAGER: Patty Stoll 6 0 HECHOONISHED BY AEDM52 AE6352 4ED352 JIMHED BY: ×66052 COMPANYMAME: 466452 4ED452 4E \$252 LEPI52 NAME: **BEP452** COMPANY NAME: AED152 AEP 352 4E6152 4E 6054 Semplar (Signature) SALLA Semple ID RECEMBED BY COMPANY REZZA VIII-209

CHAIN OF CUSTODY RECORD lek RKge Turnpike, Osk RKISA, TN 37831 (423) 481-4600 An Employee-Duned Company Science Applications International Corporation

COC NO.: G HODDA

47 9 OBSERVATIONS, COMMENTS. SPECIAL INSTRUCTIONS 995942- M General Engineering Laboratory PHONE NO: (843) 556-8171 Cooler Temperature: 4º LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 LABORATORY NAME: FEDEX NUMBER: SCREENING No. of Battles/ Vials: N The state of TOTAL NUMBER OF CONTAINERS: REQUESTED PARAMÉTERS Date/Time TOTAL NU Date/Time Sass Date/Time 2002 BTEX REGRIVED BY: RELINQUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY NAME: water Matrix RECEIVED BY: Laura Lumley Time Collected (BYC) 0200 535 300 1/30/99 (Printed Name) 83/28 Date/Time JECT NAME: HAAF-Pilot Study Bldg. 728 JECT NUMBER: 01-0331-04-1829-210 1999 9/29/99 12/99 66/62/6 Date Collected JECT MANAGER: Patty Stoll sus Kumber 6 IPANY NAME: MSHED/BY: NOUISHED BY: PANY NAME: 450652 PANY NAME: APPOIS A=P55 iler (Signature) Sample ID and

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VIII-210

GROUNDWATER ANALYTICAL RESULTS FIFTH SAMPLING EVENT

OCTOBER 1999

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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EPA SAMPLE NC.

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-02

Sample wt/vol:

Lab Code: NA

5.000 (g/ml) ML

Case No.: NA

Lab File ID: 8H335

Level: (low/med)

LOW

Date Received: 10/28/99

% Moisture: not dec.

DATA VALIDATION Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25

Dilution Factor: 1.0

Soil Extract Volume: ___(uL)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

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

71-43-2----benzene 3.7 U 108-88-3-----toluene 2.0 U = 100-41-4----ethylbenzene 7.5 1330-20-7-----xylenes (total) 1.5 J 5

EPA SAMPLE NO.

AE1162

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

LOW

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-08

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8H341

Level: (low/med)

% Moisture: not dec.

DATA VALIDATION Date Received: 10/28/99 Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25 (mm) Dilution Factor: 1.0

Soil Aliquot Volume: (uL)

Soil Extract Volume: (uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

71-43-2----benzene 2.0 U 108-88-3-----toluene 2.0 U 0.55 J 100-41-4----ethylbenzene 0.53 J 1330-20-7-----xylenes (total)

COMPOUND

CAS NO.

EPA SAMPLE NO.

| 7 | cn | 62 | |
|----|----|----|--|
| Hü | 00 | 02 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HPS015W Matrix: (soil/water) WATER Lab Sample ID: 9910963-07 Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8H428 Date Received: 10/28/99 DATA VALIDATION Level: (low/med) LOW % Moisture: not dec. Date Analyzed: 11/04/99 ID: 0.25 (mm) COPY Dilution Factor: 1.0 GC Column: DB-624 Soil Aliquot Volume: (uL) Soil Extract Volume: (uL) CONCENTRATION UNITS:

71-43-2-----benzene 56.6 U = 108-88-3-----toluene 2.0 U = 100-41-4-----ethylbenzene 11.5 U = 1330-20-7-----xylenes (total) 5.5 U = 5.5

(ug/L or ug/Kg) UG/L

EPA SAMPLE NO.

| VOLATILE ORGANICS ANAINS S DA | IA SHEET |
|---|---|
| Lab Name: GENERAL ENGINEERING LABOR Contr | ract: NA AE6162 |
| Lab Code: NA Case No.: NA SAS | No.: NA SDG No.: HPS015W |
| Matrix: (soil/water) WATER | Lab Sample ID: 9910963-03 |
| Sample wt/vol: 5.000 (g/ml) ML | Lab File ID: 8H336 |
| Level: (low/med) LOW DATA VALIDATION | Date Received: 10/28/99 |
| % Moisture: not decCOPY | Date Analyzed: 11/04/99 |
| GC Column: DB-624 ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL) |
| | ONCENTRATION UNITS: ug/L or ug/Kg) UG/L Q |
| 71-43-2benzene 108-88-3toluene 100-41-4ethylbenzene 1330-20-7xylenes (total) | 46.9 8.7 7.0 14.6 |

EPA SAMPLE NO.

| 14255555 | |
|----------|--|
| AE6362 | |
| | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-09

Sample wt/vol:

LOW DATA VALIDATION

Lab File ID: 8H412

Level: (low/med)

Date Received: 10/28/99

% Moisture: not dec.

Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 25.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

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

Q

| 71-43-2benzene | 715 | | = |
|--------------------------|------|---------|---|
| 108-88-3toluene | 50.0 | U | U |
| 100-41-4ethylbenzene | 54.7 | | = |
| 1330-20-7xylenes (total) | 154 | | = |
| | | S. F. A | |

EPA SAMPLE NC.

| 7 | nc i co | |
|---|---------|----|
| A | E6462 | \$ |

| Lab Name: GENERAL EN | GINEERING LABOR Contract | : NA | |
|----------------------|--------------------------|----------------|--------------|
| Lab Code: NA | Case No.: NA SAS No. | : NA SDG 1 | No.: HPS015W |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 9910963-10 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8H413 |
| Level: (low/med) | LOW | Date Received: | 10/28/99 |
| % Moisture: not dec. | DATA VALIDATION | Date Analyzed: | 11/04/99 |
| | 001 | | |

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q

71-43-2-----benzene 2.2 U U = 108-88-3-----toluene 2.9 1330-20-7----xylenes (total) 21.0

FORM I VON

VIII-218

OLM03.0

EPA SAMPLE NO.

AED162

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA

SAS No.: NA SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-01

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8H334

Level: (low/med)

CAS NO.

LOW

Date Received: 10/28/99

% Moisture: not dec.

DATA VALIDATION

Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25 COPY

COMPOUND

Dilution Factor: 25.0

Soil Aliquot Volume: ____(uL)

Soil Extract Volume: (uL)

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

| 71-43-2benzene | 1650 | |
|--------------------------|------|-----|
| 108-88-3toluene | 928 | = |
| 100-41-4ethylbenzene | 316 | = |
| 1330-20-7xylenes (total) | 2140 | _ = |

EPA SAMPLE NO.

AED362

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-06

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8H431

Level: (low/med)

LOW DATA VALIDATION Date Received: 10/28/99

% Moisture: not dec.

Date Analyzed: 11/05/99

GC Column: DB-624

ID: 0.25 (MM) PY

Dilution Factor: 50.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

3760 71-43-2----benzene 108-88-3-----toluene 2680 100-41-4----ethylbenzene 2070 1330-20-7-----xylenes (total) 6020

EPA SAMPLE NO.

| Lab | Name: | GENERAL | ENGINEERING | LABOR | Contract: | NA | AED462 |
|-----|-------|---------|-------------|-------|-----------|----|------------------|
| Lab | Code: | NA | Case No.: | NA | SAS No.: | NA | SDG No.: HPS015W |

Matrix: (soil/water) WATER Lab Sample ID: 9910963-05

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8H430

Level: (low/med) LOW Date Received: 10/28/99

GC Column: DB-624 ID: 0.25 (mg) Y Dilution Factor: 25.0

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

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q

71-43-2----benzene 2320 U 200.0 U 200

EPA SAMPLE NO.

| A | EDM62 | |
|-----|----------|--|
| 277 | PDI-10 S | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA SAS No.: NA SDG No.: HPS013W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-04

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

Lab File ID: 8H337

Level: (low/med)

Date Received: 10/28/99

% Moisture: not dec. ____<u>DAT</u>A VALIDATION

Date Analyzed: 11/04/99

GC Column: DB-624 ID: 0.25

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: (uL)

CAS NO. COMPOUND

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

| 71-43-2benzene | 1.3 J |
|--------------------------|---------|
| 108-88-3toluene | |
| 100-41-4ethylbenzene | _ 1.9 J |
| 1330-20-7xylenes (total) | _ 3.3 J |

EPA SAMPLE NO.

AEP162

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-13

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8H416

Level: (low/med)

LOW

Date Received: 10/28/99

% Moisture: not dec.

Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25

Dilution Factor: 1.0

Soil Extract Volume:____(uL)

(uL) Soil Aliquot Volume: ____

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

Q

0.78 J 71-43-2-----benzene 2.0 U 108-88-3-----toluene 2.0 U 100-41-4----ethylbenzene 0.84 J 1330-20-7-----xylenes (total)_

EPA SAMPLE NO.

AEP262

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

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

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-11

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8H414

Level: (low/med) LOW

Soil Extract Volume: ____(uL)

Date Received: 10/28/99

% Moisture: not dec.

DATA VALIDATION Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25

Dilution Factor: 25.0

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2benzene | 977 | = |
|--------------------------|------|-----|
| 108-88-3toluene | 70.9 | = |
| 100-41-4ethylbenzene | 192 | _ = |
| 1330-20-7xylenes (total) | 698 | = = |

EPA SAMPLE NO.

AEP362

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-15

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

Lab File ID: 8H432

Level: (low/med) LOW

% Moisture: not dec. _______A VALIDATION Date Analyzed: 11/05/99

Date Received: 10/28/99

GC Column: DB-624 ID: 0.25 (ஸ்ர்) PY

Dilution Factor: 50.0

Soil Aliquot Volume: (uL)

Soil Extract Volume: ____(uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2benzene | 2090 | = |
|--------------------------|------|-----|
| 108-88-3toluene | 3180 | _ = |
| 100-41-4ethylbenzene | 632 | _ = |
| 1330-20-7xylenes (total) | 4120 | = = |

EPA SAMPLE NO.

| N E D 4 C 2 | |
|-------------|--|
| AEP462 | |
| MIL TOE | |

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Case No.: NA

SAS No.: NA

SDG No.: HPS015W

Matrix: (soil/water) WATER

Lab Sample ID: 9910963-12

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8H429

Lab Code: NA

Level: (low/med) LOW DATA VALIDATION Date Received: 10/28/99

% Moisture: not dec.

Date Analyzed: 11/04/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 2.0

Soil Extract Volume: (uL)

Soil Aliquot Volume:

(uL)

CAS NO. COMPOUND

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

Q

11.5 71-43-2-----benzene = 37.0 108-88-3-----toluene T 100-41-4----ethylbenzene 40.4 216 1330-20-7-----xylenes (total)

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DUPLICATE EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: NA |
|----------------------|-----------------|---|
| Lab Code: NA | Case No.: NA | SAS No.: NA SDG No.: HPS015W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9910963-14 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8H417 |
| Level: (low/med) | LOM | Date Received: 10/28/99 |
| % Moisture: not dec. | ———DATA VAI | IDATION Date Analyzed: 11/04/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL) |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| | | 12.6 31.2 41.4 214 |

EPA SAMPLE NO.

| , 02111120 | ORGINITED THIRD DITTE | 1 |
|--|------------------------|--|
| Lab Name: GENERAL EN | GINEERING LABOR Contra | Ct: NA AEP562 |
| Lab Code: NA | Case No.: NA SAS N | o.: NA SDG No.: HPS015W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9910963-16 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8H342 |
| Level: (low/med) | LOW DATA VALIDATION | Date Received: 10/28/99 |
| % Moisture: not dec. | | Date Analyzed: 11/04/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL) |
| CAS NO. | | CENTRATION UNITS: /L or ug/Kg) UG/L Q |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | | 1.1 J J J J J J J J J J J J J J J J J J |

COC NO :: CHOOD OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS 96 विष 9 20 60 9910965-01 LABORATORY NAME: General Engineering Laboratory PHONE NO: (843) 556-8171 LABOHATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 Cooler Temperature: FEDEX NUMBER: SCREENING N TOTAL NUMBER OF CONTAINERS; #372 REQUESTED PARAMETERS CHAIN OF CUSTODY RECORD Cooler ID: 10 Cos Ans 经 Date/Time Date/Time ムフマンマンフン XIII CONPART MAME: ACTIVED BY: RELINGUISHED BY: COMPANY NAME: COMPANY NAME: Safe RECEIVED BY: TA A Time Callected 1020 1558 1725 1630 18051 1850 1555 1505 多 1547 1615 1535 100 (Printed Name) 800 Oak Ridge Tumpiles, Oak Ridge, TN 37831 (423) 481-4600 RECORDED BY LOS HOUSE 12728/89 Dete/Time DING PROJECT NAME: MAAF-Pilot Study Bidg. 728 Date/Time, 15/840 でくんし PROJECT NUMBER: 01-0331-04-1829-210 As Employee Owned Company 66/22/01 66/22/01 Date Collected 66/±2/a) 10/27/99 bb/ £2/01 56/22/01 16/22/01 66/42/01 10/24/99 66/22/01 66/22/01 66/22/01 66/42/01 PROJECT MANAGER: Patty Stoll COMPANY NAME: AED 462 HED 362 RELINGUISHER BY: COMPANY MARKET REMINDUANTED BY: COMPANY NAME: 466362 あるとして 150662 4E 6062 E9262 Sampler (Signature) AEDIGZ EP462 AEGIGZ 561162 4EPI 62 VIII-229

Science Application Lateralismal Corporation

七夕夕刊D::on 2002 OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 99 logles-14 LABORATORY NAME: General Engineering Laboratory PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 Cooler Temperature: FEDEX NUMBER SCREENING No. of Bortles/ Viels: N TOTAL NUMBER OF CONTAINERS: 34 REQUESTED PARAMETERS CHAIN OF CUSTODY RECORD Cooler ID: O Zate/The Date/Time Date/Time HIEX RECEIVED BY: RELINQUISHED BY: Jagger S COMPANY NAME: COMPANY NAME: Matrix RECEIVED BY: Time Collected 1520 Spto 1630 Printed Name Date/Time 900 Ost Ridge Turnpike, Osh Fidge, TN 37831 (423) 481-4500 5487/01 Date/Timp 7 PROJECT NAME: HAAF-Pliot Study Bidg, 728 PROJECT NUMBER: 01-0331-04-1829-210 10/27/99 10/27/99 Date Collected 10 27 99 10/22/99 PROJECT MANAGER: Patty Stoll SHED BY: RELINGUISHEP-BY: EP 362 COMPANY NAME: COMPANY NAME: 4EP562 AEP 464 Sampler (Signature) PDQ/6 Sample ID RELIGIOU

COMPANY NAME:

NAME:

COMPANY

GROUNDWATER ANALYTICAL RESULTS SIXTH SAMPLING EVENT

DECEMBER 1999

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A AE 7672 |
|----------------------|-----------------|---|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG No.: HPS316W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9912083-15 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 2N409 |
| Level: (low/med) | LOW | Date Received: 12/02/99 |
| % Moisture: not dec. | | Date Analyzed: 12/16/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(a |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| | | 3.8 2.0 12.2 12.2 1.2.2 |

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107-02-8 -----xylenes (total)

EPA SAMPLE NO.

0.52 J

AE1172

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG Nc.: HPS016W Case No .: N/A SAS No.: N/A Lab Code: N/A Lab Sample ID: 9912083-03 Matrix: (soil/water) WATER Lab File ID: 2M614 5.000 (g/ml) ML Sample wt/vol: Date Received: 12/02/99 Level: (low/med) LOW Date Analyzed: 12/11/99 % Moisture: not dec. ___ Dilution Factor: 1.0 ID: 0.25 (mm) GC Column: DB-624 (uL Soil Aliquot Volume: ____ Soil Extract Volume: (uL) CONCENTRATION UNITS: Q (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 5.6 71-43-2-----benzene 2.0 U 108-88-3-----toluene 2.0 U 100-41-4----ethylbenzene

> DATA VALIDATION COPY JUMPS &

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EPA SAMPLE NC.

AE6072

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A

SDG Nc.: HPS016W

Matrix: (soil/water) WATER

Lab Sample ID: 9912083-06

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 2M517

Level: (low/med) LOW Date Received: 12/02/99

% Moisture: not dec. ___

Date Analyzed: 12/10/99

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

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

Q

40.8 71-43-2-----benzene 2.0 U 108-88-3-----toluene 2.3 100-41-4----ethylbenzene 1.2 J 107-02-8 -----xylenes (total)

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EPA SAMPLE NO.

AE6172

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A

SDG No.: HPSC16W

Matrix: (soil/water) WATER

Lab Sample ID: 9912083-16

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 2M622

Level:

(low/med) LOW Date Received: 12/02/99

% Moisture: not dec.

Date Analyzed: 12/11/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

(uL

CAS NO.

COMPOUND

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

773 538 E D 71-43-2-----benzene 18.6 108-88-3-----toluene 3 106 114 ZD 100-41-4----ethylbenzene 241 107-02-8 -----xylenes (total)

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EPA SAMPLE NO.

| | 144 | عا الأران | - | |
|-----|---------------------|-----------|---|--|
| - 1 | $\exists \exists i$ | 537 | 2 | |
| • | | | ~ | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS016W

Matrix: (soil/water) WATER

Lab Sample ID: 9912033-04

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 2M615

Level: (low/med) LOW

Date Received: 12/02/99

% Moisture: not dec. _____

Date Analyzed: 12/11/99

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

Dilution Factor: 2.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL

CONCENTRATION UNITS:

CAS NO. COMPOUND

(ug/L or ug/Kg) UG/L

| 184 | | 2 |
|------|---------------------------|---------------------------|
| 4.0 | U | U |
| 2.7 | J | 5 |
| 57.8 | | = |
| | 184 4.0 2.7 57.8 | 184 4.0 2.7 57.8 |

ACV I MAOR

EPA SAMPLE NO.

| | A = | 15. | 172 |) | |
|--|-----|-----|-----|---|--|
| | 11 | 10. | | | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG No.: HPS016W SAS No.: N/A Lab Code: N/A Case No.: N/A Lab Sample ID: 9912083-07 Matrix: (soil/water) WATER Lab File ID: 2M518 Sample wt/vol: 5.000 (g/ml) ML Date Received: 12/02/99 Level: (low/med) LOW Date Analyzed: 12/10/99 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: C.25 (mm) Scil Aliquot Volume: ____(uL Soil Extract Volume: (uL) CONCENTRATION UNITS:

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EPA SAMPLE NO.

AED172 Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS016W Lab Sample ID: 9912083 09 Date Received: 12/02/99

Matrix: (soil/water) WATER

Sample wt/vol:

5.000 (g/ml) ML

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab File ID: 2M618

Level: (low/med) LOW

% Moisture: not dec.

Date Analyzed: 12/11/99

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

Dilution Factor: 1.0

Soil Aliquot Volume: (uL

Soil Extract Volume: (uL)

CAS NO.

COMPOUND

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

| 71-43-2benzene | 1.2 | J | 5 |
|-------------------------|------|---|---|
| 108-88-3toluene | 2.0 | U | U |
| 100-41-4ethylbenzene | 2.0 | U | U |
| 107-02-8xylenes (total) | 0.56 | J | 1 |

OLMO3.0

EPA SAMPLE NO.

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A

SDG No.: HPS016W

Matrix: (soil/water) WATER

Lab Sample ID: 9912083-14

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 2M525

Level: (low/med)

LOW

Date Received: 12/02/99

% Moisture: not dec.

Date Analyzed: 12/10/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 100.0

Soil Extract Volume: ____ (uL)

Scil Aliquot Volume: (uL

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

Q

71-43-2----benzene 3700 108-88-3-----toluene 2950 100-41-4----ethylbenzene 1770 107-02-8 -----xylenes (total) 5710

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EPA SAMPLE NO.

| AED472 | |
|----------|--|
| AED4 / Z | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPS016W Matrix: (soil/water) WATER Lab Sample ID: 9912083-11 Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 2M620 Level: (low/med) Date Received: 12/02/99 LOW % Moisture: not dec. Date Analyzed: 12/11/99 GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 10.0 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL CONCENTRATION UNITS: CAS NO. (ug/L or ug/Kg) UG/L COMPOUND

71-43-2-----benzene 672 108-88-3----toluene 7.5 100-41-4----ethylbenzene 26.9 21.6 J 107-02-8 -----xylenes (total)

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EPA SAMPLE NO.

AEDM72

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Case No.: N/A Lab Code: N/A

SAS No.: N/A SDG No.: HPS016W

Matrix: (soil/water) WATER

Lab Sample ID: 9912083-02

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 2M513

Level: (low/med) LOW

Date Received: 12/02/99

% Moisture: not dec.

Date Analyzed: 12/10/99

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

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: (uL

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| | | | - |
|-------------------------|------|---|---|
| 71-43-2benzene | 1.3 | J | ì |
| 108-88-3toluene | 2.0 | U | 0 |
| 100-41-4ethylbenzene | 3.0 | | - |
| 107-02-8xylenes (total) | 0.52 | J | J |
| | | | |

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EPA SAMPLE NO.

| - | mr | 117 | 2 | |
|---|-----|-----|---|--|
| £ | TEF | 17 | 4 | |

Lab Name: GENERAL ENGINEERING LAROR Contract: N/A SDG No.: HPSC16W SAS No.: N/A Lab Code: N/A Case No.: N/A Lab Sample ID: 9912083-13 Matrix: (soil/water) WATER Lab File ID: 2M619 5.000 (g/ml) ML Sample wt/vol: Date Received: 12/02/99 Level: (low/med) LOW Date Analyzed: 12/11/99 % Moisture: not dec. Dilution Factor: 10.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: (uL Soil Extract Volume: ____(uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L COMPOUND CAS NO.

71-43-2-----benzene 576
108-88-3-----toluene 72.7
100-41-4-----ethylbenzene 103
107-02-8 -----xylenes (total) 542

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DUPLICATE
STA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A | .74 |
|---|-----------------|---|--------|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG No.: HPS | 3016W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9912083 | 1 - 08 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 2M617 | |
| Level: (low/med) | LOW | Date Received: 12/02/9 | 19 |
| % Moisture: not dec. | | Date Analyzed: 12/11/9 | 19 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 5.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume: _ | (uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
| 71-43-2 108-88-3 100-41-4 107-02-8 | | 544 E 83.6 125 649 | J N03 |

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OLMC3.7

EPA SAMPLE NO.

| | | | .===== |
|---|-----------------|---|---------------------------|
| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A | AEP272 |
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SOG | No.: HPS016W |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 9912083-05 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 2M616 |
| Level: (low/med) | LOW | Date Received: | 12/02/99 |
| % Moisture: not dec. | | Date Analyzed: | 12/11/99 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Facto | r: 10.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot V | clume:(uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
| 71-43-2 108-88-3 100-41-4 107-02-8 | |) | 586 97.6 204 766 |

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VIII-245

| | EPA | SAMPLE | NO. |
|---|-----|--------|-----|
| 1 | | | 1 |
| | 7 | AEP372 | 1 |

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A | AEP372 | |
|---|---|---|----------------------------|------|
| Lab Code: N/A | | | .: HPSO16W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: 9 | 912083-17 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 2 | M623 | |
| Level: (low/med) | LOW | Date Received: 1 | 2/02/99 | |
| % Moisture: not dec. | | Date Analyzed: 1 | 2/12/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: | 25.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Vol | ume: | _(uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q | |
| 71-43-2 108-88-3 100-41-4 107-02-8 | benzene toluene ethylbenzene xylenes (tota | | 523 1010 295 2050 | |

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EPA SAMPLE NO.

| AEP472 | |
|--------|--|
| ALPAIL | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

LOW

Case No.: N/A Lab Code: N/A

SAS No.: N/A

SDG No.: HPS016W

Matrix: (soil/water) WATER

Lab Sample ID: 9912083-12

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 2M523

Level: (low/med)

Date Received: 12/02/99

% Moisture: not dec. ___

Date Analyzed: 12/10/99

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Aliquot Volume: ____(uL

Soil Extract Volume: ____(uL)

CONCENTRATION UNITS:

Q

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

5.3 71-43-2-----benzene 2.6 108-88-3-----toluene 10.7 100-41-4----ethylbenzene 39.3 107-02-8 -----xylenes (total)

CLM03.0

EPA SAMPLE NO.

T. 17 . 7 . 3 . .

| Lab Name: GENERAL ENGI | INEERING LABOR Contract | .: N/A | AEP572 | |
|---|-------------------------|------------------------------------|---------------------------------|-----|
| Lab Code: N/A Ca | | : N/A SDG I | No.: HPS016W | |
| Matrix: (soil/water) V | NATER | Lab Sample ID: | 9912083-13 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 2M524 | |
| Level: (low/med) I | LOW | Date Received: | 12/02/99 | |
| % Moisture: not dec. | | Date Analyzed: | 12/10/99 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor | r: 1.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Vo | olume: | (uL |
| CAS NO. | | ENTRATION UNITS: or ug/Kg) UG/L | Q | |
| 71-43-2 108-88-3 100-41-4 107-02-8 | toluene | | 3.2 0.59 J 5 17.4 62.0 | |

FORM I VOA

OLM03.0

Service Applications International Company

Service Applications I 3 Oak Ridge Turnpike, Oak Ridge, TN 3783f (423) 481 4500

COC NO.: GH 8414)

| 1 | , | | | - | | | 1 | | | | | |
|-----------------------------------|------------------|--------|--------------|----------------|-----------------------------|------------------------|--------|-------|-----|------------|---|--------------------------------|
| | | | | | OF STEED | neduces to Parame lers | ERS | | | LAB F | LABORATORY NAME | AME: |
| OJECT NUMBER: 01-0331-04-1829-210 | | | | | | | | | | มี ว | arai cngineer | General Engineering Laboratory |
| OJECT MANAGER: Patty Stoll | | | | | | | - | | | | LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 | ODRESS: |
| (Printed Name) | Namel | _ T | | | | | | | | | | ì |
| Sum Der | or Lumber | | | | | | | | | Elimon | PHONE NO: (843) 556-8171 | 1556-8171 |
| Date Collected | 60 | X3T8 | | | | | _ | | | | SCREENING | OBSERVATIONS, COMMENTS. |
| 121199 | osco water | 2 | 353 | 55kg | 20.A 20.A | | | | | 1, | | |
| 12/1199 1 | 505 | 7 | | | | 8 | | | | 1 | | |
| 12/1/99 | 1455 | Ŋ | \$ 13 2.3 | | | | | | | 12 | | |
| 1 66/1/21 24:00 | 545 | 2 | | | | 6.3 | | 1 | | 2 | | |
| 72 1211199 | 1120 | 7 | |)))* . | | | 1,23 | | | 2 | | |
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| 4E10472 121,199 11 | 1415 | 2 | | | | | | | | 1 | | |
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| D172 12/1/99 1 | 2002 | 7 | | | | 913 | | 1 | 9 1 | 1 - | | |
| 172 121,199 1 | 40 | 7 | | | | 41 | 2:3 | | | 10 | | |
| 2 12/199 | 1425 | 7 | | 2. A | | | | | | - | | |
| 472 121,199 | 1605 | 7 | . 1 | /- 25.6 | | 2.7 | | | 7 1 | (n | | |
| 2 12/1/99 | 1535 4 | 7 | | | | la. | | | 12 | 1. | | |
| LINGUISHED THE DATE TIME | RECRIVED BY: | 1 | | Date/Time T | TOTAL NUMBER OF CONTAINERS. | MBER OF | CONTAI | NERS: | | Coole | Cooler Temperature: | 0h := |
| SUPALY NAME: | | | 500 | 12.99 | Cooler ID: | NATA TAA | , 4 | M | | FEDE | FEDEX NUMBER: | |
| SEMEDAY: La Date/Time | RELINGUISHED BY: | | Date/Time | Time | | | | | | | | |
| OMPANY NAME: (72170) | COMPANY NAME: | | | | | | | | | | | |
| STOREGISHED BY: Care Time | RECEIVED BY: | | Date/Time | Line Line | | | | | | | | |
| SMPANY MAME: (15) | COMPANY NAME: | | | | | | | | | | | |

OBSERVATIONS, COMMENTS. SPECIAL INSTRUCTIONS COC NO .: G H SA12 LABORATORY NAME: General Engineering Laboratory PHONE NO: (843) 556-8171 20 LABORATORY ADDRESS; 2040 Savage Road Charleston, SC 29407 Cooler Temperature. FEDEX NUMBER: SCREENING No. of Borrles/ Vials: 水 TOTAL NUMBER OF CONTAINERS: 3 * HAAF NATIO REQUESTED PARAMETERS CHAIN OF CUSTODY RECORD 12/99 Cooler 1D: 15:05 Date/Time Date/Time Date/Time 7 NN X3TEX RELINQUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY NAME: Sale Jana Lumk RECEIVED BY: RECÉLVÉD BY: Time Collected 1700 1025 148 120 (Printed Name) Date Flime 12/2/55 0/11 Mate/Time 0 Oak Ridge Turnpite, Oak Ridge, TN 37831 (423) 481-4600 No 12/2/99 Date/Time (OJECT NAME: HAAF-Pilot Study Bidg. 728 1505 IOJECT NUMBER: 01-0331-04-1829-210 A to keylayer Owerd Company 12/199 121,199 5611/21 12/199 Date Collected IOJECT MANAGER: Patty Stoll Science Applications faternational Curporation AE 6172 AEDG72 AE D372 INDUISHED BY: Advising BY IMPANY NAME: MPANY NAME: MANY NAME James mpker (Signature) Sample ID Ound OPTO EDJAY:

GROUNDWATER ANALYTICAL RESULTS SEVENTH SAMPLING EVENT

JANUARY 2000

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EPA SAMPLE NO.

| - | - | _ | _ | | - | | |
|---|----|----|---|---|---|--|--|
| | | | | | | | |
| 7 | τ | 30 | 6 | Q | 2 | | |
| P | 71 | | O | O | 2 | | |
| • | • | 7 | | | | | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309017

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

Lab File ID: 5S121

Date Received: 01/07/00

Level: (low/med) LOW

Date Analyzed: 01/17/00

% Moisture: not dec. ___

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

Dilution Factor: 1.0

Soil Aliquot Volume: ____(uL

Soil Extract Volume:____(uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| | Dengen | 0 | |
|------------|--------|------------|--|
| 71-43-2 | Benzen | | |
| 108-88-3 | Toluen | .e | |
| | | enzene | |
| 100-41-4 | | s (total)_ | |
| 1330-20-7- | Xyrene | s (LUCAL) | |

JAP3, A05 25.1 1.0 D-50 J 0.88 J 2.2 J

MP 3/2/00

COPY MOITADIJAV ATAD

EPA SAMPLE NO.

| | Contract: N/A |
|-------------------------------------|---|
| Lab Name: GENERAL ENGINEERING LABOR | |
| Lab Code: N/A Case No.: N/A | SAS No.: N/A SDG No.: HPSA01W |
| Matrix: (soil/water) WATER | Lab Sample ID: 20309008 |
| Sample wt/vol: 5.000 (g/ml) M | IL Lab File ID: 5S113 |
| Level: (low/med) LOW | Date Received: 01/07/00 |
| % Moisture: not dec | Date Analyzed: 01/17/00 |
| GC Column: DB-624 ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL |
| CAS NO. COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2Benzene | 48.0 |
| 108-88-3Toluene | 27.3 = FOY, FOO |
| 100-41-4Ethylbenzer | 114 |
| 1330-20-7Xylenes (tot | -d1/ |

DATA VALIDATION

VIII-254

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A |
|----------------------|-----------------|---|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG No.: HPSA01W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 20309016 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 5S120 |
| Level: (low/med) | LOW | Date Received: 01/07/00 |
| % Moisture: not dec. | | Date Analyzed: 01/17/00 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| | | 7.00.60 J U FOY, FO |
| | | - Anno |

3/2/00

FORM I VOA

DATA VALIDATION

EPA SAMPLE NO.

AE6182

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309012

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID:

55122

Level: (low/med)

LOW

Date Received: 01/07/00

Date Analyzed: 01/17/00

GC Column: DB-624 ID: C.25 (mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume:

CAS NO.

% Moisture: not dec.

COMPOUND

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

1410 1310 71-43-2----Benzene 108-88-3-----Toluene 14.8 180 100-41-4-----Ethylberzene 346 1330-20-7-----Xylenes (total)

AOV I MACE

DATA VAL

EPA SAMPLE NO.

AE6382

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309011

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 5S116

Level: (low/med)

LOW

Date Received: 01/07/00 Date Analyzed: 01/17/00

% Moisture: not dec.

CAS NO.

GC Column: DB-624

ID: C.25 (mm)

COMPOUND

Dilution Factor: 1.0

Soil Aliquot Volume: (uL

U FOY, FO 6

Soil Extract Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

78.8 71-43-2-----Benzene 108-88-3-----Toluene 1.0 2.37 0.44 J 100-41-4-----Ethylbenzene 1330-20-7-----Xylenes (total) 14.8

FORM T VOA

Dala Valle ATION

EPA SAMPLE NO.

| 7.1 | 20 | 10 | 2 | |
|-----|-----|----|---|--|
| A | 204 | 48 | 4 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSAC1W

Matrix: (soil/water) WATER

Lab Sample ID: 20309009

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

Lab File ID: 5S114

Level: (low/med) LOW

Date Received: 01/07/00

% Moisture: not dec. _

Date Analyzed: 01/17/00

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

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| | | -1 |
|--------------------------|------------|------------|
| 71-43-2Benzene | 1.0 | = |
| 108-88-3Toluene | 1.0 0.34 J | U FP4, FOL |
| 100-41-4Ethylbenzene | 0.37 J | 5 |
| 1330-20-7Xylenes (total) | 8.7 | = |
| | | |

FORM I VOA

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A AED182 |
|--|-----------------|--|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG No.: HPSA01W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 20309014 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 5S118 |
| Level: (low/med) | LOW | Date Received: 01/07/00 |
| % Moisture: not dec. | | Date Analyzed: 01/17/00 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | | 7.0 JA03,A0 7.0 0.39 J 0.14 J 3.0 U |

MAP 3/2/00

EPA SAMPLE NO.

47

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A | AED362 | |
|----------------------|-----------------|---|------------|------------|
| Lab Code: N/A | Case Nc.: N/A | SAS No.: N/A SDG No | .: HPSA01W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: 2 | 0309003 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 5 | S109 | |
| Level: (low/med) | LOW | Date Received: 0 | 1/07/00 | |
| % Moisture: not dec. | | Date Analyzed: 0 | 1/17/00 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: | 40.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Vol | ume:(u | Ĺ |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q | |
| | | 1 | 210 | 05 ,F09 |

EPA SAMPLE NO.

AED482

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

SAS No.: N/A

SDG No.: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309015

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID:

Level: (low/med) LOW

Lab Code: N/A Case No.: N/A

55119

Date Received: 01/07/00

% Moisture: not dec.

Date Analyzed: 01/17/00

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume:

J A03, A05

CAS NO.

COMPOUND

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

| , , , , , , , , , , , , | | Benzene | | 3.1 |
|-------------------------|------|------------|--------|-----|
| 108-88 | 8-3 | Toluene | | |
| 100-4: | 1-4 | Ethylbenze | ene | |
| 1330-2 | 20-7 | Xylenes (t | total) | |

821 581 ED 2.0 113 126 ED 137

108-88-3-----Toluene

100-41-4-----Ethylbenzene

1330-20-7-----Xylenes (total)

EPA SAMPLE NO.

| AEDM8.2 | |
|---------|--|

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SAS No.: N/A SDG No.: HPSA01W Lab Code: N/A Case No.: N/A Lab Sample ID: 20309013 Matrix: (soil/water) WATER 5.000 (g/ml) ML Lab File ID: 55117 Sample wt/vol: Date Received: 01/07/00 Level: (low/med) LOW Date Analyzed: 01/17/00 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: Soil Extract Volume: (uL) (uL CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L 71-43-2-----Benzene

0.30 J

0.47 J 1.0 J

FORM I VOA

COFY

DUPLICATE EPA SAMPLE NO.

AEDM84

| Lab Name: GENERAL ENG | INEERING LABOR | Contract: N/A | | | |
|-----------------------|-----------------|---|-----------------------------|---------|-----------------------|
| Lab Code: N/A C | ase No.: N/A | SAS No.: N/A SDG | Ио.: Н | IPSA01W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: | 20309 | 010 | |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 5S115 | 5 | |
| Level: (low/med) | LOW | Date Received: | 01/07 | /00 | |
| % Moisture: not dec. | -1- | Date Analyzed: | 01/17 | 7/00 | |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Facto | r: 1.0 |) | |
| Soil Extract Volume:_ | (ar) | Soil Aliquot V | rolume: | - | (uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | | Q | |
| | | .) | 0.23 0.29 0.69 1.5 | J | J 12 FO4, FO6 J |

MAP 3/2/00

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55

EPA SAMPLE NO.

AEP182

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A SDG No.: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309004

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID:

55123

Level:

(low/med)

LOW

Date Received: 01/07/00

% Moisture: nct dec.

Date Analyzed: 01/17/00

152

GC Column: DB-624

ID: 0.25 (mm.)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

71-43-2-----Benzene

108-88-3----Toluene

100-41-4-----Ethylbenzene

1330-20-7------Xylenes (total)

Soil Aliquot Volume:

CAS NO.

COMPOUND

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

> J A03, A05 146 162 3.8 40.0

FORM I VOA

ULMU3.0

EPA SAMPLE NO.

AEP282

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309002

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 5S108

Level: (low/med) LOW Date Received: 01/07/00

% Moisture: not dec.

Date Analyzed: 01/17/00

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

Dilution Factor: 10.0

Soil Extract Volume: (ul)

Soil Aliquot Volume: ____(ul:

CAS NO.

COMPOUND

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

J A03, A05 324 71-43-2-----Benzene 100 58.9 108-88-3-----Toluene 120 100-41-4-----Ethylbenzene 403 1330-20-7------Xylenes (total)

3/2/00

1330-20-7-----Xylenes (total)

EPA SAMPLE NO.

573

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA01W Lab Code: N/A Lab Sample ID: 20309007 Matrix: (soil/water) WATER Lab File ID: 5S112 5.000 (g/ml) ML Sample wt/vol: Date Received: 01/07/00 Level: (low/med) LOW Date Analyzed: 01/17/00 % Moisture: not dec. Dilution Factor: 5.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: ____(uL Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L COMPOUND CAS NO. J A03, A05 153 71-43-2-----Benzene 206 FOY, F 108-88-3-----Toluene 115 100-41-4-----Ethylbenzene

O.COMJC

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR (| Contract: N/A |
|----------------------|-------------------|---|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG No.: HPSA01W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 20309006 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 5S111 |
| Level: (low/med) | LOW | Date Received: 01/07/00 |
| % Moisture: not dec. | | Date Analyzed: 01/17/00 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(u_ |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| | | 1.2 JA03, A05 1.2 JF24, F 2.2 JJ JF24, F |

EPA SAMPLE NO.

| AEP582 | |
|--------|--|

| Lab | Name: | GENERAL | ENGINEERING | LABOR | Contract: | N/A | L |
|-----|-------|---------|-------------|-------|-----------|-----|---|
|-----|-------|---------|-------------|-------|-----------|-----|---|

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No .: HPSA01W

Matrix: (soil/water) WATER

Lab Sample ID: 20309005

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 5S110

Level: (low/med)

LOW

Date Received: 01/07/00

Date Analyzed: 01/17/00

% Moisture: not dec. ____

ID: 0.25 (mm)

Dilution Factor: 5.0

GC Column: DB-624

Soil Aliquot Volume: ____(uL

Soil Extract Volume: ___(uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2Benzene | 2.3 J | 7 |
|--------------------------|---------|------------|
| 108-88-3Toluene | 5 2.6 J | U FOY, FO6 |
| 100-41-4Ethylbenzene | 273 | = |
| 1330-20-7Xylenes (total) | | = |
| | | |

OLECMIC

10 Oak Ridge Turnplike, Oak Ridge, TN 37831 (423) 481-4600

CHAIN OF CUSTODY RECORD

COC NO.: CH DAD OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 000 007 BSS 700 603 8 20309001 800 8 012 0/0 6/3 10 LABORATORY NAME: General Engineering Laboratory けら PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 Cooler Temperature: FEDEX NUMBER: OVA No. of Borrles/ Viels: N N N N NN NN TOTAL NUMBER OF CONTAINERS: REQUESTED PARAMETERS Cooler 10: Date/Time Date/Time Date/Time 17/00 1420 1.00 1 X3T8 N N 1 RELINGUISHED BY: Sales Carles Strongs -aura Lumbe COMPANY DAME: Matrix COMPANY NAME: COMPANY NAME: RECEIVED BY: RECEIVED BY: Time Collected こちろ 1630 000 1620 720 1536 ニエエル ヤエエ 110 1155 (Printed Name) 00/4/ Date/Time 1/1/00 ROJECT NAME: HAAF-Pilot Study Bldg. 728 Date/Time 1030 0501 Date/Tjme ast 10JECT NUMBER: 01-0331-04-1829-210 1/4/00 14/80 1400 400 1/4/00 14100 1/4/00 11/00 1/4/00 00/t/ 1 | BO 74/00 10JECT MANAGER: Patty Stoll なるよう のかったちなる STEP 482 382 MPANY MAME. AE 10482 TEDM 67 MOUNTHED BY: AEDM 84 non MPANY NAME: INDUISHED BY: 56382 MEP 582 AEP242 28/02 MPANY NAME: uppler (Signature) Poissonpie 10 Sound EINED BY

CHAIN OF CUSTODY RECORD 10 Oek Ridge Tumpike, Oek Ridge, TN 37831 (423) 481-4500 90JECT NAME: HAAF-Pilot Study Bldg. 728 Science Applications International Corporation ROJECT TOJECT |/ | | VIII-270

| | | | | | | - | | | 240 | | | | | このこう |
|---|------------------|----------------|------------------|--------|-------------|-----------|----------------------|----------------------|-----------------------------|---------|--------------|---------|---|-------------------------|
| 40JECT NAME: HAAF-Pilot Study Bldg. 728 | Pilot Study Bldg | 9. 728 | | 1 | 1 | | REQUESTED PARAMETERS | PARAN | IETERS | | | | LABORATORY NAME: | AME: |
| 10JECT NUMBER: 01-0331-04-1829-210 | -0331-04-1829- | 210 | | | | | | _ | | | | | General Engineering Laboratory | ring Laboratory |
| OJECT MANAGER: Patty Stall | atty Stoll | | | | | | | | | . · | | - | LABORATORY ADDRESS: 2040 Savage Road | ADDRESS: |
| | | | | 1 | | | _ | _ | | | _ | | Charleston, SC 29407 | 29407 |
| Appler (Signature) | | (Printed Name) | J. Wales | | | | | | | | | \estro8 | PHONE NO: (843) 556-8171 | 3) 556-8171 |
| Sample ID | Date Callacted | Time Collected | 1 2 | X3T8 | | | | | | | | lo .ò | OVA | OBSERVATIONS, COMMENTS, |
| ED 162 | 1/4/00 | 1425 | paper | N | 140 | .(** | 10 m | 77 | 340 | i gir | (\$ C | V | | 11100000 |
| ED482 | 1/4/00 | OHOI | | 7 | | Art. | | | | 2 14 | 7 72 | IN | | 40000 |
| 2809 3 | 1/4/00 | 1755 | | | | 27.28 | | | | 4.53 | র শহর্ম ব | 12 | | (100) |
| E0682 | 1/4/00 | 1835 | 7 | N | | 14 | | | | 191 | 15 | 1 | | 4/0 |
| | | | | 100 | A | · 超级。 | 13a | | | g 1/22 | 1/2 | | | 5 |
| | | | | | | 1600 | | | | 19/1 | | - | | |
| | | | | | 120 | 1) (| | (F) | mia. | | 1 77 | | | |
| | | | | | | X15 | AT. | 600 | | .)., | 1 | | | |
| | | | <i>L</i> ` | X | 7 | di- | | | | ()% | | | | |
| | | | | | | 1 | | 300 | | 1,45 | 1 . 37-1 | | | |
| | | | | J.:4 | (A)¥ | ÷.,, | 海 | /- | | 116 | 100 | | | |
| | | | | ; 'jul | | ie'r | 74. | 245 | .44 | / | 7 | | | |
| | | | - | 4 | aspr W., | 常 | 2000 2000 | ِنْجَ _ة . | už) | - 55) | V | / | | |
| INQUISHED | Date | | REGENED BY: | 7 | 2 | Date/Time | _ | NUMBER | TOTAL NUMBER OF CONTAINERS: | TAINERS | 1 | | Cooler Temperature: | 7,7 III: 4,C |
| SELLIO LINE | 世 | 14/80/4/ | STRUCK | 2 | \ | 1/08 | | | | | 1 | | CENEY MINABED. | |
| MPANY NAME: | 0 | 1080 09 | COMPANY WAME: | | | 1450 | SATC | | 1.474.#- | # 11 | <u></u> | | EDEA NOMBER: | |
| 3 Pull Brilow | Date/Time | | RELINQUISHED BY: | Ü | | Date/Time | _ | | | | | | | |
| WPANY NAME: | 10/ | 020/020 | COMPANY NAME: | | | | | | (12 - | | | | | |
| INDUSHED BY: |) Date, | | RECEIVED BY: | | 0 | Date/Time | | | P | | | | | |
| APANY NAME: | 00-1-1 | | COMPANY NAME | | | | | | | | | | | |

GROUNDWATER ANALYTICAL RESULTS EIGHTH SAMPLING EVENT

MARCH 2000

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EPA SAMPLE NO.

| AE06 | 92 | |
|-------|----|--|
| 21400 | 24 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: TPPS010W

Matrix: (soil/water) WATER

Lab Sample ID: 23612006

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8C436

Level:

(low/med)

LOW

Date Received: 03/29/00

% Moisture: not dec.

Date Analyzed: 03/31/00

Soil Aliquot Volume:

GC Column: DB-624

CAS NO.

ID: 0.25 (mm)

COMPOUND

Dilution Factor: 1.0

(uL

Soil Extract Volume: ____(uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

= F04, F08 71-43-2-----Benzene 2.4 108-88-3-----Toluene 1.0 0.70 U FDY, FOG 100-41-4-----Ethylbenzene U FO4, FOT 2.5 1330-20-7-----Xylenes (total) 4.0 B U FOI, FOT

FORM I VOA

DATA VALIDATION

OLMU3.0

1330-20-7-----Xylenes (total)

EPA SAMPLE NO.

AE1192

3.7 B

U FOI, FOT

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG No.: TPPS010W Case No.: N/A SAS No.: N/A Lab Code: N/A Lab Sample ID: 23612017 Matrix: (soil/water) WATER Lab File ID: 8C506 5.000 (g/ml) ML Sample wt/vol: Date Received: 03/29/00 Level: (low/med) LOW Date Analyzed: 03/31/00 % Moisture: not dec. Dilution Factor: 1.0 ID: 0.25 (mm) GC Column: DB-624 Soil Aliquot Volume: (uL Soil Extract Volume: (uL) CONCENTRATION UNITS: Q (ug/L or ug/Kg) UG/L COMPOUND CAS NO. U FO4, FOB 1.0 Q.48 J 71-43-2----Benzene U FO4, FO6 1,0 0.53 J 108-88-3-----Toluene U FOY, FOL 1.0 A.45 J 100-41-4-----Ethylbenzene

FORM I VOA

DATA VALIDATION OLMO3.

EPA SAMPLE NO.

| LESTERN | |
|---------|--|
| AE6092 | |
| | |

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A |
|----------------------|-----------------|---|
| | | SAS No.: N/A SDG No.: TPPS010W |
| Matrix: (soil/water) | WATER | Lab Sample ID: 23612009 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: 8C426 |
| Level: (low/med) | LOW | Date Received: 03/29/00 |
| % Moisture: not dec. | | Date Analyzed: 03/30/00 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| | | 1.0 U U U 1.6 B U FOY, FO |

FORM I VOA

DATA VALIDATION OLM03.0

EPA SAMPLE NO.

AE6192

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: TPPS010W Matrix: (soil/water) WATER Lab Sample ID: 23612013 Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8D120 Date Received: 03/29/00 Level: (low/med) LOW % Moisture: not dec. Date Analyzed: 04/03/00 ID: 0.25 (mm) Dilution Factor: 50.0 GC Column: DB-624 Soil Extract Volume: ___(uL) Soil Aliquot Volume: (uL CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q

= F04, F08 71-43-2-----Benzene 1160 108-88-3-----Toluene 140 U FOY, FOT 100-41-4-----Ethylbenzene 213 U FD4, FO7 1330-20-7-----Xylenes (total) 580 U F04, F07

FORM I VOA

DATA VALIDATION

OLM03.0

EPA SAMPLE NO.

| - |
|---|
| |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: TPPS010W

Matrix: (soil/water) WATER

Lab Sample ID: 23612002

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID:

8C337

Level: (low/med)

LOW

Date Received: 03/29/00

% Moisture: not dec.

Date Analyzed: 03/30/00

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0 Soil Aliquot Volume:

Soil Extract Volume: ____(uL)

71-43-2----Benzene

108-88-3-----Toluene

100-41-4-----Ethylbenzene

1330-20-7-----Xylenes (total)

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

CAS NO.

COMPOUND

198 198 20 1.00.40

6.8 52.2

U FOY, FOT

= FOY, FO3

U FP4, FD6

FORM I VOA

DATA VALIDATION OLMO3.0

EPA SAMPLE NO.

| AF | ED1 | 92 | |
|----|-----|----|--|
| | | - | |

| Lab | Name: | GENERAL | ENGINEERING | LABOR | Contract: | N/A |
|-----|-------|---------|-------------|-------|-----------|-----|
| | | | | | | |

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

SDG No.: TPPS010W

Matrix: (soil/water) WATER

Lab Sample ID: 23612011

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID:

8C435

Level: (low/med)

LOW

Date Received: 03/29/00

% Moisture: not dec.

Date Analyzed: 03/31/00

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Aliquot Volume: (uL

Soil Extract Volume: (uL)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

= FOY, FOR = F04.F08

FDY, F37

F04, F07

71-43-2----Benzene 108-88-3-----Toluene 100-41-4-----Ethylbenzene 1330-20-7-----Xylenes (total)

20.6 6.3 60.7 B

3.7

FORM I VOA

EPA SAMPLE NO.

AED392

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

LOW

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: TPPS010W

Matrix: (soil/water) WATER

Lab Sample ID: 23612008

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8C425

Level:

(low/med)

Date Received: 03/29/00

% Moisture: not dec.

Date Analyzed: 03/30/00

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 50.0

Soil Extract Volume: (uL)

CAS NO.

Soil Aliquot Volume: (uL

COMPOUND

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

Q

= FOY, FOR 71-43-2-----Benzene 1820 108-88-3-----Toluene 1590 = F04, F08 1250 B 100-41-4-----Ethylbenzene = FOY, FO8 1330-20-7-----Xylenes (total) 5280 B = FO4, FO8

FORM I VOA

DATA VALIDATIC: CLM03.0

108-88-3-----Toluene

100-41-4-----Ethylbenzene

1330-20-7-----Xylenes (total)

EPA SAMPLE NO.

9.4

78.2

2860 936 EBD

- FO4, FOB

= FD4, F08

= F07, F08

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG No.: TPPS010W Lab Code: N/A Case No.: N/A SAS No.: N/A Lab Sample ID: 23612015 Matrix: (soil/water) WATER Lab File ID: 8C447 5.000 (g/ml) ML Sample wt/vol: Date Received: 03/29/00 Level: (low/med) LOW Date Analyzed: 03/31/00 % Moisture: not dec. ID: 0.25 (mm) Dilution Factor: 1.0 GC Column: DB-624 Soil Aliquot Volume: Soil Extract Volume: (uL) CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND Q 532 450 ED = FOY, FOB 71-43-2-----Benzene

FORM I VOA

DATA VALIDATION OLM03.0 VIII-280

62

DUPLICATE

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

AED494 Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SAS No.: N/A SDG No.: TPPS010W Lab Code: N/A Case No.: N/A Lab Sample ID: 23612010 Matrix: (soil/water) WATER Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8C438 Date Received: 03/29/00 Level: (low/med) LOW Date Analyzed: 03/31/00 % Moisture: not dec. ID: 0.25 (mm) Dilution Factor: 25.0 GC Column: DB-624 Soil Aliquot Volume: (uL Soil Extract Volume: (uL) CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L = F04, F08 71-43-2----Benzene 521 30,2 U FOY FOT 108-88-3-----Toluene 213 100-41-4----Ethylbenzene = FOY, FOR 1330-20-7-----Xylenes (total) 4100 = FD7, F08

FORM I VOA

OCTA VALIDATIC:

EPA SAMPLE NO.

| Lab Name: GENERAL E | NGINEERING LABOR | Contract: N/A | AED | 692 |
|--|------------------|---------------------------------------|------------------------------|---|
| Lab Code: N/A | | | G No.: TP | PS010W |
| Matrix: (soil/water |) WATER | Lab Sample I | D: 236120 | 04 |
| Sample wt/vol: | 5.000 (g/ml) ML | Lab File ID: | 8D122 | |
| Level: (low/med) | LOW | Date Receive | d: 03/29/ | 00 |
| % Moisture: not dec | <u> </u> | Date Analyze | d: 04/03/ | 00 |
| GC Column: DB-624 | ID: 0.25 (mm) | Dilution Fac | tor: 100. | 0 |
| Soil Extract Volume | :(uL) | Soil Aliquot | Volume: | (uL |
| CAS NO. | COMPOUND | CONCENTRATION UNIT (ug/L or ug/Kg) UG | S: /L | Q |
| 71-43-2 108-88-3 100-41-4 1330-20-7 | | 1) | 958 9350 2510 16700 | = F0%,F08 = F0%, F08 = F0%,F08 = F0%,F08 |

FORM I VOA

108-88-3-----Toluene

100-41-4-----Ethylbenzene

1330-20-7------Xylenes (total)

EPA SAMPLE NO.

2820

578 B

5780 B

F04, F08

= FOY, FD8

F04, F08

AED092

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: TPPS010W Lab Sample ID: 23612007 Matrix: (soil/water) WATER 5.000 (g/ml) ML Lab File ID: 8C424 Sample wt/vol: Date Received: 03/29/00 Level: (low/med) LOW Date Analyzed: 03/30/00 % Moisture: not dec. GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 100.0 Soil Aliquot Volume: (uL Soil Extract Volume: ____(uL) CONCENTRATION UNITS: COMPOUND CAS NO. (ug/L or ug/Kg) UG/L Q F04, F08 71-43-2-----Benzene 538

FORM I VOA

DATA VALIDATION

OLMO3.0

EPA SAMPLE NO.

AEDG92DL

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A SDG No.: TPPS010W

9840 DB

Matrix: (soil/water) WATER

Lab Sample ID: 23612001

Sample wt/vol:

5.000 (g/ml) ML

Lab File ID: 8C440

Level:

(low/med) LOW Date Received: 03/29/00

% Moisture: not dec.

Date Analyzed: 03/31/00

GC Column: DB-624

ID: 0.25 (mm)

Dilution Factor: 500.0

Soil Extract Volume: (uL)

71-43-2----Benzene

108-88-3-----Toluene

100-41-4-----Ethylbenzene

1330-20-7-----Xylenes (total)

Soil Aliquot Volume:

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

CAS NO.

COMPOUND

114 DJ 1550 1320 D

J F8, F08 F94, F08

FORM I VOA

MALIGATION OLMO3.0

VIII-284

EPA SAMPLE NO.

| | 22 |
|------|-----|
| AEP1 | .92 |
| | |

| | AEP192 |
|--|--|
| Lab Name: GENERAL ENGINEERING LABOR C | ontract: N/A |
| | SAS No.: N/A SDG No.: TPPS010W |
| Matrix: (soil/water) WATER | Lab Sample ID: 23612016 |
| Sample wt/vol: 5.000 (g/ml) ML | Lab File ID: 8C448 |
| Level: (low/med) LOW | Date Received: 03/29/00 |
| % Moisture: not dec | Date Analyzed: 03/31/00 |
| GC Column: DB-624 ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL |
| CAS NO. COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2Benzene_ 108-88-3Toluene_ 100-41-4Ethylbenzene_ 1330-20-7Xylenes (total) | 85.1 1.0 0.80 4.9 67.5 B = F04, F08 U F04, F07 U F04, F07 |

U F04, F07

EPA SAMPLE NO.

| 7. 7 | 2000 | 2 | |
|------|------|---|--|
| A | EP29 | 4 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A SDG No.: TPPS010W Case No.: N/A SAS No.: N/A Lab Code: N/A Lab Sample ID: 23612014 Matrix: (soil/water) WATER Lab File ID: 8C446 5.000 (g/ml) ML Sample wt/vol: Date Received: 03/29/00 LOW Level: (low/med) Date Analyzed: 03/31/00 % Moisture: not dec. Dilution Factor: 1.0 GC Column: DB-624 ID: 0.25 (mm) Soil Aliquot Volume: ____(uL Soil Extract Volume: (uL) CONCENTRATION UNITS:

FORM I VOA

COPY COPY

EPA SAMPLE NO.

| AEP39 | 2 |
|-------|---|

| Lab Name: GENERAL ENGINEERING LABOR | Contract: N/A |
|--|---|
| | CDG N- MDDGG10W |
| Lab Code: N/A Case No.: N/A | SAS No.: N/A SDG No.: TPPS010W |
| Matrix: (soil/water) WATER | Lab Sample ID: 23612003 |
| Sample wt/vol: 5.000 (g/ml) ML | Lab File ID: 8C338 |
| Level: (low/med) LOW | Date Received: 03/29/00 |
| % Moisture: not dec | Date Analyzed: 03/30/00 |
| GC Column: DB-624 ID: 0.25 (mm) | Dilution Factor: 1.0 |
| Soil Extract Volume:(uL) | Soil Aliquot Volume:(uL |
| CAS NO. COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q |
| 71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total | 98.1 1.0 12.8 198 198 = F04,F08 = F04,F08 |

FORM I VOA

DATA VALUE ОТМОЗ.О

1330-20-7-----Xylenes (total)

EPA SAMPLE NO.

| AEP492 | |
|----------|--|
| 1101 172 | |

7.8 B

FOY, FOT

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: TPPS010W Lab Sample ID: 23612012 Matrix: (soil/water) WATER Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 8C444 Level: (low/med) LOW Date Received: 03/29/00 Date Analyzed: 03/31/00 % Moisture: not dec. ID: 0.25 (mm) GC Column: DB-624 Dilution Factor: 1.0 Soil Aliquot Volume: (uL Soil Extract Volume: (uL) CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L U FOYFOG 71-43-2----Benzene 1.0 D.69 J 1.0 0.58 J 108-88-3-----Toluene U FOY, FOG 1.0 077 J 100-41-4----Ethylbenzene F04, F06

FORM I VOA

DATA VALIDATION
COPY OLMO3.0

| 800 Oak Ridge Tumpike, Oak Ridge, TN 37831 (423) 451-4600 | t Rkdge, TN 37831 | (423) 481-46 | 00 | | CHAIN | AIN OF | F CU | CUSTODY RECORD | Y REC | ORD | | | | COC NO | COC NO.: HPBALL |
|---|-------------------|----------------|------------------|--------|------------|-----------|--------------------------------------|----------------------|----------|---------|-----------------------------|---------|---------|--|--------------------------------|
| PROJECT NAME: HAAF-Pilot Study Bidg. 728 | AF-Pilot Study | BIdg. 728 | | | | | E | REQUESTED PARAMETERS | ED PAR | AMETER | 0 | | | T. STOCK OCT ACCOUNT | アティ |
| PROJECT NUMBER: 01-0331-04-1829-210 | 11-0331-04-18 | 329-210 | | 9 | | | | V. | | | | | | General Engine | General Engineering Laboratory |
| PROJECT MANAGER: Petty Stoll | Patty Stoll | | | | | | | | | - | | | | LABORATORY ADDRESS: 2040 Savage Road Charleston SC 29407 | ADDRESS; Road |
| Sampler (Signature) | ٧ | (Printed Name) | ne] | T | | + | | | | | | | 18IV \2 | | |
| Herra Lundy | | LAULA | Layer | | | | | | | 4 | | _ | eltroß | PHONE NO: {843} 556-8171 | 43) 556-8171 |
| Sample ID | Sate Collected | Time | | Matrix | X3T8 | | | | | | _ | | 10.0 | SCREENING | OBSERVATIONS, COMMENTS, |
| H70030 | 3/28/00 | 2450 C | 15 Waler | er Z | 10% | 苏 | · · | | *** | 1 | | | | | OACIA INSTRUCTION |
| AED692 | 3/28/00 | 0 -17:16 | ١ | 12 | · 经 | | : : : : : : : : | | | | | E Super | T | | Delack |
| A6.0072 | 3/28/00 | 5401 0 | 5 | d | | N | | 素 | | | | | | | |
| AE USY2 | 3/2/2/00 | 1 | (300 | N | | 30 | 樂 | 誕 | | 1. | W. | | | | |
| AE 10072 | 3/84/00 | | 1242 | 1 | ※ | 7 | | | | | | | | | |
| 40777 | 1.1 | 1 | 1415 | 171 | | 滋 | | | 線 | -31 | | | | | |
| 4ED176 | 3/28/00 | - | 8 | (V) | # 13 | 越 | 2.45 | | | | · · | | | | |
| 46+472 | 3/24/00 | | 1220 | 10 | 题 | 緩 | 100 | | | | | | U | | |
| 7610175 | 3/28/00 | 050 | 8 | N | | - T | | | | | 123 | | 10 | | |
| 467292 | 12 | | 0 | 7 | | 数 | | | 1000 | | | ** | N | | |
| ありなって | 3/28/00 | | 1415 | 10 | | | | 湖 | | | | | N | | |
| - | - | 02)1 | 0 | 7 | 13 | | | 學 | 0 | | | | 1 | | |
| AE 1192 | 3/22/00 | 0 1525 | 550 | 2 | 灣 | 総 | 3% | 27 | Tri Carl | | | 基础 | 10 | | |
| RELINGUISHED BY | les 3 | 3/28/20 | RECEIVED BY: | ~ | 7, | Oate | Date/Time | TOTAL | NUMBE | R OF CC | TOTAL NUMBER OF CONTAINERS: | 100 | 1 | Cooler Temperature: | ture: 4% |
| COMPANY NAME: ' | , | 1700 | COMPANY NAME: | - | Naci | 36 | 00.00 | Cooler ID | ö | | 1 | | | FEDEX NUMBER: | |
| 820609380790 | | Dete/Time | RELINGUISHED BY: | BY: | | Date | Date/Time | | | | - | | y c | | |
| COMPANY NAME: | , | 1700 | COMPANY NAME: | ME | | | |) i | | | | | | | |
| RELINQUISHED BY: | Δ | Date/Time | RECEIVED BY: | | | Date | Date/Time | , i.e. | : | | | | | | |
| COMPANY NAME: | | | COMPANY NAME | MF. | - - | | | | | | | | | | |

Science Applications Described Composition

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

CHAIN OF CUSTODY RECORD

COC NO.: HPDGGZ & OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS 23612% 1. 35. General Engineering Laboratory PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 LABORATORY NAME: Cooler Temperature: FEDEX NUMBER: SCREENING No. of Bottles/ Viels: TOTAL NUMBER OF CONTAINERS: REQUESTED PARAMETERS Coaler ID: 3/24/00 Date/Time Date/Time 10:00 とこと X3T8 RELINQUISHED BY: COMPANY NAME: COMPANY NAME: COMPANY NAME: coper Mucas Matrix RECEIVED BY: RECEIVED BY: LAURA LONLEY Time Collected 0001 1515 8 (Pointed Name) J/28/2 Jate/Time Date/Time PROJECT NAME: HAAF-Pilot Study Btdg. 728 (400 PROJECT NUMBER: 01-0331-04-1829-210 JAC. Date Collected 3/28/100 3/24/00 3/28/00 3/24/00 PROJECT MANAGER: Patty Stoll F2060 9380790 HELINOUISHED BY: 26 Ed 4ENG 92 LE 6392 COMPANY NAME: RELINGUISHED BY: COMPANY NAME: COMPANY NAME: Sampler (Signature) Sample (D o auna

GROUNDWATER ANALYTICAL RESULTS NINTH SAMPLING EVENT

MAY 2000

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

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EPA SAMPLE NO.

| AED602 |
|--------------|
| AE0602 |
| No . HDCACOM |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

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

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189011

26189601

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9M209

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec.

Date Analyzed: 06/06/00

GC Column: DB624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL

CAS NO.

COMPOUND

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

| 71-43-2Benzene | 5.2 | = |
|--------------------------|--------|---|
| 108-88-3Toluene | 0.43 J | _5 |
| 100-41-4Ethylbenzene | 7.1 B | = FOI, FOS |
| 1330-20-7Xylenes (total) | 3.3 | = .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |

FORM I VOA

DUPCICUATE NO.



Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189002

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9M205

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec.

Date Analyzed: 06/06/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL

CAS NO.

COMPOUND

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

Q

| 71-43-2Benzene | 5.0 | = |
|--------------------------|-------|------------|
| 108-88-3Toluene | 0.36 | -J |
| 100-41-4Ethylbenzene | 7.1 B | = FDI, F08 |
| 1330-20-7Xylenes (total) | 2.7 J | _5 |

FORM I VOA

OLM03.0

DATA VALIDATION

EPA SAMPLE NO.

AE1102

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189003

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9M206

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec. _____

Date Analyzed: 06/06/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume:____(uL)

Soil Aliquot Volume: ____(uL

CAS NO.

COMPOUND

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

| 71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene | 1.0 1.0 1.0 0.23 | U U JB | U U F01, F06 |
|---|---------------------------|--------------|-----------------|
| 1330-20-7Xylenes (total) | 0.23 | J | 2 |

EPA SAMPLE NO.

AE6002

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189004

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9L708

Level: (low/med) LOW

Date Received: 05/24/00

Date Analyzed: 06/04/00

% Moisture: not dec.

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L COMPOUND CAS NO. 2.3 71-43-2-----Benzene 1.0 U 108-88-3-----Toluene 0.44 J 100-41-4-----Ethylbenzene 1.2 J 1330-20-7------Xylenes (total)_

DATA VALIDATION

FORM I VOA

OLM03.0

EPA SAMPLE NO.

| - | 40.5 | 2.5 | | |
|---|------|-----|---|---|
| A | ΞE | . 7 | n | 2 |
| ~ | | , , | · | 4 |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189005

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9M224

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec.

Date Analyzed: 06/06/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 20.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | | Q | <u>.</u> |
|----------|---|---|----------------------------|---|---------------------|
| 108-88-3 | Benzene Toluene Ethylbenzene Xylenes (tota | | 2010 152 584 1640 | В | J N03 = F01, F08 |

FORM I VOA

EPA SAMPLE NO.

AE6302

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189006

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9M207

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec. _____

Date Analyzed: 06/06/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____ (uL

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q COMPOUND CAS NO. 53.4 71-43-2-----Benzene 1.0 U 108-88-3-----Toluene FOI, FOR 0.69 JB 100-41-4-----Ethylbenzene 13.2 1330-20-7-----Xylenes (total)

FORM I VOA

DATA MAMPATICAL.

OLM03.0

EPA SAMPLE NO.

| AED102 | |
|--------|--|
| | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Case No.: N/A Lab Code: N/A

LOW

1330-20-7-----Xylenes (total)

SAS No.: N/A

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Soil Extract Volume: (uL)

Lab Sample ID: 26189011

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9L715

Level: (low/med)

Date Received: 05/24/00

% Moisture: not dec.

Date Analyzed: 06/04/00

GC Column: DB624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Aliquot Volume: ____(uL

4.1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L COMPOUND CAS NO. 8.3 71-43-2-----Benzene 1.0 U 108-88-3-----Toluene 0.52 J 100-41-4-----Ethylbenzene

FORM I VOA

DATA VALIDATINOS.0

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

EPA SAMPLE NO.

| Lab Name: GENERAL EN | GINEERING LABOR | Contract: N/A | |
|----------------------|-----------------|---|----|
| Lab Code: N/A | Case No.: N/A | SAS No.: N/A SDG No.: HPSA02W | |
| Matrix: (soil/water) | WATER | Lab Sample ID: 26189012 | |
| Sample wt/vol: | 10.00 (g/ml) ML | Lab File ID: 9M217 | |
| Level: (low/med) | LOW | Date Received: 05/24/00 | |
| % Moisture: not dec. | | Date Analyzed: 06/06/00 | |
| GC Column: DB624 | ID: 0.25 (mm) | Dilution Factor: 20.0 | |
| Soil Extract Volume: | (uL) | Soil Aliquot Volume:(uL | |
| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q | |
| | | 671 130 422 B = FOLFO | 08 |

FORM I VOA

. Deta William

2040

EPA SAMPLE NO.

| A | ED4 | 100 | |
|---|------|-----|--|
| - | C.D. | 202 | |
| | | | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

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

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189013

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9M221

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec. _____

Date Analyzed: 06/06/00

GC Column: DB624

ID: 0.25 (mm)

Dilution Factor: 5.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: ____(uL

CAS NO.

COMPOUND

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

| 71-43-2Benzene | 541 18.8 | E | Z 1403 |
|--|-------------|---|---------|
| 100-41-4Ethylbenzene 1330-20-7Xylenes (total) | 64.5 277 | В | FOI, FO |

FORM I VOA

PUTA VALIDATION OLM03.0

EFA SAMPLE NU.

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26139001

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID:

Level: (low/med) LOW

Date Received: 05/24/00

Date Analyzed: 06/06/00

% Moisture: not dec.

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 20.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

CONCENTRATION UNITS:

CAS NO. COMPOUND

(ug/L or ug/Kg) UG/L

| 71-43-2Benzene | 1320 | JHOZ, HOY |
|--------------------------|-------|--------------|
| 108-88-3Toluene | 1160 | |
| 100-41-4Ethylbenzene | 573 B | J HO3, HOY |
| 1330-20-7Xylenes (total) | 4300 | _ > HOJ, HUY |
| | | |

FORM I VOA

EPA SAMPLE NO.

AED002

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189015

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9M218

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec. ____

Date Analyzed: 06/06/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 20.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL

CAS NO. COMPOUND

CONCENTRATION UNITS: $(\mu a/T_{\rm i})$ or $\mu a/Ka)$ UG/T_i 0

| E#12401000 | 100 | | = |
|--------------------------|------|---|---|
| 71-43-2Benzene | 460 | | |
| 108-88-3Toluene | 2160 | E | J N03 |
| 100-41-4Ethylbenzene | 360 | B | T NOT |
| 1330-20-7Xylenes (total) | 4110 | | _ = ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |

FORM I VOA

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AEDG02

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189016

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9M222

Level:

(low/med)

LOW

Date Received: 05/24/00

% Moisture: not dec. _

Date Analyzed: 06/06/00

GC Column: DB624

ID: 0.25 (mm)

Dilution Factor: 10.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: (uL

CAS NO.

COMPOUND

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

Q

FORM I VOA

DATA VALIDATIONS.OF

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AEP102

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189007

Sample wt/vol: 10.00 (g/ml) ML

Lab File ID: 9L711

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec.

Date Analyzed: 06/04/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | | Q |
|---------------------------------|---|---|----------------------------|---|
| 71-43-2 108-88-3 100-41-4 | Benzene Toluene Ethylbenzene Xylenes (tota | | 88.7 1.0 7.6 83.6 | |

Mara William

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

| AFIN | 20 | a | |
|------|----|----------|--|
| AEP: | ۷. | 2 | |

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189008

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9M208

Level: (low/med) LOW

Soil Extract Volume: ____(uL)

% Moisture: not dec.

Date Received: 05/24/00

Date Analyzed: 06/06/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Aliquot Volume: (uL

CAS NO. COMPOUND

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

Q

| 71-43-2Benzene | 68.2 |
|--------------------------|--------|
| 108-88-3Toluene | 1.4 |
| 100-41-4Ethylbenzene | 11.0 B |
| 1330-20-7Xylenes (total) | 91.1 |

1A VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AEP302

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

LOW

Lab Code: N/A

Case No.: N/A

SAS No.: N/A

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189009

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9L713

Level: (low/med)

Date Received: 05/24/00

% Moisture: not dec.

Date Analyzed: 06/04/00

GC Column: DB624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: (uL:

CONCENTRATION UNITS: CAS NO. (ug/L or ug/Kg) UG/L Q COMPOUND 74.3 71-43-2-----Benzene 0.31 108-88-3-----Toluene 9.3 = 100-41-4-----Ethylbenzene 115 1330-20-7------Xylenes (total)

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OF WALL OLMOS.O

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AEP402

Lab Name: GENERAL ENGINEERING LABOR Contract: N/A

Lab Code: N/A

Case No.: N/A SAS No.: N/A

SDG No.: HPSA02W

Matrix: (soil/water) WATER

Lab Sample ID: 26189010

Sample wt/vol:

10.00 (g/ml) ML

Lab File ID: 9L714

Level: (low/med) LOW

Date Received: 05/24/00

% Moisture: not dec. ____

Date Analyzed: 06/04/00

GC Column: DB624

ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: ____(uL)

Soil Aliquot Volume: ____(uL

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L CAS NO. COMPOUND 1.0 U 71-43-2----Benzene 1.0 U 108-88-3-----Toluene 0.22 J 100-41-4-----Ethylbenzene 1.6 J 1330-20-7-----Xylenes (total)_

FORM I VOA

OLMO3.0

18/7

CHAIN OF CUSTODY RECORD

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

A Englises Owned Christney

COC NO.: C. 1186/19

OBSERVATIONS, COMMENTS. SPECIAL INSTRUCTIONS 01% 012 500 -bas (0) 300 009 010 923 005 いつ 20 100 68197 LABONATORY NAME: General Engineering Laboratory TAPC. TOLON HETEROPROPIC Plote Count PHONE NO: (843) 556-8171 LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 Cooler Temperature: FEDEX NUMBER: SCREENING Holding Time = 496 1-15 No. of Bortles/ Viels: 3 3 3 3 3 3 3 300 3 TOTAL NUMBER OF CONTAINERS: 100 Cooler 10: REQUESTED PARAMETERS 1 Date/Time Date/Time Date/Time THE N X3T8 17 NEGATOR S RELINDUISHED BY: wader COMPANY NAME: COMPANY NAME: Marix COMPANY NAMI Lawen Lumley RECEIVED BY: RECHIVED BY: Time Collected 1435 1245 2451 170 1446 1210 1725 1551 HIM 1146 1521 1405 Printed Name 1120 5/24 60 5/24/00 Date/Time 5/24/00 IOJECT NAME: HAAF-Pilot Study Bidg. 728 0):11 61:17 0):11 IOJECT NUMBER: 01-0331-04-1829-210 5/23/00 5/23/00 5/23/00 5/23/00 2/23/00 Date Callected 5/24/00 5/23/00 5/22/00 5/23/00 5/23/02 5/23/00 5/23/00 5/23/00 OJECT MANAGER: Patty Stoll Kundler NOWE THEM MPANY NAME: KD 402 LINGUISHED BY: るが MPANY (NAME! MPANY NAME: INDUISHED BY RED DZ ED302 とかける appler (Signature) 9E(0) DZ AEF302 AE 6002 tE6302 AEDG02 A-EDGOH 489202 Sample ID CEIVED BY:/ AE 1102 EPID2 SOUTH

| Scient Applement Dermalum Carponiton | An Employee Durad Company unal Companion | tard | | | | | | 14 | 2012 | 4 | - 1. | | | | | |
|---|--|----------------------|----------------|-----------------|-------|-----------------|-------------------|----------|-----------|----------------------|--------|--|---------|-------------|---|---|
| ** ** ** ** ** ** ** ** ** ** ** ** ** | dge. TN 37831 /4: | 73) 481 460 | 9 | | J | CHAIN OF | OF | UST | ODY | CUSTODY RECORD | IRD | | | | COC NO. | COC NO :: (3 H & 619 |
| 10JECT NAME: HAAF-Pilot Study Bidg. 728 | -Pilot Study Bid | lg. 728 | | | | | | REG | UESTED | REQUESTED PARAMETERS | 1ETERS | | | | LABORATORY NAME: | NAME |
| 10JECT NUMBER: 01-0331-04-1829-210 | 0331-04-1829 | -210 | | İ | | | | | | | | | | | General Engina | General Engineering Laboratury |
| SOJECT MANAGER: Patty Stoll | atty Stoll | | | | | | | | | | | | | | LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29407 | ADDRESS: Road : 29407 |
| der (Signature) | - | (Printed Name) | 11-3 | | 70 | | | | | | | | | BiV \zalfto | PHONE NO: (843) 556-8171 | 43) 556-8171 |
| 3 | Date Colle | 7 | Time Collected | Maintz | BTEX | | | | | | | | | A to old | OVA SCREENING | OBSERVATIONS, COMMENTS. SPECIAL INSTRUCTIONS |
| | 5/23/00 | 1510 | 0 | - Agrica | 12 | | 3." | | | - 7. | .(| . 33 | 1,187. | | | 014 |
| AEDD02 | 100/62/5 | | 1550 | - | 7 | · | 76 ¹ . | *** | 1 (A | 15. | .7% | | 37.0 | 3 | | Y |
| REDGOZ | 5/23/00 | 16 | 1630 | 4 | 7 | 4.7 | 14 | 1 1 7 | 14274 | 1.35 | 4万 | 1.5. | 401-2 | | | 910 |
| (H2003) | 5/23/00 | 5460 | 45 | جر | 7 | | | .33 | *** | 15. | 132 | | ** | N | | C10 |
| | | | | | | 703 | | | | | 1.1 | | 4.65 | 7 | | |
| | | | | | | | | | | 1204 | | | | | | |
| | | $/\!\!\!/$ | 1 | K | ::(| |). T | | . 63 | | .8% | | 4,7 | | | |
| | | | | t | 1 | , . | 1 | 7.17 | | | **** | ************************************** | | | | |
| | | | | | | 4 | X | 7 | ** J | ~; | 4.4 | ,IST | | | | |
| | | - | | | ., 4 | 1 | 5 | 8 | 6 | | | 18. a 46 <u>2</u> . d | g-Atan, | | | |
| | | | | | | .~,~ | 2 .; | 4-7 | ule: | | /:- | A.C. | 17: | | | |
| | | | | | 4,174 | 1.00 | | | ··· | | .;;, | 1.17 | 1 | | | |
| | | | 0 |) | .,,,, | <u></u> | 4, | | | | | 327 | 7.3 | / | | |
| DNOUISHED BY: | le O | Daje/Time | RECEIVED BY | ED BY: | ~ | | DareTIMP | | OTAL N | UMBER | OF COA | TOTAL NUMBER OF CONTAINERS: | | 50 | Cooler Temperature: | ture: |
| IMPANY NAME: | 0:11 | 10 | Raylos | COMPANY NAME: | | | To the second | 8/ | Sooler ID | 4 | 10 | 36 | , | | FEDEX NUMBER: | ע |
| CEIVED BY: | Date S/X | Date/Time 5/24(00 | RELIND | яецифиізнер ву: | - | | Date/Time | <u>a</u> | | | | | | | | |
| IMPANY NAME: | 11:10 | Q | COMPA | COMPANY NAME: | | | | | | | | | | | | |
| LINGUISHED BO. | S/24 | Date/Тіте 5/24/00 | RECEIVED BY: | ED BY: | | | Date/Time | 0 | | | | | | | | .+ |
| MPANY NAME: | 14:15 | 5 | COMPA | COMPANY NAME: | | | | | | | | | | | | |
| \h | | | | | | | · . | c | | | | | | | , | 1 |

APPENDIX IX

CONTAMINATED SOIL DISPOSAL

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

During UST removal and excavation activities in 1994, all contaminated soil removed during the closure was transported to Laidlaw Environmental Services for incineration. Approximately 2623.91 tons of contaminated soil were excavated from the Former Northern Fuel Battery and Former Building 728 (Metcalf & Eddy 1996).

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

APPENDIX X

SITE RANKING FORM

SITE RANKING FORM

| Faci | ility Nam | e: Former Buil | ding | 728 | | _ | | Ranked by: S. St | oller |
|------|----------------|--|--------|----------|---------------|------------------|-------------|--|----------------|
| Cou | nty: _C | hatham Faci | lity l | D#: 9 | 025049 | | | Date Ranked:7/27 | //2000 |
| SOII | L CONTA | AMINATION | | | | | | | |
| A. | Maxii (Assı | PAHs – mum Concentrati ume <0.660 mg/k | | | | В. | | al Benzene - timum Concentration fou | nd on the site |
| | was | stored on site) | | | | | | ≤0.005 mg/kg | = 0 |
| | | <0.660 mg/kg | | = | 0 | | | >0.00505 mg/kg | = 1 |
| | | >0.66 - 1 mg/ | kg | = | 10 | | | >0.05 - 1 mg/kg | = 10 |
| | | >1 - 10 mg/kg | ja . | = | 25 | | | >1 - 10 mg/kg | = 25 |
| | * 🛛 | >10 mg/kg | | = | 50 | | | >10 - 50 mg/kg | = 40 |
| | * | 1997 CAP-Part B sa | mple V | NB5901 | at 4' – 6' | | * 🛛 | >50 mg/kg * 1997 CAP-Part B sample WE | = 50 |
|). | | h to Groundwate below land surfa | | | | | | | |
| | | >50' bls | = | 1 | | | | | |
| | | >25' - 50' bls | = | 2 | | | | | |
| | | >10' - 25' bls | = | 5 | | | | | |
| | \boxtimes | ≤10' bls | = | 10 | | | | | |
| | n the bla | anks: (A. <u>50</u> | | | <u>50</u>) = | · (<u>100</u>) | x (C | <u>10</u>) = (D. <u>1000</u>) | |
| Ε. | liquid | Product (Nonaque hydrocarbons; Sefinition of "shee | See G | | | F. | Max (One | olved Benzene - imum Concentration at t e well must be located at e release.) | |
| | | No free produ | ct = | 0 | | | П | <u>≤</u> 5 μg/L | = 0 |
| | | Sheen - 1/8" | = | 250 | | | | >5 - 100 µg/L | = 5 |
| | \boxtimes | >1/8" - 6" | = | 500 | | | | >100 - 1,000 µg/L | = 50 |
| | | >6" - 1ft. | = | 1,000 | | | * 🖂 | | |
| | П | For every add | itiona | al inch. | add ano | ther | * 🛛 | >1,000 - 10,000 µg/L | = 500 |

Fill in the blanks:

| Facilit | y Name | : Forn | ner Pum | phouse | #1 Tai | nk Pit | Area | | - | Facility | ID #: <u>9-0</u> | 25085 |
|---------|---------------|----------------------------------|---|---------------------------------------|-----------------------------|------------------------------------|-------------------|-----------------------|--|----------------------|---------------------|-----------------------------|
| POTE | NTIAL F | RECEPT | ORS (M | UST BE | FIELD | O-VERI | FIED) | | | | | |
| Point o | of Withd | rawal fo | r water s | upply. I | f the p | oint of | withdra | wal is I | downgradie not hydrauli to substantia | cally co | nnected, | ly connected evidence as |
| Н. | Public | : Water : | Supply | | | | I. | Non- | Public Water | Supply | | |
| | | 1/4 mi | | = 200 = 500 = 25 = 10 = 2 | | | | | Impacted ≤100' >100' - 50 >500' - 1⁄4 >1⁄4 - 1⁄2 m | = 00' = mi = | 25 5 | |
| * | Note: | >1 mi | ceptibility is in low | = 0 er susc | eptibil | | | U t use th | >½ mi ower suscept >¼ mi ne shaded and onnected, se | eas. | eas only: 0 | |
| J. | or U | lary to d TILITY To may be | nearest owngrad FRENCH omitted ore than | ient Sur ES & Va from ra | face W AULTS nking if | /aters 6 (a utili f its inve | ert | | ince from any sements and | l crawl s | paces | |
| | | Impac <500' >500' >1,00 | - 1,000' | = 500 = 50 = 5 = 2 |) | | | | Impacted <500' >500' - 1, >1,000' o no free pr | = 000' = r = | 500 50 5 0 | |
| Fill in | the bla | nks: (H | 0) | + (l. <u> </u> | <u>)</u>) + | (J | 50 |) + | (K. <u>0</u>) | = L | 50 | |
| | | | | | | (G | 1000 |) x | (L. <u>50</u>) | = M | 50,000 | |
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| | | | = 51,00 | 00 (base | d on N | /lay 200 | 00 grour | ndwate | r concentrat | ion in N | IW61) | |

ENVIRONMENTAL SENSITIVITY SCORE

OTHER GEOLOGIC AND HYDROLOGIC DATA

The following information is presented to provide supplemental information to Item H of the Site Ranking Form and provides detailed information relating to the geologic and hydrogeologic conditions at Hunter Army Airfield, which supports HAAF's determination that the water withdrawal point(s) located at HAAF is (are) not hydraulically connected to the surficial aquifer.

1.0 REGIONAL AND LOCAL 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 150 miles inland from the Atlantic coast, to approximately 4,200 feet BGS 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 Georgia Geologic Survey (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). 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.

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.

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. 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/lagoonal-type environments. According to the Geologic Map of Georgia (GA EPD 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 undgerground 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).

2.0 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. Minor occurrences of aquifer material are 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 EPD 1976).

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

3.0 REFERENCES

- Arora, R. 1984. Hydrologic Evaluation for Underground Injection Control in the Coastal Plain of Georgia, Department of Natural Resources, Environmental Protection Division, Georgia Geological Survey.
- Clark, W. Z., Jr. and Zisa, A. C. 1976. *Physiographic Map of Georgia*, Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey.
- Furlow, J. W., 1969. Stratigraphy and Economic Geology of the Eastern Chatham County Phosphate Deposit, Department of Mines and Mining, Division of Conservation, Georgia Geologic Survey, Bulletin 82.
- GA EPD (Georgia Environmental Protection Division) 1976. *Geologic Map of Georgia*, Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey (reprinted 1997).
- Herrick, S. M., 1961. Well Logs of the coastal Plain of Georgia, Department of Natural Resources, Environmental Protection Division, Georgia Geologic Survey.
- Miller, J. A. 1990. Groundwater Atlas of the United States, U.S. Department of the Interior,

U.S. Geological Survey, Hydrologic Inventory Atlas 730G.

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

APPENDIX XI

COPIES OF PUBLIC NOTIFICATION LETTERS AND CERTIFIED RECEIPTS OF NEWSPAPER NOTICE

Hunter Army Airfield UST CAP-Part B Report Former Pumphouse #1, Former Building 8060, Facility ID #9-025085

The public notice was published as part of the CAP-Part B Report (Metcalf & Eddy 1997).

ATTACHMENT A FATE AND TRANSPORT MODELING RESULTS

Hunter Army Airfield UST CAP-Part B Report Addendum #1 (August 2000) Former Building 728, Facility ID #9-025049

Table A.1. Natural Attenuation Modeling Results (Concentration vs. Distance) for the Former Building 728 Site

| Distance from the source (ft) | Distance from the source (m) | Predicted Maximum Benzene Concentration in Groundwater ^a (μg/L) | Distance from the source (ft) | Distance from the source (m) | Predicted Maximum Benzene Concentration in Groundwater ^a (µg/L) |
|-------------------------------------|------------------------------------|--|-------------------------------------|------------------------------------|--|
| 0.0 | 0.0 | 3250 | 492.1 | 150.0 | 606 |
| 3.3 | 1.0 | 3300 | 656.2 | 200.0 | 435 |
| 9.8 | 3.0 | 3370 | 820.2 | 250.0 | 293 |
| 16.4 | 5.0 | 3410 | 984.3 | 300.0 | 200 |
| 26.2 | 8.0 | 3410 | 1148.3 | 350.0 | 142 |
| 39.4 | 12.0 | 3320 | 1312.3 | 400.0 | 98.9 |
| 52.5 | 16.0 | 3130 | 1640.4 | 500.0 | 49.1 |
| 65.6 | 20.0 | 2880 | 1968.5 | 600.0 | 24.4 |
| 98.4 | 30.0 | 2200 | 2296.6 | 700.0 | 12.4 |
| 131.2 | 40.0 | 1670 | 2624.7 | 800.0 | 6.27 |
| 164.0 | 50.0 | 1340 | 2952.8 | 900.0 | 3.2 |
| 229.7 | 70.0 | 1120 | 3280.8 | 1000.0 | 1.6 |
| 328.1 | 100.0 | 995 | | | |

Predicted maximum benzene concentration in groundwater assumes natural attenuation only and does not take into account the enhanced bioremediation occurring due to oxygen injection.

Table A.2. Natural Attenuation Modeling Results (Concentration vs. Time) for the Former Building 728 Site

| Time | Predicted Ma | ximum Benzene Con | centration in Ground | water ^a (µg/L) |
|--------|--------------|-------------------|----------------------|---------------------------|
| (year) | Source | MW-60 | MW-63 | MW-11 |
| 0.0 | 3250 | 3350 | 2400 | 1420.0 |
| 1.0 | 656 | 774 | 931 | 1070.0 |
| 2.0 | 238 | 283 | 353 | 442.0 |
| 3.0 | 95.4 | 114 | 1,44 | 186.0 |
| 4.0 | 40 | 47.8 | 60.9 | 80.1 |
| 5.0 | 17.2 | 20.6 | 26.4 | 35.0 |
| 6.0 | 7.54 | 9.02 | 11.6 | 15.5 |
| 7.0 | 3.34 | 4 | 5.14 | 6.9 |
| 8.0 | 1.49 | 1.79 | 2.3 | 3.1 |
| 9.0 | 0.67 | 0.80 | 1,04 | 1.41 |
| 10.0 | 0.30 | 0.36 | 0.47 | 0.64 |
| 11.0 | 0.14 | 0.17 | 0.21 | 0.29 |
| 12.0 | 0.06 | 0.08 | 0.10 | 0.13 |
| 13.0 | 0.03 | 0.03 | 0.04 | 0.06 |
| 14.0 | 0.01 | 0.02 | 0.02 | 0.03 |

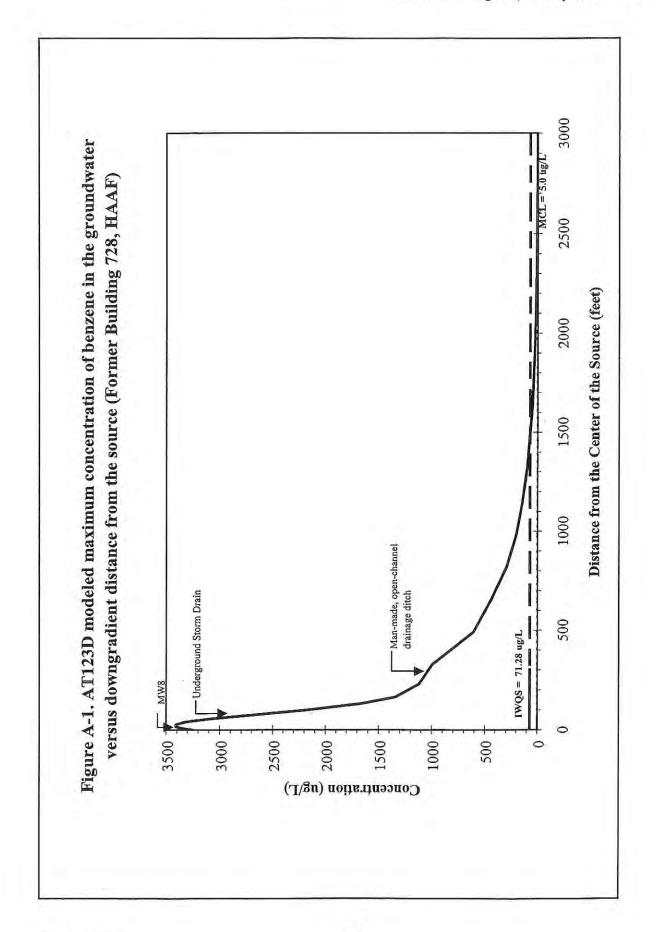
Predicted maximum benzene concentration in groundwater assumes natural attenuation only and does not take into account the enhanced bioremediation occurring due to oxygen injection.

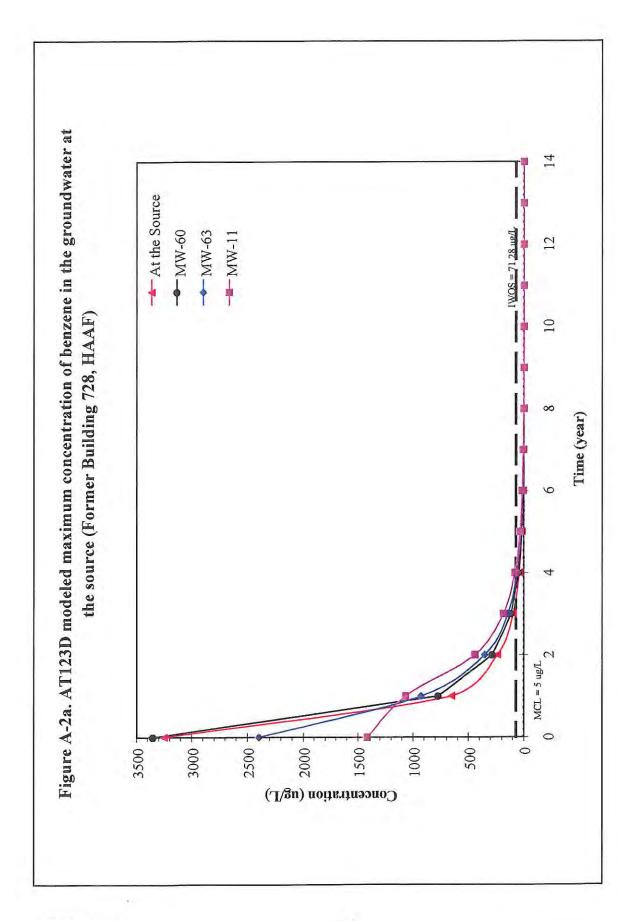
Table A.3. AT123D Predicted Maximum Concentrations at the Former Building 728 Monitoring Well Locations

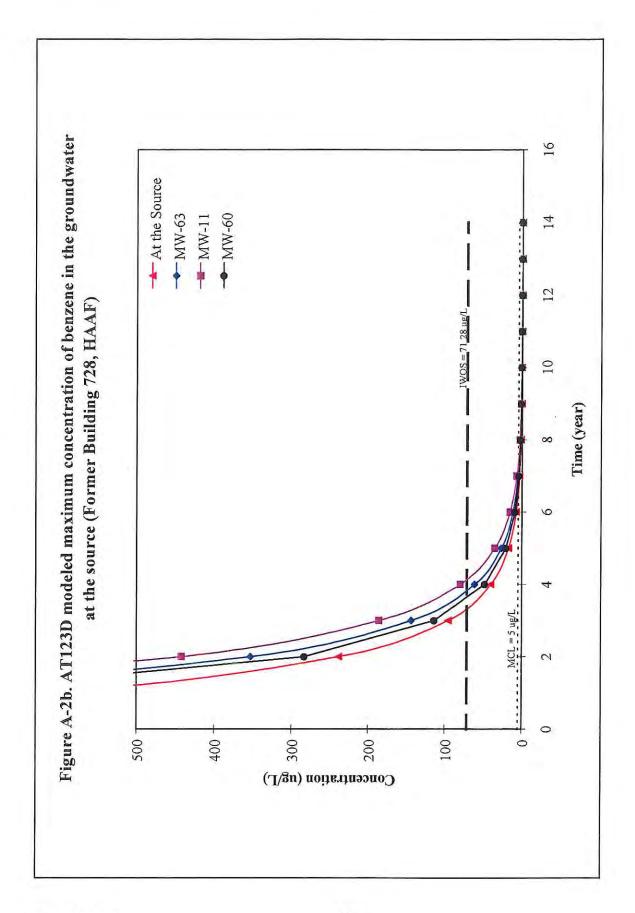
| | Predicted 2-Year Maximum Benzene | Observe | d Benzene Concentr | ation (µg/L) |
|------|---|----------------------|-------------------------------|--------------------------|
| Well | Concentration in Groundwater ^a (µg/L) | CAP-Part B (1997) | Pre-Pilot Study (May 1999) | Pilot Study (May 2000 |
| MW11 | 442.0 | 1700 | 256 | 5.2 |
| MW60 | 283.0 | 1400 | 1610 | 2.3 |
| MW61 | 202.0 | 910 | 612 | 2010 |
| MW63 | 353.0 | 2400 | 1310 | 53.4 |
| MW64 | 86.6 | 81 | 107 | 1 ^b |
| D1 | 269.0 | NA | 1460 | 8.3 |
| D3 | 220,0 | NA | 2580 | 671 |
| D4 | 189.0 | NA | 288 | 541 |
| P1 | 407.0 | NA | 1890 | 88.7 |
| P2 | 292.0 | NA | 2510 | 68.2 |
| P3 | 353.0 | NA | 2600 | 74.3 |
| P4- | 313.0 | NA | 823 | <1 |

Predicted maximum benzene concentration in groundwater assumes natural attenuation only and does not take into account the enhanced bioremediation occurring due to oxygen injection.

January 2000 concentration, the well was dropped from the pilot study monitoring program in March 2000.







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| ASE CONTROL = 1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD 2 JULPER DEPTH, = 0.0 FOR INFINITE DEEP (METERS) 0.00008+00 2 JULPER DEPTH, = 0.0 FOR INFINITE WIDE (METERS) 0.00008+00 3 JULPER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) 0.01008+00 3 JULPER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) 0.01008+00 3 JULPER WIDTH OF X-SOURCE LOCATION (METERS) 0.013708+01 3 JULPER DEPTH, STANDARD LOCATION (METERS) 0.00008+00 3 JULPER DEPTH OF Y-SOURCE LOCATION (METERS) 0.00008+00 3 JULPER DINT OF Z-SOURCE LOCATION (METERS) 0.00008+00 3 JULPER DINT OF Z-SOURCE LOCATION (METERS) 0.00008+00 3 JULPER DINT OF Z-SOURCE LOCATION (METERS) 0.00008+00 3 JULPER DISPERSIVITY (METER) 0.30008+00 4 JULPER DISPERSIVITY (METER) 0.00008+00 4 JULPER DISPERSIVITY (METER) 0.00008+00 4 JULPER DISPERSIVITY (METER) 0.00008+00 4 JULPER DISPERSIVITY (METER DISPERSIVEN) 0.00008+00 4 JULPER DISPERSIVEN DISPERSIVEN DISPERSIVEN DISPERSIVEN DISPERSIVEN DISPERSIVEN | DI =1 THERMAL, = 2 FOR CHEMICAL, = 3 RAD PTH, = 0.0 FOR INFINITE DEEP (METERS) TOF X-SOURCE LOCATION (METERS) TOF X-SOURCE LOCATION (METERS) TOF Y-SOURCE LOCATION (METERS) TOF Y-SOURCE LOCATION (METERS) TOF X-SOURCE LOCATION (METERS) TOF X-SOURCE LOCATION (METERS) TOF X-SOURCE LOCATION (METERS) TOF Z-SOURCE LOCATION (METERS) TOROGRAPHIC | |
| DUIFER DEPTH, = 0.0 FOR INFINITE DEEF (METERS) 2011FER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) 2011FER WIDTH, = 0.0 FOR INFINITE WIDE (METERS) 301N POINT OF X-SOURCE LOCATION (METERS) 301N POINT OF Y-SOURCE LOCATION (METERS) 301N POINT OF Y-SOURCE LOCATION (METERS) 301N POINT OF Z-SOURCE LOCATION (METERS) 301NGTUDIC CONDUCTIVITY (METER) 301NGTUDINAL DISPERSIVITY (MAX2/HR) 301NGTUDINAL DISPERSIVITY (MAX2/HR) 301NGTUDINAL DISPERSIVINY (MAX2/HR) 301NGTUDINY (MAX2 | DITH, = 0.0 FOR INFINITE DEEP (METERS) 0.1524B+02 TOF X-SOURCE LOCATION (METERS) 0.1100B+05 TOF X-SOURCE LOCATION (METERS) 0.1100B+05 TOF X-SOURCE LOCATION (METERS) 0.1100B+05 TOF Y-SOURCE LOCATION (METERS) 0.1370B+05 TOF Z-SOURCE LOCATION (METERS) 0.0000B+06 TOF Z-SOURCE LOCATION (METERS) 0.1000B+06 CONDUCTIVITY (METER) 0.1100B+05 TOF Z-SOURCE LOCATION (METERS) 0.1000B+06 CONDUCTIVITY (METER) 0.1100B+05 TOR Z-SOURCE LOCATION (METERS) 0.1000B+06 CONDUCTIVITY (METER) 0.1000B+06 TOR Z-SOURCE LOCATION (METER) 0.1000B+06 TOR Z-SOURCE LOCATION (METER) 0.1000B+06 TOR COEFFICIENT (METER) 0.1000B+06 TOR COEFFICIENT (METER) 0.1000B+06 TOR COEFFICIENT (METER) 0.1000B+06 TANT (PER HOUR) 0.1000B+06 TANT (PER HOUR) 0.1000B+06 TY OF THE SOIL (KG/M**3) 0.1000B+06 TY OF THE SOIL (KG/M**3) 0.1000B+06 TY OF THE DESIRED SOLUTION (HR) 0.1000B+06 THIME (HR) (KG/HR) OR (CI/HR) 0.525B+06 THIME (HR) (KG/HR) 0.1611B+06 TORSTAND DISPERSION COEFFICIENT (M**2/HR) 0.1612B-0 THERAL DISPERSION COEFFICIENT (M**2/HR) 0.1612B-0 | |
| DUEER WIDTH, = 0.0 FOR INFINITE WIDE (WETERS) . 0.00000E+00 EGIN POINT OF X-SOURCE LOCATION (METERS) . 0.1100E+00 BOINT OF X-SOURCE LOCATION (METERS) . 0.1100E+00 BOINT OF Y-SOURCE LOCATION (METERS) . 0.1370E+00 BOINT OF Y-SOURCE LOCATION (METERS) . 0.1370E+00 BOINT OF Z-SOURCE LOCATION (METERS) . 0.0000E+00 BOINT OF Z-SOURCE LOCATION (METERS) . 0.1800E+00 BOINT OF Z-SOURCE LOCATION (METERS) . 0.1000E+00 BOINT OF METERN (MATER) . 0.1000E+00 BOINT OF METERN (MAX3) . 0.1670E+00 BOINT OF WATER (MC/M**3) . 0.1670E+00 BOINT OF WATER (MC/M**3) . 0.1000E+00 BOINT OF WATER (MC/MR) . (MC/MR) . 0.1000E+00 BOINT OF WATER (MC/MR) . (MC/MR) . 0.1000E | TH, = 0.0 FOR INFINITE WIDE (WETERS) 0.0000E+00 T OF X-SOURCE LOCATION (METERS) 0.1100E+05 T OF Y-SOURCE LOCATION (METERS) 0.1100E+05 T OF Y-SOURCE LOCATION (METERS) 0.1370E+05 T OF Z-SOURCE LOCATION (METERS) 0.1370E+05 T OF Z-SOURCE LOCATION (METERS) 0.0000E+00 SRADIENT (METER) 0.1000E+05 SRADIENT (METER) 0.1000E+05 SPERSIVITY (METER) 0.1000E+05 SOURCE COEFFICIENT (KCAL/HR-M**2-DEGREE C) 0.1000E+05 SUBSTANT (PER HOUR) 0.1000E+06 TANT (PER HOUR) 0.1000E+06 SOURCE COEFFICIENT (KG/M**3) 0.1000E+07 TANT (PER HOUR) 0.1000E+07 TANT (PER HOUR) 0.1000E+07 THIS (KG/M**3) 0.1000E+07 THIS RATER (KG/M**3) 0.1000E+07 THIS RATER (KG/M**3) 0.1000E+07 THIS CONDENTY (M**2/HR) 0.1001E+07 THIS CONDENTY (M**2/HR) 0.1011E+07 | 524E+02 |
| ### SOURCE LOCATION (METERS) ### DOINT OF X-SOURCE LOCATION (METERS) ### DOINT OF Z-SOURCE LOCATION (METERS) ### DOINT OF MATER (KG/M**3) | T OF X-SOURCE LOCATION (METERS) DE X-SOURCE LOCATION (METERS) T OF Y-SOURCE LOCATION (METERS) T OF Y-SOURCE LOCATION (METERS) T OF Z-SOURCE LOCATION (METERS) TABLEIST (METER) TABLEIST (METER) TABLEIST (METER) TO COEFFICIENT (METERS) TO COEFFICIENT (METER | 000E+00 |
| ND POINT OF X-SOURCE LOCATION (METERS) ND POINT OF Y-SOURCE LOCATION (METERS) ND POINT OF Y-SOURCE LOCATION (METERS) ND POINT OF Y-SOURCE LOCATION (METERS) ND POINT OF Z-SOURCE LOCATION (METERS) ND POINT OF METERS ND POINT OF CAPACITY (METERS) ND STERRIBUTION COEFFICIENT (MA**3/KG) ND STORE-OFFICIENT (METERS) ND STORE-OFFICIENT (METER | DE X_SOURCE LOCATION (METERS) 1 OF Y_SOURCE LOCATION (METERS) 2 | 100E+02 |
| EGIN POINT OF Y-SOURCE LOCATION (METERS) ND POINT OF Y-SOURCE LOCATION (METERS) ND POINT OF Y-SOURCE LOCATION (METERS) ND POINT OF Z-SOURCE LOCATION (METERS) ND POINT OF Z-SOURCE LOCATION (METERS) OCO008+00 ND POINT OF CAPADIENT ND POINT OF CAPADIENT OCO008+00 ND POINT OF METER (MA*3/KG) OCO008+00 OCO008+00 OCO008+00 OCO008+00 OCO008+00 OCOOOR-00 OCO008+00 | OF Y-SOURCE LOCATION (METERS) | 100至+02 |
| ### POINT OF Y-SOURCE LOCATION (METERS) ################################### | DE Y-SOURCE LOCATION (METERS) 1 OF Z-SOURCE LOCATION (METERS) 2 | 370E+02 |
| ### BOINT OF Z-SOURCE LOCATION (METERS) ### BOINT OF Z-SOURCE LOCATION (METER) ### BOINT OF Z-SOURCE LOCATION (METER) ### BOINT OF THE LOTS CORPETION (METER) ### BOINT OF WATER (KG/M**3) ### BOINT OF WATER (KG/ | OF Z-SOURCE LOCATION (METERS) | .370E+02 |
| ND POINT OF Z-SOURCE LOCATION (METERS) ONDOGE+00 ONDOSITY ONDOCITY ONDOC | DE Z-SOURCE LOCATION (METERS) 0.1800E+00 0.2200E+00 0.220E+00 0.2200E+00 0.2 | 000E+00 |
| OROSITY YDRAULIC CONDUCTIVITY (METER/HOUR) O.1800E+0 YDRAULIC GRADIENT YDRAULIC GRADIENT O.1100E-0 O.3000E+0 O.300E+0 CONDUCTIVITY (METER/HOUR) SRADIENT SRADIENT SPERSIVITY (METER) SPERSIVITY (METER) SPERSIVITY (METER) O.1000E+0. SPERSIVITY (METER) ON COEFFICIENT, KD (M**3/KG) ON COEFFICIENT (KCAL/HR-M**2-DEGREE C) ON COEFFICIENT (KCAL/HR-M**2-DEGREE C) OLIGODE+0. TANT (PER HOUR) TY OF THE SOIL (KG/M**3) OLIGODE+0. OL | 000E+00 |
| | | 800E+00 |
| | | 2200E+00 |
| | | 100E-01 |
| | | 3000医+02 |
| | | L000E+02 |
| | | 3000E+01 |
| | | 620E- |
| | | 000E+0 |
| | | 3530E-05 |
| | | 1010E-04 |
| | | L670E+04 |
| | | L000E-02 |
| | | 1000E+04 |
| | | 7300E+03 |
| STE RELEASE RATE (KCAL/HR), (KG/HR), OR (CI/HR) TARDATION FACTOR TARDED DARCY VELOCITY (M/HR) TARDED LONGITUDINAL DISPERSION COEF. | (KCAL/HR), (KG/HR), OR (CI/HR). CITY (M/HR) RAL DISPERSION COEF. (M**2/HR). SPERSION COEFFICIENT (M**2/HR). ISPERSION COEFFICIENT (M**2/HR). | 5256E+05 |
| OCITY (M/HR) 0.2571 NAL DISPERSION COEF. (M**2/HR) 0.1611 | OCITY (M/HR) 0.2503 NAL DISPERSION COEF. (M**2/HR) 0.1611 DISPERSION COEFFICIENT (M**2/HR) 0.5372 DISPERSION COEFFICIENT (M**2/HR) 0.1612 | 5400E-02 |
| OCITY (M/HR) 0.5371 NAL DISPERSION COEF. (M**2/HR) . 0.1611 | OCITY (M/HR) | 3 |
| LONGITUDINAL DISPERSION COEF. (M**2/HR) 0.16 | 0.16 | 5371E-02 |
| C (thi) China; White Change of the Control of the C | | 1611E+00 |
| | 0 | 5372E-01 |
| VERTICAL DISPERSION COEFFICIENT (M**2/HR). 0 | | 1612E-01 |

| 100. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | | | | 100, | 0.167E+00 0.151E+00 0.142E+00 0.133E+00 | | 100. | 0.440E+00 0.409E+00 0.393E+00 |
|-------------------------------------|--|-------------------|-------------------------------------|--|-----------------|---|--|---|-------------------------------------|
| .05 | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | | | | .05 | 0.871E+00 0.73EE+00 0.674E+00 0.605E+00 | | 0 iv | 0.118E+01 0.103E+01 0.960E+00 |
| 27. | 0.0005+00 0.000E+00 0.000E+00 0.000E+00 | | | | 27. | 0.201E+01 0.155E+01 0.135E+01 0.113E+01 | | 27. | 0.228E+01 0.181E+01 0.159E+01 |
| 15. | 0.000E+00 0.000E+00 0.000E+00 | | | | 15. | 0.285E+01 0.211E+01 0.178E+01 0.145E+01 0.569E+00 | | 15. | 0.308E+01 0.233E+01 0.200E+01 |
| 13. | 0.000000000000000000000000000000000000 | | | CONC.) | 13. | 0.295E+01 0.218E+01 0.183E+01 0.148E+01 0.571E+00 | | CONC.) | 0.318E+01 0.239E+01 0.204E+01 |
| 0. 2. 12. | 00000 | * | | AT 0.8760E+04 HRS * DISSOLVED CHEMICAL CONC.) | x 12. | 0.299E+01 0.220E+01 0.185E+01 0.149E+01 0.571E+00 NUE | 1 | CALS IN PPM AT 0.1752E+05 HRS 0.1620E+00 * DISSOLVED CHEMICAL X 12. | 0.321E+01 0.241E+01 0.205E+01 |
| 2. | 0.000E+00 0. 0.000E+00 0. 0.000E+00 0. 0.000E+00 0. 0.000E+00 0. | | | PPM AT 0.87 00 * DISSOLV | 2. | 0.307E+01 0. 0.23E+01 0. 0.186E+01 0. 0.149E+01 0. 0.536E+00 0. | | PPM AT 0.17 00 * DISSOLV | 0.326E+01 0.242E+01 0.204E+01 |
| .00.0 | 0.0000E+00 0.000E+00 0.000E+00 0.000E+00 | | | HEMICALS IN PPM AT = 0.1620E+00 * DI | 0.00 | 0.299E+01 0.217E+01 0.181E+01 0.144E+01 | | CHEMICALS IN = 0.1620E+ 0.00 | 0.317E+01 0.235E+01 0.198E+01 |
| Z = 0. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | 350. | - No. 30. 30 Edit | DISSOLVED | 0 = 8 - 8 | 0.241E+01 0.176E+01 0.147E+01 0.118E+01 0.434E+00 | 350. 0.000E+00 0.000E+00 0.000E+00 | | 0.258E+01 0.192E+01 0.162E+01 |
| (absorbed chemical conc. $Z = -9$. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | 200. 0.000E+00 | 0.000E+00 0.000E+00 0.000E+00 | DISTRIBUTION OF DISSOLVED (ADSORBED CHEMICAL CONC. | .69 | 0.235E+01 0.172E+01 0.144E+01 0.115E+01 | 200. 0.127E-02 0.117E-02 0.112E-02 0.106E-02 | DISTRIBUTION OF DISSOLVED (ADSORBED CHEMICAL CONC. Z = -8. | 0.251E+01 0.187E+01 |
| , , | 0. -12. -15. -18. | , 0 K | | DIS | Þ | 12. 12. 12. 12. 129. | 1120 K | S I D | 12. |

| 0.294E+00 | | | | | | | | 100. | 0.571E+00 | 0.536E+00 | 0.518E+00 | 0.49/E+00 | | | | | | | | | | 100. | 0.626E+00 | 0.590E+00 | 0.572E+00 | 0.452E+00 | | | | | | | |
|--------------------------|------|-----------|-----------|-----------|-----------|--|------|------|-----------|-----------|-----------|-----------|----------|-------------|--------------|-----------|-----------|-----------|-----------|--|---|------|-----------|-----------|-----------|-----------|----------|-----------------|-----------|-----------|-----------|-----------|--|
| 0.583E+00 | | | | | | | | 50. | 0.128E+01 | 0.113E+01 | 0.105E+01 | 0.9/3E+00 | | | | | | | | | | .05 | 0.132E+01 | 0.116E+01 | 0.109E+01 | 0.698E+00 | | | | | | | |
| 0.715E+00 | | | | | | | | 27. | 0.236E+01 | 0.188E+01 | 0.167E+01 | 0 144E+01 | | | | | | | | | | 27. | 0.238E+01 | 0.191E+01 | 0.169E+01 | 0.803E+00 | | | | | | | |
| 0.740E+00 | | | | | | | | 15. | 0.315E+01 | 0.240E+01 | 0.206E+01 | 0.1/2E+01 | | | | | | | | | | 15. | 0.317E+01 | 0.242E+01 | 0.208E+01 | 0.815E+00 | | | | | | | |
| 0.7375+00 | | | | | | CONC.) | | 13. | 0.324E+01 | 0.246E+01 | 0.210E+01 | 0.1/4E+01 | | | | | | | | CONC.) | | 13. | 0.327E+01 | 0.248E+01 | 0.212E+01 | 0.810E+00 | | | | | | | |
| 0.736E+00 NUE X | | | | | | 1 AT 0.2628E+05 HRS * DISSOLVED CHEMICAL | > | 12. | 0.328E+01 | 0.248E+01 | 0.211E+01 | 0.788E+00 | NUE | × | | | | | | 0.3504E+05 HRS SSOLVED CHEMICAL | × | 12. | 0.330E+01 | 0.250E+01 | 0.213E+01 | 0.807E+00 | NUE |): | | | | | |
| 0.679E+00 0. CONTINUE | | | | | | PPM AT 0.26 00 * DISSOLV | | ci. | 0.332E+01 | 0.247E+01 | 0.209E+01 | 0.724E+00 | CONTINUE | | | | | | | H | | | 0.334E+01 | 0.249E+01 | 0.211E+01 | 0.740E+00 | CONTINUE | | | | | | |
| 0.656E+00 | | | | | | CHEMICALS IN PPM AT = 0.1620E+00 * DO | 0.00 | 0 | 0.323E+01 | | 0.203E+01 | 0.700E+00 | | | | | | | | H | | 0. | 0.324E+01 | | | 0.715E+00 | | | | | | | |
| 0.552E+00 | 350. | 0.118E-03 | 0.113E-03 | 0 107E-03 | 0.929E-04 | DISSOLVED | = 7 | 80 | 0.262E+01 | 0.196E+01 | 0.166E+01 | 0.590E+00 | | 350. | S Section of | 0.334E-02 | 0.320E-02 | 0.313E-02 | 0.283E-02 | OF DISSOLVED CI | | 80 | 0.264E+01 | 0.198E+01 | 0.168E+01 | 0.604E+00 | | 350. | 0.148E-01 | 0.145E-01 | 0.143E-01 | 0.130E-01 | |
| 0.543E+00 | 200. | | 0.414E-01 | | 0.330E-01 | DISTRIBUTION OF (ADSORBED CHEM | | -9. | 0.256E+01 | 0.192E+01 | 0.163E+01 | 0.580E+01 | | 200. | | 0.122E+00 | 0.1158+00 | 0.112E+00 | 0.987E-01 | DISTRIBUTION OF DISSOLVED CHEM (ADSORBED CHEMICAL CONC. = 0.00 | | 6, | 0.257E+01 | 0.193E+01 | 0.164E+01 | 0.593E+00 | | 200. | 0.183E+00 | 0.178E+00 | 0.1/25+00 | 0.153E+00 | |
| -29. | × | 0. | -12. | | -296 |) (| | × | 0 | -12. | 1.75 | - 78. | | > | | 0 0 | -15. | -18. | -29. | DIS) | | × | 0 | -12. | . n | -29. | | × | 0 | -12 | | -29. | |

| 0.173E+00 | 0.176 | E+00 | 0.2038+00 | 0.2118+00 | 0 2458+00 | 0.2488±00 | 00+4440 | 000 | COTACUC C | , i |
|---|--|-------|---|--|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| D | 00+ | | 0.40 440 60 70 70 70 70 70 70 70 70 70 70 70 70 70 | CONTINUE | O.245E+00 INUE X | 0.248E+00 | 0.255E+00 | 0.295E+00 | 0.363E+00 | 0.413E+00 |
| 200. 350. | 350. | | | | (- | | | | | |
| 0.328E+00 0.671E-01 0.307E+00 0.656E-01 0.297E+00 0.648E-01 0.285E+00 0.638E-01 0.236E+00 0.590E-01 | SE-01 SE-01 SE-01 SE-01 | | | | | | | | | |
| DISTRIBUTION OF DISSOLVED (ADSORBED CHEMICAL CONC. Z = | CONC | | CHEMICALS IN PPI = 0.1620E+00 0.00 | ~ * | AT 0.7008E+05 HRS DISSOLVED CHEMICAL | CONC.) | | | | |
| 8 | 8 | | 0 | 2. | X 12. | 13. | 15. | 27. | 50. | 100. |
| | 20+0 | 0.0 | 0.238E+00 | 0.247E+00 0.196E+00 | 0.288E+00 0.228E+00 | 0.292E+00 | 0.300E+00 | 0.353E+00 | 0.455E+00 0.362E+00 | 0.610E+00 0.493E+00 |
| 0.142E+00 0.144E+00 0.122E+00 0.124E+00 0.664E-01 0.672E-01 | 0 - Q - Q - Q - Q - Q - Q - Q - Q - Q - | оон | 0.166E+00 0.143E+00 0.776E-01 | 0.172E+00 0. 0,149E+00 0. 0,806E-01 0. | 014 | 0.204E+00 0.175E+00 0.953E-01 | 0.210E+00 0.181E+00 0.982E-01 | 0.247E+00 0.213E+00 0.116E+00 | 0.320E+00 0.276E+00 0.153E+00 | 0,439E+00 0,384E+00 0,223E+00 |
| 200. 350. | 350 | | | | 4 | | | | | |
| 0.435E+00 0.903E-01 0.375E+00 0.869E-01 0.347E+00 0.85IE-01 0.317E+00 0.830E-01 0.222E+00 0.737E-01 | M M M M M | 11111 | | | | | | | | |
| DISTRIBUTION OF DISSOLVED (ADSORBED CHEMICAL CONC. Z = | CON | ДÜ | CHEMICALS IN PPM AT . = 0.1620E+00 * D1 | PPM AT 0.78 +00 * DISSOLV | HRS | CONC.) | | | | |
| .6 | 8 | | 0. | 2. | 12. | 13. | 15. | 27. | .05 | 100. |
| 0.817E-01 0.827E-01 0.650E-01 0.658E-01 | 五 五 五 二 0 - 0 - 0 - 0 - | ене | 0.954E-01 0.759E-01 | 0.991E-01 0.789E-01 | 0.116E+00 0.923E-01 | 0.117E+00 0.934E-01 | 0.121E+00 0.963E-01 | 0.144E+00 0.115E+00 | 0.193E+00 0.154E+00 | 0.303E+00 0.243E+00 |
| 0.496E-01 0.502E-0 0.273E-01 0.276E-0 | 1 E E | (dd | | 0.601E-01 0.0.331E-01 0. | 0.704E-01 0.387E-01 INUE | 0.712E-01 0.392E-01 | 0.405E-01 | 0.875E-01 0.483E-01 | 0.118E+00 0.653E-01 | 0.188E+00 0.108E+00 |
| 200. 350. | 350 | 1 | | | 4 | | | | | |
| 0.365E+00 0.123E+00 0.304E+00 0.113E+00 0.275E+00 0.108E+00 0.246E+00 0.103E+00 0.157E+00 0.828E-01 | 3 E + 0 0 3 E + 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | |
| | | | | | | | | | | |

| -8. 0. 2. | 2. X 12. 2-01 0.487E-01 2-01 0.389E-01 3-01 0.343E-01 3-01 0.297E-01 3-01 0.155E-01 2. X 12. 3-01 0.168E-01 3-01 0.168E-01 3-01 0.148E-01 3-01 0.148E-01 3-01 0.148E-01 3-01 0.148E-01 3-01 0.158E-01 3-02 0.17E-02 3-02 0.17E-02 3-03 0.17E-02 3-03 0.17E-02 3-04 0.138E-01 3-05 0.50E-02 3-05 0.50E-02 3-05 0.50E-02 3-05 0.50E-02 | | i. | | | | | | | | |
|---|--|------------------|--------------------------|----------------------------|--------------|-------------------|-----------|-----------|-----------|-----------|-----------|
| 0.9636F+05 HRS 0.9636F+05 HRS 0.9636F+05 HRS 0.9636F+05 HRS 0.9636F+05 HRS 0.167B-01 13. 2. | 10.9636E+05 HRS 10.1051E+06 HRS 10.1051E+07 | 6 | & | o | . 2 | X 12. | 13. | 15. | 27. | 50. | 100. |
| 0.9636E+05 HRS 0.9636E+05 HRS 1-01 0.9636E+05 HRS 2. | 0.9636E+05 HRS 0.9636E+05 HRS 1.0.343E-01 0.167E-01 0.172E-01 0.207E-01 0.588E-01 0.207E-01 0.284E-01 0.172E-01 0.172E-01 0.172E-01 0.207E-01 0.284E-01 0.207E-01 0.155E-01 0.172E-01 0.172E-01 0.207E-01 0.284E-01 0.168E-01 0.156E-01 0.168E-01 0.168E-01 0.166E-01 0. | 13E-01 | 0.347E-01 | 10 | 0.416E-01 | 0.487E-01 | 0.493E-01 | 0.509E-01 | 0.609E-01 | 0.833E-01 | 0.143E+00 |
| 0.9636E+05 HRS 0.9636E+05 HRS 1.2. | 0.9636E+05 HRS | 2E-01 | 0.245E-01 | | 0.293E-01 | 0.343E-01 | 0 348E-01 | 0 3598-01 | 0.409E-01 | 0.588E-01 | 0.144400 |
| 0.9636E+05 HRS 0.9636E+05 HRS 2. | 0.9636E+05 HRS 0.9636E+05 HRS 10.9636E+05 HRS 10.9636E+01 | 9E-01 | 0.212E-01 | | 0.253E-01 | 0.297E-01 | 0.301E-01 | 0.310E-01 | 0.372E-01 | 0.510E-01 | 0.883E-01 |
| 0.9636E+05 HRS 2. | 0.9636E+65 HRS 1.2 | 6E-01 | 0.117E-01 | | 0.141E-01 | 0.165E-01 | 0.167E-01 | 0.172E-01 | 0.207E-01 | 0.284E-01 | 0.501E-01 |
| 0.9636E+05 HRS 2. X 12. 13. 3-01 0.210E-01 0.213E-01 3-01 0.168E-01 0.170E-01 3-01 0.128E-01 0.150E-01 3-02 0.717E-02 0.726E-02 CONTINUE X 0.1051E+06 HRS 12. 12. 13. 2. 12. 0.919E-02 3-02 0.919E-02 0.931E-02 3-02 0.735E-02 0.559E-02 0.659E-02 0.744E-02 | SSOLVED CHEMICAL CONC.) 2. | | | | | | | | | | |
| 0.9636E+05 HRS 2. | 12. | 200. | 350. | | | | | | | | |
| 0.9636E+05 HRS 2. | 15. IS. IS. IS. IS. IS. IS. IS. IS. IS. IS | SE+00 | 0.142E+00 | | | | | | | | |
| 0.9636E+05 HRS 12. | 15. 15. 27. 50. 2. X 12. 13. 15. 27. 50. 2. 12. 13. 15. 27. 50. 2. 12. 13. 15. 27. 50. 2. 12. 13. 15. 27. 50. 2. 12. 13. 15. 27. 50. 3.01 0.168E-01 0.170E-01 0.155E-01 0.186E-01 0.292E-01 0.128E-01 0.130E-01 0.155E-01 0.156E-01 0.16E-01 0.16E-01 0.165E-01 0.576E-02 0.550E-02 0.550E-02 0.590E-02 0.59 | 94E+00 | 0.1245+00 | | | | | | | | |
| 0.9636E+05 HRS 2. | 0.9636E+05 HRS 2. | 74E+00 | 0.1165+00 | | | | | | | | |
| 0.9636E+05 HRS 2. | 0.9636E+05 HRS 1SSOLVED CHEMICAL CONC.) 2. | 54E+00 37E-01 | 0.107E+00 0.783E-01 | | | | | | | | * |
| 2. | 2. | O NOITO | F DISSOLVED | CHEMICALS IN | PPM AT 0.96 | S36E+05 HRS | | | | | |
| 2. X 12. 13. 13. 13. 13. 2-01 0.210E-01 0.213E-01 0.168E-01 0.170E-01 0.170E-01 0.128E-01 0.170E-01 0.128E-01 0.128E-01 0.128E-01 0.128E-01 0.128E-02 0.726E-02 0.77E-02 0.726E-02 0.1051E+06 HRS | 2. | RDED CE | F | | TOSSITO × OO | ED CHEMICAL | CONC. | | | | |
| 2-01 0.210E-01 0.213E-01 2-01 0.168E-01 0.170E-01 3-01 0.128E-01 0.150E-01 3-02 0.717E-02 0.726E-02 CONTINUE X 0.1051E+06 HRS 12. 12. 13. 2. 12. 0.919E-02 0.931E-02 3-02 0.735E-02 0.744E-02 3-02 0.550E-02 0.659E-02 | 0.1051E+06 HRS 1. | 9, | 80 | 0. | 2. | | 13. | 15. | 27. | 50. | 100. |
| 2-01 0.168E-01 0.170E-01 3-01 0.148E-01 0.150E-01 3-02 0.717E-02 0.726E-02 CONTINUE X 0.1051E+06 HRS 12. 12. 13. 2. 12. 0.919E-02 0.931E-02 3-02 0.735E-02 0.744E-02 3-02 0.550E-02 0.659E-02 | 3-01 0.168E-01 0.170E-01 0.175E-01 0.21IE-01 0.292E-01 3-01 0.148E-01 0.150E-01 0.155E-01 0.186E-01 0.258E-01 3-02 0.717E-02 0.726E-02 0.749E-02 0.901E-02 0.125E-01 CONTINUE 0.1051E+06 HRS 12. | 48E-01 | 0.149E-01 | | 0.179E-01 | 0.210E-01 | 0.213E-01 | 0.219E-01 | 0.264E-01 | 0.365E-01 | 0.660E-01 |
| 3-01 0.148E-01 0.150E-01 3-01 0.128E-01 0.130E-01 3-02 0.77E-02 0.726E-02 CONTINUE X 0.1051E+06 HRS 12. | 3-01 0.148E-01 0.150E-01 0.155E-01 0.186E-01 0.258E-01 3-01 0.128E-01 0.130E-01 0.134E-01 0.161E-01 0.224E-01 3-02 0.717E-02 0.726E-02 0.749E-02 0.901E-02 0.125E-01 CONTINUE X 0.1051E+06 HRS 1SSOLVED CHEMICAL CONC.) 2. | 18E-01 | 0.119E-01 | | 0.143E-01 | 0.168E-01 | 0.170E-01 | 0.175E-01 | 0.211E-01 | 0.292E-01 | 0.529E-01 |
| 0.1051E+06 HRS 0.1051E+06 HRS X 12. 12. 13. 2. 12. 13. 2. 12. 1 | 0.1051E+06 HRS 1-02 0.725E-02 0.749E-02 0.901E-02 0.125E-01 CONTINUE 0.1051E+06 HRS 1-2 13. 15. 27. 50. 1-2 0.919E-02 0.931E-02 0.961E-02 0.165E-01 1-2 0.919E-02 0.931E-02 0.961E-02 0.165E-01 1-2 0.650E-02 0.744E-02 0.749E-02 0.116E-01 1-2 0.650E-02 0.591E-02 0.991E-02 0.116E-01 1-2 0.650E-02 0.735E-02 0.749E-02 0.901E-02 0.116E-01 1-3 0.650E-02 0.659E-02 0.800E-02 0.819E-02 0.116E-01 1-3 0.650E-02 0.659E-02 0.690E-02 0.711E-02 0.994E-02 | 04E-01 | 0.106E-01 | | 0.126E-01 | 0.148E-01 | 0.150E-01 | 0.155E-01 | 0.186E-01 | 0.258E-01 | 0.469E-01 |
| 0.1051E+06 HRS 0.1051E+06 HRS 12. | 0.1051E+06 HRS 0.1051E+06 HRS 1.2. | 03E-02 | 0.914E-02 | | 0.109E-01 | 0.128E-01 | 0.130E-01 | 0.134E-01 | 0.161E-01 | 0.224E-01 | 0.408E-01 |
| 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) 2. X 12. 13. 3-02 0.919E-02 0.931E-02 3-02 0.735E-02 0.744E-02 3-02 0.650E-02 0.659E-02 | 0.1051E+06 HRS 1SSOLVED CHEMICAL CONC.) X 12. 13. 15. 27. 50. 3-02 0.919E-02 0.931E-02 0.961E-02 0.116E-01 3-02 0.735E-02 0.744E-02 0.769E-02 0.926E-02 3-02 0.650E-02 0.659E-02 0.680B-02 0.115E-01 3-02 0.654E-02 0.571E-02 0.590E-02 0.711E-02 0.994E-02 | 04E-02 | 0.510E-02 | | .611E | 0.717E-02 INUE | 0.726E-02 | 0.749E-02 | 0.901E-02 | 0.125E-01 | 0.231E-01 |
| 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) 2. | 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) X 2. | 200. | 350. | | | 4 | | | | | |
| 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) X 2. | 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) 2. | 34E+00 | 0.129E+00 | | | | | | | | |
| 0.1051E+06 HRS ISSCLVED CHEMICAL CONC.) X 2. 12. 12. 13. 3-02 0.919E-02 0.735E-02 0.744E-02 0.650E-02 0.659E-02 | 0.1051E+06 HRS 1SSOLVED CHEMICAL CONC.) 2. | 09E+00 | 0.110E+00 | | 0 | | | | | | |
| 0.1051E+06 HRS ISSCLVED CHEMICAL CONC.) X 2. 12. 12. 13. 3-02 0.919E-02 0.735E-02 0.744E-02 0.650E-02 0.659E-02 | 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) 2. | 79E-01 | 0.101E+00 | | | | | | | | |
| 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) X 2. | 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) 2. | 60E-01 | 0.917E-01 | | | | | | | | |
| 0.1051E+06 HRS ISSOLVED CHEMICAL CONC.) 2. | 15SOLVED CHEMICAL CONC.) X 2. | 128-01 | 0.624E-01 | | | | | | | | |
| Z = 0.00 -8. 0. 2. 12. 13. 0.654E-02 0.754E-02 0.783E-02 0.919E-02 0.931E-02 0.523E-02 0.602E-02 0.626E-02 0.735E-02 0.744E-02 0.463E-02 0.533E-02 0.554E-02 0.650E-02 0.659E-02 | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | UTION C | F DISSOLVED EMICAL CONC. | CHEMICALS IN = 0.1620E+ | PPM AT 0.1(| JSIE+06 HRS | | | | | |
| -8. 0. 2. 12. 13. 0.654E-02 0.754E-02 0.533E-02 0.535E-02 0.735E-02 0.463E-02 0.533E-02 0.554E-02 0.650E-02 0.659E-02 | -8. 0. 754E-02 0.754E-02 0.783E-02 0.919E-02 0.931E-02 0.961E-02 0.116E-01 0.162E-01 0.523E-02 0.533E-02 0.533E-02 0.554E-02 0.650E-02 0.901E-02 0.9461E-02 0.461E-02 0.462E-02 0.480E-02 0.564E-02 0.571E-02 0.571E-02 0.711E-02 0.994E-02 | | = 2 | 00.0 | | | | | | | |
| 0.654E-02 0.754E-02 0.783E-02 0.919E-02 0.931E-02 0.523E-02 0.626E-02 0.735E-02 0.744E-02 0.463E-02 0.533E-02 0.554E-02 0.650E-02 0.659E-02 | 0.654E-02 0.754E-02 0.783E-02 0.919E-02 0.931E-02 0.961E-02 0.116E-01 0.162E-01 0.523E-01 0.523E-02 0.626E-02 0.735E-02 0.744E-02 0.769E-02 0.926E-02 0.129E-01 0.463E-02 0.533E-02 0.554E-02 0.650E-02 0.659E-02 0.680E-02 0.819E-02 0.115E-01 0.401E-02 0.462E-02 0.480E-02 0.564E-02 0.571E-02 0.571E-02 0.711E-02 0.994E-02 | 0 | 89 | 0. | 2 | | 13. | 15. | 27. | 50. | 100. |
| 0.523E-02 0.602E-02 0.626E-02 0.735E-02 0.744E-02 0.463E-02 0.533E-02 0.554E-02 0.650E-02 0.659E-02 | 0.523E-02 0.602E-02 0.626E-02 0.735E-02 0.744E-02 0.769E-02 0.926E-02 0.129E-01 0.463E-02 0.533E-02 0.159E-01 0.463E-02 0.533E-02 0.480E-02 0.650E-02 0.571E-02 0.590E-02 0.711E-02 0.994E-02 | 46E-02 | 0.654E-02 | | 0.783E-02 | 0.919E-02 | 0.931E-02 | 0.961E-02 | 0.116E-01 | 0.162E-01 | 0.303E-01 |
| 0.463E-02 0.533E-04 0.554E-02 0.650E-02 0.659E-02 | 0.463E-02 0.533E-02 0.454E-02 0.650E-02 0.659E-02 0.680E-02 0.819E-02 0.115E-01 0.401E-02 0.462E-02 0.480E-02 0.564E-02 0.571E-02 0.590E-02 0.711E-02 0.994E-02 | 17E-02 | 0.523E-02 | 0.602E-02 | 0.626E-02 | 0.735E-02 | 0.744E-02 | 0.769E-02 | 0.926E-02 | 0.129E-01 | 0.243E-01 |
| 0 401E-02 0 462E-02 0 480E-02 0 564E-02 0 571E-02 | 0.5304B-02 0.401B-02 0.400B-02 0.504B-02 0.571B-02 0.530B-02 0.5304B-02 0.5304B-02 | 97E-02 | 0.403E-04 | 0.53E-02 | 0.554E-02 | 0.65UE-UZ | 0.659E-02 | 0.680E-02 | 0.819E-02 | 0.115E-01 | 0.216E-01 |

| -29. | 0.222E-02 | 0.2255-02 | 0.259E-02 | 0.269E-02 0. CONTINUE | 0.316E-02 | 0.320E-02 | 0.330E-02 | 0.398E-02 | 0.559E-02 | 0.106E-01 |
|------|--|-----------------------------|--|--------------------------|---|-----------|-----------|------------------------|-----------|-----------|
| X | 200. | 350. | | | 4 | | | | | |
| -12. | 0.715E-01 0.580E-01 | 0.986E-01 0.824E-01 | | | | | | | | |
| -15. | 0.517E-01 0.453E-01 | 0.750E-01 0.672E-01 | | | | | | | | |
| -29. | 0.266E-01 | 0.437E-01 | | | | | | | | |
| DI | DISTRIBUTION OF (ADSORBED CHEM | DISSOLVED ICAL CONC. | CHEMICALS IN PPM - = 0.1620E+00 * | PPM AT 0.11 | * DISSOLVED CHEMICAL | CONC.) | | | | |
| × | . 6 | 80 | 6 | 2 | X 12. | 13. | 15. | 27, | 50, | 100. |
| 0 | 0.286E-02 | 0.290E-02 | 0 | 0.347E-02 | 0.408E-02 | 0.413E-02 | 0.426E-02 | 0.514E-02 | 0.723E-02 | 0.139E-01 |
| -12 | 0.229至-02 | 0.232E-02 | 0 0 | 0.277E-02 | 0.326E-02 | 0.330E-02 | 0.341E-02 | 0.411E-02 | 0.579E-02 | 0.112E-01 |
| -18. | 0.176E-02 | 0.178E-02 | 0.205E-02 | 0.213E-02 | 0.289E-02 | 0.292E-02 | 0.302E-02 | 0.364E-02 | 0.513E-02 | 0.991E-02 |
| -29. | 0.989E-03 | 0.100E-02 | 0 | 0.120E-02 0. CONTINUE | 0.141E-02 | 0.143E-02 | 0.147E-02 | 0.178E-02 | 0.251E-02 | 0.489E-02 |
| X | 200. | 350. | | | × | | | | | |
| 0 | 0.366E-01 | 0.664E-01 | | | | | | | | |
| -12. | 0.296E-01 | 0.549E-01 | | | | | | | | |
| -15 | 0.263E-01 | 0.496E-01 | | | | | | | | |
| 0 0 | 0.230E-01 | 0.442E-01 | | | • | | | | | |
| . 62 | 0.134E-01 | 0.278E-01 | | | | | | | | |
| D | DISTRIBUTION OF DISSOLVED CHE (ADSORBED CHEMICAL CONC. = Z = 0.0 | OF DISSOLVED CHEMICAL CONC. | CHEMICALS IN PPM AT = 0.1620E+00 * DI 0.00 | PPM AT 0.12 | AT 0.1226E+06 HRS * DISSOLVED CHEMICAL | CONC.) | | | | Χ |
| | | | | | × | | | | | |
| ы | , 0 1 | -8 | .0 | | 12. | 13. | 15. | 27. | .09 | 100. |
| 0 | 0.128E-02 | 0.130E-02 | 0.149E-02 | 0.155E-02 | 0.182E-02 | 0.185E-02 | 0.191E-02 | 0.230E-02 | 0.326E-02 | 0.641E-02 |
| -12. | 0.102E-02 | 0.104E-02 | 0.119E-02 | 0.124E-02 | 0.146E-02 | 0.148E-02 | 0.153E-02 | 0.184E-02 | 0.261E-02 | 0.514E-02 |
| | 7881-03 | 0.310E-03 | 0.106E-02 | 0.110E-02 | 0.129E-02 | 0.131E-02 | 0.135E-02 | 0.163E-02 | 0.231E-02 | 0.456E-02 |
| 2.50 | 0.444E-03 | 0.449E-03 | 0.517E-03 | 0.537E-03 0. CONTINUE | 0.631E-03 | 0.640E-03 | 0.661E-03 | 0.142E-02 0.799E-03 | 0.113E-02 | 0.225E-02 |
| > | 000 | | | | × | | | | | |
| н | .002 | 350. | | | | | | | | |
| 0 0 | 0.182E-01 | 0.411E-01 | | | | | | | | |
| -12. | 0.137E-01 | 0.338E-01 | | | | | | | | |
| -18. | 0.114E-01 | 0.269E-01 | | | | | | | | |
| -29. | 0.663E-02 | 0.166E-01 | | | | | | | | |
| | | | | | | | | | | |

| ā | DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT (ADSORBED CHEMICAL CONC. = 0.1620E+00 * D. Z = 0.00 | CHEMICAL CONC. | CHEMICALS IN PP = 0.1620E+00 | PPM AT 0.1. | AT 0.1314E+06 HRS * DISSOLVED CHEMICAL | CONC.) | | | | |
|------|---|------------------------------|--|--------------------------|---|-----------|------------------|-----------|-----------|-----------|
| × | .6- | . 8 | 0. | . 2 | X 12. | 13. | 15. | 27. | . 20. | 100. |
| . 6 | 0.576E-03 | 0.583E-03 | 0.671E-03 | 0.697E-03 | 0.820E-03 | 0.831E-03 | 0.858E-03 | 0.104E-02 | 0.147E-02 | 0.295E-02 |
| -15. | 0.409E-03 | 0.414E-03 | , 0 | 0.495E-03 | 0.582E-03 | 0.590E-03 | 0.609E-03 | 0.831E-03 | 0.118E-02 | 0.236E-02 |
| -18. | 0.355E-03 | 0.359E-03 | 0 | 0.430E-03 | 0.505E-03 | 0.512E-03 | 0.529E-03 | 0.640E-03 | 0.909E-03 | 0.182E-02 |
| -29. | 0.200E-03 | 0.203E-03 | 0 | 0.242E-03 0. | 0.285E-03 | 0.289E-03 | 0.298E-03 | 0.361E-03 | 0.513E-03 | 0.103E-02 |
| 3 | | | | | × | | | | | |
| × | 200. | 350. | | | | | | | | |
| 0 | 0.895E-02 | 0.240E-01 | | | | | | | | |
| -12. | 0.722E-02 | 0.196E-01 | | | | | | | | |
| -15. | 0.642E-02 | 0.176E-01 | | | | | | | | |
| 2 6 | 0.324E-02 | 0.942E-02 | | | | | | | | |
| DI | DISTRIBUTION OF DISSOLVED | | O | Z) | 0.1402E+06 HRS | | | | | |
| | (ACCORDED CA | | 0.00 | k | DISSOLVED CHEMICAL | CONC.) | | | | |
| Þ | 6- | 80 | | 73 | X 12. | 13. | 15. | 27. | 50. | 100. |
| 0 | 0.261E-03 | 0.264E-03 | | F0-331F 0 | 0 371E-03 | 2750-03 | 6 6 6 6 | | 0000 | i i |
| -12. | 0.209E-03 | 0.211E-03 | 0 | 0.253E-03 | 0.297E-03 | 0.301E-03 | 0.3118-03 | 0 3778-03 | 0.670E-03 | 0.136E-02 |
| -15. | 0.185E-03 | 0.187E-03 | 0 | 0.224E-03 | 0.264E-03 | 0.267E-03 | 0.276E-03 | 0.334E-03 | 0.476E-03 | 0.966E-03 |
| -18. | 0.161E-03 | 0.163E-03 | 0 | 0.195E-03 | 0.229E-03 | 0.232E-03 | 0.240E-03 | 0.290E-03 | 0.413E-03 | 0.840E-03 |
| -29. | 0.908E-04 | 0.919E-04 | 0.106E-03 | 0.110E-03 0. CONTINUE | 0.129E-03 | 0.131E-03 | 0.135E-03 | 0.164E-03 | 0.234E-03 | 0.477E-03 |
| × | 200. | 350. | | | 4 | | | | | , |
| 0 | 0.435E-02 | 0.134E-01 | | | | | | | | |
| -12. | 0.350E-02 | 0.109E-01 | | | | | | | | |
| -15. | 0.311E-02 | 0.978E-02 | | | | | | | | |
| -18. | 0.2/2E-02 | 0.861E-02 | | | | | | | | |
| П | DISTRIBUTION OF | TOF DISSOLVED CHEMICAL CONC. | OF DISSOLVED CHEMICALS IN PPM AT HEMICAL CONC. = 0.1620E+00 * DI | PPM AT 0.14 | AT 0.1489E+06 HRS DISSOLVED CHEMICAL | CONC.) | | | | |
| > | 0 | α, | | ç | × | ç | i | į. | 3 | 1 |
| • | Ý | ò | | 7. | 17. | 13. | LS. | 27. | 20. | 100. |
| .10. | 0.119E-03 | 0.120E-03 | 0.138E-03 | 0.143E-03 | 0.169E-03 | 0.171E-03 | 0.177E-03 | 0.214E-03 | 0.305E-03 | 0.626E-03 |
| -15. | 0.842E-04 | 0.852E-04 | 0.981E-04 | 0.102E-03 | 0.120E-03 | 0.13/E-03 | 0.142E-03 | 0.172E-03 | 0.245E-03 | 0.502E-03 |
| -18. | 0.732E-04 | 0.740E-04 | | 0.886E-04 | 0.104E-03 | 0.106E-03 | 0.109E-03 | 0.132E-03 | 0.189E-03 | 0.388E-03 |
| | | | | | | | | | | |

| 1, | | 7 | | | | | | | | | |
|--|---------|---------------|-----------------------------|----------------------------|-------------------|-----------------------------|-----------|-----------|-----------|-----------|-----------|
| 200. 350. | -29. | 0.414E-04 | 0.419E-04 | | 0.501E-04 CONT | 0.589E-04 INUE | 0.597E-04 | 0.617E-04 | 0.748E-04 | 0.107E-03 | 0.220E-03 |
| 0.1899-02 0.7268-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-02 0.1109-02 0.5288-03 0.209-03 0.208-04 0.5288-04 0.5288-04 0.7088-0 | × | 200. | 350. | | | × | | | | | |
| 0.1508-02 0.5288-02 0.5488-02 0.5488-02 0.5488-03 0.5488-03 0.5488-04 0.5588 | | | | | | | | | | | |
| 0.115E-0.2 0.658E-0.2 0.758E-0.2 | 0 | 0.209E-02 | 0.726E-02 | | | | | | | | |
| STRIBUTION OF DISSOLVED CHBMICALS IN PRW AT 0.15778+06 HRS (ADSORBED CHBMICAL CONC.) 0.7518-02 0.2768-02 0.0468-02 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0 | -12. | 0.169E-02 | 0.590E-02 | | | | | | | | |
| STRIBUTION OF DISSOLUED CHEMICALS IN PRW AT 0.15778+06 HRS STRIBUTION OF DISSOLUED CHEMICALS IN PRW AT 0.15778+06 HRS G.5418-04 0.5478-04 0.000. G.5418-04 0.5488-04 0.5538-04 0.5538-04 0.5538-04 0.5558-0 | 0 0 | 0.130E-02 | 0.528E-02 | | | | | | | | |
| STREETING OF DISSOLVED CHEMICALS IN PRM AT 0.15778+66 HRS (ADSORBED CHEMICAL CONC. = 0.16208+00 * DISSOLVED CHEMICAL CONC.) 2 | | 0.101010 | 0.4046-02 | | | | | | | | |
| STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.15778+06 RRS (ADSORBED CHEMICAL CONC. = 0.16208+00 * DISSOLVED CHEMICAL CONC.) -9. | . 63 | 50-AIC/ 0 | 0.276E-02 | | | | | | | | |
| ### CANAGRED CHEMICAL CONC. 2 | ż | | THE PERSON NAMED IN | | | | | | | | |
| P. 13. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15 | To | (ADSORBED CH. | F DISSOLVED EMICAL CONC. | CHEMICALS IN = 0.1620E- | 00- | 577E+06 HRS VED CHEMICAL | | | | | |
| 0.541E-04 0.547E-04 0.530E-04 0.534E-04 0.770E-04 0.780E-04 0.806E-04 0.977E-04 0.140E-03 0.348E-04 0.548E-04 0.547E-04 0.750E-04 0.750E-04 0.770E-04 0.770E | | | | | | 5 | | | | | |
| 0.541E-04 0.547E-04 0.550E-04 0.654E-04 0.770E-04 0.780E-04 0.806E-04 0.875E-04 0.140E-03 0.438E-04 0.359E-04 0.50EE-04 0.655E-04 0.65EE-04 0.56EE-04 0.784E-04 0.120E-03 0.388E-04 0.359E-04 0.459E-04 0.465E-04 0.455E-04 0.555E-04 0.555E-04 0.596E-04 0.140E-03 0.388E-04 0.389E-04 0.368E-04 0.446E-04 0.445E-04 0.455E-04 0.555E-04 0.595E-04 0.490E-04 0.388E-04 0.329E-04 0.326E-04 0.429E-04 0.455E-04 0.456E-04 0.490E-04 0.490E-04 0.388E-04 0.329E-04 0.220E-04 0.229E-04 0.255E-04 0.273E-04 0.490E-04 0.30E-03 0.278E-02 0.50E-03 0.278E-02 0.51E-03 0.278E-03 0.448E-02 0.359E-03 0.248E-02 0.359E-04 0.250E-04 0.300E-04 0.350E-04 0.356E-04 0.359E-04 0.448E-04 0.359E-04 0.250E-04 0.230E-04 0.300E-04 0.350E-04 0.356E-04 0.359E-04 | × | | 80, | 0 | 2. | | 13. | 15. | 27. | 50. | 100. |
| 0.438E-04 0.438E-04 0.505E-04 0.648E-04 0.648E-04 0.656E-04 0.648E-04 0.556E-04 0.648E-04 0.548E-04 0.538E-04 0.348E-04 0.448E-04 0.448E-04 0.448E-04 0.448E-04 0.458E-04 0.548E-04 0.695E-04 0.495E-04 0.295E-04 0.295E | 0. | 0.541E-04 | 0.547E-04 | 0 | 0.654E-04 | 0.770E-04 | 0.780E-04 | 0.806E-04 | 0.977E-04 | 0.1408-03 | |
| 0.382E-04 0.338E-04 0.448E-04 0.445E-04 0.547E-04 0.555E-04 0.573E-04 0.595E-04 0.994E-04 0.185E-04 0.185E-04 0.185E-04 0.273E-04 0.495E-04 0.185E-04 0.185E-04 0.185E-04 0.185E-04 0.185E-04 0.195E-04 0.195E | -12. | 0.434E-04 | 0.439E-04 | 0 | 0.525E-04 | 0.618E-04 | 0.626E-04 | 0.646E-04 | 0.784E-04 | 0.112E-03 | 0.232E-03 |
| 0.189E-04 0.191E-04 0.220E-04 0.40E-04 0.476E-04 0.478E-04 0.262E-04 0.262E- | -15. | 0.384E-04 | 0.389E-04 | 0 | 0.465E-04 | 0.547E-04 | 0.555E-04 | 0.573E-04 | 0.695E-04 | 0.994E-04 | 0.206E-03 |
| 200. 350. 200. 350. 0.100E-02 0.384E-02 0.00TINUE X 0.100E-02 0.384E-02 0.100E-02 0.386E-04 0.100E-02 0.386E-03 0.100E-03 0.100E-03 0.100E-03 .100E-03 0.100E-03 | 118 | 0.334E-04 | 0.338E-04 | 0.389E | 0.404E-04 | 0.476E-04 | 0.482E-04 | 0.498E-04 | 0.604E-04 | 0.864E-04 | 0.179E-03 |
| 200. 350. | -29. | 0,189E-04 | 0.191E-04 | 0.220E | 0.229E-04 | 0.269E-04 INUE | 0.273E-04 | 0.282E-04 | 0.342E-04 | 0.490E-04 | 0.102E-03 |
| 0.100E-02 0.384E-02 0.087E-03 0.212E-02 0.625E-03 0.244E-02 0.625E-03 0.244E-02 0.625E-03 0.244E-02 0.625E-03 0.244E-02 0.359E-03 0.244E-02 0.359E-04 0.250E-04 0.238E-04 0.300E-04 0.353E-04 0.355E-04 0.359E-04 0.448E-04 0.155E-04 0.155E | > | 200 | 350 | | | × | | | | | |
| 0.100E-02 0.384E-02 0.0807E-03 0.218E-02 0.0717E-03 0.218E-02 0.625E-03 0.248E-02 0.625E-03 0.248E-02 0.625E-03 0.244E-02 0.625E-03 0.244E-02 0.625E-03 0.244E-02 0.625E-03 0.244E-02 0.00 X STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS (ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.) 2 | | | | | | | | | | | |
| 0.1717E-03 0.2748E-02 0.625E-03 0.2448E-02 0.625E-03 0.2448E-02 0.625E-03 0.2448E-02 0.359E-03 0.2448E-02 0.359E-03 0.2448E-02 0.359E-03 0.2448E-02 0.359E-03 0.1448E-02 0.359E-04 0.250E-04 0.288E-04 0.300E-04 0.353E-04 0.355E-04 0.359E-04 0.378E-04 0.378E-04 0.176E-04 0.108E-04 0.108E-04 0.108E-04 0.124E-04 0.124E-04 0.125E-04 0.125E-04 0.125E-04 0.155E-04 0.155E- | 0 | 0.100E-02 | 0.384E-02 | | | | | | | | |
| 0.717E-03 0.278E-02 0.0359E-03 0.248E-02 0.0359E-03 0.248E-02 0.0359E-03 0.1448E-02 0.359E-03 0.1448E-02 0.359E-03 0.1448E-02 0.359E-03 0.1448E-02 0.359E-03 0.1448E-02 0.000 2 | -12. | | 0.312E-02 | | | | | | | | |
| 0.359E-03 0.144E-02 STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS (ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.) Z = 0.00 0.248E-04 0.250E-04 0.288E-04 0.360E-04 0.353E-04 0.357E-04 0.355E-04 0.355E-0 | -15 | | 0.278E-02 | | | | | | | | |
| STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS (ADSORBED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.) 2 | | | 0.244E-02 | | | | | | | | |
| STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1664E+06 HRS (ADSORBED CHEMICAL CONC.) $ z = 0.1620E+00 * DISSOLVED CHEMICAL CONC. = 0.1620E+00 * DISSOLVED CHEMICAL CONC.) $ | 20 | 0.359E-03 | 0.144E-02 | | | | | | | | |
| 2 = 0.00 0.248E-04 0.250E-04 0.288E-04 0.300E-04 0.353E-04 0.357E-04 0.369E-04 0.448E-04 0.642E-04 0.199E-04 0.201E-04 0.231E-04 0.240E-04 0.286E-04 0.296E-04 0.359E-04 0.515E-04 0.176E-04 0.178E-04 0.178E-04 0.213E-04 0.251E-04 0.254E-04 0.296E-04 0.359E-04 0.515E-04 0.153E-04 0.178E-04 0.178E-04 0.125E-04 0.218E-04 0.228E-04 0.378E-04 0.357E-04 0.155E-03 0.195E-02 0.101E-04 0.105E-04 0.125E-04 0.125E-04 0.129E-04 0.157E-04 0.255E-04 0.258E-03 0.162E-02 0.385E-03 0.162E-02 0.171E-03 0.126E-02 0.171E-03 0.126E-02 | DI | STRIBUTION O | | CHEMI = | PPM AT | | CONC.) | | | | |
| 0.248E-04 0.250E-04 0.288E-04 0.300E-04 0.353E-04 0.357E-04 0.369E-04 0.448E-04 0.642E-04 0.195E-04 0.256E-04 0.255E-04 0.178E-04 0.178E-04 0.218E-04 0.218E-04 0.251E-04 0.256E-04 0.256E-04 0.256E-04 0.255E-04 0.155E-04 0.178E-04 0.178E-04 0.125E-04 0.125E | | | | | | | | | | | |
| 0.248E-04 0.250E-04 0.288E-04 0.300E-04 0.353E-04 0.355E-04 0.369E-04 0.448E-04 0.642E-04 0.199E-04 0.250E-04 0.235E-04 0.286E-04 0.256E-04 0.256E-04 0.255E-04 0.255E | Þ | c | C | · | C | | | | 1 | | 7 000 5 |
| 0.248E-04 0.250E-04 0.288E-04 0.300E-04 0.352E-04 0.357E-04 0.369E-04 0.448E-04 0.642E-04 0.199E-04 0.250E-04 0.231E-04 0.240E-04 0.283E-04 0.286E-04 0.296E-04 0.359E-04 0.515E-04 0.176E-04 0.178E-04 0.213E-04 0.251E-04 0.251E-04 0.254E-04 0.256E-04 0.359E-04 0.515E-04 0.155E-04 0.155E-04 0.155E-04 0.155E-04 0.155E-04 0.125E-04 0.125E | н | n I | O | 5 | i | 12. | 13. | 15. | 27. | . 20 | 100. |
| 0.199E-04 0.201E-04 0.231E-04 0.240E-04 0.283E-04 0.286E-04 0.296E-04 0.359E-04 0.515E-04 0.176E-04 0.178E-04 0.213E-04 0.213E-04 0.251E-04 0.254E-04 0.262E-04 0.318E-04 0.456E-04 0.158E-04 0.178E-04 0.185E-04 0.218E-04 0.254E-04 0.254E-04 0.254E-04 0.318E-04 0.456E-04 0.155E-04 0.155E-04 0.155E-04 0.155E-04 0.155E-04 0.155E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.255E-04 0.255E-04 0.255E-04 0.255E-04 0.157E-04 0.157E-04 0.255E-04 0.255E | 0 | 0.248E-04 | 0.250E-04 | 0 | 0.300E-04 | 0.353E-04 | 0.357E-04 | 0.369E-04 | 0.448E-04 | 0.642E-04 | 0.134E-03 |
| 0.176E-04 0.178E-04 0.205B-04 0.213E-04 0.251E-04 0.254E-04 0.262E-04 0.318E-04 0.456E-04 0.155E-04 0.178E-04 0.178E-04 0.185E-04 0.185E-04 0.221E-04 0.221E-04 0.221E-04 0.221E-04 0.221E-04 0.225E-04 0.397E-04 0.397E-04 0.00867E-05 0.877E-05 0.101E-04 0.105E-04 0.124E-04 0.125E-04 0.125E-04 0.125E-04 0.125E-04 0.225E-04 0.22 | -12. | 0.199E-04 | 0.201E-04 | 0 | 0.240E-04 | 0.283E-04 | 0.286E-04 | 0.296E-04 | 0.359E-04 | 0.515E-04 | 0.107E-03 |
| 0.153E-04 0.155E-04 0.178B-04 0.185E-04 0.218E-04 0.221E-04 0.228E-04 0.277E-04 0.397E-04 0.867E-05 0.877E-05 0.101E-04 0.105E-04 0.124E-04 0.125E-04 0.125E-04 0.125E-04 0.125E-04 0.125E-04 0.277E-04 0.225E-04 0.225E-04 0.125E-04 0.125E-04 0.125E-04 0.125E-04 0.125E-04 0.125E-04 0.225E-04 0.225E-04 0.225E-04 0.225E-04 0.125E-04 0.225E-04 0.225E | -15. | 0.176E-04 | 0.178E-04 | 0 | 0.213E-04 | 0.251E-04 | 0.254E-04 | 0.262E-04 | 0.318E-04 | 0.456E-04 | 0.952E-04 |
| 0.867E-05 0.877E-05 0.101B-04 0.105E-04 0.124E-04 0.125E-04 0.129E-04 0.157E-04 0.225E-04 0.225E | -18. | 0.153E-04 | 0.155E-04 | 0 | 0.185E-04 | 0.218E-04 | 0.221E-04 | 0.228E-04 | 0.277E-04 | 0.397E-04 | 0.829E-04 |
| 200. 350. 0.479E-03 0.199E-02 0.385E-03 0.162E-02 0.342E-03 0.144E-02 0.298E-03 0.126E-02 0.171E-03 0.743E-03 STATE SOLITY ON TAS MOT BEEN BESODE | 0) | 0.867E-05 | 0.877E-05 | 0.101E | 0.105E-04 | 0.124E-04 | 0.125E-04 | 0.129E-04 | 0.157E-04 | 0.225E-04 | 0.471E-04 |
| 200. 350. 0.479E-03 0.199E-02 0.385E-03 0.162E-02 0.342E-03 0.144E-02 0.298E-03 0.126E-02 0.171E-03 0.743E-03 STATE SOLITY ON TAS MOT BEEN BESODE | | | | | CONT | | | | | | |
| 0.479E-03 0.199E-02 0.385E-03 0.162E-02 0.342E-03 0.144E-02 0.298E-03 0.126E-02 0.171E-03 0.743E-03 STATE SOLITION HAS MOT BEEN BEECHEN BEECHEN | X | 200. | 350. | | | 4 | | | | | |
| 0.479E-03 0.199E-02 0.385E-03 0.162E-02 0.342E-03 0.144E-02 0.298E-03 0.126E-02 0.171E-03 0.743E-03 STATE SOLITION HAS MOT BEEN BEACHEN BEENED | | | | | | | | | | | |
| 0.385E-03 0.162E-02 0.342E-03 0.144E-02 0.298E-03 0.126E-02 0.171E-03 0.743E-03 STATE SOLITION HAS MOT BEEN BEACHEN BEFORE | 0 0 | 0.479E-03 | 0.199E-02 | | | | | | | | |
| 0.342E-03 0.144E-02 0.298E-03 0.126E-02 0.171E-03 0.743E-03 STATE SOLITITION HAS MOT BEEN BEACHEN BEFORE | 7 17 | 0.385E-03 | 0.162E-02 | | | | | | | | |
| 0.171E-03 0.743E-03 0.1743E-03 STATE SOLITION HAS NOT BEEN BEACHEN BESIDE | . a | 0.342E-03 | 0.144E-02 | | | | | | | | |
| C.1/12-03 C./438-03 G.PERN STATES SOLUTION HER SOLUTION H | | 0.400 E | 0.140E-02 | | | | | | | | |
| | OTENTO. | THE CHO | | TABLE | 0000 | | | | | | |
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| | X 12. X 12. 0.162E-04 0.130E-04 0.115E-04 0.115E-04 0.105E-04 0.105E-04 10.15E-04 10.15E-04 10.15E-04 10.15E-04 | +00 * DISSOLVED CHEMICAL. 2. X 12. 0.137E-04 0.162E-04 0.10E-04 0.130E-04 0.978E-05 0.115E-04 0.978E-05 0.105E-04 0.482E-05 0.568E-05 CONTINUE X | CONC.) | 13. 15. 27. 50. 100. | 0.164E-04 0 169E-04 0 206E-04 0 20EE-04 | 0.136E-04 0.165E-04 | 20 E0 | 0.1201-04 0.1401-04 0.2101-04 0.1010-04 0.1401-04 | 0.100E-04 0.127E-04 0.103E-04 | SO - 1111/ . O CO - 111/0 . O | | | | | | | |
|---|--|---|------------------------------------|----------------------|---|---------------------|---|--|--|-------------------------------|---|------|-----------|-----------|-----------|-----------|---|
| | X 12. X 12. 0.162E-04 0.130E-04 0.135E-04 0.115E-04 0.105E-04 0.105E-04 1.005E-04 0.1005E-04 0.1005E-04 0.1005E-04 | CCALS IN PPM AT 0.1752E+06 HRS 0.1620E+00 * DISSOLVED CHEMICAL CONC.) X 2. X 12. 132E-04 0.137E-04 0.162E-04 0.164 106E-04 0.110E-04 0.130E-04 0.132 41E-05 0.978E-05 0.115E-04 0.117 118E-05 0.482E-05 0.108E-04 0.101 164E-05 0.482E-05 0.568E-05 0.575 | CONC.) | 15, | 0 1698-04 | 0.136E-04 | 0 120E-04 | 20 - Dag - C | 10 10 10 10 10 10 10 10 10 10 10 10 10 1 | 7 | | | | | | | |
| CHEMICALS IN PPM AT 0.1 = 0.1620E+00 * DISSOI 0.00 0.132E-04 0.137E-04 0.106E-04 0.110E-04 0.941E-05 0.978E-05 0.464E-05 0.482E-05 0.464E-05 COT | CHEMICALS IN = 0.1620E 0.00 0.132E-04 0.106E-04 0.341E-05 0.818E-05 0.464E-05 | | F DISSOLVED EMICAL CONC. Z = | -8 | 0.115E-04 | 0.922E-05 | 0.818E-05 | 0.711E-05 | 0.403E-05 | | | 350. | 0.102E-02 | 0.826E-03 | 0.736E-03 | 0.645E-03 | |
| F DISSOLVED CHEMICALS IN PPM AT 0.1 EMICAL CONC. = 0.1620E+00 * DISSOL Z = 0.00 0.115E-04 0.132E-04 0.137E-04 0.922E-05 0.106E-04 0.110E-04 0.922E-05 0.341E-05 0.978E-05 0.711E-05 0.818E-05 0.850E-05 0.403E-05 0.464E-05 0.482E-05 0.826E-03 0.736E-03 0.645E-03 | EMICAL CONC. = 0.1620E Z = 0.0620E Z = 0.00 0.115E-04 0.132E-04 0.922E-05 0.106E-04 0.818E-05 0.941E-05 0.711E-05 0.941E-05 0.711E-05 0.941E-05 0.711E-05 0.941E-05 0.715E-03 0.464E-05 0.826E-03 0.736E-03 | EMICAL CONG. Z = -8. 0.115E-04 0.922E-05 0.711E-05 0.403E-05 0.102E-02 0.826E-03 0.736E-03 0.736E-03 | STRIBUTION O (ADSORBED CH | 175200. | 0.114E-04 | 0.911E-05 | 0.808E-05 | 0.703E-05 | 0.398E-05 | | | 200. | 0.228E-03 | 0.183E-03 | 0.163E-03 | 0.142E-03 | |
| OF DISSOLVED CHEMICAL CONC. = 2 = 0.00 0.115E-04 0.1 0.922E-05 0.1 0.818E-05 0.0 0.403E-05 0.4 350. 0.102E-02 0.826E-03 0.736E-03 0.645E-03 | STRIBUTION OF DISSOLVED CHEMICALS IN (ADSORBED CHEMICAL CONC. = 0.1620E Z = 0.00 1752008. 0.00 0.114E-04 0.115E-04 0.132E-04 0.911E-05 0.922E-05 0.106E-04 0.808E-05 0.818E-05 0.941E-05 0.703E-05 0.711E-05 0.818E-05 0.398E-05 0.403E-05 0.464E-05 200. 350. 350. 0.102E-02 0.183E-03 0.102E-02 0.163E-03 0.736E-03 0.142E-03 0.645E-03 | STRIBUTION OF DISSOLVED (ADSORBED CHEMICAL CONC. Z = 1752008. 0.114E-04 0.115E-04 0.911E-05 0.922E-05 0.808E-05 0.918E-05 0.7398E-05 0.403E-05 0.228E-03 0.102E-02 0.183E-03 0.102E-02 0.183E-03 0.136E-03 0.142E-03 0.142E-03 | i Q | Ħ | 0 | -12. | -15. | -18 | -29. | | 3 | ж | 0 | -12. | -15. | -18. | , |

Calculation of Alternate Threshold Levels for PAH constituents at Former Building 728 Site

 $ATL = (K_{oc}) (f_{cs}) (C_{std}) (DAF_w)$

where K_{oc} = organic carbon partitioning coefficient (GUST CAP-Part A Guidance, Appendix I, Table 1)

f_{cs} = fractional organic carbon content (calculated in Appendix VI of the CAP-Part B Addendum)

C_{std} = applicable water quality standard

DAF_w = dilution attenuation factor for the lateral migration of groundwater

| Constituent | K _{oc} (mL/g) | f _{cs} | C _{std} (mg/L) | DAF | Calculated ATL (mg/kg) | Maximum Observed CAP-Part B Concentration (mg/kg) |
|------------------------|------------------------|-----------------|----------------------------|-------|------------------------------|---|
| Benzo(a)anthracene | 125,719 | 0.002 | $3.11 \times 10^{-5} a$ | 170.8 | 1.34 | 16° (MW56) |
| Benzo(a)pyrene | 282,185 | 0.002 | $3.11 \times 10^{-5} a$ | 170.8 | 2.99 | 10 (MW56) |
| Benzo(b)fluoranthene | 1,148,497 | 0.002 | 3.11 × 10 ^{-5 b} | 170.8 | 12.2 | 19 ^d (MW56) |
| Benzo(k)fluoranthene | 2,020,971 | 0.002 | 3.11 × 10 ^{-5 a} | 170.8 | 21.5 | 19 ^d (MW56) |
| Chrysene | 426,108 | 0.002 | $3.11 \times 10^{-5} a$ | 170.8 | 4.53 | 16° (MW56) |
| Dibenzo(a,h)anthracene | 1,668,800 | 0.002 | $3.11 \times 10^{-5} a$ | 170.8 | 17.7 | 4.4° (MW56) |
| Indeno(1,2,3-cd)pyrene | 6,310 | 0.002 | $3.11 \times 10^{-5} a$ | 170.8 | 0.07 | 4.4° (MW56) |

a In-Stream Water Quality Standard.

IWQS for benzo(k)fluoranthene used.

Benzo(a)anthracene and chyrsene co-eluted and could not be individually determined.

Benzo(b)fluoranthene and benzo(k)fluoranthene co-eluted and could not be individually determined.

Dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene co-eluted and could not be individually determined.

Bold values exceed the calculated ATL.

MW56 is located in one of the smaller areas of soil contamination located upgradient of the Northern Fuel Battery. Concentrations of the PAH constituents within the area of soil contamination located within the Northern Fuel Battery are significantly lower than the concentrations in MW56. Concentrations of some of these constituents (i.e, benzo(a)anthracene, benzo(a)pyrene, chrysene, and indeno(1,2,3-cd)pyrene) within the Northern Fuel Battery exceed the calculated ATLs.

Fate and Transport Modeling Results for Benzo(a)anthracene

In summary, the Analytical Transient 1-, 2-, 3-Dimensional (AT123D) Model was used to model contaminant migration to potential downgradient receptors: a storm drain located approximately 65 feet north of MW8 and Lamar Canal located approximately 850 feet northwest of the site.

The fate and transport modeling that was performed as part of the CAP-Part B Addendum #1 and First Annual Pilot Study Progress Report was based on the assumption of a continuous source of contamination of infinite duration at the site based on the maximum observed benzene concentration in groundwater (i.e., 2,400 µg/L well MW63 in April 1997). Modeling of leaching to groundwater by percolating rainwater was not performed because the free product and soil contamination were located at the soil/water interface.

As a result of the comments provided by GA EPD USTMP on the CAP-Part B Addendum #1 and First Annual Pilot Study Progress Report, additional fate and transport modeling has been performed to account for the PAH constituents. Among the PAH compounds detected in groundwater at the Former Building 728 site, benzo(a)anthracene was selected as the surrogate chemical to be used in quantitative modeling, so the results apply to all other chemicals of the PAH group that are detected at this site. The model was calibrated assuming that the concentration in the source area of the Northern Fuel Battery was

equal to maximum benzo(a)anthracene concentration (i.e., $0.41~\mu g/L$ MW56 in March 1997) that was observed at the site during the CAP-Part B investigation. The results of the fate and transport modeling are provided in Tables 1 and 2 and Figures 1 and 2. The estimated dilution attenuation factors (DAFs) for benzo(a)anthracene were 170.8 at the drainage ditch and infinity at Lamar Canal. The modeling results indicated that, due to dilution attenuation, benzo(a)anthracene would reach the drainage ditch at a concentration of $0.0024~\mu g/L$.

Table 1. Natural Attenuation Modeling Results [Benzo(a)anthracene Concentration vs. Distance] for the Former Building 728 Site, Facility ID #9-025049

| Distance from the source (feet) | Distance from the source (meters) | Predicted Maximum Benzo(a)anthracene Concentration In Groundwater (µg/L) |
|---------------------------------------|---|--|
| 0.0 | 0.0 | 0.410 |
| 3.3 | 1.0 | |
| 9.8 | 3.0 | 0,410 |
| 16,4 | 5.0 | 0.410 |
| 23.0 | 7.0 | 0.407 |
| 26.2 | 8.0 | 0.400 |
| 29.5 | 9.0 | 0.383 |
| 32.8 | 10.0 | 0.338 |
| 36.1 | 11.0 | 0.190 |
| 39.4 | 12.0 | 0.110 |
| 42.7 | 13.0 | 0.062 |
| 45.9 | 14.0 | 0.038 |
| 49.2 | 15.0 | 0.023 |
| 52.5 | -16.0 | 0.0145 |
| 55.8 | 17.0 | 0,0092 |
| 59.1 | 18.0 | 0.0058 |
| 62.3 | 19.0 | 0.0037 |
| 65.6 | 20.0 | 0.0024 |
| 72.2 | 22.0 | 0.00099 |
| 82.0 | 25.0 | 0.000271 |
| 98.4 | 30.0 | 0 |
| 820.2 | 250.0 | 0 |

Table 2. Natural Attenuation Modeling Results [Benzo(a)anthracene Concentration vs. Time] for the Former Building 728 Site, Facility ID #9-025049

| Time | Predicted Benzo(2 | a)anthracene Concentrat (µg/L) | ion In Groundwate |
|-----------|-------------------|-----------------------------------|-------------------|
| (year) | Source Area | MW60 | MW63 |
| 0.0^{a} | 0.411 | 0.0306 | 0.00E+00 |
| 1.0 | 0.374 | 0.0442 | 0.00E+00 |
| 2.0 | 0.341 | 0.0547 | 0.00E+00 |
| 3.0 | 0.311 | 0.0601 | 1.13E-09 |
| 4,0 | 0.283 | 0.062 | 7.31E-09 |
| 5.0 | 0.258 | 0.0619 | 2.78E-08 |
| 6.0 | 0.235 | 0.0605 | 8.20E-08 |
| 7.0 | 0.214 | 0.0583 | 2.03E-07 |
| 8.0 | 0.195 | 0.0557 | 4.44E-07 |
| 9.0 | 0.18 | 0.05 | 8.80E-07 |
| 10.0 | 0.16 | 0.05 | 1.60E-06 |
| 11.0 | 0.15 | 0.05 | 2.73E-06 |
| 12.0 | 0.13 | 0.04 | 4.36E-06 |
| 13.0 | 0.12 | 0.04 | 6.61E-06 |
| 14.0 | 0.11 | 0.04 | 9.56E-06 |
| 15.0 | 0.10 | 0.04 | 1.32E-05 |
| 16.0 | 0.09 | 0.03 | 1.77E-05 |
| 17.0 | 0.08 | 0.03 | 2.28E-05 |
| 18.0 | 0.08 | 0.03 | 2.86E-05 |
| 19.0 | 0.07 | 0.03 | 3.49E-05 |

NOTE:

Time zero is set at March 1997.

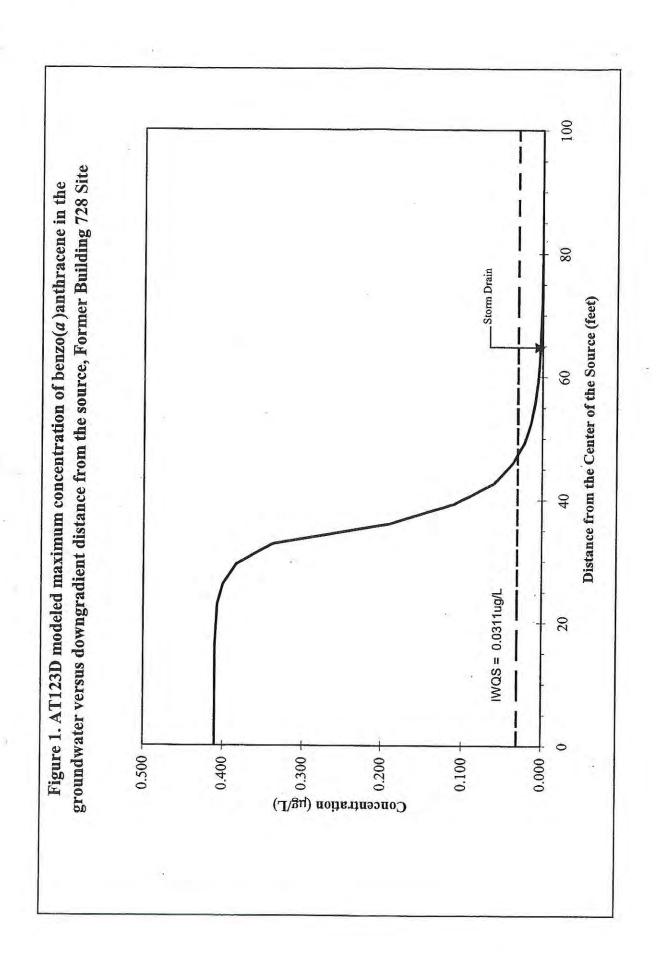


Figure 2. AT123D modeled maximum concentration of benzo(a) anthracene in the --- Source Area --- MW60 -≠-MW63 groundwater at the Former Building 728 Site 20 (Time 0 represents Year 1997) Time (year) RBC = 0.092 ug/L IWQS = 0.0311 ug/L 0.1 0.4 0.3 0.2 Concentration (ug/L)

HAAF Bldg 728: Benzo(a)anthracene - 2yr

| | CONC | |
|--|-------------------------|------|
| 00E+00 HRS | * DISSOLVED CHEMICAL CO | |
| 0.00 | ISSOLV | |
| AT | A | |
| PPM | * 60 | |
| IN | OE+ | |
| ICALS | 0.7160E+03 * | |
| CHEM | 11 | 00.0 |
| DIVED | CONC. | |
| ON OF DISSOLVED CHEMICALS IN PPM AT 0.0000E+00 | CHEMICAL | 11 |
| DISTRIBUTION | (ADSORBED CH | |

| .08 | 0.000医+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |
|-----|-----------|-----------|-----------|-----------|
| 41. | 0.000E+00 | 0.000E+00 | 0.000E+00 | 0.000E+00 |

-12. -15.

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.7008E+05 HRS
(ADSORBED CHEMICAL CONC. = 0.7160E+03 * DISSOLVED CHEMICAL CONC.)

| | 33. | 0.000E+00 0.000E+00 0.000E+00 | | |
|------|----------|--|-----|-------------------------------------|
| | 31. | 0.000E+00 0.000E+00 0.000E+00 | | |
| | 27. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | | |
| | 20. | 0.464E-07 0.405E-07 0.582E-08 0.157E-10 | | |
| | 18. | 0.299E-06 0.264E-06 0.350E-07 0.827E-10 | | |
| | X 14. | 0.547E-04 0.314E-04 0.517E-04 0.294E-04 0.298E-05 0.198E-05 0.411E-08 0.291E-08 | × | |
| | 13. | | | |
| 0.00 | 12. | 0.945E-04 0.901E-04 0.443E-05 0.575E-08 | | |
| = 2 | 0 | 0.341E-03 0.327E-03 0.135E-04 0.165E-07 | 50. | 0.000E+00 0.000E+00 0.000E+00 |
| | . 8 | 0.307E-03 0.295E-03 0.114E-04 0.134E-07 | 41. | 0.000E+00 0.000E+00 0.000E+00 |
| | × | .12. -15. -18. | X | 0. -12. -15. -18. |
| | | | | |

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.7884E+05 HRS (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) $Z \ = \ 0.00$

| 33, | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | |
|----------|--|-----|
| 31. | 0.000E,00 0.000E+00 0.000E+00 | |
| 27. | 0,113E-11 0,969E-12 0,165E-12 0,691E-15 | |
| 20. | 0.950B-07 0.838E-07 0.112E-07 0.271E-10 | |
| 18. | 0.528E-06 0.472E-06 0.561E-07 | |
| x 14. | 0.375E-04 0.354E-04 0.207E-05 0.291E-08 | × |
| 13. | 0.601E-04 0.375E-04 0.571E-04 0.354E-04 0.297E-05 0.207E-05 0.398E-08 0.291E-08 CONTINUE | |
| 12. | 0.950E-04 0.908E-04 0.423E-05 0.541E-08 | |
| .0 | 0.311E-03 0.298E-03 0.123E-04 0.150E-07 | .05 |
| 80 | 0.271E.03 0.260E.03 0.102E.04 0.119E-07 | 41. |
| ¥ | 0. 12. -15. -18. | × |

0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 112. -115. -118.

| | CONC. | | |
|--|---------------------------------|------|--|
| 3+05 HRS | 0.7160E+03 * DISSOLVED CHEMICAL | | |
| 0.87601 | ISSOLVED | | |
| AT | Q | | |
| PPM | F03 * | | |
| IN | OE | | |
| CHEMICALS | 0.716 | 0.00 | |
| LVED | CONC | | |
| DISSC | MICAL | 1 2 | |
| OF | HE | | |
| DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.8760E+05 H | (ADSORBED CHEMICAL CONC. | | |

| 33. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | Ĕ | 0.000E+00 0.000E+00 0.000E+00 | 33. | 0.000E+00 0.000E+00 0.000E+00 |
|----------|---|--|---|--|--|
| 31. | 0.000E+00 0.000E+00 0.000E+00 | 31. | 0.000E+00 0.000E+00 0.000E+00 | 31. | 0.121E-13 0.103E-13 0.184E-14 0.976E-17 |
| 27. | 0.731E-11 0.628E-11 0.102E-11 0.365E-14 | 27. | 0.278E-10 0.241E-10 0.376E-11 0.121E-13 | 27. | 0.820E-10 0.714E-10 0.107E-10 0.315E-13 |
| 20. | 0.173E-06 0.154E-06 0.187E-07 0.412E-10 | 20. | 0.288E-06 0.260E-06 0.281E-07 0.571E-10 | 20. | 0.443E-06 0.405E-06 0.389E-07 0.738E-10 |
| 18. | 0.855E-06 0.774E-06 0.808E-07 0.158E-09 | CONC.) | 0.128E-05 0.117E-05 0.107E-06 0.194E-09 | CONC.) | 0.178E-05 0.164E-05 0.133E-06 0.228E-09 |
| X 14. | 0.412E-04 0.391E-04 0.209E-05 0.286E-08 NUE | AT 0.9636E+05 HRS * DISSOLVED CHEMICAL X 13. | 0.431E-04 0.410E-04 0.207E-05 0.277E-08 NUE X | | 0.436E-04 0.416E-04 0.202E-05 0.266E-08 |
| 13. | 0.620E-04 0. 0.591E-04 0. 0.290E-05 0. 0.381E-08 0. | | 0.619E-04 0.0.591E-04 0.0.279E-05 0.0.362E-08 0.0.362E-08 0.0.00NTINUE | w H | 0.605E-04 0. 0.579E-04 0. 0.266E-05 0. 0.342E-08 0. |
| 12. | 0.924E-04 0.884E-04 0.400E-05 0.506E-08 | HEMICALS IN PPM = 0.7160E+03 0.00 | 0.883E-04 0.845E-04 0.375E-05 0.472E-08 | CHEMICALS IN = 0.7160E+ 0.00 | 0.835E-04 0.800E-04 0.350E-05 0.438E-08 |
| 0 | 0.283E-03 0.272E-03 0.112E-04 0.137E-07 50. 0.000E+00 0.000E+00 | OF DISSOLVED CHEMICALS IN PPM CHEMICAL CONC. = $0.7160E+03$ Z = 0.00 12. | 0.258E-03 0.248E-03 0.102E-04 0.124E-07 50.000E+00 0.000E+00 | DISSOLVED COMICAL CONC. | 0.235E-03 0.226E-03 0.934E-05 0.113E-07 |
| . 8 | 0.239E-03 0.230E-03 0.906E-05 0.107E-07 41. 0.000E+00 0.000E+00 | DISTRIBUTION OF (ADSORBED CHE Y | 0.213E-03 0.205E-03 0.809E-05 0.957E-08 41. 0.000E+00 0.000E+00 | DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT (ADSORBED CHEMICAL CONC. = $0.7160E+03*DI$ Z = 0.00 0.00 | 0.189E-03 0.182E-03 0.724E-05 0.859E-08 |
| * | 12. 12. 18. 12. 15. | DIST (| 0. -112. -115. -12. -12. -15. | DIS' (4 | .12. -15. -18. |

| STRIBUTION OF DISSOLVED CHI (ADSORBED CHEMICAL CONC. = Z = 0.(| DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1139E+06 HRS (ADSORBED CHEMICAL CONC.) Z = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) Z = 0.00 | | |
|--|--|--|-----|
| 0. | 12. x x 18. 18. | 20. | 27. |
| 0.214E-03 0.206E-03 0.850E-05 0.103E-07 | 0.783E-04 0.583E-04 0.433E-04 0.231E-05 0.751E-04 0.558E-04 0.413E-04 0.215E-05 0.326E-05 0.252E-05 0.195E-05 0.158E-06 0.406E-08 0.321E-08 0.254E-08 0.257E-09 CONTINUE | 0.637E-06 0.203E-09 0.586E-06 0.178E-09 0.506E-07 0.254E-10 0.905E-10 0.693E-13 | 100 |
| 50. | × | | |
| 0.000E+00 0.000E+00 0.000E+00 | | | |

| | 33. | 0.000E+00 0.000E+00 0.000E+00 | | |
|------|----------|--|-----|--|
| | 31. | 0.306E-11 0.265E-11 0.420E-12 0.139E-14 | | |
| | 27. | 0.444E-09 0.392E-09 0.527E-10 0.135E-12 | | |
| | 20. | 0.858E-06 0.796E-06 0.624E-07 0.106E-09 | | |
| | 18. | 0.285E-05 0.267E-05 0.180E-06 0.282E-09 | | |
| | X 14. | 0.422E-04 0.404E-04 0.187E-05 0.241E-08 NUE | × | |
| | 13. | 0.557E-04 0.422E-04 0.533E-04 0.404E-04 0.238E-05 0.187E-05 0.301E-08 0.241E-08 CONTINUE | | |
| 00.0 | 12. | 0.732E-04 0.702E-04 0.302E-05 0.376E-08 | | |
| | 0. | 0.195E-03 0.187E-03 0.774E-05 0.939E-08 | .03 | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 |
| | 0 | 0.151E-03 0.146E-03 0.582E-05 0.694E-08 | 41. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 |
| | X | -12. -15. -18. | ¥ | 0. -12. -15. |
| | | | | |

DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1314E+06 HRS (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) $Z \ = \ 0.00$

| | 0000 | -23 | 23 23 25 15 | | اشدو |
|----------|---|---|---|---|--|
| 33. | 0.000E+00 0.000E+00 0.000E+00 | 83.3. | 0.303E-12 0.259E-12 0.437E-13 0.176E-15 | | 0.128E-11 0.110E-11 0.175E-12 0.577E-15 |
| 31. | 0.9028-11 0.7838-11 0.118E:11 0.348E-14 | 31. | 0.222E-10 0.194E-10 0.278E-11 0.754E-14 | 15. | 0.479E-10 0.423E-10 0.569E-11 0.144E-13 |
| 27. | 0,880E-09 0,782E-09 0,984E-10 0,236E-12 | 27. | 0.160E-08 0.144E-08 0.169E-09 0.382E-12 | 27. | 0.273E-08 0.246E-08 0.269E-09 |
| 20. | 0.110E-05 0.102E-05 0.739E-07 0.121E-09 | 20. | 0.134E-05 0.125E-05 0.846E-07 0.134E-09 | 20. | 0.158E-05 0.148E-05 0.942E-07 0.145E-09 |
| 18. | 0.335E-05 0.315E-05 0.198E-06 0.302E-09 | CONC.) | 0.380E-05 0.358E-05 0.214E-06 0.317E-09 | CONC.) | 0.418E-05 0.396E-05 0.226E-06 0.327E-09 |
| X 14. | 0.408E-04 0.390E-04 0.178E-05 0.227E-08 INUE X | 1 AT 0.1402E+06 HRS * DISSOLVED CHEMICAL X 13. X | 0.390E-04 0.373E-04 0.168E-05 0.214E-08 INUE | * DISSOLVED CHEMICAL. X 13. 14. | 0.371E-04 0.355E-04 0.158E-05 0.200E-08 |
| 13. | 0.527E-04 0. 0.505E-04 0. 0.223E-05 0. 0.281E-08 0. CONTINUE | PPM AT 0.14 +03 * DISSOL1 13. | 0.497E-04 0. 0.476E-04 0. 0.208E-05 0. 0.261E-08 0. CONTINUE | PPM AT 0.14 -03 * DISSOLY 13. | 0.466E-04 0.446E-04 0.194E-05 0.243E-08 |
| 12. | 0,681B-04 0,653B-04 0,280B-05 0,347B-08 | CHEMICALS IN PPM AT = 0.7160E+03 * DI 0.00 | 0.632E-04 0.606E-04 0.259E-05 0.320E-08 | CHEMICALS IN PPP = 0.7160E+03 0.00 | 0.585E-04 0.561E-04 0.239E-05 0.295E-08 |
| 0 | 0.178E-03 0.171E-03 0.705E-05 0.855E-08 0.000E+00 0.000E+00 | DISSOLVED ICAL CONC. Z = 0. | 0.162E-03 0.155E-03 0.642E-05 0.778E-08 50. 0.000E+00 0.000E+00 | DISSOLVED (MICAL CONC. Z = 0 | 0.147E-03 0.142E-03 0.584E-05 0.708E-08 |
| . 8 | 0.136E-03 0.130E-03 0.524E-05 0.624E-08 41. 0.000E+00 0.000E+00 | DISTRIBUTION OF DISSOLVED (ADSORBED CHEMICAL CONC. $Z = -8$. | 0.122E-03 0.117E-03 0.471E-05 0.563E-08 41. 0.000E+00 0.000E+00 | DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DI Z = 0.00 12. | 0.109E-03 0.105E-03 0.424E-05 0.507E-08 |
| × | 0. 112. 18. 18. 7 Y Y 18. | D > | 0. -12. -18. X X X X -12. -15. | DIS (| 0. -12. -15. |

| | | | 33. | 0.356E-11 0.310E-11 0.464E-12 0.134E-14 | | | | 33. | 0.820E-11 | 0.719E-11 | 0.265E-14 | | |
|-----|--|---|----------|--|------|-------------------------------------|---|----------|-----------|-----------|--------------------------|-----|-------------------------------------|
| | | | 31. | 0.953E-10 0.847E-10 0.106E-10 | | | | 31. | 0.174E-09 | 0.156E-09 | 0.415E-13 | | |
| | | | 27. | 0.436E-08 0.396E-08 0.403E-09 0.826E-12 | | | | 27. | 0.661E-08 | 0.604E-08 | 0.113E-11 | | |
| | | | 20. | 0.179E-05 0.169E-05 0.103E-06 0.154E-09 | | | | 20. | 0.199E-05 | 0.188E-05 | | | |
| | | CONC.) | 18. | 0.450E-05 0.426E-05 0.234E-06 0.333E-09 | | | CONC.) | 18. | 0.474E-05 | 0.240E-05 | 0.336E-09 | | |
| × | | CALS IN PPM AT 0.1577E+06 HRS 0.7160E+03 * DISSOLVED CHEMICAL | X 14. | 0.351E-04 0.336E-04 0.148E-05 0.187E-08 | × | | A AT 0.1664E+06 HRS * DISSOLVED CHEMICAL CONC.) | X 14. | 0.331E-04 | 0.139E-05 | 0.175E-08 | × | |
| | | PPM AT 0.15 03 * DISSOLV | 13. | 0.435E-04 0. 0.417E-04 0. 0.181E-05 0. 0.225E-08 0. | | | PPM AT 0.16 | . 13. | 0.406E-04 | 0.168E-05 | 0.208E-08 0. CONTINUE | | |
| | | CHEMICALS IN = 0.7160E+ 0.00 | 12. | 0.541B-04 0.519E-04 0.220E-05 0.271E-08 | | | CHEMICALS IN PPM = 0.7160E+03 0.00 | 12. | 0.499E-04 | 0.203E-05 | 0.250E-08 | | |
| 50. | 0.000E+00 0.000E+00 0.000E+00 | DISSOLVED COMICAL CONC. | 0. | 0.134E-03 0.129E-03 0.531E-05 0.643E-08 | . 05 | 0.000E+00 0.000E+00 0.000E+00 | DISSOLVED CH MICAL CONC. : Z = 0 | . 0 | 0.122E-03 | | 0.585E-08 | 50. | 0.000E+00 0.000E+00 0.000E+00 |
| 41. | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DI Z = 0.00 | . 69 | 0.985E-04 0.947E-04 0.382E-05 0.458E-08 | 41, | 0.000E+00 0.000E+00 0.000E+00 | DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DI Z = 0.00 | 80 | 0.887E 04 | 0.345E-05 | 0.413E-08 | 41. | 0.000E+00 0.000E+00 0.000E+00 |
| × | . 12. . 15. | SIQ () | × | .12. -15. -18. | × | 1123. 115. | DISIO (F) | × | 0 7 | -15. | . 18 | X | -12. -15. |
| | | | | | | | | | | | | | |

| | CONC | |
|--|---|-----|
| 3+06 HRS | CHEMICAL | |
| 0.1752E | ISSOLVED | |
| AT | A | |
| LS IN PPM | 7160E+03 * | |
| CHEMICA | . 0 | 000 |
| DLVED | CONC | |
| OF DISS | CHEMICAL | 1 2 |
| DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.1752E+06 HRS | (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) | |

| 0.1112-03 0.4668-04 0.3772-04 0.3102-04 0.4312-05 0.2168-05 0.9562-05 0.2968-09 0.1078-03 0.4412-04 0.3772-04 0.4472-05 0.2168-05 0.2168-06 0.2968-09 0.1078-03 0.4412-04 0.3772-04 0.4472-05 0.2168-05 0.2168-06 0.2968-09 0.1308-05 0.1308-05 0.1308-05 0.1308-05 0.1308-05 0.1308-05 0.1308-05 0.1308-05 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-06 0.1308-09 0.1468-11 0.6408-13 0.0008+00 0.1308-04 0.2218-04 0.2218-04 0.2218-04 0.1218-05 0.1218 | œ | ć | C | | × | | | | | |
|--|-----------|--------------------------|-------------------------|----------------------------|-----------------------------|-----------|-----------|-----------|-----------|-----------|
| 0.1840E+06 HRS 13. L4 0.231E-04 0.491E-05 0.216E-05 0.956E-08 0.296E-09 8-04 0.237E-04 0.447E-06 0.115E-06 0.781E-09 0.246E-10 8-08 0.163E-08 0.355E-09 0.166E-09 0.146E-11 0.640E-13 CONTINUE X 13. L4 18. 20. 231E-07 0.462E-09 13. L4 18. 20. 231E-07 0.437E-09 13. X 14. L8 18. 20. 242E-05 13. L4 18. 20. 231E-09 13. L4 18. 20. 231E-09 13. L4 18. 20. 242E-05 13. L4 18. 20. 231E-09 14. L4 18. 20. 231E-09 15. L40 0.250E-09 16. L50 0.112E-09 17. L50 0.132E-09 18. L50 0.132E-09 19. L50 0.132E-09 19. L50 0.132E-09 10. L32E-10 | 0 0 | . c | 12. | 13. | 14. | 18. | 20. | 27. | 31. | |
| 0.1840E+06 HRS 0.131E-08 0.145E-09 0.146E-10 0.146E-11 0.0146E-11 0.146E-11 0.146E-12 1.14. 18. 20. 27. 31. 1.2. 40.121E-04 0.121E-04 0.121E-05 0.111E-06 0.768E-04 | 0.107E-03 | 0.460E-04 | 0.377E-04 | 0.310E-04 | 0.491E-05 | 0.216E-05 | 0.956E-08 | 0.298E-09 | 0.168E-10 |
| CONTINUE X 0.1840E+06 HRS 0.1840E+06 HRS 13. | 0.311E-05 | 0.439E-05 | 0.186E-05 | 0.155E-05 | 0 130E-05 | 0 2424-05 | 0.205E-05 | 0.878E-08 | 0.268E-09 | 0.148E |
| 0.1840E+06 HRS (SSCIVED CHEMICAL CONC.) X 13. 14. 18. 20. 27. 31. 19. 19. 19. 20. 27. 31. 19. 19. 20. 27. 31. 19. 19. 19. 20. 27. 31. 20. 27. 31. 20. 20. 27. 31. 20. 20. 27. 31. 20. 20. 27. 31. 20. 20. 27. 31. 20. 20. 27. 31. 20. 20. 27. 31. 20. 20. 27. 31. 20. 27. 27. 27. 27. 27. 27. 27 | 0.373E-08 | 0.532E-08 | 0.229E-08 | 0.193E-08 | 0.163E-08 | 0 3358-09 | 90-EETT-0 | 0.781E-09 | 0.294E-10 | 0.195E |
| 0.1840E+06 HRS (SSCIVED CHEMICAL CONC.) X 13. 14. 18. 20. 20. 27. 31. 1-4. 18. 20. 27. 31. 31. 1-4. 18. 20. 27. 31. 31. 31. 31. 31. 32. 32. 33. 33. 34. 34. 34. 34. 34. 34. 34. 34 | | | | CONT | INUE | | | 1110011 | 0.0406-13 | 0.4/4 |
| 0.1840E+06 HRS (SSOLVED CHEMICAL CONC.) X 13. 13. 14. 18. 20. 27. 31. 14. 18. 20. 27. 31. 19. 20. 27. 31. 31. 31. 31. 31. 31. 31. 3 | 41. | 50. | | | × | | | | | |
| 0.1840E+06 HRS (SSOLVED CHEMICAL CONC.) X 13. 14. 18. 20. 27. 31. 14. 18. 20. 27. 31. 18. 20. 27. 31. 19. 19. 20. 27. 31. 31. 31. 31. 32. 33. 33. 33 | 0.000E+00 | 0.000E+00 | | | | | | | | |
| 0.1840E+06 HRS (SSOLVED CHEMICAL CONC.) X 13. | 0.000E+00 | 0.000E+00 | | | | | | | | |
| 0.1840E+06 HRS (SSOLVED CHEMICAL CONC.) X 13. | 0.000E+00 | 0.000E+00 | | | | | | | | |
| 0.1840E+06 HRS (SSOLVED CHEMICAL CONC.) X 13. 14. 18. 20. 20. 27. 31. 1-04 0.291E-04 0.291E-04 0.291E-04 0.291E-04 0.291E-04 0.291E-04 0.291E-04 0.293E-13 CONTINUE X 13. 14. 18. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 31. 20. 27. 31. 20. 27. 31. 31. 20. 27. 31. | | 000000 | | | | | | | | |
| 13. | ON O | F DISSOLVED EMICAL CONC. | CHEMICALS IN = 0.7160E. | PPM AT 0.1 +03 * DISSOL | 840E+06 HRS VED CHEMICAL | | | | | |
| 13. | | | | | > | | | | | |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. | 80 | 0. | 12. | 13. | | 18. | 20. | 27. | 31. | |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. X 14. 18. 20. 21.22E-05 0.121E-06 0.121E-07 0.131E-09 0.119E-06 0.119E-06 0.119E-06 0.119E-06 0.119E-06 0.119E-06 0.119E-06 0.119E-06 0.119E-06 0.119E-07 0.197E-11 0.939E-13 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. X 14. 18. 20. 27. 31. -04 0.271E-04 0.242E-05 0.177E-07 0.167E-09 -04 0.242E-05 0.177E-07 0.167E-09 0.132E-06 0.132E-06 0.132E-06 0.132E-10 CONTINUE | 0.721E-04 | 0.101E-03 | 0.424E-04 | 0.350E-04 | 0.291E-04 | 0.503E-05 | 0.231E-05 | 0.132E-07 | 0.4828-09 | 30.5 |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. X 14. 18. 20. 27. 31. -04 0.212E-05 0.112E-05 0.112E-05 0.112E-06 0.119E-06 0.119E-06 0.197E-11 0.939E-13 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. 14. 18. 20. 27. 31. -04 0.271E-04 0.242E-05 0.177E-07 0.164E-07 0.676E-09 -06 0.112E-06 0.132E-06 0.132E-06 0.132E-06 0.132E-10 CONTINUE | -04 | 0.970E-04 | 0.407E-04 | 0.336E-04 | 0.278E-04 | 0.478E-05 | 0.219E-05 | 0.122E-07 | 0.437E-09 | 0.284E |
| CONTINUE X 13. 14. 18. 20. 27. 31. 14. 18. 20. 27. 31. 14. 18. 20. 27. 31. 27. 31. 28. 28. 28. 28. 28. 28. 28. 2 | 0.337E-08 | 0.483E-05 | 0.171E-05 | 0.144E-05 | 0.121E-05 | 0.243E-06 | 0.119E-06 | 0.102E-08 | 0.450E-10 | 0.344臣 |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. | | | | CONT | INUE | 0.3316-09 | 60-30/T-0 | 0.187E-11 | 0.939E-13 | 0.794E |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. | 41. | .50 | | | × | | | | | |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. X 14. 18. 20. 27. 31. -04 0.27E-09 -04 0.260E-04 0.243E-05 0.177E-07 0.742E-09 -05 0.112E-05 0.122E-06 0.130E-09 0.657E-10 CONTINUE | 0.000E+00 | 0.000E+00 | | | | | | | | |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. | 0.000E+00 | 0.000E+00 | | | | | | | | |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. | 000+ | 0.000E+00 | | | | | | | | |
| 0.1927E+06 HRS SSOLVED CHEMICAL CONC.) X 13. | | 1 | | | | | | | | |
| Z = 0.00 0.12. 13. 14. 18. 20. 27. 31. 0.918E-04 0.390E-04 0.325E-04 0.271E-04 0.508E-05 0.242E-05 0.177E-07 0.742E-09 0.882E-04 0.374E-04 0.311E-04 0.260E-04 0.484E-05 0.230E-05 0.164E-07 0.676E-09 0.363E-05 0.158E-05 0.133E-05 0.112E-05 0.121E-06 0.130E-08 0.657E-10 0.439E-08 0.193E-08 0.140E-08 0.326E-09 0.171E-09 0.230E-11 0.132E-12 | ON O | F DISSOLVED (| CHEMICALS IN = 0.7160E+ | PPM AT 0.19 | 927E+06 HRS | CONC.) | | | | |
| 0.918E-04 0.390E-04 0.325E-04 0.271E-04 0.508E-05 0.242E-05 0.177E-07 0.742E-09 0.363E-05 0.158E-05 0.133E-05 0.1128E-05 0.120E-06 0.325E-06 0.130E-08 0.140E-08 0.325E-09 0.171E-09 0.230E-11 0.132E-12 CONTINUE | | | 0.00 | | | | | | | |
| 0.918E-04 0.390E-04 0.325E-04 0.271E-04 0.508E-05 0.242E-05 0.177E-07 0.742E-09 0.363E-05 0.158E-05 0.133E-05 0.112E-05 0.140E-08 0.365E-09 0.171E-09 0.133E-05 0.140E-08 0.140E-08 0.326E-09 0.171E-09 0.230E-11 0.132E-12 CONTINUE | ¢ | | | | × | | | | | |
| 0.918E-04 0.390E-04 0.325E-04 0.271E-04 0.508E-05 0.242E-05 0.177E-07 0.742E-09 0.882E-04 0.374E-04 0.311E-04 0.260E-04 0.484E-05 0.230E-05 0.164E-07 0.676E-09 0.363E-05 0.158E-05 0.112E-05 0.241E-06 0.122E-06 0.130E-08 0.657E-10 0.439E-08 0.193E-08 0.140E-08 0.326E-09 0.171E-09 0.230E-11 0.132E-12 CONTINUE | Ö | | 12. | 13. | 14. | 18. | 20. | 27. | 31. | 33. |
| 0.882E-04 0.374E-04 0.311E-04 0.260E-04 0.484E-05 0.230E-05 0.164E-07 0.676E-09 0.363E-05 0.158E-05 0.133E-05 0.112E-05 0.120E-06 0.120E-06 0.130E-10 0.439E-08 0.193E-08 0.140E-08 0.326E-09 0.171E-09 0.230E-11 0.132E-12 CONTINUE | 0.651E-04 | 0.918E-04 | 0.390E-04 | 0.325E-04 | 0.271E-04 | 0.508E-05 | 0.242E-05 | 0.177E-07 | 0.742E-09 | 0.561E |
| 0.363E-05 0.159E-05 0.133E-05 0.112E-05 0.241E-06 0.122E-06 0.130E-08 0.657E-10 0.439E-08 0.193E-08 0.140E-08 0.326E-09 0.171E-09 0.230E-11 0.132E-12 CONTINUE | -04 | 0.882E-04 | 0.374E-04 | 0.311E-04 | 0.260E-04 | 0.484E-05 | 0.230E-05 | 0.164E-07 | 0.676E-09 | 0.505E-10 |
| U.457E-U8 U.193E-U8 U.164E-O8 U.140E-U8 U.326E-U9 U.171E-U9 U.230E-11 U.132E-12 CONTINUE | -05 | 0.363E-05 | 0.158E-05 | 0.133E-05 | 0.112E-05 | 0.241E-06 | 0.122E-06 | 0.130E-08 | 0.657E-10 | 0.566E |
| | 0 | 0.439E-08 | 0.193E-08 | 0.164E-08 CONT | 0.140E-08 | 0.326E-09 | 0.171E-09 | 0.230E-11 | 0.132E-12 | 0.125E |

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| 1.0 0.000E+00 0.000E+00 | >1 | 41. | 50. | | | | | | | | |
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| Comparison of the presentation of the presen | .12. .15. | | | | | | | | | | |
| D.588E-04 0.835E-04 0.358E-04 0.300E-04 0.258E-04 0.258E-05 0.258E-05 0.228E-07 0.109E-08 0.256E-04 0.358E-04 0.358E-04 0.258E-04 0.258E-05 0.238E-05 0.228E-07 0.100E-08 0.230E-05 0.330E-05 0.136E-04 0.248E-04 0.248E-04 0.248E-05 0.130E-08 0.238E-05 0.124E-05 0.124E-12 0.177E-08 0.137E-08 0.130E-08 0.130E-08 0.137E-09 0.177E-08 0.130E-08 0.130E-08 0.131E-09 0.172E-09 0.177E-08 0.130E-08 0.130E-08 0.131E-09 0.172E-09 0.177E-08 0.150E-08 0.130E-09 0.172E-09 0.177E-08 0.130E-09 0.130E-09 0.172E-09 0.175E-12 0.179E-12 0.179E-12 0.100E+00 0.000E+00 0.126E-04 0.256E-04 0.256E-06 0.124E-05 0.266E-07 0.124E-09 0.200E+00 0.000E+00 0.000E | Ď | ISTRIBUTION C | OF DISSOLVED TEMICAL CONC Z = | - | PPM AT 0.2 +03 * DISSOL | 015E+06 HRS VED CHEMICAL | CONC.) | | | | |
| 0.558E-04 0.835E-04 0.358E-04 0.300E-04 0.255E-04 0.508E-05 0.250E-05 0.250E-05 0.250E-06 0.350E-06 0.350E-06 0.330E-05 0.300E+00 0.000E+00 0.330E-05 0.330E | × | 89 | | | 13. | 7.4 | 18. | 20. | 27. | 31. | 33 |
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| STRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2102E+06 HRS ADSORBED CHEMICAL CONC. = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) 2 = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) 2 = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) 31. 0.531E-04 0.758E-04 0.2758E-04 0.275E-04 0.504E-05 0.256E-05 0.266E-07 0.155E-08 0.250E-05 0.260E-07 0.155E-08 0.260E-07 0.155E-08 0.260E-07 0.155E-08 0.250E-05 0.260E-07 0.155E-08 0.250E-05 0.260E-07 0.124E-06 0.250E-08 0.163E-08 0.163E-08 0.120E-08 0.309E-09 0.171E-09 0.322E-11 0.234E-12 41. 50. 0.000E+00 0.000E | Υ 0. 12. 15. | 41. 0.000E+00 0.000E+00 0.000E+00 | 50. 0.0008+00 0.0008+00 0.0008+00 | | | | | Ē | | | |
| 0.531E-04 0.758E-04 0.329E-04 0.278E-04 0.235E-04 0.504E-05 0.256E-07 0.155E-08 0.250E-04 0.300E-05 0.318E-04 0.758E-04 0.255E-04 0.481E-05 0.256E-07 0.155E-08 0.250E-08 0.300E-05 0.300E-05 0.133E-05 0.133E-05 0.265E-04 0.481E-05 0.244E-05 0.267E-07 0.143E-08 0.250E-08 0.350E-09 0.171E-09 0.171E-09 0.124E-09 0.124E-09 0.124E-09 0.000E+00 0.00E+00 0.000E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.0 | IQ) | STRIBUTION O. | | | PPM AT 0.21)3 * DISSOLVE | 102E+06 HRS ED CHEMICAL (| CONC.) | | | | |
| 0.531E-04 0.759E-04 0.329E-04 0.278E-04 0.235E-04 0.255E-05 0.256E-05 0.286E-07 0.155E-08 0.208E-04 0.729E-04 0.316E-04 0.256E-04 0.225E-04 0.431E-05 0.256E-05 0.266E-07 0.155E-08 0.208E-05 0.300E-05 0.133E-05 0.113E-05 0.265E-04 0.421E-05 0.244E-05 0.267E-07 0.143E-08 0.250E-08 0.362E-08 0.163E-08 0.113E-05 0.120E-08 0.120E-08 0.124E-06 0.192E-08 0.124E-09 0.126E-08 0.124E-09 0.126E-09 0.171E-09 0.121E-09 0.124E-09 0.124E-09 0.000E+00 0.000E | × | .89 | .0 | 12. | 13. | | 18. | 20. | 27. | 31. | 33 |
| 41. 50. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 3.TATE SOLUTION HAEN | 0 112. 18. | 0.531E-04 0.510E-04 0.208E-05 0.250E-08 | 0.758E-04 0.729E-04 0.300E-05 0.362E-08 | 0.329E-04 0.316E-04 0.133E-05 0.163E-08 | 0.278E-04 0.266E-04 0.113E-05 0.140E-08 | 0.235E-04 0.225E-04 0.967E-06 0.120E-08 | 0.504E-05 0.481E-05 0.232E-06 0.309E-09 | 0.256E-05 0.244E-05 0.124E-06 0.171E-09 | 0.286E-07 0.267E-07 0.192E-08 0.322E-11 | 0.155E-08 0.143E-08 0.124E-09 0.234E-12 | 0.146E-09 0.133E-09 0.132E-10 |
| 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 STATE SOLUTION HAS NOT HERN | × | 41. | 50. | | | | | | | | |
| TON COMMENTS OF THE PARTY OF TH | 0, 12. 15. 16. | | 0.000E+00 0.000E+00 0.000E+00 0.000E+00 | | ACROS STANTS | CLANDER HANDE | g g | | (1) | | |

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DISTRIBUTION OF DISSOLVED CHEMICALS IN PPM AT 0.2190E+06 HRS (ADSORBED CHEMICAL CONC. = 0.7160E+03 * DISSOLVED CHEMICAL CONC.) $Z \ = \ 0.00$

| 33. | 0.220E-09 0.201E-09 0.189E-10 | | |
|----------|--|-----|-------------------------------------|
| 31. | 0.213E-08 0.197E-08 0.163E-09 0.298E-12 | | |
| 27. | 0.349E-07 0.327E-07 0.226E-08 0.370E-11 | | |
| 20. | 0.260E-05 0.247E-05 0.124E-06 0.169E-09 | | |
| 18. | 0.497E-05 0.474E-05 0.226E-06 0.299E-09 | | |
| X 14. | 0.256E-04 0.218E-04 0.246E-04 0.209E-04 0.104E-05 0.896E-06 0.128E-08 0.111E-08 | × | |
| 13. | 0.256E-04 0.2 0.246E-04 0.2 0.104E-05 0.8 0.128E-08 0.1 CONTINUE | | |
| 12. | 0.302E-04 0.290E-04 0.122E-05 0.149E-08 | | |
| | 0.689E-04 0.662E-04 0.272E-05 0.329E-08 | 50. | 0.000E+00 0.000E+00 0.000E+00 |
| 219000. | 0.480E-04 0.461E-04 0.188E-05 0.226E-08 | 41. | 0.000E+00 0.000E+00 0.000E+00 |
| × | -12. -15. -18. | × | 1122. |

ATTACHMENT B SUMMARY OF VADOSE ZONE PILOT TEST RESULTS

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Science Applications International Corporation An Employee-Owned Company

TECHNICAL MEMORANDUM

To:

Patricia A. Stall

SAIC, Oak Ridge, TN

From:

Peter J. Cagnetta, CPSSc of

SAIC, Middletown, PA

Date:

June 29, 1999

Re:

Vadose Zone Pilot Test Results

Hunter Army Airfield

SAIC 01-1408-04-1829-200

The purpose of this memorandum is to present the results of the soil vapor extraction (SVE) pilot test and the in-situ microbial respiration test that were conducted at the Hunter Army Airfield on May 17 and 18, 1999. This memorandum presents the field methods, pilot testing results, data interpretation, and remediation design parameters for SVE or bioventing technologies.

The original plan was to conduct a SVE step test on well VW-1 and utilize wells AE-V1, AE-V2, and MW-56 as monitoring points. All four points were constructed in the vicinity of former Building 728 with points VW-1, AE-V1, and AE-V2 being installed with either direct push or hollow stem auger techniques. Existing well MW-56 was likely installed with hollow stem augers. The depth to groundwater in the area at the time of the testing was approximately 5.5 feet below ground surface (bgs). Well VW-1 and monitoring points AE-V1 and AE-V2 all contained screened intervals from 2.5 to 12.5 feet bgs.

Pre-Pilot Testing Activities

The pilot testing equipment consisted of a 3-HP rotron regenerative blower equipped with a 300-pound granular-activated carbon unit (GAC) on a discharge. A 55-gallon drum was used as a water knockout tank located between the test well and the blower. A section of 2-inch piping between the knockout drum and the blower contained an atmospheric intake valve for adjusting the vacuum, a pitot tube and temperature gauge

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for flow determination, and a gas sampling port. The wellhead was equipped with a vacuum gauge.

Prior to the actual step test, incremental rates of vacuum were applied to VW-1 and the depth to groundwater was measured in the well at each corresponding vacuum rate. At a vacuum of 63 inches of water column (WC) on the wellhead, a groundwater mound of approximately 3 feet was created which indicated that the depth to water at this vacuum rate was at the uppermost part of the screen. Therefore, the test would need to be conducted at vacuum steps below the 63 inches WC.

During the process of determining the four vacuum steps to conduct the test at, a vacuum of 30 inches WC and also 60 inches WC was applied to the wellhead. At each vacuum rate, the corresponding extraction flow rate from the well was approximately 0.5 standard cubic feet per minute (scfm). The flow rate was calculated using the extraction air velocity and the cross sectional area of the two-inch diameter pipe. At monitoring point AE-V1, located 5 feet from VW-1, a subsurface vacuum was not induced when a vacuum of either 30 inches or 60 inches WC was applied to VW-1. The pretest data indicated that the subsurface soil had a very low permeability or the test well was inadequate for testing.

The blower unit was disconnected from VW-1 and connected to monitoring point AE-V1 to try to utilize this point as a test well. Vacuum rates of 30 inches WC and 60 inches WC were applied at this wellhead and again, the extraction flow rates were approximately 0.5 scfm and no measurable radius of influence. The existing well MW-56 was then tested as a potential test well. The same vacuum rates were applied to MW-56 and again, very limited flow (<0.5 scfm) with no radius of influence were recorded. Upon completion of pre-testing MW-56, it was concluded that all wells and monitoring points in the pilot test area were either not adequately constructed for the performance of the test or the soil was highly impermeable.

To further investigate the reason for the extremely low flow rates from the soil, one new test well and two monitoring points were constructed. A hand auger was used to complete three boreholes to 6 feet bgs (approximately 0.5 feet below the water table).

As Lough the

Soil Conditions

During the completion of the three boreholes, the physical and morphological properties of the soil, which control the subsurface air flow characteristics, were documented. Table 1 presents a summary of the soil descriptions at each of the three locations. The soil generally consisted of an olive yellow silty sand to a depth of approximately 2 feet bgs. From approximately 2 feet to 6 feet bgs, the soil consisted of

1408\04\04-1829\MEMO 3

very dark gray silty sand (field description) with light greenish-gray mottles and a hydrocarbon odor. The silty sand was generally poorly graded. The presence of the greenish mottles in the soil which generally consist of ferrous sulfate precipitates, suggests that there is limited migration of water through the soil where the greenish mottles are present. The presence of the greenish-gray mottles strongly suggest that highly reduced conditions exist in the soil due to limited oxygen diffusion through the soil. This further suggests that the soil is not highly permeable.

The results of geotechnical analyses performed on the sample collected from the test area indicate the soil is generally a poorly graded sand with silt with approximately 75% fine sand. The dry bulk density of the soil is approximately 112 pounds per cubic foot. The bulk density is high and suggests that the soil in this area was very likely compacted during backfilling of the UST excavation. The hydraulic conductivity was calculated at 2.61 x 10-5 centimeters per second. The geotechnical data indicates the soil is dense and has a low permeability which is consistent with the field observations made during the completion of the soil boreholes and the SVE pre pilot testing activities.

New Well and Piezometer Construction

In each of the three boreholes, ¾-inch diameter PVC wells were constructed. Each well contained a screened interval from 2 to 6 feet bgs with a sand pack from 1.5 to 6 feet bgs. A bentonite seal was placed from grade to 1.5 feet bgs. The first borehole is identified as test well VEW-1. The first piezometer, P-1, is located 3 feet from VEW-1, and P-2, the second piezometer, is located 5.75 feet from VEW-1. Prior to the construction of the well and piezometer, the sides of the borehole were scraped with a metal hook attached to the bucket auger extension. The purpose of scraping the sidewalls was to remove any surface smearing that may have occurred during the installation of the borehole that would interfere with measuring the actual permeability of the soil.

Initial testing of VEW-1 indicated that an extraction flow rate of up to 4.4 scfm could be achieved with an applied vacuum of 60 inches WC on the wellhead. In addition, a measurable vacuum could be recorded at the nearest monitoring piezometer (P-1). Therefore, the new test well and two piezometers were used to conduct the SVE step test.

Soil Vapor Extraction Step Test

A four-hour SVE step test was conducted on well VEW-1. Four rates of vacuum were applied to the wellhead, each for a one-hour period of time. During each step, the

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applied vacuum, the extraction flow rate, the VOC concentration in the extracted gas and the treated discharge, and the concentration of oxygen, carbon dioxide, and methane were determined at the beginning and end of each step. In addition, the induced subsurface vacuum at P-1 and P-2 were recorded at 15-minute intervals within each one-hour step. At the conclusion of the first and fourth step, an extracted soil gas sample was collected for laboratory analysis of VOCs and total petroleum hydrocarbons (TPH).

The results of the SVE step tests are presented in Table 3. Figure 1 presents a plot of the applied vacuum on VEW-1 and the corresponding extraction flow rate. The flow rates are considered to be low; however, there was a linear increase in the flow rate with each incremental increase in the applied vacuum.

The relative concentration of VOCs in the untreated soil gas as determined with an organic vapor analyzer equipped with a photoionization detector (OVA-PID) increased from 41.7 parts per million (ppm) at the start of the test to a maximum of 160 ppm at the beginning of Step 3. The concentration then generally declined to 128 ppm at the end of the test. The concentration of VOCs in the treated effluent remained at 0 ppm throughout the step test.

The oxygen content in the soil gas remained very low throughout the duration of the four-hour step test, and concentrations of carbon dioxide and methane remained elevated. This data strongly suggests that oxygen is being consumed during the aerobic biodegradation of the hydrocarbon in the soil at a rate that is greater than the diffusion of oxygen back into the subsoil thus creating oxygen limiting conditions.

Figure 2 presents a plot of the stabilized subsurface vacuum values at P-1 and P-2 versus distances from VEW-1. The plot indicates that a radius of influence as determined by a subsurface vacuum value of 0.1 inches WC of 5 to 6 feet could be achieved with either Steps 2, 3, or 4.

Table 4 presents the results of the soil gas laboratory analyses and the laboratory reports are in Attachment A. Individual VOC compounds detected in the soil gas include trans-1,2-dichloroethene (t-1,2-DCE), 1,1-dichloroethane (1,1-DCA), and m,p-xylene. Slightly greater concentrations of the VOCs were present in the sample collected at the end of the four vacuum steps when the greatest vacuum was applied to the wellhead. The concentration of TPH (C4 to C12) as hexane was quantified. The majority of the VOCs in the extracted sample was comprised of the TPH. Estimated initial VOC recovery rates are calculated and are presented in Attachment A.

Short-Term Air Injection Test

Based on the field evaluation of the SVE pilot test results, a short-term air injection test was completed. The apparent low permeability of the soil and the shallow depth to groundwater may preclude the efficient operation of an air extraction system. The relatively high vacuum values that would be needed to generate adequate air flow from the subsurface and an adequate radius of influence would likely create groundwater upwelling conditions that would interfere with the efficient operation of an extraction system. Therefore, a short-term air injection test was conducted.

Five different rates of pressure were applied to VEW-1, each for approximately 5 minutes. During each pressure step, the applied pressure, the injection flow rate, and the subsurface pressure values at P-1 and P-2 were recorded. The results are presented in Table 5. Injection flow rates ranged from 1.6 scfm at an applied pressure of 18 inches WC to 4.9 scfm at an applied pressure of 80 inches WC. Figure 3 presents a plot of the injection flow rate versus the applied pressure on VEW-1. Injection flow rates obtained were very similar to the extraction flow rates obtained during the SVE step tests.

Figure 4 presents a plot of the subsurface pressure values versus distance from well VEW-1 during the five steps. A radius of influence of approximately 6 to 7 feet could be obtained at applied pressures of 70 and 80 inches WC. The radius of influence is based on maintaining a subsurface pressure of 0.1 inches WC.

Microbial Respiration Test

At the conclusion of the short-term air injection test, atmospheric air injection into the soil continued for approximately two hours. At the conclusion of the two-hour event, the concentration of oxygen in soil gas from the soil in the immediate vicinity of the test well borehole was 19.6 percent. The concentration of carbon dioxide was 0.8 percent, and the concentration of methane was 1.9 percent. The gas concentrations were measured with a landfill gas monitor. The concentrations of the three gases were measured for a period of six hours from the time the blower was shut off.

The soil gas results are presented in Table 6. Throughout the six-hour test, the concentration of oxygen declined, while the concentration of carbon dioxide and methane increased. Figure 5 presents a plot of the gas concentrations throughout the six-hour test. The consumption of oxygen during the test is attributed to the aerobic biodegradation of the hydrocarbon in the soil by the indigenous microorganisms. Figure 5 indicates that as oxygen was consumed during the aerobic biodegradation of

hydrocarbon carbon dioxide was generated. In addition, the production of methane indicated that anerobic biodegradation was occurring in the heterogenius soil.

The declining oxygen concentration versus time along with the physical properties of the soil were used to calculate a hydrocarbon biodegradation rate. The calculations are presented in Attachment B. The aerobic biodegradation rate is estimated at 36 mg/kg/day. This rate indicates that microbial activity and TPH biodegradation were enhanced as the subsurface was aerated. However, with the continuous operation of a bioventing system this estimated rate would likely decline due to decreasing substrate availability and possible nutrient limiting conditions.

Remediation Design Considerations

The air extraction step test and the air injection tests yielded similar flow rates and radii of influence. Microbial respiration tests indicated that aerating the subsurface will increase the biodegradation of the hydrocarbon contaminants. The relatively shallow depth to groundwater in the area may interfere with the effective operation of a vapor extraction system. In addition, the equipment requirements for an extraction system in comparison to an air injection system are more intensive. An air injection system can be as simplistic as an air injection blower unit equipped with an air filter on the intake and miscellaneous gauges on the discharge. In contrast, an SVE system would require a moisture knockout tank, a discharge receptacle for the collected groundwater, possible treatment for the discharge water, possible off-gas treatment requirements, and a heat exchanger if GAC would be used to treat the off-gas.

Based on the biodegradable nature of the contaminants and the very low contaminant recovery rates in the vapor phase during the extraction test, an air injection system would likely be the most efficient technology to remediate this site. Table 7 presents the possible remedial design parameters for an air injection system (bioventing) or possible air extraction system (SVE), if selected. With the bioventing system, an applied pressure of 70 inches WC on a wellhead can result in a radius of influence of 6 to 7 feet with a well spacing of approximately 11 feet. At 70 inches WC on the wellhead, an injection flow rate of approximately 4.4 scfm could be achieved.

| | and I | Table 1 of Field Described Soil Physical Morphological Properties Hunter Army Airfield oject No. 01-1408-04-1829-200 |
|----------------|-----------------|---|
| Location | Depth (Feet) | Soil Description |
| | 0 - 0.75 | Olive yellow (2.5Y 5/6) silty sand (80% medium sand and 20% fines); <5% subrounded gravel; dry. |
| VEW-1 | 0.75 – 2.0 | Brownish yellow (10 YR 6/8) silty sand (85% medium and coarse sand and 15% fines); <5% subrounded gravel; moist. |
| | 2.0 – 6.0 | Very dark gray (5Y 3/1) silty sand (80% medium sand and 20% fines) with few faint light greenish-gray (5G 7/1) mottles; <5% subrounded gravel; moist; hydrocarbon odor; glass fragment at 4.5 feet. |
| and the second | 0-1.75 | Olive yellow (2.5 Y 5/6) silty sand (80% medium sand and 20% fines); <5% subrounded gravel; dry. |
| P-1. | 7.15 – 6.0 | Very dark gray (5Y 3/1) silty sand (75% medium sand and 25% fines) with few faint light greenish-gray (5G 7/1) mottles; <5% subrounded gravel; moist; hydrocarbon odor. |
| | 0-2.0 | Olive yellow (2.5 Y 5/6) silty sand (80% medium sand and 20% fines); <5% subrounded gravel; dry. |
| P-2 | 2.0 - 5.0 | Very dark gray (5Y 3/1) silty sand (75% medium and fine sand and 25% fines) with few faint light greenish mottles; moist; hydrocarbon odor. |
| | 5.0 – 6.0 | Pale olive (5Y 6/4) silty sand (75% medium sand and 25% fines) with few faint (5G 7/1) light greenish-gray mottles; wet. |

Table 2 Summary of Well and Piezometer Construction Details Hunter Army Airfield SAIC Project 01-1408-04-1829-200

| Location | Distance to VEW-1 (feet) | Screened Interval (ft. bg) | Sand Pack Interval (ft. bg) | Bentonite Seal (ft. bg) |
|----------|--------------------------|----------------------------------|-----------------------------------|-------------------------------|
| VEW-1 | 0 | 2.0 - 6.0 | 1.5 - 6.0 | 0-1.5 |
| P-1 | 3.0 | 2.0 - 6.0 | 1.5 – 6.0 | 0 - 1.5 |
| P-2 | 5.75 | 2.0 - 6.0 | 1.5 – 6.0 | 0 - 1.5 |

Table 3 Summary of Results of Soil Vapor Extraction Pilot Test Hunter Army Airfield SAIC Project No. 01-1408-00-4008-200

| | Step 1 | | Step 2 | | Step 3 | | Step 4 | | |
|----------------------|----------------------|---|--------|-------|--------|-------|--------|-------|------|
| VEW-1 Parameters | Units | Start | End | Start | End | Start | End | Start | End |
| Applied Vacuum | "WC | 18 | 18 | 35 | 35 | 52 | 52 | 70 | 70 |
| Extraction Flow Rate | scfm | 2.2 | 2.2 | 2.7 | 2.7 | 3.8 | 3.8 | 4.4 | 4.4 |
| VOCS by PID | | | _ | | | | | | |
| Extracted Soil Gas | ppm | 41.7 | 36,2 | 145 | 154 | 160 | 139 | 142 | 128 |
| Treated Effluent | ppm | 0 | 0 | 0 | 0 | 0 | . 0 | 0 | 0 |
| Oxygen | % | 0.1 | 0.3 | 0.3 | 0.6 | 0.7 | 1.0 | 1.1 | 1.3 |
| Carbon Dioxide | % | 18.8 | 18.4 | 18.3 | 17.6 | 17.5 | . 16.9 | 16.9 | 16.2 |
| Methane | % | 79.4 | 78.9 | 78.8 | 77.7 | 77.5 | 76.1 | 75.8 | 74.0 |
| Piezometer Location | Distance to VEW-1 | Stabilized Subsurface Vacuum (inches of water column) | | | | | 1 | | |
| | (Feet) | Ste | p 1 | Ste | p.2 | Ste | р3 | Ste | p 4 |
| P-1 | 3.0 | 0.3 | 30 | 0.6 | 50 | 0. | 82 | 0.9 |)5 |
| P-2 | 5.75 | 0.0 | 35 | 0.0 | 60 | 0.0 | 65 | 0.0 | 72 |

[&]quot; WC = inches of water column scfm = standard cubic feet per minute

ppm = parts per million % = percent

Ft (bTOC) = feet below top of casing.

Table 4 Summary of Detected VOCs in the Extracted Soil Gas Hunter Army Airfield SAIC Project No. 01-1408-04-1829-200

| | VOC Concentration | | | | | |
|--------------------------|-------------------|--------|------------|--------|--|--|
| Compound | AIE-VIEW-1-A | | AE-VEW-2-A | | | |
| | ppmv | μg/L | ppmv | μg/L | | |
| Trans-1,2-Dichloroethene | 0.06 | 0.24 | 0.12 | 0.48 | | |
| 1,1-Dichloroethane | 0.37 | 1.52 | 0.62 | 2.55 | | |
| m,p-xylene | <0.07 | NC | 0.13 | 0.57 | | |
| TPH (C4-C12) | 51.38 | 183.74 | 168.52 | 602.61 | | |

ppmv = parts per million-volume basis

μg/L = micrograms per liter

NC = not calculated

Table 5 Results of Short-Term Air Injection Test Hunter Army Airfield SAIC Project No. 01-1408-04-1829-200

| Monitoring Parameters | Units | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 |
|-----------------------------------|-------|--------|--------|--------|--------|--------|
| Applied Pressure on VEW-1 | "WC | 18 | 35 | 52 | 70 | 80 |
| Injection Flow Rate from VEW-1 | scfm | 1.6 | 2.7 | 3.3 | 4.4 | 4.9 |
| Induced Pressure on P-1 | "WC | 1.0 | 1.15 | 1.50 | 2.20 | 3.35 |
| Induced Pressure on P-2 | "WC | 0.11 | 0.115 | 0.112 | 0.160 | 0.25 |

"WC = inches of water column

scfm = standard cubic feet per minute

Table 6 Results of In-situ Microbial Respiration Test Hunter Army Airfield SAIC Project No. 01-1408-04-1829-200

| | | Concentration (%) | | |
|----------------------|----------------|-------------------|-----------------|--|
| Elapsed Time (hours) | O ₂ | CO ₂ | CH ₄ | |
| 0 | 19.6 | 0.8 | 1.9 | |
| 0.25 | 18.9 | 1.3 | 2.7 | |
| 0.50 | 15.8 | 2.5 | 7.5 | |
| 0.75 | 13.5 | 2.9 | 9.1 | |
| 1.00 | 11.7 | 3.2 | 10.6 | |
| 1.25 | 10.1 | 3.4 | 13.5 | |
| 1.50 | 8.7 | 3.6 | 14.7 | |
| 1.75 | 7.9 | 3.7 | 15.8 | |
| 2.00 | 7.1 | 3.8 | 17.4 | |
| 2.25 | 6.4 | 3.9 | 17.7 | |
| 2.50 | 5.9 | 4.0 | 18.9 | |
| 2.75 | 5.4 | 4.1 | 19.4 | |
| 3.00 | 4.8 | 4.2 | 20.4 | |
| 3.50 | 4.0 | 4.2 | 21.8 | |
| 4.00 | 3.4 | 4.3 | 22.7 | |
| 4.50 | 3.0 | 4.3 | 23.1 | |
| 5.00 | 2.6 | 4.4 | 24.2 | |
| 5.50 | 2.3 | 4.4 | 24.4 | |
| 6.00 | 1.9 | 4.5 | 24.9 | |

Table 7 SVE and Bioventing Remedial Design Parameters Hunter Army Airfield SAIC Project No. 01-1408-04-1829-200

| Design Parameter | Units | SVE Well (extraction) | Bioventing Well (injection) | |
|---------------------------------------|-------|--------------------------|-----------------------------|--|
| Applied Vacuum (-) or Pressure (+) | "WC | -35 | +70 | |
| Flow Rate | scfm | 2.7 | 4.4 | |
| Radius of Influence | Ft | 5-6 | 6-7 | |
| Well Spacing | Ft | 9 | 11 | |

"WC = inches of water column

scfm = standard cubic foot per minute

Ft = Feet

Figure 1
Applied Vacuum on VEW-1 vs Extraction Flow Rate

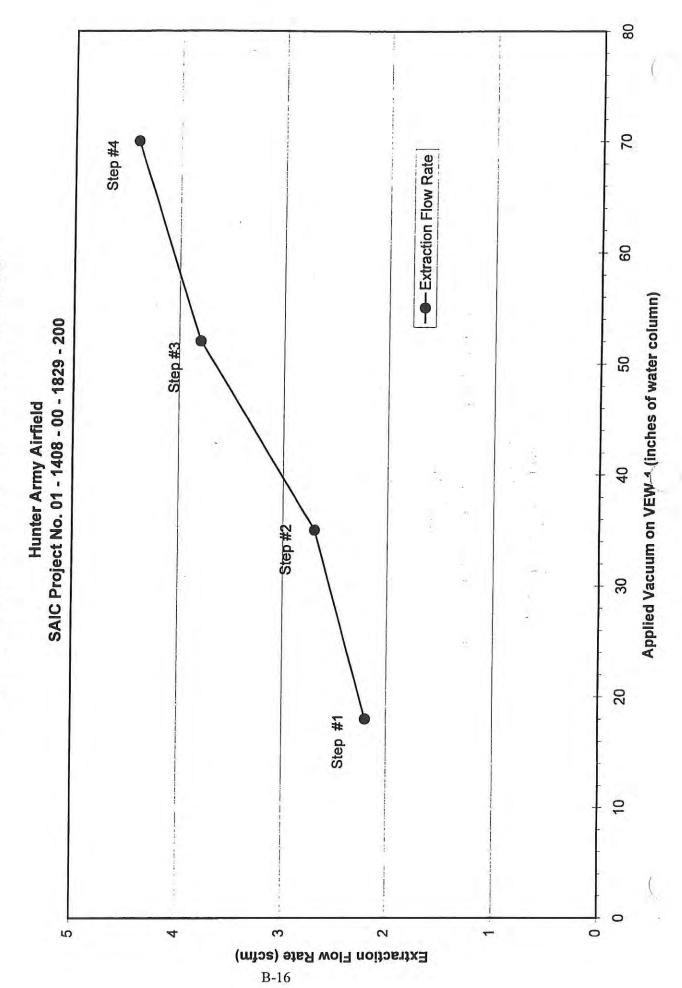


Figure 2
Stabilized Subsurface Vacuum at Monitoring Points
vs. Distance from VEW-1

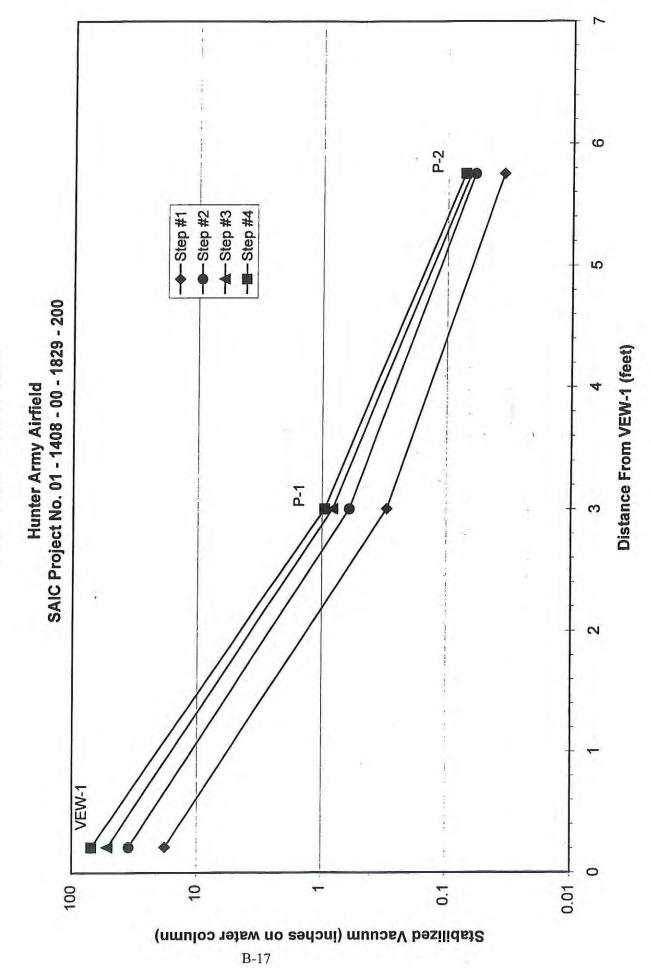


Figure 3
Applied Pressure on VEW-1 vs Injection Flow Rate

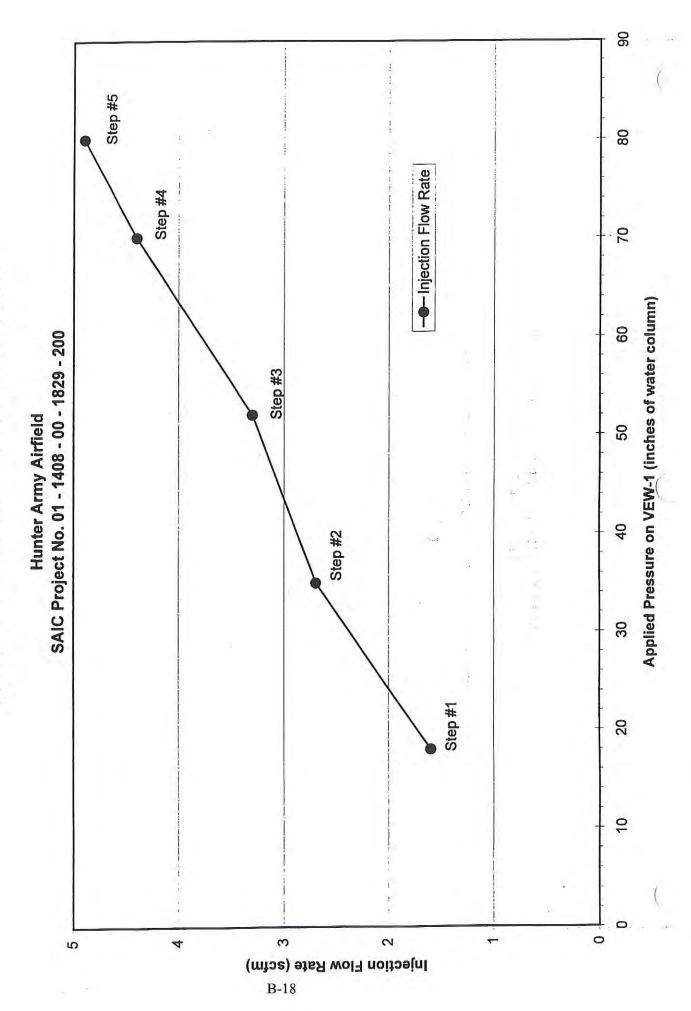
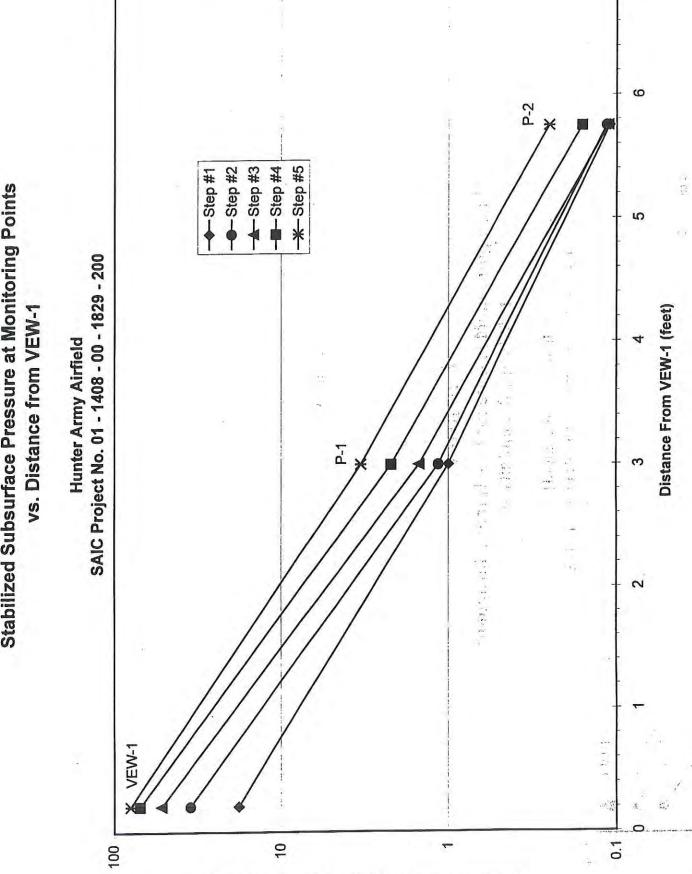


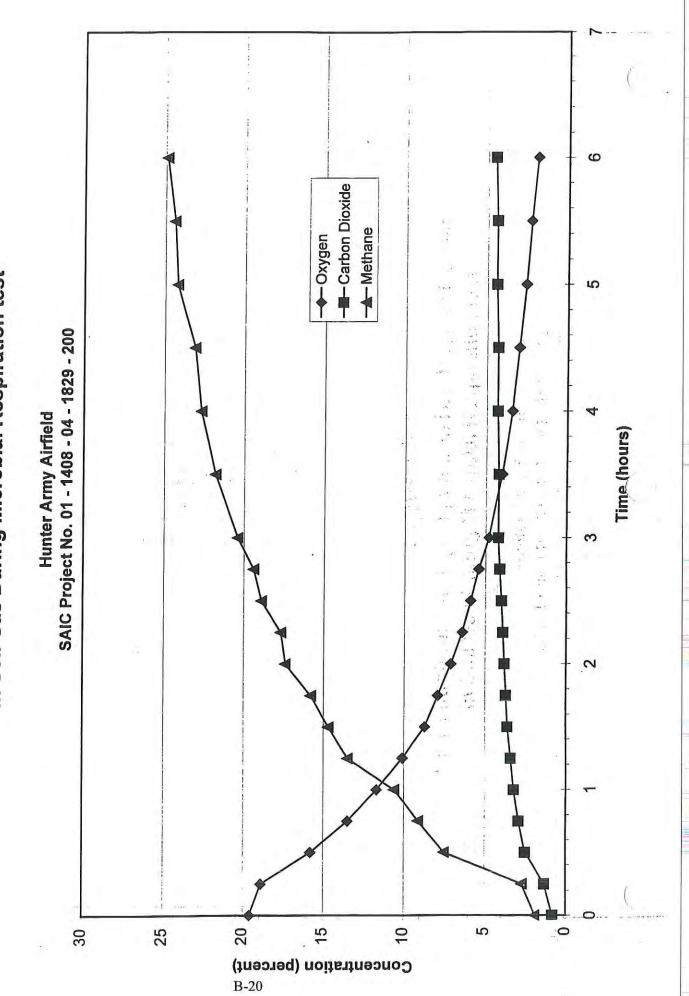
Figure 4
Stabilized Subsurface Pressure at Monitoring Points
vs. Distance from VEW-1



Stabilized Pressure (inches on water column)

B-19

Concentrations on Oxygen, Carbon Dioxide, and Methane in Soil Gas During Microbial Respiration test Figure 5



ATTACHMENT A

Soil Gas Analysis Results and Contaminant Mass Removal Calculations

Vaportech Services, Inc.

SAC2-992207

Science Applications International Corporation Project: 01-1408-04-1829-200 Hunter Army Airfield

CONCENTRATIONS IN PPMV

| COMPOUND | AE-VEW-1-A | AE-VEW-2-A | | MDL |
|-----------------------------|------------|------------|---|-------|
| CHLOROMETHANE | ND | ND | | 1 |
| VINYL CHLORIDE | ND | ND | | 1 |
| BROMOMETHANE/CHLOROETHANE* | ND | ND | | . 1 |
| FLUOROTRICHLOROMETHANE | ND | ND | the second residual | 0.005 |
| 1,1 DICHLOROETHYLENE | ND | ND | | 0.01 |
| METHYLENE CHLORIDE | ND | 0.1 | | 0.1 |
| TRANS-1,2 DICHLOROETHYLENE | 0.06 | 0.12 | y ++-: | 0.01 |
| 1,1 DICHLOROETHANE | 0.37 | 0.62 | and the second | 0.05 |
| CIS-1,2 DICHLOROETHYLENE | ND | ND | 7 | 0.01 |
| CHLOROFORM | ND | ND | * | 0.005 |
| 1,1,1 TRICHLOROETHANE | ND | ND | -i -i - <u>i</u> -i - <u>i</u> - <u>i</u> | 0.005 |
| CARBON TETRACHLORIDE | ND | ND | 7 2 | 0.005 |
| BENZENE | ND | ND | | 0.07 |
| 1,2 DICHLOROETHANE | ND | ND | | 0.01 |
| TRICHLOROETHYLENE | ND | ND | | 0.005 |
| 1,2 DICHLOROPROPANE | · ND | ND | | 0.01 |
| BROMODICHLOROMETHANE | ND | ND | | 0.005 |
| CIS-1,3 DICHLOROPROPYLENE | ND | ND | | 0.01 |
| TOLUENE | ND | ND | | 0.07 |
| TRANS-1,3 DICHLOROPROPYLENE | ND | ND | e e_ e_ | 0.01 |
| 1,1,2 TRICHLOROETHANE | ND | ND | ÷ | 0.005 |
| TETRACHLOROETHYLENE | ND | ND | | 0.005 |
| CHLORODIBROMOMETHANE | ND | ND | | 0.005 |
| CHLOROBENZENE | ND | ND | 12 4 2 2 1 2 | 0.07 |
| ETHYL BENZENE | ND | ND | | 0.07 |
| M&P XYLENE | ND | 0.13 | | 0.07 |
| o-XYLENE | ND | ND | ^ | 0.07 |
| BROMOFORM | ND | ND | | 0.005 |
| 1,1,2,2 TETRACHLOROETHANE | ND | ND | | 0.005 |
| 1,3 DICHLOROBENZENE | ND | ND | | 0.07 |
| 1,4 DICHLOROBENZENE | ND | ND | | 0.07 |
| 1,2 DICHLOROBENZENE | ND | ND | | 0.07 |
| TOTAL C4-C12** | 51.38 | 168.52 | | 0.07 |
| FILE NAME | V6A/B2.98A | V6A/B2.99A | 1 2 | |
| DATE SAMPLED | 05/17/99 | 05/17/99 | | |
| DATE RECEIVED | 05/21/99 | 05/21/99 | = | |
| DATE ANALYZED | 05/21/99 | 05/21/99 | * | |

MDL - Lower 'Method Detection Limit'

ND - 'Not Detected' above the lower method detection limit

Vi 22 m

^{*} Compounds elude together on electron capture detector

^{**} Includes the total of all identified and unidentified compounds in the C4-C12 hydrocarbon range, calculated using the sensitivity of hexane

Vaportech Services, Inc.

C2-992207

Science Applications International Corporation Project: 01-1408-04-1829-200 Hunter Army Airfield

QUALITY CONTROL

LABORATORY BLANK RESULTS

BLANK:

HE IN VIAL

FILE NAME:

V6A/B2.92A

| COMPOUND | BLANK (PPMV) | METHOD DETECTION LIMIT (PPMV) |
|-----------------------------|-----------------|--|
| CHLOROMETHANE | ND | 1 |
| VINYL CHLORIDE | ND | 1 |
| BROMOMETHANE/CHLOROETHANE* | ND | 1 |
| FLUOROTRICHLOROMETHANE | ND | 0.005 |
| 1,1 DICHLOROETHYLENE | ND | 0.01 |
| METHYLENE CHLORIDE | ND | 0.1 |
| TRANS-1,2 DICHLOROETHYLENE | ND | 0.01 |
| 1,1 DICHLOROETHANE | ND | 0.05 |
| CIS-1,2 DICHLOROETHYLENE | ND | 0.01 |
| CHLOROFORM | ND | 0.005 |
| 1,1,1 TRICHLOROETHANE | ND | 0.005 |
| CARBON TETRACHLORIDE | ND | 0.005 |
| BENZENE | ND | 0.07 |
| 1,2 DICHLOROETHANE | ND | 0.01 |
| TRICHLOROETHYLENE | ND | 0.005 |
| 1,2 DICHLOROPROPANE | ND | 0.01 |
| BROMODICHLOROMETHANE | ND | 0.005 |
| CIS-1,3 DICHLOROPROPYLENE | ND | 0.01 |
| TOLUENE | ND | 0.07 |
| TRANS-1,3 DICHLOROPROPYLENE | ND | 0.01 |
| 1,1,2 TRICHLOROETHANE | ND | 0.005 |
| TETRACHLOROETHYLENE | ND | 0.005 |
| CHLORODIBROMOMETHANE | ND | 0.005 |
| CHLOROBENZENE | ND | 0.07 |
| ETHYL BENZENE | ND | 0.07 |
| M&P XYLENE | ND | 0.07 |
| o-XYLENE | ND | 0.07 |
| BROMOFORM | ND | 0.005 |
| 1,1,2,2 TETRACHLOROETHANE | ND | 0.005 |
| 1,3 DICHLOROBENZENE | ND | 0.07 |
| 1,4 DICHLOROBENZENE | ND | 0.07 |
| 1,2 DICHLOROBENZENE | ND | 0.07 |
| TOTAL C4-C12 | ND | 0.07 |

ND - denotes 'Not Detected' above the lower method detection limit

viewed by:

^{*} Compounds elude together on electron capture detector

Vaportech Services, Inc.

SAC2-992207

Science Applications International Corporation Project: 01-1408-04-1829-200 Hunter Army Airfield

QUALITY CONTROL

CONTINUING CALIBRATION CHECK

STANDARDS: FILE NAME:

624 R2

VC-1000

V6A/B2.95A V6A/B2.93A

V6B2.94A

V6A2.96A

05/18/99

| COMPOUND | (PPMV) | RESULT (PPMV) | PERCENT DIFFERENCE |
|-----------------------------|--------|------------------|-----------------------|
| CHLOROMETHANE | 2.1 | 2.4 | 13.27 |
| VINYL CHLORIDE | 1000 | 1059 | 5.93 |
| BROMOMETHANE/CHLOROETHANE* | 2.7 | 2.9 | 6.23 |
| FLUOROTRICHLOROMETHANE | 0.765 | 0.806 | 5.36 |
| 1,1 DICHLOROETHYLENE | 1.09 | 1.15 | 5.99 |
| METHYLENE CHLORIDE | 1.24 | 1.32 | 6.46 |
| TRANS-1,2 DICHLOROETHYLENE | 1.09 | 1.16 | 6.91 |
| 1,1 DICHLOROETHANE | 1.06 | 1.16 | 9.13 |
| CIS-1,2 DICHLOROETHYLENE | 1.01 | 1.05 | 3.96 |
| CHLOROFORM | 0.881 | 0.927 | 5.22 |
| 1,1,1 TRICHLOROETHANE | 0.788 | 0.830 | 5.33 |
| CARBON TETRACHLORIDE | 0.684 | 0.718 | 4.97 |
| BENZENE | 1,25 | 1.17 | 6.80 |
| 1,2 DICHLOROETHANE | 1.06 | 1.15 | 7.81 |
| TRICHLOROETHYLENE | 0.800 | 0.843 | 5.37 |
| 1,2 DICHLOROPROPANE | 0.93 | 0.98 | 5.16 |
| BROMODICHLOROMETHANE | 0.642 | 0.673 | 4.83 |
| CIS-1,3 DICHLOROPROPYLENE | 0.95 | 1.03 | 8.44 |
| TOLUENE | 1.06 | 1.02 | 3.49 |
| TRANS-1,3 DICHLOROPROPYLENE | 0.95 | 1.01 | 6.12 |
| 1,1,2 TRICHLOROETHANE | 0.788 | 0.836 | 6.09 |
| TETRACHLOROETHYLENE | 0.634 | 0.677 | 6.78 |
| CHLORODIBROMOMETHANE | 0.505 | 0.533 | 5.54 |
| CHLOROBENZENE | 0.93 | 0.96 | 3.21 |
| ETHYL BENZENE | 0.92 | 0.89 | 3.04 |
| M&P XYLENE | 1.84 | 1.78 | 3.37 |
| o-XYLENE | 0.92 | 0.89 | 2.93 |
| BROMOFORM | 0.416 | 0.441 | 6.01 |
| 1,1,2,2 TETRACHLOROETHANE | 0.626 | 0.666 | 6.39 |
| 1,3 DICHLOROBENZENE | 0.72 | 0.77 | 7.55 |
| 1,4 DICHLOROBENZENE | 0.72 | 0.77 | 7.97 |
| 1,2 DICHLOROBENZENE | 0.72 | 0.76 | 6.15 |

^{*} Compounds elude together on electron capture detector

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| SUBJECT HUNTER ALM AND | JOB NO. 05-1408-34-1829-200 |
|---------------------------|-----------------------------|
| Tes- | PAGE/ of4 |
| PREPARED BY Patr. J Cogni | DATE 6-9-93 |
| CHECKED BY MATTHEN KO | OT DATE 6/28/99 |
| APPROVED BY | DATE |

Reference

Calculations to converts Soil Gas concentrations from ppmv to ug/L

ug/ = (MW/24.05) × ppm v

MW = molecular weight

Rong, Y., S.C. Yu., 1996 Conversion unmasked What is the relationship between ug/L and ppm V? Soil and Groundwater Cleanup, Independence, MO, April.

Compound Molecular Wt. t-1,2-DCE 96.9 98.9 1.1 - DCA m, p-xylene 106 TPH (as hexane) 86

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SUBJECT H.A.A SVE P. 3-Test

PREPARED BY P. Cagnetta CHECKED BY MATTHEN ROOT

APPROVED BY

_ JOB NO. <u>01-438 - 34 - 320 -</u>

PAGE 2 of 4

DATE 6/28/99

DATE

Reference

t-1,2-DCE (96:9/24.05) × 0.06 = 0.24 ug/L

(96.9/24.05) × 0.12 = 0.48 Mg/L

1,1-DCA 98.9/24.05 × 0,37 = 1.52 mg/L

98.9/ 14.05 × 0.62 = 2.55 Mg/L

m.p-xylene 106/24.05 × 0.07 = 0.31 mg/L

106/ /24.05×-01/3 = 0.57 mg/L

(as hexane) 86/24.05 × 51.38 = 183.74 No/L

86/24.05 × 168.52 = 602.61 mg/2

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|-------------------------|----------------------------|
| | PAGE 3 of 4 |
| PREPARED BY ? Cant the | DATE 6.9.44 |
| CHECKED BY MATTHEW ROOT | DATE 6/28/99 |
| APPROVED BY | DATE |

Reference

Calculations to Determine VOC Recovery Rates

Using the VOC analysis data (AE-VEW-1-A) and the extraction flow rate from the end of the first step the following voc recovery rates are exstimated:

- t-1,2-DCE

$$\frac{0.24 \, \text{ug}}{L} \times \frac{3.274^3}{\text{min}} \times \frac{28.32 \, \text{L}}{\text{FF}^3} \times \frac{60 \, \text{mins}}{\text{hr}} \times \frac{24 \, \text{hrs}}{\text{day}} \times \frac{19}{106 \, \text{ug}} = 0.02 \, \text{g/day}$$

2, 1,1-DCA

3. TPH (as hexane)

Using the voc analysis data (AE-VEW-2-A) and the the extraction flow rate from the end of the 4th step the following voc recovery rates are estimated:

1. t.1,2-DCE

2. 1,1-DCA

2.55 ug , 4,4 ft3 , 22.32 L = 60 mirs , 24 his lg = 0.46g day

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TPH (as hexone)

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ATTACHMENT B

Microbial Resipiration and Biodegradation Rate Calculation

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| | SUBJECT Hunter Army Airfield | JOB NO. 01-1408-04-1829-20 |
|---|------------------------------|----------------------------|
| | Vadose Zone Plot Tests | PAGE 1 of 3 |
| | PREPARED BY Peter J. Cagnita | DATE 6.25-99 |
| 5 | CHECKED BY MATTHEW ROOT | DATE 6/28/99 |
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Reference

Calculations To Determine Biodegradation Rate

A. Determine Soil Air & Soil Water Properties:

Pt = Total Porosity (cm3/cm3)

Pw = Water Filled Porosity (cm3/cm3)

Pa = Air Filled Porosity (Cm3/cm3)

M = Field soil Moisture Content (q water / g soil)

BD = Soit Bulk Density (dry g/em3)

PD = Soil Particle Density (g/cm3)

Pa = Pt - Pw

PW = M (BD/PD)

U.S.EPA. 1995. Bioventing Principles and Practice, Volume 1: Bioventing Principles. EPA 540/R-95/534. Washington, D.C.

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| Vaduse Zone Pilot Tests | PAGE 2 of 3 |
| PREPARED BY Peler T. Cagnetta | DATE 6.25-99 |
| CHECKED BY MATTHEW ROOT | DATE 6/28/99 |
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Reference

Pt = 0.33 (CATLIN Lab Analysis Result)

PD = 2.65 g/cm3 (CATLIN Lab Analysis Result)

BD = 111.57 lbs/ft3 = 1.79 g/cm3

 $\frac{111.57 \text{ lbs}}{\text{ft}^3} \times \frac{1 \text{ ft}^3}{28.3 \text{ L}} \times \frac{1 \text{ L}}{1000 \text{ ml}} \times \frac{1 \text{ ml}}{1 \text{ cm}^3} \times \frac{454 \text{ g}}{1 \text{ lb}} = 1.79 \text{ g/cm}^3$

M= 12% by wt. (CATLIN LAB ANALYSIS RESULT) = 0.12 g water/ g soil

 $Pw = 0.12 \times \frac{1.79 \, g/cm^3}{2.65 \, g/cm^3} = 0.08$

Pa = 0.33 - 0.08 = 0.25

. Determine Biodegradation Rate:

Pa = Air Filled Porosity (cm3/cm3)

BD = Soil Bulk Density (g/cm3)

OD = Oxyger Density (mg/L)

HC: 02 = Hydrocorbon: Oxygen Moto Oxidation Ratio (9/9)

-Ko = Oxygen Utilization Rate (%/dex)

Kb = Biodegradation Rate (mg/kg/day)

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| s | UBJECT Hunte Army Artield | JOB NO. <u>01-1408-04-1829</u> |
|-----|-----------------------------|--------------------------------|
| | Vadose Zone Plot Test | PAGE 3 of |
| P | REPARED BY Peter J. Cagnita | DATE 6-25-99 |
| 5 C | HECKED BY MATTHEW ROT | DATE |
| | PPROVED BY | DATE |

Kb = (-Ko)(Pa)(OD)(HC:O2)(0.01)/BD

-Ko is calculated as the slope of the oxygen Concentration versus time from Figure 5

Kb = [(-65,70)(0.25)(1,354)(0.29)(0.01)]

- 36.0 mg/kg/day