# APPENDIX D

# QA SPLIT SAMPLE RESULTS FROM THE USACE SAD LABORATORY

**DEPARTMENT OF THE ARMY**
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

March 12, 1998

REPLY TO
ATTENTION OF:
Environmental and HTRW Section
Engineering Division

IT Corporation
Attention: Ms. Agnes Mayila
312 Directors Drive
Knoxville, Tennessee 37923-4799

Dear Ms. Mayila:

Reference is made to your Contract DACA01-96-D-0018, Task Order Number CK04 at Fort McClellan, Alabama.

Enclosed are the quality assurance sample results for the landfill groundwater monitoring sampling that was conducted in January 1998.

Should you have any questions, please contact Ellis Pope at (334) 690-3077 or John Whiting at (334) 694-4216.

Sincerely,

Michael H. Thompson
Chief, Environmental and HTRW Section

Copy Furnished:
PM-TA (John Whiting) w/o enclosures

## TRANSMITTAL OF LABORATORY REPORT(S)

| | |
|---|---|
| **TO:** Commander, Mobile District<br>US Army Corps of Engineers<br>ATTN: CESAM-PM-TA<br>Mr. John Whiting<br>Mobile, AL 36628 | **FROM:** Director (CESAS-EN-L)<br>SAD Laboratory<br>USACE<br>611 South Cobb Drive<br>Marietta, GA 30060-3112 |
| **PROJECT:** Ft. McClellan Landfills | **REQN NO:** W31XNJ80569953<br>**W.O. NO:** 8395 |

**SUBJECT:** Analytical Testing Results

1. Enclosed is our report of analytical test results and chain of custody forms for samples collected on 14 and 16 January 1998 from Ft. McClellan.

2. If you have any questions, please call Mr. Blaise Willis at 770-919-5295 or me at 770-919-3990.

| SUBMITTED BY: | SIGNATURE | DATE: |
|---|---|---|
| WILLIAM L. TISON, P. E.<br>Director, SAD Laboratory | | 5 Mar 1998 |

South Atlantic Division Laboratory
U. S. Army Corps of Engineers
611 South Cobb Drive
Marietta, Georgia 30060-3112

District - MOBILE
Date Received - 98/02/17
Date Reported - 98/03/03 11:15:59

FT. MCCLELLAN
Requisition - W31XNJ80569953
Work Order - 8395 Job Number - 5480

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| Lab # | Field ID | Date Sampled | Time Sampled |
|---|---|---|---|
| 34934 | A-0044 | 98/02/16 | 07:45 |

| Test Performed | Result | Units | Tested By | Test Date |
|---|---|---|---|---|
| VOLATILE ORGANICS GC/MS | * | | SPA | 98/02/19 |

*NOTE: See Attached

Sampled by District Personnel

Checked by: JWS

Signed by:

Blaise Willis

Blaise Willis
Chemist

Sheet 1 of 3

| Lab # | Field ID | Date Sampled | Time Sampled |
|---|---|---|---|
| 935 | A-0022 | 98/02/14 | 16:50 |

| Test Performed | Result | Units | Tested By | Test Date |
|---|---|---|---|---|
| VOLATILE ORGANICS GC/MS | * | | SPA | 98/02/19 |
| SEMIVOLATILE ORGANICS GC/MS | * | | SPA | 98/02/20 |
| ORGANOCHLORINE PESTICIDES | * | | SPA | 98/02/20 |
| EXPLOSIVES MODIFIED | * | | SPA | 98/02/23 |
| TOTAL ALUMINUM WATER | 601.0 | UG/L | SPA | 98/02/20 |
| TOTAL ANTIMONY WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL ARSENIC WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL BARIUM WATER | 40.0 | UG/L | SPA | 98/02/20 |
| TOTAL BERYLLIUM WATER | < 4.0 | UG/L | SPA | 98/02/20 |
| TOTAL CADMIUM WATER | < 1.0 | UG/L | SPA | 98/02/20 |
| TOTAL CALCIUM WATER | 20.60 | MG/L | SPA | 98/02/20 |
| TOTAL CHROMIUM WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL COBALT WATER | < 20.00 | UG/L | SPA | 98/02/20 |
| TOTAL COPPER WATER | < 10.0 | UG/L | SPA | 98/02/20 |
| TOTAL IRON WATER | 521.0 | UG/L | SPA | 98/02/20 |
| TOTAL POTASSIUM WATER | 3.05 | MG/L | SPA | 98/02/20 |
| TOTAL LEAD WATER | < 3.0 | UG/L | SPA | 98/02/20 |
| TOTAL MAGNESIUM WATER | 11.50 | MG/L | SPA | 98/02/20 |
| TOTAL MANGANESE WATER | 29.0 | UG/L | SPA | 98/02/20 |
| TOTAL MERCURY WATER | < 0.20 | UG/L | SPA | 98/02/20 |
| TOTAL NICKEL WATER | < 10.0 | UG/L | SPA | 98/02/20 |
| TOTAL SELENIUM WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL SILVER WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL SODIUM WATER | 6.07 | MG/L | SPA | 98/02/20 |
| TOTAL THALLIUM WATER | < 2.0 | UG/L | SPA | 98/02/20 |
| TOTAL VANADIUM WATER | < 20.0 | UG/L | SPA | 98/02/20 |
| TOTAL ZINC WATER | < 20.0 | UG/L | SPA | 98/02/20 |

*NOTE: See Attached

Sampled by District Personnel

Checked by: JWS

Signed by: Blaise Willis

Blaise Willis
Chemist

eet 2 of 3

| Lab # | Field ID | Date Sampled | Time Sampled |
|---|---|---|---|
| 34936 | A-0016 (FS) | 98/02/16 | 10:15 |

| Test Performed | Result | Units | Tested By | Test Date |
|---|---|---|---|---|
| VOLATILE ORGANICS GC/MS | * | | SPA | 98/02/20 |
| SEMIVOLATILE ORGANICS GC/MS | * | | SPA | 98/02/20 |
| ORGANOCHLORINE PESTICIDES | * | | SPA | 98/02/20 |
| EXPLOSIVES MODIFIED | * | | SPA | 98/02/23 |
| TOTAL ALUMINUM WATER | 535.0 | UG/L | SPA | 98/02/20 |
| TOTAL ANTIMONY WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL ARSENIC WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL BARIUM WATER | 109.0 | UG/L | SPA | 98/02/20 |
| TOTAL BERYLLIUM WATER | < 4.0 | UG/L | SPA | 98/02/20 |
| TOTAL CADMIUM WATER | < 1.0 | UG/L | SPA | 98/02/20 |
| TOTAL CALCIUM WATER | 18.00 | MG/L | SPA | 98/02/20 |
| TOTAL CHROMIUM WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL COBALT WATER | < 20.00 | UG/L | SPA | 98/02/20 |
| TOTAL COPPER WATER | 18.0 | UG/L | SPA | 98/02/20 |
| TOTAL IRON WATER | 8450.0 | UG/L | SPA | 98/02/20 |
| TOTAL POTASSIUM WATER | 3.91 | MG/L | SPA | 98/02/20 |
| TOTAL LEAD WATER | < 3.0 | UG/L | SPA | 98/02/20 |
| TOTAL MAGNESIUM WATER | 10.60 | MG/L | SPA | 98/02/20 |
| TOTAL MANGANESE WATER | 658.0 | UG/L | SPA | 98/02/20 |
| TOTAL MERCURY WATER | < 0.20 | UG/L | SPA | 98/02/20 |
| TOTAL NICKEL WATER | 24.0 | UG/L | SPA | 98/02/20 |
| TOTAL SELENIUM WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL SILVER WATER | < 5.0 | UG/L | SPA | 98/02/20 |
| TOTAL SODIUM WATER | 28.20 | MG/L | SPA | 98/02/20 |
| TOTAL THALLIUM WATER | < 2.0 | UG/L | SPA | 98/02/20 |
| TOTAL VANADIUM WATER | < 20.0 | UG/L | SPA | 98/02/20 |
| TOTAL ZINC WATER | 44.0 | UG/L | SPA | 98/02/20 |

*NOTE: See Attached

Sampled by District Personnel

Checked by: JWS

Sheet 3 of 3

Signed by: Blaise Willis

Blaise Willis
Chemist

USACE SAD

REFERENCE DOCUMENT NO.: LFLTM-02Q



# ANALYSIS REQUEST AND CHAIN-OF-CUSTODY RECORD
## (CK004 Landfill LTM)

USACE Contact: Ellis Pope
USACE - Mobile, AL
Mobile, Alabama

Project Name/No.: Ft. McClellan / 773191
Sample Team: A.Mayila/S.Cox/R.McBride
Profit Center:
Project Manager: Jeanie Yacoub
Purchase Order No.: N/A
Required Report Date: N/A

Sample Shipment Date: 02 / 16 / 98
Laboratory Destination: USACE - SAD Laboratory
Laboratory Contact: Blaise Willis
Project Contact/Phone: Randy McBride: 205-848-7455
Carrier Waybill No.: FEDEX 801762935553

A/E Contact: Randy McBride
IT Corporation
312 Directors Drive
Knoxville, TN 37923

| Sample Number | Sample Type/ Description | Date/Time Collected | Container Type(s) | Sample Volume | Pre-servative | Requested Testing Program | Condition on Receipt | Disposal Record |
|---|---|---|---|---|---|---|---|---|
| A - 0044 | TB5:021698 QC Blank | 02/16/98 07:45 | Glass VOA | 2x40mL | HCl/4°C | TCL VOCs by Method 8260A | | |
| A - 0022 (FS) | LF3-OLF#7 QC Field Split (water) | 02/14/98 16:50 | Glass VOA | 3x40mL | HCl/4°C | TCL VOCs by Method 8260A | | |
| | | | 1 L amber glass | 1 liter | 4°C | TCL SVOCs by Method 8270B | | |
| | | | 1 L poly | 1 liter | $HNO_3$/4°C | **Total** TAL Metals by Method 6010/7000 | | |
| | | | 1 L poly | 1 liter | $HNO_3$/4°C | ***Archive for later Diss.** TAL Metals by Method 6010/7000 | | |
| | | | 1 L amber glass | 1 liter | 4°C | Pesticide/PCBs by Method 8081 | | |
| | | | 1 L amber glass | 1 liter | 4°C | Nitroexplosives by Method 8330M | | |
| A - 0016 (FS) | LF3-OLF#3 QC Field Split (water) | 02/16/98 10:15 | Glass VOA | 3x40mL | HCl/4°C | TCL VOCs by Method 8260A | | |
| | | | 1 L amber glass | 1 liter | 4°C | TCL SVOCs by Method 8270B | | |

Special Instructions: ** Dissolved metals sample has been field filtered and preserved with $HNO_3$. Check pH and archive upon receipt.*

Possible Hazard Identification: Use caution when handling.
Non-haz. ____ Flammable ____ Poison B ____ Unknown X

Sample Disposal:
Return to Client: ____ Disposal by Lab: X Archive: ____

Turnaround Time: **(21 days from receipt)**
Normal X Rush ____

Level of QC Required:
I. ____ II. ____ III. ____ **Project Specific:** X

| | | | |
|---|---|---|---|
| 1. Relinquished by: [signature] | Date: 02-16-98 Time: 1700 | 1. Received by: [signature] | Date: 2/17/98 Time: 0920 |
| 2. Relinquished by: | Date: Time: | 2. Received by: | Date: Time: |
| 3. Relinquished by: | Date: Time: | 2. Received by: | Date: Time: |

Comments: ***Notify Randy McBride (205-848-7455) or Allen Bradley (42[illegible]0-3211) immediately if not received in acceptable condition.***

REFERENCE DOCUMENT NO.: LFLTM-02Q

# CHAIN-OF-CUSTODY RECORD (Cont.)



Project Name/No.: Ft. McClellan / 773191

Laboratory Destination: USACE - SAD Labor

Sample Shipment Date: 02 / 16 / 98

| Sample Number | Sample Type/ Description | Date/Time Collected | Container Type | Sample Volume | Pre-servative | Requested Testing Program | Condition on Receipt | Disposal Record |
|---|---|---|---|---|---|---|---|---|
| A - 0016 (FS) | LF3-OLF#3 QC Field Split (water) | 02/16/98 10:15 | 1 L poly | 1 liter | $HNO_3$/4°C | **Total** TAL Metals by Method 6010/7000 | | |
| | | | 1 L poly | 1 liter | $HNO_3$/4°C | ***Archive for later Diss.** TAL Metals by Method 6010/7000 | | |
| | | | 1 L amber glass | 1 liter | 4°C | Pesticide/PCBs by Method 8081 | | |
| | | | 1 L amber glass | 1 liter | 4°C | Nitroexplosives by Method 8330M | | |

LAST ENTRY

R McFadden 2/16/98

**Cooler Receipt Form**

Job # 5480 No. of Coolers 1 Return Cooler _____

Project: Ft McClellan Date Received: 2/17/98

Date cooler opened: 2/17/98 by (print) B. Sebin
(sign) B. S

1. Did cooler come with a shipping slip? (Yes) No
If yes, enter carrier & air bill number here: FE E617629355 53

2. Were custody seals on outside of cooler: (Yes) No
How many & where: 2 seal date: 2/16/98 seal name: R. McBride

3. Were custody seals unbroken upon receipt? (Yes) No

4. Did you screen samples for radioactivity? (Yes) No

5. Were custody papers sealed in a plastic bag & taped to inside lid? (Yes) No

6. Were custody papers filled out properly (ink,signed,etc.)? (Yes) No

7. Did you sign custody papers in the appropriate place? (Yes) No

8. Was project identifiable from custody papers? If yes enter project name at the top of this form. (Yes) No

9. If required, was enough ice used? no Type: _____ Yes No

Date logged-in: 2/17/98 by (print) B. Sebin
(sign) B. S

1. Describe cooler packing: bubble wrap

2. Were all bottles sealed in separate plastic bags? (Yes) No

3. Did all bottles arrive unbroken & labels in good condition? (Yes) No

4. Were all bottle labels complete (ID,date,time,signature,pres.,etc.) (Yes) No

5. Were all bottle labels agree with custody papers? (Yes) No

6. Were correct containers used for the tests indicated? (Yes) No

7. Were correct preservatives added to samples? (Yes) No

8. Was a sufficient amount of sample sent for tests? Should have been more carriers for both syringes Yes (No)

9. Were bubbles absent in Volatile samples? If no, list Field ID: _____ (Yes) No

10. Number of days from sample date when received in the lab 1-3 days

11. Was project manager called & status discussed? (Yes) No
If yes, give details on the bottom of this form.

Who was called? Agnus (IT) By whom? Becky Date: 2/17/98

dissolved TAL Metals were not shipped. They are waiting for the results of totals before deciding on the dissolved analysis.

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

DIRECTOR U.S. ARMY CORPS ENG. 5394
CESAD LABORATORY
611 SOUTH COBB DRIVE
MARIETTA, GA 30060-3172

**Sample Location:** 34934 A-0044
FT. MCCLELLAN

**Lab Number:** 98-A016594

**Date Collected:** 2/16/98

**Date Received:** 2/18/98

**Time Collected:** 7:45

**Time Received:** 9:00

**Sampler:** BOBBI THORN

**Sample type:** Water

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'ganics Reference Data

| | |
|---|---|
| /OA Blank | VB0219 |
| 3C/MS Tune, VOA | BFB0219 |
| Calibration Check, VOA | VS0219 |

VOLATILE ORGANICS

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Acetone | 10.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Benzene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Bromoform | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Bromomethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 2-Butanone | 10.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Carbon disulfide | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Carbon tetrachloride | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Chlorobenzene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Chloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Chloroform | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Chloromethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Dibromochloromethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,1-Dichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,2-Dichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,1-Dichloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| cis-1,2-Dichloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| trans-1,2-Dichloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,2-Dichloropropane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| cis-1,3-Dichloropropene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| trans-1,3-Dichloropropene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Ethylbenzene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 2-Hexanone | 10.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 4-Methyl-2-pentanone | 10.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

Laboratory Number: 98-A016594
Sample ID: 34934 A-0044



## VOLATILE ORGANICS

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Methylene chloride | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Styrene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,1,2,2-Tetrachloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Tetrachloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Toluene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,1,1-Trichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| 1,1,2-Trichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Trichloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Vinyl chloride | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Xylenes | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |
| Bromodichloromethane | 2.0 | U | 1 | ug/l | 2/19/98 | 21:28 | G. Norton | 8260B |

| Surrogate | % Recovery | Target Range |
|---|---|---|
| VOA Surrogate, 1,2-Dichloroethane, d4 | 109. | 70. - 131. |
| VOA Surrogate, Toluene d8 | 92.4 | 83. - 115. |
| VOA Surrogate, 4-Bromofluorobenzene | 82.5 | 73. - 119. |
| VOA Surrogate, Dibromofluoromethane | 102. | 72. - 130. |

Report Approved By: Michael H. Dunn  Report Date: 2/25/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

DIRECTOR U.S. ARMY CORPS ENG. 5394
CESAD LABORATORY
611 SOUTH COBB DRIVE
MARIETTA, GA 30060-3172

**Sample Location:** 34935 A-0022 (FS)
FT. MCCLELLAN

**Lab Number:** 98-A016595

**Date Collected:** 2/14/98

**Date Received:** 2/18/98

**Time Collected:** 16:50

**Time Received:** 9:00

**Sampler:** BOBBI THORN

**Sample type:** Water

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rganics Reference Data

| | |
|---|---|
| VOA Blank | VB0219 |
| BNA Blank | 21581 WBB |
| Pesticide Blank | 21571 WBP |
| GC/MS Tune, VOA | BFB0219 |
| GC/MS Tune, BNA | DFC0219 |
| Calibration Check, VOA | VS0219 |
| Calibration Check, BNA | CC0219 |

VOLATILE ORGANICS

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Acetone | 10.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Benzene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Bromoform | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Bromomethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| 2-Butanone | 10.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Carbon disulfide | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Carbon tetrachloride | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Chlorobenzene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Chloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Chloroform | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Chloromethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| Dibromochloromethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| 1,1-Dichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| 1,2-Dichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| 1,1-Dichloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| cis-1,2-Dichloroethene | 4.6 | | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| trans-1,2-Dichloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| 1,2-Dichloropropane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |
| cis-1,3-Dichloropropene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G. Norton | 8260B |

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

Laboratory Number: 98-A016595
Sample ID: 34935 A-0022 (FS)



## VOLATILE ORGANICS

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Ethylbenzene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| 2-Hexanone | 10.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| 4-Methyl-2-pentanone | 10.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Methylene chloride | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Styrene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| 1,1,2,2-Tetrachloroethane | 105. | | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Tetrachloroethene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Toluene | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| 1,1,1-Trichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| 1,1,2-Trichloroethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Trichloroethene | 29.6 | | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Vinyl chloride | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| [illegible]nes | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |
| Bromodichloromethane | 2.0 | U | 1 | ug/l | 2/19/98 | 22:03 | G.Norton | 8260B |

## SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Acenaphthylene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Anthracene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Benzo(a)anthracene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Benzo(a)pyrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Benzo(b)fluoranthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Benzo(g,h,i)perylene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Benzo(k)fluoranthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4-Bromophenyl-phenylether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Butylbenzylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Carbazole | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4-Chloro-3-methylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4-Chloroaniline | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Bis(2-chloroethoxy)methane | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Bis(2-chloroethyl)ether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Bis(2-chloroisopropyl)ether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2-Chloronaphthalene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2-Chlorophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4-Chlorophenyl-phenylether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Chrysene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Dibenzofuran | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Dibenz(a,h)anthracene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |

**SPECIALIZED ASSAYS, INC.**

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# ANALYTICAL REPORT

Laboratory Number: 98-A016595
Sample ID: 34935 A-0022 (FS)



## SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| 1,2-Dichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 1,3-Dichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 1,4-Dichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 3,3'-Dichlorobenzidine | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,4-Dichlorophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Diethylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,4-Dimethylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Dimethylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Di-n-Butylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4,6-Dinitro-2-methylphenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,4-Dinitrophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,4-dinitrotoluene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,6-Dinitrotoluene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Di-n-octylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Fluoranthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Fluorene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Hexachlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Hexachlorobutadiene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Hexachlorocyclopentadiene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Hexachloroethane | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Indeno(1,2,3-cd)pyrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Isophorone | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2-Methylnaphthalene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2-Methylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 3 and 4-Methylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Naphthalene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2-Nitroaniline | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 3-Nitroaniline | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4-Nitroaniline | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Nitrobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2-Nitrophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 4-Nitrophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| N-Nitroso-Di-n-Propylamine | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| N-Nitrosodiphenylamine | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Pentachlorophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Phenanthrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Phenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Pyrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Bis(2-ethylhexyl)phthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 1,2,4-Trichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,4,5-Trichlorophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| 2,4,6-Trichlorophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:14 | Carmichael | 8270C |
| Aldrin | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016595
Sample ID: 34935 A-0022 (FS)



## SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Aroclor 1221 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Aroclor 1232 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Aroclor 1242 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Aroclor 1248 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Aroclor 1254 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Aroclor 1260 | 0.50 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| a-BHC | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| b-BHC | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| d-BHC | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| g-BHC, Lindane | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| 4,4'-DDD | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| -DDE | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| 4,4'DDT | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Dieldrin | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Endosulfan I | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Endosulfan II | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Endosulfan Sulfate | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Endrin | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Endrin Aldehyde | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Endrin Ketone | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Heptachlor | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Heptachlor Epoxide | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Methoxychlor | 0.10 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| Toxaphene | 4.95 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| alpha-Chlordane | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |
| gamma-Chlordane | 0.05 | U | 1 | ug/l | 2/20/98 | 7:10 | Carmichael | 8081A |

## EXPLOSIVES

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| HMX | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| RDX | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 1,3,5-TNB | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| DNB | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| yl | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| NB | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 2,4,6-TNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 4-Am-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 2-Am-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016595
Sample ID: 34935 A-0022 (FS)



## EXPLOSIVES

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| 2,6-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 2,4-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 2-NT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 4-NT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |
| 3-NT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:29 | K.Walkup | 8330 |

## INORGANICS

| Analyte | Result | Units | PQL | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Aluminum, Total | 0.6010 | mg/l | 0.0500 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Antimony, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Arsenic, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Barium, Total | 0.0400 | mg/l | 0.0100 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Beryllium, Total | < 0.0040 | mg/l | 0.0040 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Cadmium, Total | < 0.0010 | mg/l | 0.0010 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Calcium, Total | 20.60 | mg/l | 1.000 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Chromium, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Cobalt, Total | < 0.0200 | mg/l | 0.0200 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Copper, Total | < 0.0100 | mg/l | 0.0100 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Iron, Total | 0.5210 | mg/l | 0.0500 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Lead, Total | < 0.0030 | mg/l | 0.0030 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Magnesium, Total | 11.50 | mg/l | 1.000 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Manganese, Total | 0.0290 | mg/l | 0.0150 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Mercury, Total | < 0.00020 | mg/l | 0.00020 | 2/20/98 | 8:51 | R.Street | 7470 |
| Nickel, Total | < 0.0100 | mg/l | 0.0100 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Potassium, Total | 3.050 | mg/l | 1.000 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Selenium, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Silver, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Sodium, Total | 6.070 | mg/l | 1.000 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Thallium, Total | < 0.0020 | mg/l | 0.0020 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Vanadium, Total | < 0.0200 | mg/l | 0.0200 | 2/20/98 | 14:54 | C.Holmes | 6010B |
| Zinc, Total | < 0.0200 | mg/l | 0.0200 | 2/20/98 | 14:54 | C.Holmes | 6010B |

Sample Extraction Data

| Parameter | Wt/Vol Extracted | Extract Vol | Date | Analyst | Method |
|---|---|---|---|---|---|
| Explosives | 400. ml | 4.0 ml | 2/20/98 | C.Gerenser | 8330 |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016595
Sample ID: 34935 A-0022 (FS)



Sample Extraction Data

| Parameter | Wt/Vol Extracted | Extract Vol | Date | Analyst | Method |
|---|---|---|---|---|---|
| BNA's | 990. ml | 1.0 ml | 2/19/98 | A.Rufalino | 3510 |
| Pesticides | 1010 ml | 10.0 ml | 2/19/98 | C.Gerenser | 3510 |

| Surrogate | % Recovery | Target Range |
|---|---|---|
| VOA Surrogate, 1,2-Dichloroethane, d4 | 107. | 70. - 131. |
| VOA Surrogate, Toluene d8 | 83.9 | 83. - 115. |
| VOA Surrogate, 4-Bromofluorobenzene | 89.2 | 73. - 119. |
| VOA Surrogate, Dibromofluoromethane | 102. | 72. - 130. |
| NA Surr., Nitrobenzene-d5 | 70.1 | 35. - 115. |
| BNA Surrogate, 2-Fluorobiphenyl | 66.8 | 43. - 116. |
| BNA Surrogate, Terphenyl d14 | 41.6 | 20. - 130. |
| BNA Surrogate, Phenol d5 | 29.3 | 10. - 110. |
| BNA Surrogate, 2-Fluorophenol | 39.9 | 20. - 110. |
| BNA Surrogate, 2,4,6-Tribromophenol | 44.1 | 10. - 123. |
| 3,4-DNT, surrogate | 89. | 60. - 140. |
| Pest/PCB Surrogate, TCMX | 72.0 | 22. - 135. |
| Pest/ PCB Surrogate, DDC | 94.0 | 22. - 135. |

Report Approved By: Michael A. Dunn  Report Date: 2/25/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

**SPECIALIZED ASSAYS, INC.**

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# ANALYTICAL REPORT

DIRECTOR U.S. ARMY CORPS ENG. 5394
CESAD LABORATORY
611 SOUTH COBB DRIVE
MARIETTA, GA 30060-3172

**Sample Location:** 34936 A-0016 (FS)
FT. MCCLELLAN

**Lab Number:** 98-A016596

**Date Collected:** 2/16/98

**Date Received:** 2/18/98

**Time Collected:** 10:15

**Time Received:** 9:00

**Sampler:** BOBBI THORN

**Sample type:** Water

---

rganics Reference Data

| | |
|---|---|
| OA Blank | VB0219 |
| NA Blank | 21581 WBB |
| esticide Blank | 21571 WBP |
| C/MS Tune, VOA | BFB0219 |
| C/MS Tune, BNA | DF0219 |
| alibration Check, VOA | VS0219 |
| alibration Check, BNA | CC0219 |

VOLATILE ORGANICS

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Acetone | 10.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Benzene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Bromoform | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Bromomethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| 2-Butanone | 10.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Carbon disulfide | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Carbon tetrachloride | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Chlorobenzene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Chloroethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Chloroform | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Chloromethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| Dibromochloromethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| 1,1-Dichloroethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| 1,2-Dichloroethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| 1,1-Dichloroethene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| cis-1,2-Dichloroethene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| trans-1,2-Dichloroethene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| 1,2-Dichloropropane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |
| cis-1,3-Dichloropropene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G.Norton | 8260B |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016596
Sample ID: 34936 A-0016 (FS)



## VOLATILE ORGANICS

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Ethylbenzene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| 2-Hexanone | 10.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| 4-Methyl-2-pentanone | 10.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Methylene chloride | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Styrene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| 1,1,2,2-Tetrachloroethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Tetrachloroethene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Toluene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| 1,1,1-Trichloroethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| 1,1,2-Trichloroethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Trichloroethene | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| Vinyl chloride | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| [illegible]nes | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |
| B[illegible]omodichloromethane | 2.0 | U | 1 | ug/l | 2/20/98 | 13:09 | G. Norton | 8260B |

## SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Acenaphthylene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Anthracene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Benzo(a)anthracene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Benzo(a)pyrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Benzo(b)fluoranthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Benzo(g,h,i)perylene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Benzo(k)fluoranthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4-Bromophenyl-phenylether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Butylbenzylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Carbazole | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4-Chloro-3-methylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4-Chloroaniline | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Bis(2-chloroethoxy)methane | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Bis(2-chloroethyl)ether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Bis(2-chloroisopropyl)ether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2-[illegible]loronaphthalene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2-[illegible]lorophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4-Chlorophenyl-phenylether | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Chrysene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Dibenzofuran | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Dibenz(a,h)anthracene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016596
Sample ID: 34936 A-0016 (FS)



## SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| 1,2-Dichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 1,3-Dichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 1,4-Dichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 3,3'-Dichlorobenzidine | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,4-Dichlorophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Diethylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,4-Dimethylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Dimethylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Di-n-Butylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4,6-Dinitro-2-methylphenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,4-Dinitrophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,4-dinitrotoluene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,6-Dinitrotoluene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Di-n-octylphthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Fluoranthene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Fluorene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Hexachlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Hexachlorobutadiene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Hexachlorocyclopentadiene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Hexachloroethane | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Indeno(1,2,3-cd)pyrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Isophorone | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2-Methylnaphthalene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2-Methylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 3 and 4-Methylphenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Naphthalene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2-Nitroaniline | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 3-Nitroaniline | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4-Nitroaniline | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Nitrobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2-Nitrophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 4-Nitrophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| N-Nitroso-Di-n-Propylamine | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| N-Nitrosodiphenylamine | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Pentachlorophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Phenanthrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Phenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Pyrene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Bis(2-ethylhexyl)phthalate | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 1,2,4-Trichlorobenzene | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,4,5-Trichlorophenol | 25.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| 2,4,6-Trichlorophenol | 10.0 | U | 1 | ug/l | 2/20/98 | 5:50 | Carmichael | 8270C |
| Aldrin | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016596
Sample ID: 34936 A-0016 (FS)



## SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| Aroclor 1016 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Aroclor 1221 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Aroclor 1232 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Aroclor 1242 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Aroclor 1248 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Aroclor 1254 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Aroclor 1260 | 0.48 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| a-BHC | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| b-BHC | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| d-BHC | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| g-BHC, Lindane | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| 4,4'-DDD | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| [illegible] -DDE | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| 4,[illegible]-DDT | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Dieldrin | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Endosulfan I | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Endosulfan II | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Endosulfan Sulfate | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Endrin | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Endrin Aldehyde | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Endrin Ketone | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Heptachlor | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Heptachlor Epoxide | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Methoxychlor | 0.10 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| Toxaphene | 4.76 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| alpha-Chlordane | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |
| gamma-Chlordane | 0.05 | U | 1 | ug/l | 2/20/98 | 7:45 | Carmichael | 8081A |

## EXPLOSIVES

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| HMX | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| RDX | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 1,3,5-TNB | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 1[illegible]-DNB | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| [illegible]gl | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| NB | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 2,4,6-TNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 4-Am-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 2-Am-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016596
Sample ID: 34936 A-0016 (FS)



## EXPLOSIVES

| Analyte | Result | Flag | DF | Units | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|---|
| 2,6-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 2,4-DNT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 2-NT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 4-NT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |
| 3-NT | 0.5 | U | 1 | ug/l | 2/23/98 | 14:52 | K.Walkup | 8330 |

## INORGANICS

| Analyte | Result | Units | PQL | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Aluminum, Total | 0.5350 | mg/l | 0.0500 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Antimony, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Arsenic, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Barium, Total | 0.1090 | mg/l | 0.0100 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Beryllium, Total | < 0.0040 | mg/l | 0.0040 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Cadmium, Total | < 0.0010 | mg/l | 0.0010 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Calcium, Total | 18.00 | mg/l | 1.000 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Chromium, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Cobalt, Total | < 0.0200 | mg/l | 0.0200 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Copper, Total | 0.0180 | mg/l | 0.0100 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Iron, Total | 8.450 | mg/l | 0.0500 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Lead, Total | < 0.0030 | mg/l | 0.0030 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Magnesium, Total | 10.60 | mg/l | 1.000 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Manganese, Total | 0.6580 | mg/l | 0.0150 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Mercury, Total | < 0.00020 | mg/l | 0.00020 | 2/20/98 | 8:51 | R.Street | 7470 |
| Nickel, Total | 0.0240 | mg/l | 0.0100 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Potassium, Total | 3.910 | mg/l | 1.000 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Selenium, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Silver, Total | < 0.0050 | mg/l | 0.0050 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Sodium, Total | 28.20 | mg/l | 1.000 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Thallium, Total | < 0.0020 | mg/l | 0.0020 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Vanadium, Total | < 0.0200 | mg/l | 0.0200 | 2/20/98 | 14:55 | C.Holmes | 6010B |
| Zinc, Total | 0.0440 | mg/l | 0.0200 | 2/20/98 | 14:55 | C.Holmes | 6010B |

Sample Extraction Data

| Parameter | Wt/Vol Extracted | Extract Vol | Date | Analyst | Method |
|---|---|---|---|---|---|
| Explosives | 400. ml | 4.0 ml | 2/20/98 | C.Gerenser | 8330 |

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# ANALYTICAL REPORT

Laboratory Number: 98-A016596
Sample ID: 34936 A-0016 (FS)



Sample Extraction Data

| Parameter | Wt/Vol Extracted | Extract Vol | Date | Analyst | Method |
|---|---|---|---|---|---|
| BNA's | 1040 ml | 1.0 ml | 2/19/98 | A.DuFalino | 3510 |
| Pesticides | 1050 ml | 10.0 ml | 2/19/98 | C.Gerenser | 3510 |

| Surrogate | % Recovery | Target Range |
|---|---|---|
| VOA Surrogate, 1,2-Dichloroethane, d4 | 110. | 70. - 131. |
| VOA Surrogate, Toluene d8 | 97.6 | 83. - 115. |
| VOA Surrogate, 4-Bromofluorobenzene | 86.0 | 73. - 119. |
| VOA Surrogate, Dibromofluoromethane | 107. | 72. - 130. |
| NA Surr., Nitrobenzene-d5 | 78.2 | 35. - 115. |
| BNA Surrogate, 2-Fluorobiphenyl | 78.5 | 43. - 116. |
| BNA Surrogate, Terphenyl d14 | 46.5 | 20. - 130. |
| BNA Surrogate, Phenol d5 | 30.0 | 10. - 110. |
| BNA Surrogate, 2-Fluorophenol | 44.9 | 20. - 110. |
| BNA Surrogate, 2,4,6-Tribromophenol | 68.9 | 10. - 123. |
| 3,4-DNT, surrogate | 94. | 60. - 140. |
| Pest/PCB Surrogate, TCMX | 60.0 | 22. - 135. |
| Pest/ PCB Surrogate, DBC | 76.0 | 22. - 135. |

Report Approved By: Michael H. Dunn Report Date: 2/25/98

Theodore J. Duello, Ph.D., Q.A. Officer
Michael H. Dunn, M.S., Technical Director
Danny B. Hale, M.S., Laboratory Director

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********

** METALS Spike/Duplicate Results **

| Compound | %Recovery | Target Range | Precision RPD | Target Range |
|---|---|---|---|---|
| Lead, Water | 88. | 75 - 125 | 3.3 | 0 - 20 |
| Barium | 87. | 75 - 125 | 0.6 | 0 - 20 |
| Arsenic | 120. | 75 - 125 | 3.4 | 0 - 20 |
| Cadmium | 90. | 75 - 125 | 2.2 | 0 - 20 |
| Chromium | 109. | 75 - 125 | 3.7 | 0 - 20 |
| Mercury | 94. | 75 - 125 | 1.1 | 0 - 25 |
| Selenium | 96. | 75 - 125 | 2.1 | 0 - 20 |
| Silver | 80. | 75 - 125 | 0.0 | 0 - 20 |
| Beryllium | 94. | 75 - 125 | 0.0 | 0 - 20 |
| Copper | 82. | 75 - 125 | 0.5 | 0 - 20 |
| Nickel | 91. | 75 - 125 | 0.9 | 0 - 20 |
| Zinc | 92. | 75 - 125 | 0.7 | 0 - 20 |
| Antimony | 113. | 75 - 125 | 0.9 | 0 - 20 |
| Thallium | 86. | 75 - 125 | 6.7 | 0 - 20 |
| Cobalt | 91. | 75 - 125 | 0.7 | 0 - 20 |
| Vanadium | 87. | 75 - 125 | 0.7 | 0 - 20 |
| Sodium | N/A | | 0.0 | 0 - 20 |
| Iron | N/A | | 1.0 | 0 - 20 |
| Magnesium | N/A | | 0.4 | 0 - 20 |
| Calcium | N/A | | 0.2 | 0 - 20 |
| Potassium | N/A | | 0.0 | 0 - 20 |
| Aluminum | N/A | | 1. | 0 - 20 |
| Manganese | N/A | | 4. | 0 - 20 |

** Organics Spike/Duplicate Results **

| Compound | %Recovery | Target Range | Precision RPD | Target Range |
|---|---|---|---|---|
| 1,1-Dichloroethene | 104. | 61 - 145 | 4.0 | 0 - 14 |
| Trichloroethene | 96. | 71 - 120 | 2.0 | 0 - 14 |
| Benzene | 104. | 76 - 127 | 10.0 | 0 - 11 |
| Toluene | 108. | 76 - 125 | 8.0 | 0 - 13 |

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********

** Organics Spike/Duplicate Results **

| Compound | %Recovery | Target Range | Precision RPD | Target Range |
|---|---|---|---|---|
| Chlorobenzene | 96. | 75 - 130 | 0.0 | 0 - 13 |
| Phenol | 87. | 12 - 116 | 11.6 | 0 - 42 |
| 2-Chlorophenol | 86. | 48 - 121 | 13.1 | 0 - 40 |
| 1, ichlorobenzene | 78. | 23 - 116 | 13.7 | 0 - 28 |
| N-Nitroso-di-n-propylamine | 111. | 38 - 148 | 6.7 | 0 - 38 |
| 1,2,4-Trichlorobenzene | 79. | 27 - 121 | 15.1 | 0 - 28 |
| 4-Chloro-3-methylphenol | 108. | 50 - 124 | 10.4 | 0 - 42 |
| Acenaphthene | 101. | 49 - 119 | 9.3 | 0 - 31 |
| 4-Nitrophenol | 51. | 24 - 127 | 4.4 | 0 - 50 |
| 2,4-Dinitrotoluene | 72. | 46 - 147 | 11.0 | 0 - 38 |
| Pentachlorophenol | 46. | 26 - 137 | 2.4 | 0 - 50 |
| Pyrene | 106. | 32 - 132 | 6.9 | 0 - 31 |
| Gamma BHC | 96. | 56 - 123 | 0.0 | 0 - 15 |
| Heptachlor | 90. | 40 - 131 | 2.3 | 0 - 20 |
| Aldrin | 88. | 40 - 120 | 0.0 | 0 - 22 |
| Dieldrin | 90. | 52 - 126 | 8.5 | 0 - 18 |
| Endrin | 82. | 56 - 121 | 11.5 | 0 - 21 |
| 4,4'-DDT | 80. | 38 - 127 | 18.2 | 0 - 27 |
| HMX | 112. | 72 - 131 | 1.8 | 0 - 20 |
| RDX | 102. | 71 - 128 | 2.0 | 0 - 20 |
| 1,3,5-TNB | 92. | 64 - 132 | 6.7 | 0 - 20 |
| 1,3-DNB | 78. | 69 - 119 | 13.7 | 0 - 20 |
| Tetryl | 96. | 61 - 119 | 8.0 | 0 - 20 |
| NB | 68. | 40 - 116 | 9.2 | 0 - 20 |
| 2,4,6-TNT | 90. | 75 - 115 | 9.3 | 0 - 20 |
| 2,6-DNT | 82. | 53 - 121 | 7.6 | 0 - 20 |
| 2,4-DNT | 88. | 64 - 116 | 14.6 | 0 - 20 |
| 2-NT | 80. | 39 - 121 | 10.5 | 0 - 20 |
| 3- | 72. | 40 - 118 | 11.8 | 0 - 20 |
| 4- | 72. | 38 - 116 | 5.7 | 0 - 20 |

**SPECIALIZED ASSAYS, INC.**

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********

** Volatile Organics Method Blank Results ***

| Compound | Result | Flag | Units | Method |
|---|---|---|---|---|
| Acetone | 10.0 | U | ug/l | 8260B |
| Benzene | 2.0 | U | ug/l | 8260B |
| Bromoform | 2.0 | U | ug/l | 8260B |
| Bromomethane | 2.0 | U | ug/l | 8260B |
| 2-Butanone | 10.0 | U | ug/l | 8260B |
| Carbon disulfide | 2.0 | U | ug/l | 8260B |
| Carbon tetrachloride | 2.0 | U | ug/l | 8260B |
| Chlorobenzene | 2.0 | U | ug/l | 8260B |
| Chloroethane | 2.0 | U | ug/l | 8260B |
| Chloroform | 2.0 | U | ug/l | 8260B |
| Chloromethane | 2.0 | U | ug/l | 8260B |
| Dibromochloromethane | 2.0 | U | ug/l | 8260B |
| 1,1-Dichloroethane | 2.0 | U | ug/l | 8260B |
| 1,2-Dichloroethane | 2.0 | U | ug/l | 8260B |
| 1,1-Dichloroethene | 2.0 | U | ug/l | 8260B |
| cis-1,2-Dichloroethene | 2.0 | U | ug/l | 8260B |
| trans-1,2-Dichloroethene | 2.0 | U | ug/l | 8260B |
| 1,2-Dichloropropane | 2.0 | U | ug/l | 8260B |
| cis-1,3-Dichloropropene | 2.0 | U | ug/l | 8260B |
| trans-1,3-Dichloropropene | 2.0 | U | ug/l | 8260B |
| Ethylbenzene | 2.0 | U | ug/l | 8260B |
| 2-Hexanone | 10.0 | U | ug/l | 8260B |
| 4-Methyl-2-pentanone | 10.0 | U | ug/l | 8260B |
| Methylene chloride | 2.0 | U | ug/l | 8260B |
| Styrene | 2.0 | U | ug/l | 8260B |
| 1,1,2,2-Tetrachloroethane | 2.0 | U | ug/l | 8260B |
| Tetrachloroethene | 2.0 | U | ug/l | 8260B |
| Toluene | 2.0 | U | ug/l | 8260B |
| 1,1,1-Trichloroethane | 2.0 | U | ug/l | 8260B |
| 1,1,2-Trichloroethane | 2.0 | U | ug/l | 8260B |
| Trichloroethene | 2.0 | U | ug/l | 8260B |
| Vinyl chloride | 2.0 | U | ug/l | 8260B |
| Xylenes | 2.0 | U | ug/l | 8260B |
| Bromodichloromethane | 2.0 | U | ug/l | 8260B |

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********
** Semi-Volatile Organics Method Blank Results ***

| Compound | Result | Flag | Units | Method |
|---|---|---|---|---|
| Acenaphthene | 10.0 | U | ug/l | 8270C |
| Acenaphthylene | 10.0 | U | ug/l | 8270C |
| Anthracene | 10.0 | U | ug/l | 8270C |
| Benzo(a)anthracene | 10.0 | U | ug/l | 8270C |
| Benzo(a)pyrene | 10.0 | U | ug/l | 8270C |
| Benzo(b)fluoranthene | 10.0 | U | ug/l | 8270C |
| Be (g,h,i)perylene | 10.0 | U | ug/l | 8270C |
| Benzo(k)fluoranthene | 10.0 | U | ug/l | 8270C |
| 4-Bromophenyl-phenylether | 10.0 | U | ug/l | 8270C |
| Butylbenzylphthalate | 10.0 | U | ug/l | 8270C |
| Carbazole | 10.0 | U | ug/l | 8270C |
| 4-Chloro-3-methylphenol | 10.0 | U | ug/l | 8270C |
| 4-Chloroaniline | 10.0 | U | ug/l | 8270C |
| Bis(2-chloroethoxy)methane | 10.0 | U | ug/l | 8270C |
| Bis(2-chloroethyl)ether | 10.0 | U | ug/l | 8270C |
| Bis(2-chloroisopropyl)ether | 10.0 | U | ug/l | 8270C |
| 2-Chloronaphthalene | 10.0 | U | ug/l | 8270C |
| 2-Chlorophenol | 10.0 | U | ug/l | 8270C |
| 4-Chlorophenyl-phenylether | 10.0 | U | ug/l | 8270C |
| Chrysene | 10.0 | U | ug/l | 8270C |
| Dibenzofuran | 10.0 | U | ug/l | 8270C |
| Dibenz(a,h)anthracene | 10.0 | U | ug/l | 8270C |
| 1,2-Dichlorobenzene | 10.0 | U | ug/l | 8270C |
| 1,3-Dichlorobenzene | 10.0 | U | ug/l | 8270C |
| 1,4-Dichlorobenzene | 10.0 | U | ug/l | 8270C |
| 3,3'-Dichlorobenzidine | 25.0 | U | ug/l | 8270C |
| 2,4-Dichlorophenol | 10.0 | U | ug/l | 8270C |
| Diethylphthalate | 10.0 | U | ug/l | 8270C |
| 2,4-Dimethylphenol | 10.0 | U | ug/l | 8270C |
| Dimethylphthalate | 10.0 | U | ug/l | 8270C |
| Di-n-Butylphthalate | 10.0 | U | ug/l | 8270C |
| 4, initro-2-methylphenol | 25.0 | U | ug/l | 8270C |
| 2, initrophenol | 25.0 | U | ug/l | 8270C |
| 2,4-dinitrotoluene | 10.0 | U | ug/l | 8270C |
| 2,6-Dinitrotoluene | 10.0 | U | ug/l | 8270C |
| Di-n-octylphthalate | 10.0 | U | ug/l | 8270C |
| Fluoranthene | 10.0 | U | ug/l | 8270C |

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********

** Semi-Volatile Organics Method Blank Results ***

| Compound | Result | Flag | Units | Method |
|---|---|---|---|---|
| Fluorene | 10.0 | U | ug/l | 8270C |
| Hexachlorobenzene | 10.0 | U | ug/l | 8270C |
| Hexachlorobutadiene | 10.0 | U | ug/l | 8270C |
| Hexachlorocyclopentadiene | 10.0 | U | ug/l | 8270C |
| Hexachloroethane | 10.0 | U | ug/l | 8270C |
| Indeno(1,2,3-cd)pyrene | 10.0 | U | ug/l | 8270C |
| Isophorone | 10.0 | U | ug/l | 8270C |
| 2-Methylnaphthalene | 10.0 | U | ug/l | 8270C |
| 2-Methylphenol | 10.0 | U | ug/l | 8270C |
| 3 and 4-Methylphenol | 10.0 | U | ug/l | 8270C |
| Naphthalene | 10.0 | U | ug/l | 8270C |
| 2-Nitroaniline | 25.0 | U | ug/l | 8270C |
| 3-Nitroaniline | 25.0 | U | ug/l | 8270C |
| 4-Nitroaniline | 25.0 | U | ug/l | 8270C |
| Nitrobenzene | 10.0 | U | ug/l | 8270C |
| 2-Nitrophenol | 10.0 | U | ug/l | 8270C |
| 4-Nitrophenol | 25.0 | U | ug/l | 8270C |
| N-Nitroso-Di-n-Propylamine | 10.0 | U | ug/l | 8270C |
| N-Nitrosodiphenylamine | 10.0 | U | ug/l | 8270C |
| Pentachlorophenol | 25.0 | U | ug/l | 8270C |
| Phenanthrene | 10.0 | U | ug/l | 8270C |
| Phenol | 10.0 | U | ug/l | 8270C |
| Pyrene | 10.0 | U | ug/l | 8270C |
| Bis(2-ethylhexyl)phthalate | 10.0 | U | ug/l | 8270C |
| 1,2,4-Trichlorobenzene | 10.0 | U | ug/l | 8270C |
| 2,4,5-Trichlorophenol | 25.0 | U | ug/l | 8270C |
| 2,4,6-Trichlorophenol | 10.0 | U | ug/l | 8270C |

** Pesticide/Herbicide Method Blank Results ***

| Compound | Result | Flag | Units | Method |
|---|---|---|---|---|
| Aldrin | 0.05 | U | ug/l | 8081A |
| Aroclor 1016 | 0.50 | U | ug/l | 8081A |
| Aroclor 1221 | 0.50 | U | ug/l | 8081A |
| Aroclor 1232 | 0.50 | U | ug/l | 8081A |
| Aroclor 1242 | 0.50 | U | ug/l | 8081A |

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********

:* Pesticide/Herbicide Method Blank Results ***

| :ompound | Result | Flag | Units | Method |
|---|---|---|---|---|
| ıroclor 1248 | 0.50 | U | ug/l | 8081A |
| ıroclor 1254 | 0.50 | U | ug/l | 8081A |
| ıroclor 1260 | 0.50 | U | ug/l | 8081A |
| ı-BHC | 0.05 | U | ug/l | 8081A |
| -BHC | 0.05 | U | ug/l | 8081A |
| I-BHC | 0.05 | U | ug/l | 8081A |
| Lindane | 0.05 | U | ug/l | 8081A |
| -DDD | 0.10 | U | ug/l | 8081A |
| 4'-DDE | 0.10 | U | ug/l | 8081A |
| 4'DDT | 0.10 | U | ug/l | 8081A |
| )ieldrin | 0.10 | U | ug/l | 8081A |
| :ndosulfan I | 0.05 | U | ug/l | 8081A |
| :ndosulfan II | 0.10 | U | ug/l | 8081A |
| :ndosulfan Sulfate | 0.10 | U | ug/l | 8081A |
| :ndrin | 0.10 | U | ug/l | 8081A |
| :ndrin Aldehyde | 0.10 | U | ug/l | 8081A |
| :ndrin Ketone | 0.10 | U | ug/l | 8081A |
| leptachlor | 0.05 | U | ug/l | 8081A |
| leptachlor Epoxide | 0.05 | U | ug/l | 8081A |
| lethoxychlor | 0.10 | U | ug/l | 8081A |
| 'oxaphene | 5.00 | U | ug/l | 8081A |
| ılpha-Chlordane | 0.05 | U | ug/l | 8081A |
| ıamma-Chlordane | 0.05 | U | ug/l | 8081A |

:* Explosives Method Blank Results ***

| :ompound | Result | Flag | Units | Method |
|---|---|---|---|---|
| HMX | < 0.5 | U | ug/l | 8330 |
| :DX | < 0.5 | U | ug/l | 8330 |
| -TNB | < 0.5 | U | ug/l | 8330 |
| NB | < 0.5 | U | ug/l | 8330 |
| 'etryl | < 0.5 | U | ug/l | 8330 |
| :B | < 0.5 | U | ug/l | 8330 |
| 4,6-TNT | < 0.5 | U | ug/l | 8330 |
| -Am-DNT | < 0.5 | U | ug/l | 8330 |

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# PROJECT QUALITY CONTROL DATA

DIRECTOR U.S. ARMY CORPS ENG. 5394 Report Number: 98-A016597

Sample I.D.: METHOD BLANK Lab Project: 92144

Project: 485138 CALL#0713 Date Received: 2/18/98

**********

** Explosives Method Blank Results ***

| Compound | Result | Flag | Units | Method |
|---|---|---|---|---|
| 2-Am-DNT | < 0.5 | U | ug/l | 8330 |
| 2,6-DNT | < 0.5 | U | ug/l | 8330 |
| 2,4-DNT | < 0.5 | U | ug/l | 8330 |
| 2-NT | < 0.5 | U | ug/l | 8330 |
| 4-NT | < 0.5 | U | ug/l | 8330 |
| 3-NT | < 0.5 | U | ug/l | 8330 |

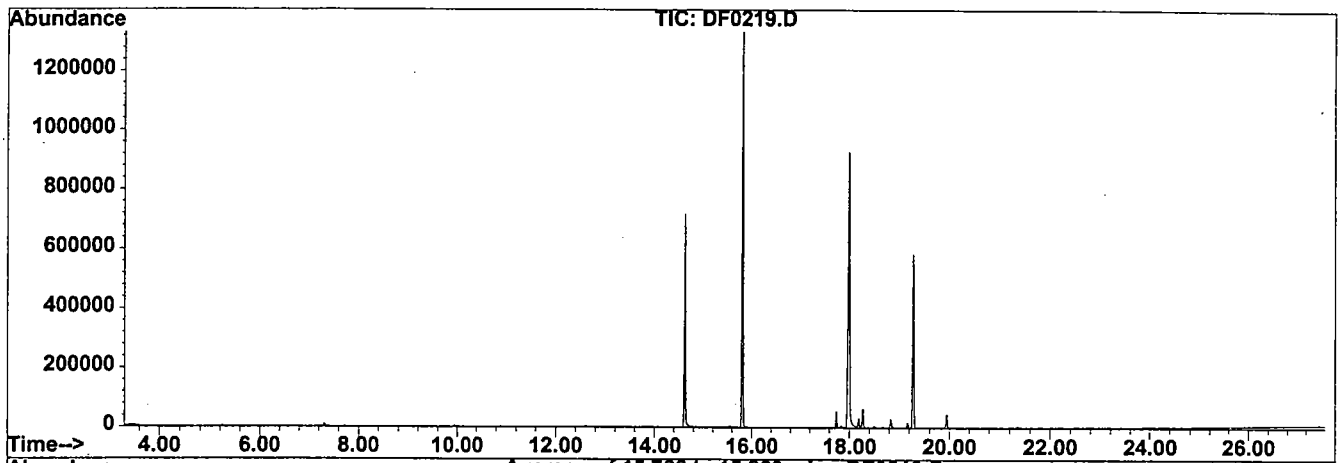
Michael A. Brown

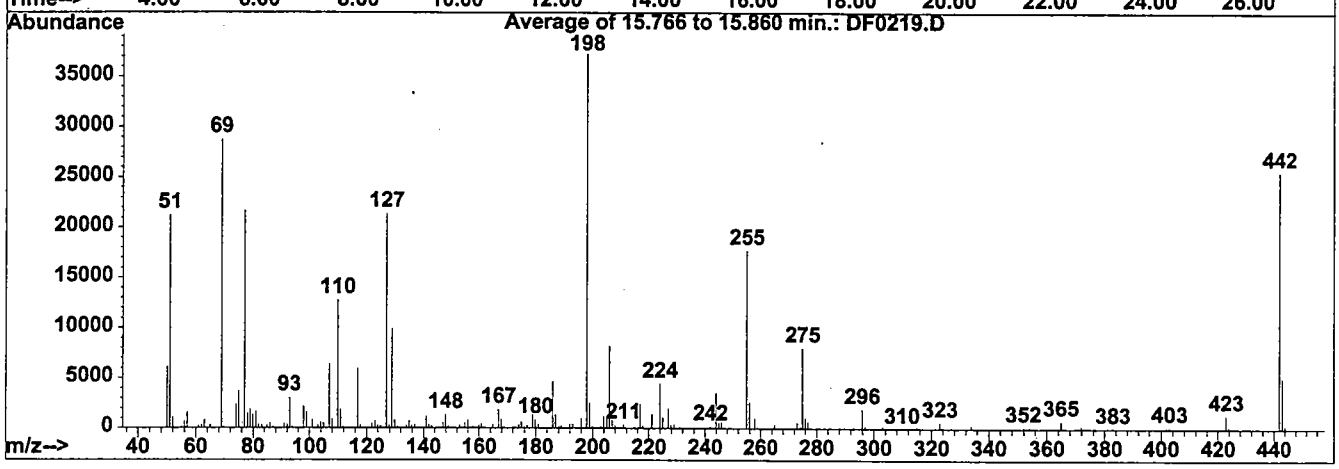
9214

# DFTPP

Data File : C:\HPCHEM\1\DATA\DF0219.D
Acq On : 19 Feb 1998 8:46 pm
Sample : tune
Misc :
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\8270.M (RTE Integrator)
Title : SW846 METHOD 8270

Vial: 2
Operator: HP-9
Inst : hp-9
Multiplr: 1.00




Spectrum Information: Average of 15.766 to 15.860 min.

| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 51 | 198 | 30 | 60 | 56.9 | 21236 | PASS |
| 68 | 69 | 0.00 | 2 | 0.0 | 0 | PASS |
| 69 | 198 | 0.00 | 100 | 77.1 | 28752 | PASS |
| 70 | 69 | 0.00 | 2 | 0.4 | 105 | PASS |
| 127 | 198 | 30 | 60 | 57.3 | 21374 | PASS |
| 197 | 198 | 0.00 | 1 | 0.0 | 0 | PASS |
| 198 | 198 | 100 | 100 | 100.0 | 37295 | PASS |
| 199 | 198 | 5 | 9 | 6.8 | 2528 | PASS |
| 275 | 198 | 10 | 30 | 21.6 | 8060 | PASS |
| 365 | 198 | 1 | 100 | 2.2 | 812 | PASS |
| 441 | 442 | 0.01 | 100 | 0.1 | 13 | PASS |
| 442 | 198 | 40 | 100 | 68.6 | 25596 | PASS |
| 443 | 442 | 15 | 23 | 19.9 | 5098 | PASS |

# Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\CC0219.D
Acq On : 19 Feb 1998 9:22 pm
Sample : 50 ppm con cal
Misc :
MS Integration Params: rteint.p

Vial: 3
Operator: HP-9
Inst : hp-9
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8270.M (RTE Integrator)
Title : SW846 METHOD 8270
Last Update : Thu Feb 12 13:05:26 1998
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | I | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 36 | -0.08 |
| 2 | T | Pyridine | 0.646 | 0.695 | -7.6 | 42 | -0.09 |
| 3 | T | N-Nitroso-dimethylamine | 0.623 | 0.618 | 0.8 | 35 | -0.10 |
| 4 | S | 2-Fluorophenol | 0.804 | 0.911 | -13.3 | 42 | -0.08 |
| 5 | | Aniline | 1.199 | 1.157 | 3.5 | 36 | -0.08 |
| 6 | | Bis-(2-Chloroethyl)ether | 0.840 | 0.874 | -4.0 | 40 | -0.08 |
| 7 | S | Phenol-d5 | 0.937 | 0.982 | -4.8 | 39 | -0.05 |
| 8 | MC | Phenol | 0.991 | 0.915 | 7.7 | 36 | -0.06 |
| 9 | s | 2-Chlorophenol-d4 | 0.781 | 0.844 | -8.1 | 40 | -0.07 |
| 10 | M | 2-Chlorophenol | 0.819 | 0.886 | -8.2 | 40 | -0.07 |
| 11 | | 1,3-Dichlorobenzene | 0.841 | 0.942 | -12.0 | 41 | 0.00 |
| 12 | MC | 1,4-Dichlorobenzene | 0.909 | 0.917 | -0.9 | 38 | -0.16 |
| 13 | s | 1,2-Dichlorobenzene-d4 | 0.888 | 0.800 | 9.9 | 34 | -0.36 |
| 14 | | 1,2-Dichlorobenzene | 0.809 | 0.863 | -6.7 | 41 | -0.08 |
| 15 | | Benzyl Alcohol | 0.651 | 0.535 | 17.8 | 31 | -0.07 |
| 16 | | Bis-(2-chloroisopropyl)ethe | 0.244 | 0.219 | 10.2 | 33 | -0.07 |
| 17 | | 2-Methylphenol | 0.727 | 0.760 | -4.5 | 39 | -0.06 |
| 18 | | Hexachloroethane | 0.316 | 0.281 | 11.1 | 33 | -0.08 |
| 19 | MP | N-Nitroso-di-n-propylamine | 0.584 | 0.491 | 15.9 | 31 | -0.10 |
| 20 | | 3,4-Methylphenol | 0.877 | 0.962 | -9.7 | 40 | -0.06 |
| 21 | I | Naphthalene-d8 | 1.000 | 1.000 | 0.0 | 38 | -0.07 |
| 22 | S | Nitrobenzene-d5 | 0.395 | 0.411 | -4.1 | 41 | -0.07 |
| 23 | | Nitrobenzene | 0.396 | 0.373 | 5.8 | 37 | -0.08 |
| 24 | | Isophorone | 0.841 | 0.929 | -10.5 | 45 | -0.08 |
| 25 | C | 2-Nitrophenol | 0.221 | 0.208 | 5.9 | 36 | -0.08 |
| 26 | | 2,4-Dimethylphenol | 0.387 | 0.359 | 7.2 | 37 | -0.06 |
| 27 | | Bis-(2-chloroethoxy)methane | 0.476 | 0.498 | -4.6 | 42 | -0.07 |
| 28 | C | 2,4-Dichlorophenol | 0.285 | 0.307 | -7.7 | 42 | -0.08 |
| 29 | | Benzoic acid | 0.155 | 0.167 | -7.7 | 41 | -0.13 |
| 30 | M | 1,2,4-Trichlorobenzene | 0.290 | 0.298 | -2.8 | 40 | -0.07 |
| 31 | | Naphthalene | 0.986 | 1.102 | -11.8 | 45 | -0.07 |
| 32 | | 4-chloroaniline | 0.462 | 0.474 | -2.6 | 40 | -0.06 |
| 33 | C | Hexachlorobutadiene | 0.168 | 0.183 | -8.9 | 42 | -0.07 |
| 34 | | 4-Chloro-3-methylphenol | 0.298 | 0.266 | 10.7 | 34 | -0.05 |
| 35 | | 2-Methylnaphthalene | 0.603 | 0.695 | -15.3 | 42 | -0.07 |
| 36 | | 1-Methylnaphthalene | 0.664 | 0.704 | -6.0 | 42 | -0.07 |
| 37 | I | Acenaphthene-d10 | 1.000 | 1.000 | 0.0 | 37 | -0.07 |
| 38 | P | Hexachlorocyclopentadiene | 0.118 | 0.075 | 19.8 | 23 | -0.07 |
| 39 | C | 2,4,6-Trichlorophenol | 0.339 | 0.363 | -7.1 | 41 | -0.06 |
| 40 | | 2,4,5-Trichlorophenol | 0.348 | 0.362 | -4.0 | 40 | -0.06 |
| 41 | S | 2-fluorobiphenyl | 1.188 | 1.342 | -13.0 | 44 | -0.07 |
| 42 | | 2-Chloronaphthalene | 1.076 | 1.230 | -14.3 | 45 | -0.07 |
| 43 | | 2-Nitroaniline | 0.509 | 0.519 | -2.0 | 39 | -0.07 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 44 | | Acenaphthylene | 1.705 | 1.444 | 15.3 | 33 | -0.07 |
| 45 | | Dimethylphthalate | 1.285 | 1.510 | -17.5 | 46 | -0.07 |
| 46 | | 2,6-Dinitrotoluene | 0.326 | 0.308 | 5.5 | 36 | -0.07 |
| 47 | | 3-Nitroaniline | 0.509 | 0.519 | -2.0 | 39 | -0.07 |
| 48 | MC | Acenaphthene | 1.044 | 0.944 | 9.6 | 35 | -0.07 |
| 49 | P | 2,4-dinitrophenol | 0.133 | 0.000 | 100.0 | 0 | -0.07 |
| 50 | | Dibenzofuran | 1.461 | 1.657 | -13.4 | 44 | -0.07 |
| 51 | M | 2,4-Dinitrotoluene | 0.419 | 0.391 | 6.7 | 35 | -0.07 |
| 52 | | 4-Nitrophenol | 0.252 | 0.239 | 5.2 | 33 | -0.02 |
| 53 | | Fluorene | 1.153 | 1.335 | -15.8 | 45 | -0.07 |
| 54 | | 4-Chlorophenyl phenylether | 0.566 | 0.589 | -4.1 | 40 | -0.06 |
| 55 | | Diethylphthalate | 1.311 | 1.190 | 9.2 | 35 | -0.07 |
| 56 | | 4-Nitroaniline | 0.391 | 0.438 | -12.0 | 42 | -0.07 |
| 57 | | 1,2-Diphenylhydrazine | 1.484 | 1.328 | 10.5 | 35 | -0.07 |
| 58 | I | Phenanthrene-d10 | 1.000 | 1.000 | 0.0 | 37 | -0.07 |
| 59 | | 4,6-Dinitro-2-methylphenol | 0.129 | 0.000 | 100.0 | 0 | -0.07 |
| 60 | C | N-Nitroso-diphenylamine | 0.494 | 0.550 | -11.3 | 43 | -0.07 |
| 61 | S | Tribromophenol | 0.115 | 0.123 | -7.0 | 40 | -0.07 |
| 62 | | 4-Bromophenyl phenyl ether | 0.190 | 0.204 | -7.4 | 40 | -0.06 |
| 63 | | Hexachlorobenzene | 0.235 | 0.253 | -7.7 | 40 | -0.06 |
| 64 | MC | Pentachlorophenol | 0.130 | 0.123 | 5.4 | 38 | -0.05 |
| 65 | | Phenanthrene | 0.924 | 0.887 | 4.0 | 37 | -0.06 |
| 66 | | Anthracene | 0.947 | 1.117 | -18.0 | 45 | -0.06 |
| 67 | | Carbazole | 0.874 | 1.037 | -18.6 | 46 | -0.05 |
| 68 | | Di-n-butyl phthalate | 1.364 | 1.211 | 11.2 | 34 | -0.04 |
| 69 | C | Fluoranthene | 1.007 | 1.149 | -14.1 | 44 | -0.05 |
| 70 | I | Chrysene-d12 | 1.000 | 1.000 | 0.0 | 33 | -0.03 |
| 71 | | Benzidine | 0.399 | 0.448 | -12.3 | 35 | -0.04 |
| 72 | M | Pyrene | 1.149 | 1.151 | -0.2 | 34 | -0.05 |
| 73 | S | Terphenyl-d14 | 0.867 | 0.897 | -3.5 | 35 | -0.04 |
| 74 | | Butylbenzylphthalate | 0.754 | 0.795 | -5.4 | 35 | -0.03 |
| 75 | | 3,3'-Dichlorobenzidine | 0.378 | 0.429 | -13.5 | 36 | -0.02 |
| 76 | | Benzo(a)anthracene | 1.103 | 1.158 | -5.0 | 35 | -0.03 |
| 77 | | Chrysene | 0.929 | 1.027 | -10.5 | 31 | -0.03 |
| 78 | | Bis-(2-ethylhexyl)phthalate | 1.011 | 0.917 | 9.3 | 31 | -0.02 |
| 79 | I | Perylene-d12 | 1.000 | 1.000 | 0.0 | 17 | -0.04 |
| 80 | C | Di-n-octylphthalate | 2.238 | 2.183 | 2.5 | 18 | -0.01 |
| 81 | | Benzo(b)fluoranthene | 1.384 | 1.521 | -9.9 | 18 | -0.04 |
| 82 | | Benzo(k)fluoranthene | 1.286 | 1.349 | -4.9 | 19 | -0.03 |
| 83 | C | Benzo(a)pyrene | 1.238 | 1.332 | -7.6 | 19 | -0.03 |
| 84 | | Indeno(1,2,3-cd)pyrene | 1.210 | 1.343 | -11.0 | 17 | -0.02 |
| 85 | | Dibenz(a,h)anthracene | 0.875 | 0.744 | 15.0 | 13 | -0.04 |
| 86 | | Benzo(g,h,i)perylene | 1.090 | 0.784 | 28.1 | 12 | -0.05 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0

0500107.D 8270.M Fri Feb 20 08:56:21 1998 HP-9

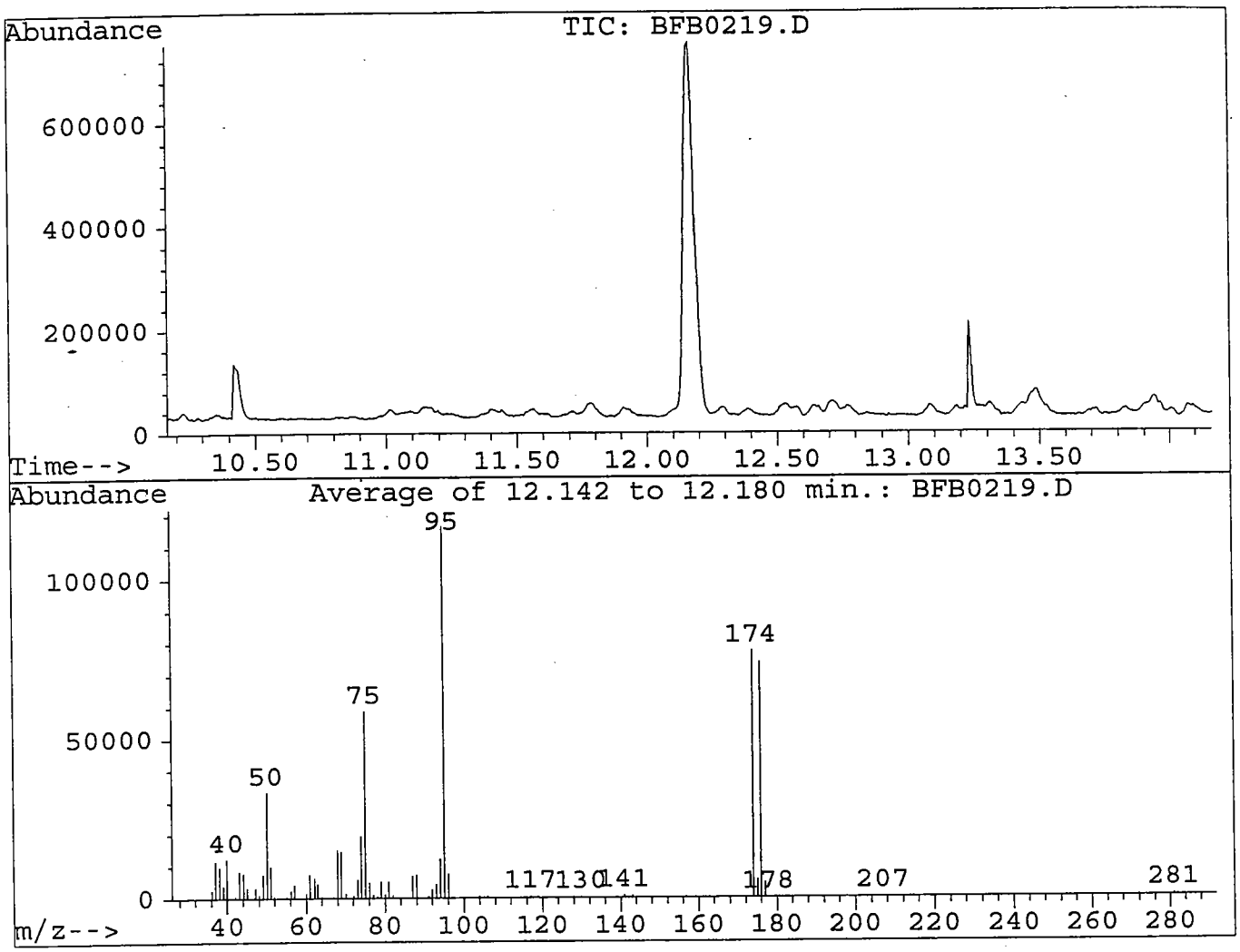
92144

BFB

Data File : C:\HPCHEM\1\DATA\BFB0219.D
Acq On : 19 Feb 98 5:28 pm
Sample : TUNE HP-10
Misc :

Vial: 1
Operator: HP-10
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260.M
Title : 8260 volatile organics PLUS




Peak Apex is scan: 1077

| Target Mass | Rel. to Mass | Lower Limit% | Upper Limit% | Rel. Abn% | Raw Abn | Result Pass/Fail |
|---|---|---|---|---|---|---|
| 50 | 95 | 15 | 40 | 28.7 | 33433 | PASS |
| 75 | 95 | 30 | 60 | 50.5 | 58823 | PASS |
| 95 | 95 | 100 | 100 | 100.0 | 116543 | PASS |
| 96 | 95 | 5 | 9 | 6.6 | 7652 | PASS |
| 173 | 174 | 0 | 2 | 0.0 | 0 | PASS |
| 174 | 95 | 50 | 100 | 66.6 | 77564 | PASS |
| 175 | 174 | 5 | 9 | 7.4 | 5751 | PASS |
| 176 | 174 | 95 | 101 | 95.2 | 73875 | PASS |
| 177 | 176 | 5 | 9 | 6.4 | 4722 | PASS |

BFB0219.D 8260.M Thu Feb 19 18:14:59 1998

# Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\VS0219.D
Acq On : 19 Feb 98 5:53 pm
Sample : CON CAL HP-10
Misc :

Vial: 1
Operator: HP-10
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260.M
Title : 8260 volatile organics PLUS
Last Update : Sat Feb 14 13:02:22 1998
Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 20% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

| | | Compound | AvgRF | CCRF | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | I | Pentafluorobenzene | 1.000 | 1.000 | 0.0 | 70 | 0.00 |
| 2 | T | Dichlorodifluoromethane | 1.244 | 1.223 | 1.6 | 65 | -0.02 |
| 3 | P | Chloromethane | 1.612 | 1.620 | -0.5 | 70 | -0.03 |
| 4 | C | Vinyl Chloride | 0.410 | 0.363 | 11.4 | 51 | -0.02 |
| 5 | T | Bromomethane | 1.057 | 0.942 | 10.9 | 58 | -0.03 |
| 6 | T | Chloroethane | 0.775 | 0.698 | 10.0 | 61 | -0.03 |
| 7 | T | Trichlorofluoromethane | 1.658 | 1.749 | -5.5 | 70 | -0.03 |
| 8 | | Acrolein | 0.185 | 0.155 | 16.0 | 49 | 0.00 |
| 9 | T | Acetone | 0.160 | 0.109 | 31.8 | 47 | -0.03 |
| 10 | T | Diethyl Ether | 1.391 | 1.482 | -6.6 | 71 | -0.03 |
| 11 | CM | 1,1-Dichloroethene | 1.117 | 1.167 | -4.5 | 70 | -0.03 |
| 13 | T | Acrylonitrile | 1.247 | 1.520 | -21.9 | 80 | -0.03 |
| 14 | T | Methylene Chloride | 1.758 | 1.503 | 14.5 | 63 | 0.00 |
| 15 | T | Carbon Disulfide | 4.677 | 4.843 | -3.5 | 72 | -0.03 |
| 16 | T | trans-1,2-Dichloroethene | 2.542 | 2.538 | 0.2 | 70 | -0.02 |
| 17 | | Methyl-t-butyl ether | 2.913 | 2.833 | 2.8 | 66 | -0.02 |
| 18 | P | 1,1-Dichloroethane | 3.001 | 3.049 | -1.6 | 67 | -0.02 |
| 19 | T | Vinyl Acetate | 1.164 | 1.113 | 4.4 | 76 | -0.05 |
| 20 | T | 2-Butanone | 0.165 | 0.181 | -9.5 | 79 | 0.00 |
| 21 | | Diisopropyl ether | 6.844 | 7.320 | -7.0 | 73 | -0.01 |
| 22 | T | cis-1,2-Dichloroethene | 2.458 | 2.558 | -4.1 | 74 | -0.01 |
| 23 | T | Bromochloromethane | 0.836 | 0.846 | -1.2 | 69 | -0.01 |
| 24 | C | Chloroform | 2.426 | 2.751 | -13.4 | 71 | 0.00 |
| 25 | T | 2,2-Dichloropropane | 1.726 | 1.977 | -14.5 | 82 | 0.00 |
| 26 | s | 1,2-Dichloroethane-d4 | 1.588 | 0.994 | 37.4 | 43 | 0.00 |
| 27 | S | Dibromofluoromethane | 1.385 | 0.813 | 41.3 | 39 | 0.00 |
| 28 | T | 1,2-Dichloroethane | 2.038 | 2.194 | -7.7 | 71 | 0.00 |
| 29 | T | 1,1,1-Trichloroethane | 1.680 | 1.849 | -10.0 | 74 | -0.01 |
| 30 | T | 1,1-Dichloropropene | 1.859 | 1.958 | -5.3 | 72 | 0.00 |
| 31 | I | 1,4-Difluorobenzene | 1.000 | 1.000 | 0.0 | 65 | 0.00 |
| 32 | T | Carbon Tetrachloride | 1.647 | 1.806 | -9.7 | 72 | 0.00 |
| 33 | M | Benzene | 6.263 | 6.522 | -4.1 | 68 | 0.00 |
| 34 | T | Dibromomethane | 1.338 | 1.417 | -5.9 | 70 | 0.00 |
| 35 | I | 2,3-Dichloro-1-Propene | 3.474 | 3.686 | -6.1 | 71 | 0.00 |
| 36 | C | 1,2-Dichloropropane | 2.299 | 2.319 | -0.9 | 67 | 0.00 |
| 37 | M | Trichloroethene | 1.499 | 1.418 | 5.4 | 62 | 0.00 |
| 38 | T | Bromodichloromethane | 2.389 | 2.498 | -4.6 | 71 | 0.00 |
| 39 | | 2-Chloroethyl vinyl ether | 0.065 | 0.040 | 38.4 | 71 | 0.00 |
| 40 | T | cis-1,3-Dichloropropene | 2.829 | 3.016 | -6.6 | 69 | 0.00 |
| 41 | T | 4-Methyl-2-pentanone | 0.740 | 0.862 | -16.5 | 77 | 0.00 |
| 42 | T | trans-1,3-Dichloropropene | 2.448 | 2.462 | -0.6 | 65 | 0.00 |
| 43 | T | 1,1,2-Trichloroethane | 1.424 | 1.440 | -1.1 | 67 | 0.00 |
| 44 | S | Toluene-d8 | 4.531 | 2.738 | 39.6 | 40 | 0.00 |
| 45 | CM | Toluene | 6.472 | 5.788 | 10.6 | 55 | 0.00 |
| 46 | T | 1,3-Dichloropropane | 2.636 | 2.760 | -4.7 | 66 | 0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 47 | I | Ethyl Methacrylate | 3.495 | 3.862 | -10.5 | 74 | 0.00 |
| 48 | | 2-Hexanone | 0.137 | 0.165 | -20.0 | 82 | 0.00 |
| 49 | I | Chlorobenzene-d5 | 1.000 | 1.000 | 0.0 | 62 | 0.00 |
| 50 | T | Dibromochloromethane | 1.184 | 1.248 | -5.4 | 66 | 0.00 |
| 51 | T | 1,2-Dibromoethane | 1.512 | 1.683 | -11.3 | 71 | 0.00 |
| 52 | T | Tetrachloroethene | 1.143 | 1.257 | -10.0 | 71 | 0.00 |
| 53 | T | 1,1,1,2-Tetrachloroethane | 1.222 | 1.233 | -0.9 | 67 | 0.00 |
| 54 | PM | Chlorobenzene | 3.412 | 3.302 | 3.2 | 64 | 0.00 |
| 55 | C | Ethylbenzene | 5.975 | 6.003 | -0.5 | 59 | 0.00 |
| 56 | T | m,p-Xylene | 4.561 | 4.807 | -5.4 | 59 | 0.00 |
| 57 | | Bromoform | 0.962 | 1.116 | -16.0 | 72 | 0.00 |
| 58 | T | Styrene | 3.618 | 3.474 | 4.0 | 59 | 0.00 |
| 59 | T | o-Xylene | 4.897 | 5.218 | -6.6 | 63 | 0.00 |
| 60 | P | 1,1,2,2-Tetrachloroethane | 2.192 | 2.589 | -18.1 | 72 | 0.00 |
| 61 | T | 1,2,3-Trichloropropane | 2.505 | 2.925 | -16.8 | 72 | 0.00 |
| 62 | T | trans-1,4-Dichloro-2-butene | 0.168 | 0.161 | 4.1 | 58 | 0.00 |
| 63 | | 1,4-Dichlorobenzene-d4 | 1.000 | 1.000 | 0.0 | 76 | 0.00 |
| 64 | | Ethylbenzene-d10 | 1.000 | 1.000 | 0.0 | 64 | 0.01 |
| 65 | T | Isopropylbenzene | 1.022 | 1.022 | -0.1 | 62 | 0.00 |
| 66 | S | Bromofluorobenzene | 0.344 | 0.201 | 41.4 | 39 | 0.00 |
| 67 | T | Bromobenzene | 0.539 | 0.528 | 2.1 | 64 | 0.00 |
| 68 | T | Propylbenzene | 1.363 | 1.453 | -6.6 | 64 | 0.00 |
| 69 | T | 2-Chlorotoluene | 0.855 | 0.836 | 2.2 | 64 | 0.00 |
| 70 | T | 4-Chlorotoluene | 0.863 | 0.836 | 3.2 | 64 | 0.00 |
| 71 | T | 1,3,5-Trimethylbenzene | 0.825 | 0.942 | -14.2 | 71 | 0.00 |
| 72 | T | t-Butylbenzene | 0.678 | 0.764 | -12.6 | 71 | 0.00 |
| 73 | T | 1,2,4-trimethylbenzene | 0.850 | 0.949 | -11.6 | 73 | 0.00 |
| 74 | T | sec-Butylbenzene | 1.149 | 1.336 | -16.2 | 68 | 0.00 |
| 75 | T | 1,3-Dichlorobenzene | 0.495 | 0.540 | -8.9 | 72 | 0.00 |
| 76 | T | 1,4-Dichlorobenzene | 0.509 | 0.622 | -22.2 | 83 | 0.00 |
| 77 | | 1,2-Dichlorobenzene | 0.473 | 0.559 | -18.2 | 77 | 0.00 |
| 78 | T | p-Isopropyltoluene | 0.844 | 0.971 | -15.0 | 73 | 0.00 |
| 79 | T | Butylbenzene | 1.075 | 1.175 | -9.2 | 67 | 0.00 |
| 80 | T | 1,2-Dibromo-3-chloropropane | 0.055 | 0.079 | -44.1 | 90 | 0.00 |
| 81 | T | 1,2,4-Trichlorobenzene | 0.293 | 0.392 | -33.7 | 82 | 0.00 |
| 82 | T | Naphthalene | 0.799 | 1.022 | -27.8 | 81 | 0.00 |
| 83 | T | Hexachlorobutadiene | 0.139 | 0.176 | -26.5 | 83 | 0.00 |
| 84 | T | 1,2,3-Trichlorobenzene | 0.263 | 0.375 | -42.3 | 88 | 0.00 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0

V0500206.D 8260.M Fri Feb 20 08:40:15 1998

# U.S. Army Corps of Engineers Work Order #_____ Job # 5480 Chain of Custody Record

(ER 1110-1-263)

Proj. No.

Project Name: Ft. McClellan

Sampler: (Signature) 92144

TAT: 14 day

Remarks:

| Date | Time | Pres. | Gr | Cm | Site Code/Sample Number | No. of Conts. | TCL VOC | TCL SVOC | Pest / PCB | TAL Metals | Nitro Explosives (m8330) | | | SAD NO. | MATRIX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/16/98 | 0745 | | | | A-0044 98-A016594 | 2 | ✓ | | | | | | | 34934 | water |
| 2/14/98 | 1650 | | | | A-0022 (FS) 98-A016595 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 34935 | ↓ |
| 2/16/98 | 1015 | | | | A-0016 (FS) 98-A016596 | | ✓ | ✓ | ✓ | ✓ | ✓ | | | 34936 | ↓ |

| | | | | |
|---|---|---|---|---|
| ~~Sampler~~ Relinquisher by: [signature] | Date/Time 2/17/98 | Received by: (Sig.) | Date/Time | Hazards Associated with Samples: 98-A016597 |
| Relinquished by: (Sig.) | Date/Time | Received by: (Sig.) | Date/Time | |
| Relinquished by: (Sig.) | Date/Time | Received for Laboratory by: (Sig.) SAS [signature] 9:00 | Date/Time 2/18/98 | Remarks at time of receipt. |
| Custody Seal No. | | Lab Case No. | | |